OECD Reviews of Vocational Education and Training

Vocational Education and Training Systems in Nine Countries

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Foreword

Vocational education and training (VET) at the upper-secondary level remains the heart of VET systems around the world, representing the bulk of VET enrolments in most countries. It comprises programmes that are predominantly school-based, as well as programmes with a substantial element of work-based learning. Upper-secondary VET offers lower-secondary graduates the opportunity to develop labour market relevant skills, alongside more general and transversal skills. It also typically enables learners to access higher levels of education and training. Upper-secondary VET serves young people in initial education, as well as adults who are looking for opportunities to upskill or reskill in response to evolving skills needs.

While upper-secondary VET is a well-established component of most education systems, its design and implementation differs across countries. This report describes upper-secondary VET systems across seven dimensions in nine countries, providing an up-to-date and detailed evidence base on similarities and differences between upper-secondary VET systems around the world. The dimensions analysed are: 1) VET's place in the education system and pathways into and after VET; 2) curriculum and assessment; 3) work-based learning in school-based programmes; 4) provider types; 5) VET teachers and trainers' qualifications and professional development; 6) governance; and 7) funding. This report describes these elements of upper-secondary VET systems in: Austria, Denmark, Finland, Germany, the Netherlands, Norway, Singapore, Sweden and Switzerland. As VET commences in post-secondary education in Singapore, ISCED 4 level VET is the focus of the Singapore chapter.

This report was drafted by Ben Game and Abigail Sageev from the OECD Centre for Skills, under the supervision of Marieke Vandeweyer (manager of the VET team) and El Iza Mohamedou (Head of the Centre for Skills). The report has benefited from comments provided by Mark Pearson (Deputy Director for Employment, Labour and Social Affairs), Malgorzata Kuczera and colleagues from the OECD Centre for Skills, as well as the Group of National Experts (GNE) on VET. Administrative and editorial assistance was provided by Jennifer Cannon, along with Kris Virsilas and Alexandra Kolb, from the OECD Centre for Skills.

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Executive summary

Upper-secondary VET plays an important role in education systems

VET plays an important role in each of the nine countries covered by this report: Austria, Denmark, Finland, Germany, the Netherlands, Norway, Singapore, Sweden and Switzerland. However, the size of the upper-secondary VET systems in these countries differs, reflecting differing policy, economic, social and cultural factors. These include the starting age and eligibility requirements for VET, educational and employment opportunities after VET, the structure of the economy and the esteem attributed to VET, both in isolation and relative to general and higher education.

Many students undertake upper-secondary VET. Across the eight countries for which comparative data are available (excludes Singapore) in 2021, the share of young (15-19 year old) upper-secondary students enrolled in vocational programmes ranged from 19% in Denmark to 68% in Austria. The shares are even higher when including older students (20-24 year olds).

A variety of pathways into and after upper-secondary VET exist. The completion of lower-secondary education is the typical entry requirement for upper-secondary VET, although countries offer various alternative entry pathways for students, including bridging and preparatory programmes. VET graduates can typically continue into further vocational training, higher education as well as diverse occupations. For example, Austria's Lehre-mit-Matura scheme allows apprentices to study four general-education subjects and to obtain the Matura, alongside their trade, which gives them unrestricted university access.

Countries employ various approaches to curricula development and student assessment, to ensure the relevance and quality of VET

Some countries take a more centralised approach to VET curricula development and implementation, whereas others are more decentralised. For example, Singapore has a relatively centralised model, with the Ministry setting VET curricula structures and one public provider developing most ISCED 4 VET programmes. In Germany, training regulations are set federally, while school curricula are developed by the Länder, and detailed occupational standards are drafted by bipartite trade committees. Engaging employers in curricula development is commonplace, and may take place in national-level curricula framework setting, right down to provider-level course design.

Countries employ a range of methods to assessing students' learning outcomes in upper-secondary VET. In core subjects (official language, mathematics, etc.) VET students often sit the same standardised assessments as students in general programmes. Yet VET subjects are assessed in various ways. For example, Finland relies on unit-based competence demonstrations: students prove mastery of each module through real work tasks that are jointly assessed by a teacher and a workplace representative, with no national final exam. In Denmark, VET culminates in an externally-set final trade test that is designed by the sectoral trade committee and evaluated by a panel of examiners using national criteria.

Upper-secondary VET comprises school-based programmes and apprenticeships

Upper-secondary VET comprises programmes that are predominantly school-based, as well as programmes with a substantial element of work-based learning, including apprenticeships.

The extent of work-based learning in upper-secondary VET programmes differs considerably across countries. Across the seven countries for which comparative data are available in 2021 (excludes the Netherlands and Singapore), the share of upper-secondary vocational students enrolled in “combined school- and work-based programmes” ranged from 8% in Sweden to 100% in Denmark. In these programmes the work-based component is between 25% and 90% of the curriculum.

In Sweden, the three-year school courses that include a minimum 15 weeks of workplace training (APL) are the most popular option. By contrast, virtually all upper-secondary VET in Denmark is apprenticeships, in which at least 50% of time is spent in paid company training.

A mix of providers offer upper-secondary VET, and differ in the breadth of their offerings and target audiences

Providers can offer a wide diversity of vocational specialisations or focus on specific fields or target audiences, and most countries have a mix of public and private provision. In the Netherlands, 39 publicly-funded regional training centres (ROCs), 16 occupational colleges, a Police Academy and around 100 accredited private providers deliver upper-secondary VET programmes. Finland has 139 registered providers, ranging from large, multi-field municipal colleges that serve entire regions to small, specialised private or state-owned schools that cater to specific industries or linguistic minorities.

Countries seek to balance quality and accessibility in the VET teaching profession

Countries have different requirements for the technical and pedagogical preparation of VET teachers and trainers, as well as their ongoing professional development, to maintain currency in the world of work.

In Singapore, teachers (“Lecturers”) at the main public provider require significant sectoral expertise and often receive their pedagogical training in-house from their employer. Norway obliges vocational teachers to hold a trade certificate and at least four years of work experience, and lets them begin teaching while completing the one-year, part-time Practical Pedagogical Education.

There is no single model of VET governance, with employers, providers and sub-national authorities holding varying responsibilities

Which responsibilities are decentralised and to whom in VET systems differs by national contexts. For example, in Switzerland, the Confederation sets framework legislation, the 26 cantons fund and supervise vocational schools, and professional organisations offer inter-company courses and are closely involved in curriculum updates. In Denmark, the state issues overall regulations, sector-based trade committees design detailed curricula and approve training companies, while social partners sit on providers’ boards and committees.

Countries take differing approaches to funding upper-secondary VET in classrooms and workplaces

While many countries aim to minimise tuition fees for students in upper-secondary VET, there are differing approaches to funding VET in classrooms and workplaces. Upper-secondary VET is tuition-free for the vast majority of learners in each of the studied European countries, while Singapore which charges a nominal and partially subsidised fee for ISCED 4 VET.

Funding of work-based learning is handled differently across countries. For example, German employers bear the full wage and training cost of apprentices and receive no direct public subsidy, while Norwegian companies receive a state training subsidy proportional to apprenticeship duration.

1 Introduction

Upper-secondary vocational education and training (VET) is the largest component of most countries' VET systems. This chapter provides context for the report by exploring available comparative data on countries' VET systems. The chapter also summarises each subsequent chapter on the upper-secondary VET systems of the nine included countries. While countries pursue similar goals in upper-secondary VET, both the data and descriptions highlight key differences in how countries design and implement VET to achieve these goals.

1.1. What is the context for this project?

This report describes the upper-secondary VET systems of nine countries, to provide insights into how different countries design and organise upper-secondary VET. It was undertaken with the support and input of the Gatsby Charitable Foundation in the United Kingdom (Gatsby).

The selection of countries and topics reveals interesting differences in important features of VET systems. The report describes the upper-secondary VET system for nine countries: Austria, Denmark, Finland, Germany, the Netherlands, Norway, Singapore, Sweden, and Switzerland. These countries differ on several dimensions, such as: when and at what level VET commences, how many students choose VET, pathways into and after VET, how centralised VET curricula are, the nature and extent of work-based learning, which public and/or private institutions provide VET and which programmes they offer, and how VET is governed and financed among national and sub-national governments, social partners, institutions and individuals.

This report complements other OECD VET work. It provides detailed qualitative descriptions of VET systems that complement the detailed comparative data on VET in the OECD's flagship publication *Education at a Glance*. It also complements a range of thematic VET reports, providing a "prequel" to the OECD's recent reports on higher VET (OECD, 2022[1]; OECD, 2024[2]), and drawing on, bringing together and building upon the findings of focused studies on VET providers (OECD, 2022[3]), teachers (OECD, 2021[4]; OECD, 2022[5]), and employer engagement (OECD, 2022[6]).

The information for this report has been sourced from existing OECD research and analysis, official publicly available sources for the nine countries, and other publicly available literature. It has been reviewed by official representatives of each of the nine countries who are experts in VET.

1.2. What is upper-secondary VET?

Upper-secondary VET marks the completion of secondary education and prepares participants for direct entry into specific occupations, while typically also providing options for continuing into higher levels of education (Box 1.1).

Box 1.1. Defining upper-secondary VET

Upper-secondary education

Programmes at the upper-secondary education level are more specialised than those at lower secondary and offer students more choices and diverse pathways for completing their secondary education. The range of subjects studied by a single student tends to be narrower than at lower levels of education, but the content is more complex and the study more in-depth. Programmes offered are differentiated by orientation and often by broad subject groups. Programmes classified at ISCED level 3 may be referred to in many ways, for example: secondary school (stage two/upper grades), senior secondary school or (senior) high school. For international comparability purposes, the term 'upper-secondary education' is used to label ISCED level 3 (OECD/Eurostat/UNESCO Institute for Statistics, 2015[7]). Pupils enter upper-secondary education typically between age 14 and age 16, and typically leave it around age 17 or 18 (usually after 12 years of education) (Stronati, 2023[8]).

Vocational education and training

Vocational programmes exist both to offer options to young people who might otherwise leave school without any qualifications from an upper-secondary programme, as well as for those wishing to prepare for skilled worker and/or technician-level jobs. Vocational programmes are further divided into two categories based on the amount of training provided in school and the workplace: school-based programmes and combined school- and work-based programmes. Successful completion of such programmes leads to a vocational or technical qualification that is relevant to the labour market. Increasingly, VET programmes allow graduates to continue into higher levels of training, often including tertiary education.

Source: OECD/Eurostat/UNESCO Institute for Statistics (2015[7]), ISCED 2011 Operational Manual: Guidelines for Classifying National Education Programmes and Related Qualifications, https://doi.org/10.1787/9789264228368-en, UNESCO Institute for Statistics (2012[9]), International Standard Classification of Education, ISCED 2011, http://uis.unesco.org/en/topic/international-standard-classification-education-isced; Stronati, C. (2023[8]), "The design of upper secondary education across OECD countries: Managing choice, coherence and specialisation", OECD Education Working Papers, No. 288, https://doi.org/10.1787/158101f0-en; OECD (2019[10]), "What characterises upper secondary vocational education and training?", Education Indicators in Focus, 5, www.oecd.org/en/publications/2019/04/what-characterises-upper-secondary-vocational-education-and-training_7ae872d8.html.

1.3. What do internationally comparative data show about upper-secondary VET?

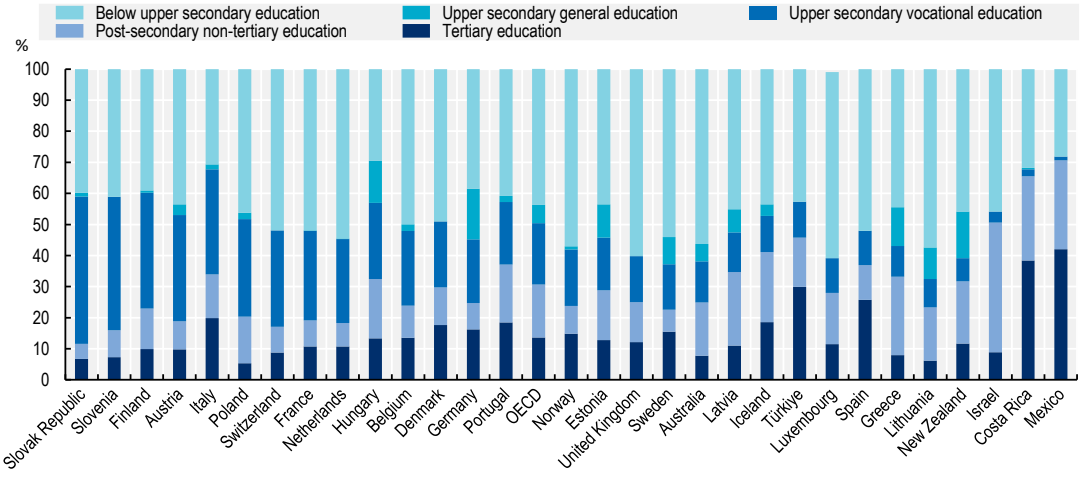
VET plays an important role in each of the nine countries covered by this report. However, the size of the upper-secondary VET systems in these countries differs, reflecting differing policy, economic, social and cultural factors. Key policy factors include the starting age for VET programmes, the accessibility of upper-secondary VET for different groups, and educational opportunities after upper-secondary VET. Broader factors like the structure of the economy and employment opportunities after VET, as well as the esteem society attributes to VET, also influence the size of upper-secondary VET systems. These factors are important in isolation and relative to general and higher education systems.

1.3.1. More than one-in-five young adults have an upper-secondary VET qualification

For one-in-five young adults (25-34 year-olds) across OECD countries, upper-secondary VET is their highest level of education. Across the eight countries in this report for which comparative data are available in 2023 (excludes Singapore), this share ranges from 15% in Sweden to 37% in Finland, above the rate in the United Kingdom (12%) (Figure 1.1). These data refer to the highest qualification of the individual, and some of those who have attained a post-secondary education qualification (including at the tertiary level) will also hold an upper-secondary VET qualification.

Figure 1.1. Educational attainment of 25-34 year-olds, by programme orientation (2023)

Percentage of 25-34 year-olds with a given level of education as the highest level attained

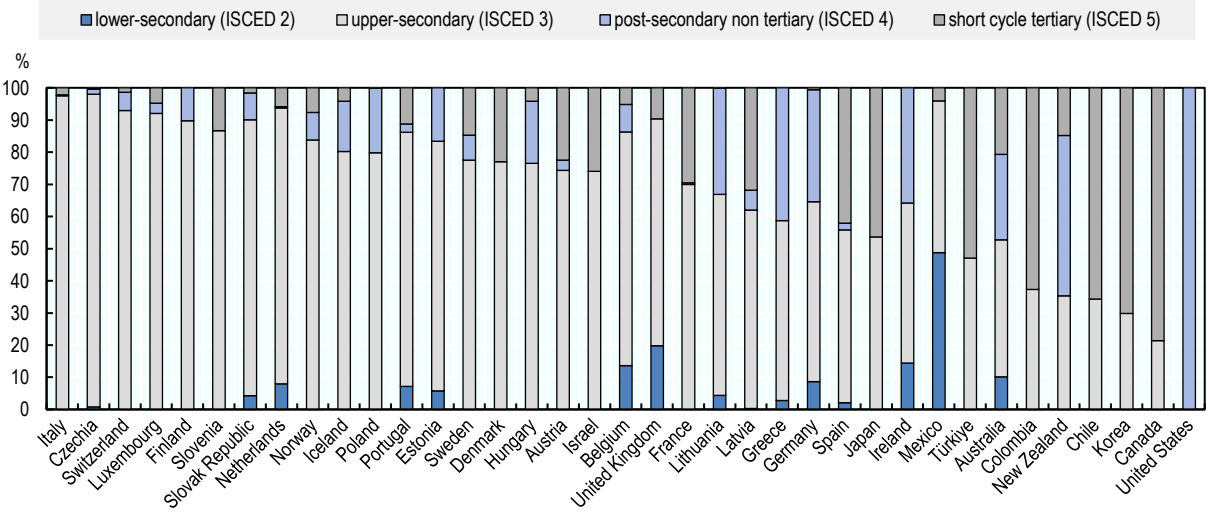


Note: The OECD countries excluded from this chart have either missing values or data included in another category for upper-secondary vocational education. Countries are ranked in descending order of the share of 25-34 year-olds whose highest education level attained is upper-secondary vocational education.
Source: OECD (2023[11]), *Adults' educational attainment distribution, by age group and gender* (database), OECD Data Explorer, https://data-explorer.oecd.org/s/2on.

1.3.2. Upper secondary represents the lion's share of total VET in most countries

Most VET takes place at the upper-secondary level across OECD countries. The share of total VET enrolments that are in upper-secondary education ranges from about 56% in Germany to 93% in Switzerland, compared to 71% in the United Kingdom (Figure 1.2).

Figure 1.2. Distribution of VET students by level of the programme, 2023



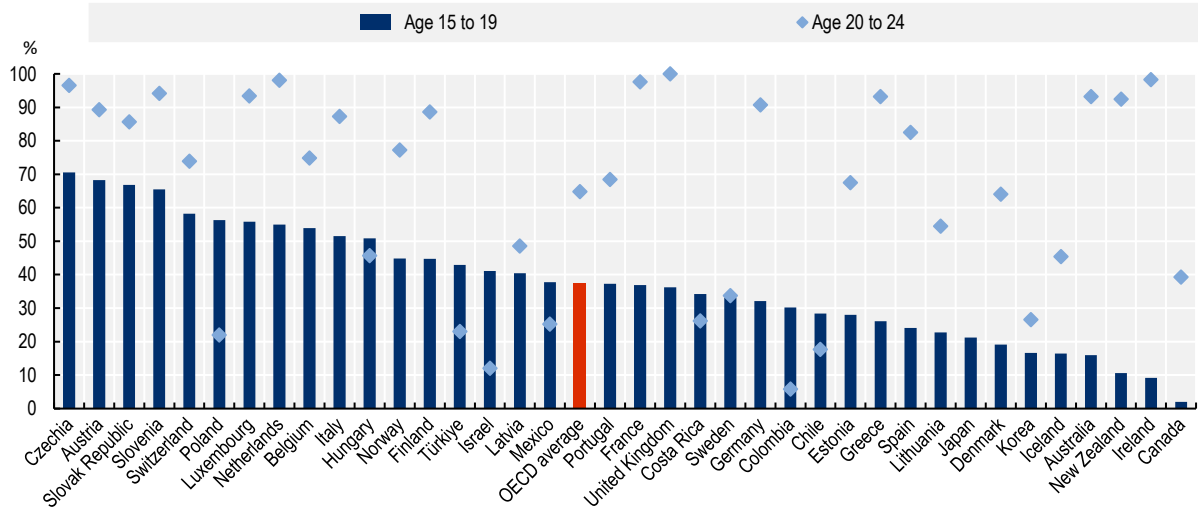
Note: Countries are ranked in descending order of the share of total VET students who are enrolled at the upper-secondary level.
Source: Authors' calculations based on OECD (2023[12]), *Number of enrolled students, new entrants and graduates by age* (database), OECD Data Explorer, https://data-explorer.oecd.org/s/2ol.

1.3.3. More than one-in-three upper-secondary students are in VET

About 37% of younger upper-secondary students (15-19 year-olds) across the OECD and in the United Kingdom were enrolled in VET in 2021. Across the eight countries in this report for which comparative data are available (excludes Singapore), this share ranges from 19% in Denmark to 68% in Austria. The shares are even higher for older upper-secondary students (20-24 year-olds) (Figure 1.3).

Figure 1.3. Enrolment rates of 15-19 year-olds and 20-24 year-olds in upper-secondary VET (2021)

Students enrolled in full-time and part-time programmes in both public and private institutions

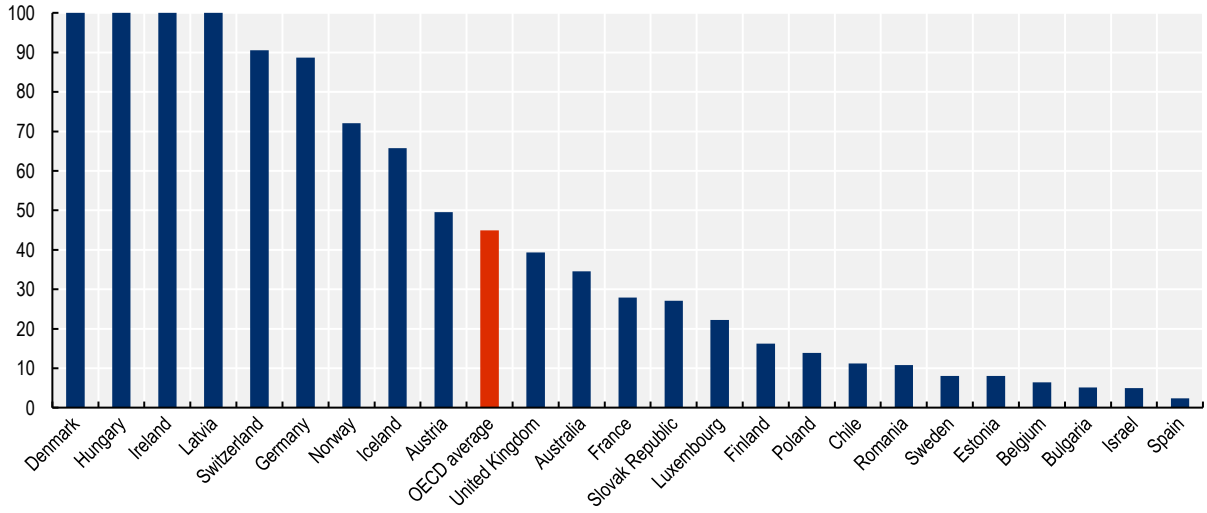


Note: Countries are ranked in descending order of the share of 15-19 year-olds students in 2021.
The OECD countries excluded from this chart have either missing values or data included in another category for upper-secondary vocational education.
Source: OECD (2023[13]), Education at a Glance 2023: OECD Indicators, https://doi.org/10.1787/e13bef63-en, Table B1.2.

1.3.4. The extent of work-based learning differs across countries and VET programmes

Across OECD countries in 2021, about 45% of students in upper-secondary VET were in combined school- and work-based programmes (OECD, 2023[13]).[1] Across the seven countries in this report for which comparative data are available (excludes the Netherlands and Singapore), the share of VET students in combined school- and work-based programmes ranges from 8% in Sweden to 100% in Denmark (Figure 1.4). While work-based learning is mandatory in the vast majority of Swedish upper-secondary VET programmes, it usually accounts for 15% of total instruction time. Conversely, practically all Danish upper-secondary VET programmes follow an apprenticeship model in which work-based learning is mandatory, paid and accounts for at least 50% of the curriculum.

Figure 1.4. Share of upper-secondary vocational students enrolled in combined school- and work-based programmes (2021)

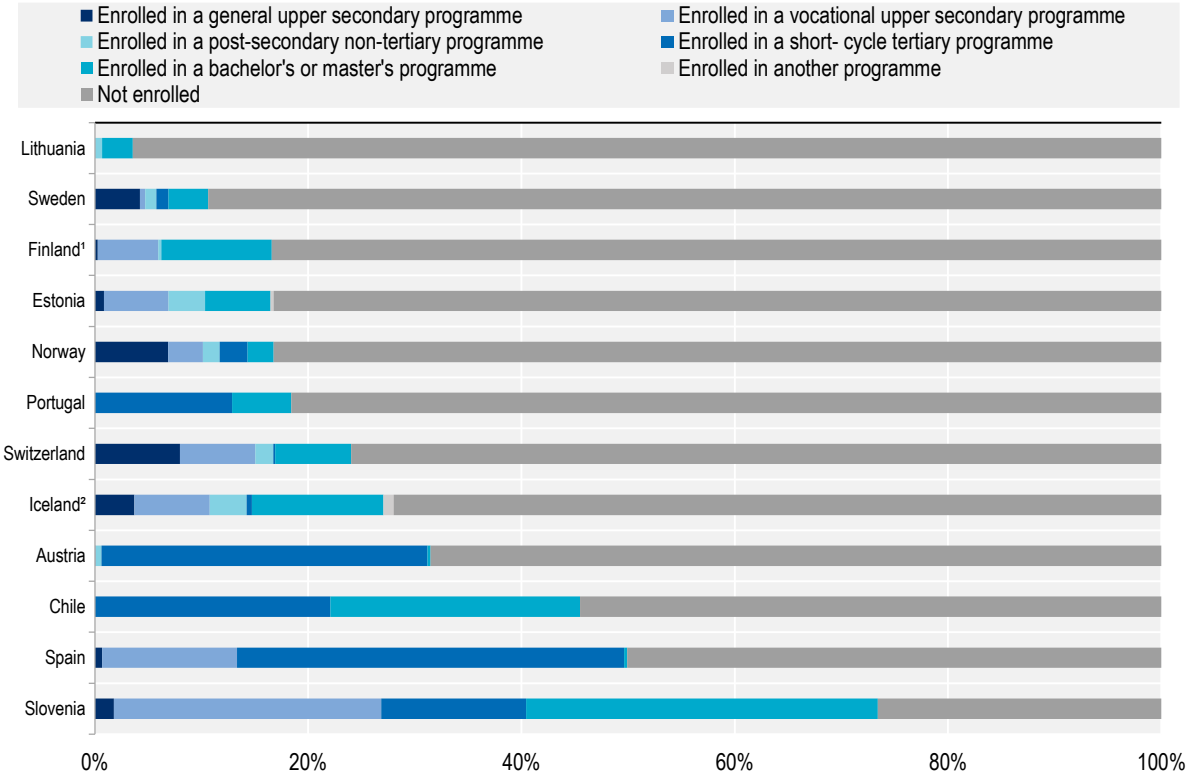


Note: The work-based component is between 25% and 90% of the curriculum in combined school and work-based programmes. These programmes can be organised in conjunction with education authorities or institutions.
Source: OECD (2023[13]), Education at a Glance 2023: OECD Indicators, https://doi.org/10.1787/e13bef63-en, Table B1.2.

1.3.5. Pathways out of upper-secondary VET differ across countries and programmes

Around one-third of upper-secondary VET graduates are enrolled in an education programme one year after graduation, across the OECD on average (OECD, 2023[13]). Across the five countries in this report for which comparative data are available (Austria, Finland, Norway, Sweden, Switzerland), this share ranges from around 10% in Sweden to over 30% in Austria. In Sweden, these continuing learners choose a diverse range of general and vocational programmes at various levels. In Austria, they are almost entirely in short-cycle tertiary programmes (Figure 1.5). Overall, vocational upper-secondary graduates are less likely to be enrolled in any education programme one year after graduation than their peers who graduated from general programmes. This makes sense given vocational programmes are designed to prepare students for entry into the labour market. For example, in Sweden 82% of upper-secondary vocational graduates who are not enrolled one year after graduation are employed (OECD, 2023[13]).

Figure 1.5. Educational status of graduates from upper-secondary vocational programmes in the year after their graduation (2020)



Note: The data presented here come from an ad-hoc survey and only concern initial education programmes.
1. Year of reference differs from 2020. Refer to the source table for more details.
2. Other type of programme shows students who have received a public student loan to study abroad in the autumn of 2019 and are not students in schools in Iceland. Countries and other participants are ranked in descending order of the share of upper-secondary vocational programme graduates who are not enrolled in any programme one year after graduation.
Source: OECD (2023[13]), Education at a Glance 2023: OECD Indicators, https://doi.org/10.1787/e13bef63-en, Table B3.3. For more information see source section and Education at a Glance 2023 Sources, Methodologies and Technical Notes, (OECD, 2023[13]).

1.4. What are the key features of countries' upper-secondary VET systems?

This section summarises each subsequent chapter on the upper-secondary VET systems of the nine assessed countries.

1.4.1. Austria

Upper-secondary vocational education and training (VET) sits at the heart of Austria's education system. After nine years of compulsory schooling (age 15), about two-thirds of learners choose one of three VET options: dual apprenticeships (≈45% of VET students), three- to four-year intermediate vocational schools (BMS) and five-year higher vocational colleges (BHS). The three strands differ in duration and level but all confer nationally recognised qualifications and well-trodden bridges to tertiary study, notably via the *Berufsreifeprüfung* or the Matura obtained in BHS programmes.

All programmes are governed by centrally issued curricula or training regulations that spell out occupational profiles, learning outcomes and minimum volumes of general education. In BMS and BHS, roughly one-third of teaching time is practical, delivered in workshops, practice firms or laboratories.

Apprenticeships, by contrast, follow an occupational training regulation that specifies the competencies to be developed in workplaces and ensures their alignment with the curriculum in vocational schools. School routes culminate in a board examination (*Abschlussprüfung* or *Reife- und Diplomprüfung*), whereas apprentices sit the federally standardised examination ***(****Lehrabschlussprüfung)* before a chamber board.

Authentic workplace experience is mandatory. Apprentices train 3-4 days per week or in intensive blocks in a certified company, depending on the programme and state. School-based students must complete industry internships (typically 4 weeks per year in BMS and 8-12 weeks over five years in BHS) and often carry out firm-based diploma projects. Supra-company centres provide training places for young people who do not secure an apprenticeship.

Around 27 000 approved companies host apprentices, while over 500 public BMS/BHS schools deliver full-time VET. Specialised schools (e.g. agricultural colleges) are run by the agriculture ministry and Länder; many private, mainly Catholic, institutions enjoy public-law status and teach the same national curricula.

Vocational theory teachers usually hold a relevant higher-education degree, industry experience and a pedagogical diploma***.*** Workshop teachers can enter with a master craftsperson (Meister) certificate and complete pedagogical training. In-company trainers (*Ausbilder*) must hold an appropriate occupational qualification, as well as a recognised trainer qualification.

Governance is multi-level and tripartite. The Federal Ministry of Education, Science and Research sets school curricula and funds vocational schools, while the Federal Ministry of Labour and Economy issues apprenticeship regulations and oversees in-company training. Both ministries work through formal committees with the Economic and Labour Chambers, unions and Länder governments to update qualifications, and oversee final exams.

School-based VET is funded jointly by the federation and Länder. Apprenticeships are largely financed by employers through wages and training costs, with grants administered by the chambers and public employment service to reimburse exam fees and trainer courses, and provide incentives for disadvantaged groups. The federal budget covers vocational schools and supra-company training, with Länder co-funding.

1.4.2. Denmark

Despite its relatively small size, the upper-secondary vocational education and training (VET) system in Denmark plays a crucial role in the country's education landscape.

Secondary students typically begin upper-secondary VET at age 16. Only about one fifth of 15- to 19-year-olds enrolled in upper-secondary education were in VET in 2021. Students choose among more than 100 specialist programmes, which last 2–5 years and lead to a nationally recognised skilled-worker certificate at ISCED 3. Alternative pathways ensure access for students with weaker school results or older learners. Ambitious students can add the EUX double-qualification, gaining both a journeyman’s certificate and the general upper-secondary exam that confers general eligibility for higher education.

Curricula follow a two-stage structure. All learners complete two school-based basic courses, then progress to the Main Course that alternates blocks in college with paid apprenticeship periods in one or more companies. Sector trade committees translate labour-market needs into detailed programme orders and competence goals. Assessment is continuous in both settings and culminates in a comprehensive practical trade test (*svendeprøve*). Successful candidates receive a journeyman’s certificate that is valued nationwide and can open the door to tertiary professional programmes.

Work-based learning lies at the system’s core, occupying the majority of programme time. Employers approved by the relevant trade committee train apprentices under a company mentor who follows an individual training plan. When a placement cannot be found immediately, the learner continues practical training in a school-based training centre until a firm is secured. Apprentices may divide training across

several enterprises and can undertake short exchanges, including abroad. Recent tripartite agreements added bonuses and surcharges to reward companies that meet intake targets and to expand placement capacity.

Provision is concentrated in over 80 self-governing vocational colleges that receive state funding but enjoy operational autonomy. Each college board brings together employers, unions, staff and students and decides the local programme portfolio within national limits. Colleges often run both technical and commercial strands and may host adult training, higher vocational programmes and the school-based training centres. A smaller group of specialist providers – agricultural schools, maritime schools, guild workshops and private niche centres – deliver parts of certain programmes under the same quality regime.

General subject teachers hold an academic degree and a teaching qualification. Vocational teachers are recruited from industry with at least five years of trade experience and must complete the part-time Diploma in Vocational Pedagogy within six years of hire. Continuous professional development is organised at college level. Company trainers are experienced journeymen but face no statutory pedagogical requirement.

Governance is a shared endeavour. Parliament and the Ministry of Children and Education set the legal framework, while social partner trade committees design programme content, approve training companies and run final tests. Local training committees advise colleges and mediate workplace issues. College boards give providers strategic direction, and the Danish Evaluation Institute supports external quality assurance.

Financing mirrors these roles. The State pays for the school element through a per-student base grant and social-equity supplements, giving colleges flexibility to invest in equipment or staff. Employers fund the work-based part via a universal levy to the Employers' Reimbursement Fund (AUB). AUB reimburses firms for apprentice wages during school periods, pays allowances for school-based apprenticeships and distributes bonuses that encourage higher intake. Education is free for learners, and apprentice wages are negotiated in collective agreements.

1.4.3. Finland

Finland's upper-secondary vocational education and training (VET) begins immediately after nine years of comprehensive schooling and is part of compulsory education. In 2021 around 45 % of 15-19-year-old upper-secondary students were in VET programmes. Forty-two broad initial qualifications at EQF level 4 cover all major sectors and can be adapted through a Personal Competence Development Plan (HOKS) that recognises prior learning and sets an individual trajectory. Successful graduates gain both a vocational certificate and general eligibility for higher education, while entering the workforce. For learners needing extra preparation, one-year pathways bridge the gap to full programmes and count towards the compulsory schooling requirement.

Programmes are competence-based rather than time-based. Each national qualification standard, drafted by the Finnish National Agency for Education together with social partners, consists of 180 competence points: 35 points of common units plus 145 points of compulsory and optional vocational units. Students demonstrate mastery unit by unit through authentic work tasks, assessed jointly by a teacher and a workplace representative. There is no national final examination. Progress depends on achieving agreed competences, so programme length can vary.

Work-based learning is core component planned in each learner's HOKS. Around two in five students undertake one or more training-agreement placements, remaining learners rather than employees, while roughly one in five follow an apprenticeship contract. Students can move between the two modes as opportunities arise, and the volume of workplace learning is fixed in each HOKS rather than by national minima. Feedback from employers and students on placement quality feeds into provider funding and quality assurance.

Provision rests with over 130 licensed VET providers. About one quarter are joint-municipal or municipal/state-owned providers, who account for around 80% of VET students. Roughly two-thirds of providers are non-government (foundations, associations and companies). All providers receive equal public funding and must meet licence conditions on equity, quality and co-operation with working life, but they enjoy wide autonomy to shape local curricula, staffing and delivery modes. Employers and unions sit on obligatory advisory boards, ensuring programmes remain responsive to regional skill needs.

Vocational teachers must hold an appropriate tertiary qualification in their field, several years of relevant industry experience and a pedagogical qualification. Common-studies teachers follow the same academic route as their general-school peers. Continuous professional development and periodic evaluations by the Finnish Education Evaluation Centre underpin teaching quality.

Governance of VET is centralised in regulation but decentralised and flexible in implementation. The Ministry of Education and Culture sets legislation and funding rules, and EDUFI defines qualification requirements. Providers decide how to deliver them, while local stakeholders help shape content. Social-partner influence is formalised in national working-life committees that also monitor assessment standards.

Financing combines a core allocation that reflects student numbers and promotes equitable access with a sizable performance component that rewards credentials completed, learning outcomes demonstrated and graduate employment. This outcome-based element encourages providers to secure high-quality workplace learning, maintain completion rates and support smooth transitions into further studies or work.

1.4.4. Germany

Germany's upper-secondary vocational education and training (VET) sits alongside the general track and is the dominant route into skilled employment. Around one-third of all 15-19-year-old upper-secondary students are enrolled in VET, the vast majority in apprenticeships. Entry is possible after completion of compulsory schooling, and there is no upper age limit for starting an apprenticeship. Successful graduates earn nationally recognised craft or skilled-worker certificates and may move on to tertiary study via bridging options such as the *Fachhochschulreife* or the vocational baccalaureate.

Programmes are built on a blend of federal training regulations and Länder framework syllabi. Training regulations, negotiated by federal authorities and the social partners, set out the occupational profile, the in-company training plan and examination requirements for more than 320 recognised training occupations. The Länder implement these as competence-based school curricula covering vocational theory, general subjects and key competences. Chambers organise mid-term and final trade exams while vocational schools grade classroom learning, with both issuing certificates to graduates.

Even the school-based routes keep a foothold in the workplace. Full-time vocational schools must embed internships whose length varies by programme and by state, ranging from a few weeks to several months, in order to guarantee practical experience and industry feedback on student performance.

Training takes place across three learning venues. Employers (training establishments) deliver hands-on skills; roughly one in five German establishments train apprentices. Vocational schools provide related theory and general education (1-2 days a week, or in intensive blocks). Inter-company training centres step in when small firms cannot cover every task in the occupational profile and when advanced equipment is needed. They are co-funded by the Federal Government and the Länder, often with chamber/industry contributions.

Those who teach and train are specialised. Vocational teachers normally hold a university degree in their field followed by pedagogical preparation, while workshop teachers enter through a practice-oriented pathway. In-company trainers must possess a relevant occupational qualification plus any required permit/aptitude, ensuring that apprentices receive structured guidance at work.

Governance is tripartite. The Federal Government drafts training regulations and sets overarching VET law, the Länder run vocational schools and oversee school assessments, and employers' associations together with unions co-develop standards and sit on examination boards. Funding mirrors this division. Länder finance teachers, municipalities maintain schools and fund buildings/operational costs, and employers bear the wage and in-company training costs and co-finance inter-company centres. Targeted federal or Länder schemes subsidise small and medium-sized enterprises and disadvantaged learners to keep participation broad. The result is a system that combines national coherence with regional flexibility and labour-market relevance.

1.4.5. Netherlands

Upper-secondary vocational education and training (*middelbaar beroepsonderwijs*, MBO) is a backbone of Dutch skills formation. More than half of 15-19-year-olds in upper-secondary education choose one of over 700 programmes spread across three ISCED 3 qualification levels. Entry typically follows four years of pre-vocational lower-secondary schooling, and learners must stay in education until they earn at least a "start qualification" (MBO level 2, a higher general upper-secondary, or pre-university diploma) or turn 18. Level 2 and 3 graduates can progress within upper-secondary VET, while level 4 graduates can progress to tertiary education in universities of applied sciences.

Programmes are defined nationally through competence-based qualification files devised by the public-private Cooperation Organisation for Vocational Education, Training and the Labour Market (SBB) in partnership with employers, unions and colleges. Each file sets learning outcomes for an occupational family and combines a generic and a basic vocational component, and job-specific optional modules. Regional training centres and occupational colleges translate these files into their own curricula, choosing delivery methods and modules that fit local labour needs. Assessment blends school and centrally administered examinations, as well as employer evaluations of workplace performance, with internal examination boards safeguarding validity and consistency across both pathways.

Students can achieve a diploma through a school-based or apprenticeship track. In the school-based pathway (BOL) students spend at least 20% of learning time (1-2 days a week) in an accredited company, with at least 900 hours of WBL across a three-year programme. In apprenticeship programmes (BBL) at least 60% of time (3-4 days a week) is paid work combined with one day at school. More than 250 000 training enterprises provide WBL, and are monitored regularly for suitable facilities, qualified mentors and alignment with qualification requirements.

Teaching is delivered by publicly funded colleges with wide autonomy, supported by a small private sector serving adults and niche fields under the same quality rules. Classroom teachers hold a second- or first-degree teaching licence or an industry degree plus a pedagogical certificate. Practical lessons may involve instructors and workshop supervisors, while workplace mentors must have basic coaching skills and expertise at least equivalent to the student's programme, requirements enforced through SBB accreditation.

The Ministry of Education, Culture and Science sets legislation, funds institutions and formally recognises diplomas, but governance is shared with social partners through the SBB and with the Council of VET Schools (MBO Raad) that represents colleges in national negotiations. The Inspectorate of Education audits both school and assessment quality. Funding mirrors responsibilities: colleges receive lump-sum grants weighted by cost and performance, and education is free for learners under 18. Employers pay apprentice wages and can claim subsidies per trainee. Together these elements create a flexible, competence-oriented VET system that aligns with labour-market demand and supports lifelong learning.

1.4.6. Norway

Norway guarantees every young person who finishes ten years of compulsory schooling a legal right to complete upper-secondary education, and almost half choose the vocational track. Learners start at around age 16 in one of ten broad vocational programme areas that lead to over 180 trade or journeyman certificates at EQF level 4. Students can move between vocational and academic routes or add a one-year academic supplement for university entry. Those needing extra support can follow tailored practice certificates or apprenticeship-candidate schemes.

Programmes are organised through national competence-based curricula. Most programmes follow the "2 + 2" structure, which gives two school years of common core subjects, broad vocational theory and in-depth practice modules, followed by two paid apprenticeship years in an approved training company. Even in the school phase students log workplace hours through the compulsory in-depth practice component, and in the apprenticeship phase they are paid employees whose wages rise over time. All routes end with a practical-theoretical trade examination, externally assessed by a county-appointed industry board.

Most provision is delivered by public county schools that also offer general education. Schools give vocational learners access to modern workshops and simulated workplaces. Companies of every size can train apprentices once licensed, and many small firms share responsibility through county-approved training offices so that each apprentice rotates across tasks needed for the full curriculum. Vocational teachers must hold a trade certificate or equivalent professional qualification, have at least four years of industry experience and complete pedagogical training. They keep skills current through structured professional development, while workplace trainers often take short, recognised mentoring courses.

Governance is distinctly tripartite under legislation. National authorities set curricula and overall regulation, counties plan provision and approve training companies, and employer organisations and unions shape content through national and county vocational training councils and sit on examination boards. Tuition is free and counties finance vocational schools and pay a training grant to companies (with state funding) for each apprentice to offset supervision costs. Employers cover the wage costs of apprentices, and students receive the same financial support schemes as their peers in general education.

1.4.7. Singapore

In Singapore, vocational education and training largely begins after secondary school (ISCED 4). Students are typically 17 when they enter the Institute of Technical Education (ITE), the country's state-owned provider of ISCED 4 VET programmes. Normal (Academic) and Normal (Technical) graduates choose among 99 full-time programmes that lead to National ITE Certificates (Nitec) or Higher Nitec awards in six broad fields, from engineering and info-comm technology to hospitality. There are alternative pathways into post-secondary VET at ITE for students with varying academic backgrounds, including a preparatory programme focusing on enhancing foundation skills. Upon graduation from VET programmes, most learners step straight into skilled work, yet high achievers can secure places in polytechnics and, in a few cases, universities.

ITE designs all curricula centrally with industry advisory committees. Each course is modular and blends three components: technical "core" modules, life-skills modules that build communication and teamwork, and a small elective selection. Teaching is intensely hands-on – around 70% of scheduled hours take place in workshops, laboratories, training restaurants or simulated clinics. Students have 35-40 contact hours per week, in programmes that last two to three years. Assessment is continuous and competency-based; learners must pass every module and maintain a satisfactory grade-point average to collect the qualification that employers and further-study selectors scrutinise.

Work-based learning is compulsory. Full-time students complete a structured industry attachment – about six months for a two-year Nitec and up to nine months spread over the new three-year Higher Nitec – while

a smaller cohort follows the traineeship mode, being employed and paid while studying part-time at ITE. Lecturers and host-company supervisors ("trainers") jointly set learning objectives and grade students' workplace modules.

ITE's "One System, Three Colleges" model means all ISCED 4 provision is delivered on three large campuses, each offering similar programmes but with niche centres of excellence. Private schools and employer academies do operate, yet their awards sit outside the national Nitec/Higher Nitec framework. Lecturers, recruited largely from industry, need strong occupational expertise. Once hired they complete in-house pedagogical training at the ITE Academy and later refresh their skills through industry attachments.

Governance is highly centralised. The Ministry of Education sets strategy, funds ITE and approves new courses, while SkillsFuture Singapore contributes labour-market intelligence and incentives for internships and traineeships. Public investment per VET learner is generous and has risen further under SkillsFuture reforms that lengthened internships and merged many Nitec–Higher Nitec sequences into seamless three-year pathways. Singapore's post-secondary VET system offers a compact yet comprehensive route from school to skilled employment.

1.4.8. Sweden

Sweden's upper-secondary vocational education and training (VET) begins after nine years of compulsory schooling. Twelve nationally-regulated three-year programmes span fields from construction and electricity to hospitality and health care. Roughly one-third of 15-19-year-old upper-secondary students choose VET programmes. They earn a vocational diploma that signals readiness for skilled work. Since a 2023 reform, VET programmes include courses that make students eligible for tertiary education by default (out of which students can opt). Learners who lack the entry grades can reach VET through four introductory routes that blend basic subjects, guidance and, in the case of the vocational introduction track, early work experience.

Each VET programme is built from nationally defined courses, typically adding up to 2500 credits and including common foundation subjects, programme-specific core courses, an orientation course(s), blocks for programme deepening, individual choice courses and a mandatory diploma project to demonstrate occupational competence. Knowledge requirements are expressed as A-E grade descriptors, and teachers grade every course (although from 2025, grades are set at subject levels). National tests exist only in Swedish, English and mathematics. There is no external final exam in vocational subjects, but the diploma project must meet the overall programme goals.

Work-based learning (*Arbetsplatsförlagt lärande*, APL) is compulsory for all school-based students and must cover at least 15 weeks over the three years. A written agreement between school, learner and employer sets objectives, and the workplace supervisor's feedback informs course grades given by the school teacher. Students may instead select the apprenticeship pathway, in which more than half of instruction occurs at one or more companies. About one in eight VET learners follow this option, supported by a national Apprenticeship Centre, employer compensation and a study allowance for apprentices.

Municipal schools remain the principal providers, but about a third of VET students attend tuition-free independent schools, and a small number study in specialised industry schools. Municipalities must guarantee access, often through regional consortia or by funding a student's place in another municipality or an independent provider.

Two distinct teacher groups staff VET. Foundation-subject teachers hold academic degrees plus teaching certification. Vocational teachers must combine a relevant occupational qualification and industry experience with pedagogical training. Alternative fast-track routes and industry placements support recruitment and continuous professional development.

Governance combines strong national direction with local social-partner engagement. The Swedish National Agency for Education sets curricula and hosts national programme councils that review competence profiles (descriptions of knowledge, skills and competence graduates require for an occupation), while every school maintains at least one local programme council where employers and unions shape provision and secure workplace training.

Funding is wholly public. Municipalities finance VET provision from local budgets, supported by general state grants and a municipal equalisation system that covers teaching, materials and student support. State grants top-up apprenticeship costs and targeted initiatives. Education is free for learners. Apprentices receive study allowances and employers hosting apprentices can receive compensation.

1.4.9. Switzerland

Swiss upper-secondary VET commences after nine years of compulsory schooling. In 2021, 58% of 15-19 year-old upper-secondary students were in VET. Students choose from around 250 federally recognised occupations that lead either to a three- or four-year Federal VET Diploma (EFZ) or a two-year Federal VET Certificate (EBA). About 90 % of learners follow the dual-track apprenticeship, spending three to four days a week training in a host company, one to two days in a cantonal vocational school and several short inter-company courses organised by professional associations. Apprenticeship places are offered by more than 58 000 approved firms (almost 10% of all firms in 2020), and small businesses can share training through consortium arrangements.

Every occupation is governed by a federal training ordinance and a detailed education plan developed jointly by the Confederation, the 26 cantons and the professional organisations. These documents specify competences, the division of learning venues and the final qualification procedure, guaranteeing national consistency while allowing periodic updates. Vocational schools teach occupational theory, languages, mathematics and civics while companies focus on practical skills.

Assessment is continuous but culminates in a nationally regulated final examination, combining a substantial practical task, vocational knowledge tests and general-education papers. Successful candidates earn a federal credential that is portable across Switzerland. Graduates may add the optional vocational baccalaureate, which can be taken in parallel or after training and opens the door to Universities of Applied Sciences. With an additional "*Passerelle*" exam they may also enter research universities.

Three types of providers offer upper-secondary VET programmes. Training companies employ and mentor apprentices using certified in-company trainers, a route chosen by about 90% of VET students. More than 350 public vocational schools nationwide offer the classroom strand and also host entirely school-based programmes. Sectoral bodies run the inter-company training centres. Vocational school teachers complete specialised pedagogy at the Swiss Federal University for VET, while general-subject teachers add a VET-specific module to their academic-school qualification. Workplace trainers hold at least an EFZ or EBA and at least two years' relevant work experience, and complete a federally recognised instructor course. Regular continuing professional development is mandatory for VET school teachers under cantonal rules.

Governance and funding are tripartite. The Confederation steers strategic issues and finances vocational schools' teacher training; cantons licence companies, run the schools and organise exams; professional organisations draft ordinances, provide trainers and oversee labour-market relevance. Training companies cover apprentice wages and in-company supervision, cantons finance vocational schools, and the Confederation covers the costs of teacher-education infrastructure.

1.5. Non-members

Including a non-member (Singapore) in the analysis was explicitly requested by the Gatsby Charitable Foundation and provides beneficial insights for OECD countries. Singapore has consistently outperformed many OECD countries in the Programme for International Student Assessment (PISA). Its vocational education and training system is different to that of many OECD member countries in several ways. VET in Singapore largely commences in post-secondary education. It is delivered through a concentrated public network – one Institute of Technical Education (ITE) offering ISCED 4 programmes and polytechnics offering ISCED 5 programmes. This supports coherent standards, rapid curriculum updates and quality assurance. Employer involvement is structured through SkillsFuture skills frameworks and ITE advisory committees, through which employers contribute to VET curricula. Work-study pathways integrate paid employment with credit-bearing study and clear progression routes. These features – tight industry-provider governance, codified skills frameworks, and scaled work-study – offer concrete options for OECD countries seeking better labour-market alignment, smoother upper-secondary-to-tertiary progression, and stronger adult upskilling systems.

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Note

[1] These are VET programmes in which the work-based element (e.g. internships or apprenticeships) constituted 25%-90% of the curriculum.

2 Vocational education and training in Austria

Upper-secondary vocational education and training (VET) is a first choice in Austria and is selected by the majority of students after compulsory education. VET curricula are centrally regulated, competency-based, and developed with social partners to align with occupational profiles. Just under half of upper-secondary VET in Austria is apprenticeships, and even in school-based programmes work-based learning is mandatory and diverse. Vocational schools and colleges, as well as recognised companies provide VET in Austria. Teachers and in-company trainers follow distinct, practice-oriented training routes and must meet pedagogical and professional standards. Governance involves co-operation between federal ministries, provincial authorities, education providers and social partners. The system is jointly funded by federal, provincial and employer contributions.

2.1. Place of VET in the overall education system and pathways into and after VET

Vocational education and training (VET) plays a prominent role in Austria's upper-secondary system. After completing nine years of compulsory education (usually at age 15), students choose between general academic pathways or one of several vocational options. These include over 230 apprenticeship occupations and dozens of school-based programmes spanning fields such as engineering, business, tourism, agriculture, and social care. The three main types are: (1) dual apprenticeships (*Lehrlingsausbildung)* (2) three- to four-year Intermediate Vocational Schools (*Berufsbildende Mittlere Schulen*, BMS), and (3) five-year Higher Vocational Colleges (*Berufsbildende Höhere Schulen*, BHS). The system is strongly oriented towards vocational education and training (VET). In 2021, 68% of 15-19 year-old upper-secondary students were enrolled in VET programmes in Austria (OECD, 2023[1]). In many cases, students begin a VET programme in Grade 9, which also counts as the final year of compulsory schooling (Cedefop & ibw Austria, 2023[2]).

Apprenticeships are the most common form of upper-secondary VET, taken by around 45% of VET students (OECD, 2023[1]). These programmes typically last three years and are classified at ISCED level 3. Apprenticeships combine company-based training (three to four days per week, or in intensive blocks) with part-time attendance at a public vocational school (one to two days per week). They are offered in over 230 occupations, ranging from traditional crafts to retail, administration and IT (Cedefop & ibw Austria, 2023[2]). Entry requires completion of compulsory schooling, but not specific academic qualifications. Students must secure an apprenticeship contract with a certified training company. Apprentices receive a modest wage, determined by collective agreements, which increases with each year of training. At school, apprentices receive instruction in both general and occupation-specific subjects. Training concludes with the *Lehrabschlussprüfung* (apprenticeship-leaving examination), after which successful candidates are certified as skilled workers (journeypersons) (Eurydice, 2025[3]).

The school-based BHS programmes are five-year programmes (Grades 9-13), with the first three years classified as ISCED level 3 and the final two as ISCED level 5, reflecting their status as higher technical education. They enrol approximately 25% of upper-secondary students, making them a major pillar of the VET system. BHS combine general education with specialised vocational training in fields such as engineering, business, tourism, fashion, agriculture or social care. Students enter after completing compulsory schooling and are admitted based on academic performance. All BHS programmes conclude with the *Reife- und Diplomprüfung* (matriculation and diploma examination), which grants both the Matura (general university entrance qualification) and a higher vocational diploma. This enables graduates to directly access tertiary education and qualifies them for employment in skilled and regulated professions.

The second type of school-based VET programmes, BMS, are typically three-year programmes at ISCED level 3 (EQF level 4), attended by around 15% of upper-secondary students (OECD, 2024[4]). They combine general education with vocational skills training for administrative, technical or service occupations requiring upper-secondary qualifications (Cedefop & ibw Austria, 2023[2]). Students typically enter BMS after Grade 8 (age 14-15), with the first year also fulfilling the final year of compulsory education. Three- and four-year programmes culminate in a final examination and a state-recognised vocational certificate (*Abschlusszeugnis der Berufsschule*) (Eurydice, 2025[5]). By contrast, one- and two-year BMS programmes are pre-vocational and do not confer a full qualification. While there is some overlap between BMS and apprenticeship programmes in terms of occupational coverage – particularly in fields like business administration, retail, or tourism – many occupations are specific to one track or the other (Cedefop & ibw Austria, 2023[2]). In general, BMS offers school-based preparation for more clerical, commercial and service roles (Eurydice, 2025[6]). Students' choice of programme may reflect preferences for school- vs. work-based learning, in addition to the specific occupation they wish to pursue.

The distribution of students in each form of upper-secondary VET programme has remained fairly stable in past years (Statistics Austria, 2024[7]). Austria's VET system includes several targeted measures to promote inclusion and support disadvantaged learners (Box 2.1).

Box 2.1. See every learner: Supporting disadvantaged learners in Austria's VET system

Austria has several initiatives for promoting inclusion and supporting disadvantaged learners in VET.

Supra-company training for those without apprenticeships:

The *Überbetriebliche Lehrausbildung* (ÜBA) provides apprenticeship-style training for young people who have completed compulsory schooling but are unable to secure a company-based apprenticeship. While open to all eligible candidates, it includes specific provisions for disadvantaged and vulnerable groups—such as early school leavers, individuals with learning difficulties, and those lacking parental support. These learners benefit from extended training durations and tailored support services to improve labour market integration.

The *AusbildungsFit* preparatory programme

The *AusbildungsFit* programme serves as a preparatory initiative for youths who are not yet ready to enter formal vocational training. It focuses on enhancing basic skills, social competencies, and work readiness through individualised coaching and practical experiences. This programme acts as a bridge, enabling participants to transition smoothly into apprenticeships or other educational pathways.

Targeted financial support

Participation in public BMS, BHS and part-time vocational schools is tuition-free for all age groups. Additional targeted subsidies are available: employers can receive bonuses of EUR 400 to EUR 900 per month for training apprentices from under-represented groups (e.g. women in technical fields, youth with disabilities, disadvantaged youth, and adult apprentices). Students in school-based VET may receive support through the Schooling Allowances Act, including annual school allowances (EUR 1 608), travel and boarding grants (up to EUR 150 and EUR 1 964, respectively), and special allowances for learners in hardship or those preparing for final exams after leaving employment.

Source: Cedefop (2019[8]), *VET in Europe database – detailed VET system descriptions. Austria,* www.cedefop.europa.eu/en/tools/vet-in-europe/systems/austria-2019; Cedefop (2019[9]), *Supra-Company Training, Überbetriebliche Lehrausbildung (ÜBA),* www.cedefop.europa.eu/en/tools/vet-toolkit-tackling-early-leaving/resources/supra-company-training-uberbetriebliche; Federal Ministry of Labour of Austria (2020[10]), *Youth and Work in Austria* https://portal.ibobb.at/fileadmin/Berufsorientierung_und_Bildung/Final_Youth_and_Work_in_Austria__2019_2020_barr_.pdf; Cedefop (2023[11]), *VET in Europe database – detailed VET system descriptions. Austria,* www.cedefop.europa.eu/en/tools/vet-in-europe/systems/austria-u3#:~:text=,partial%20exams%20free%20of%20charge.

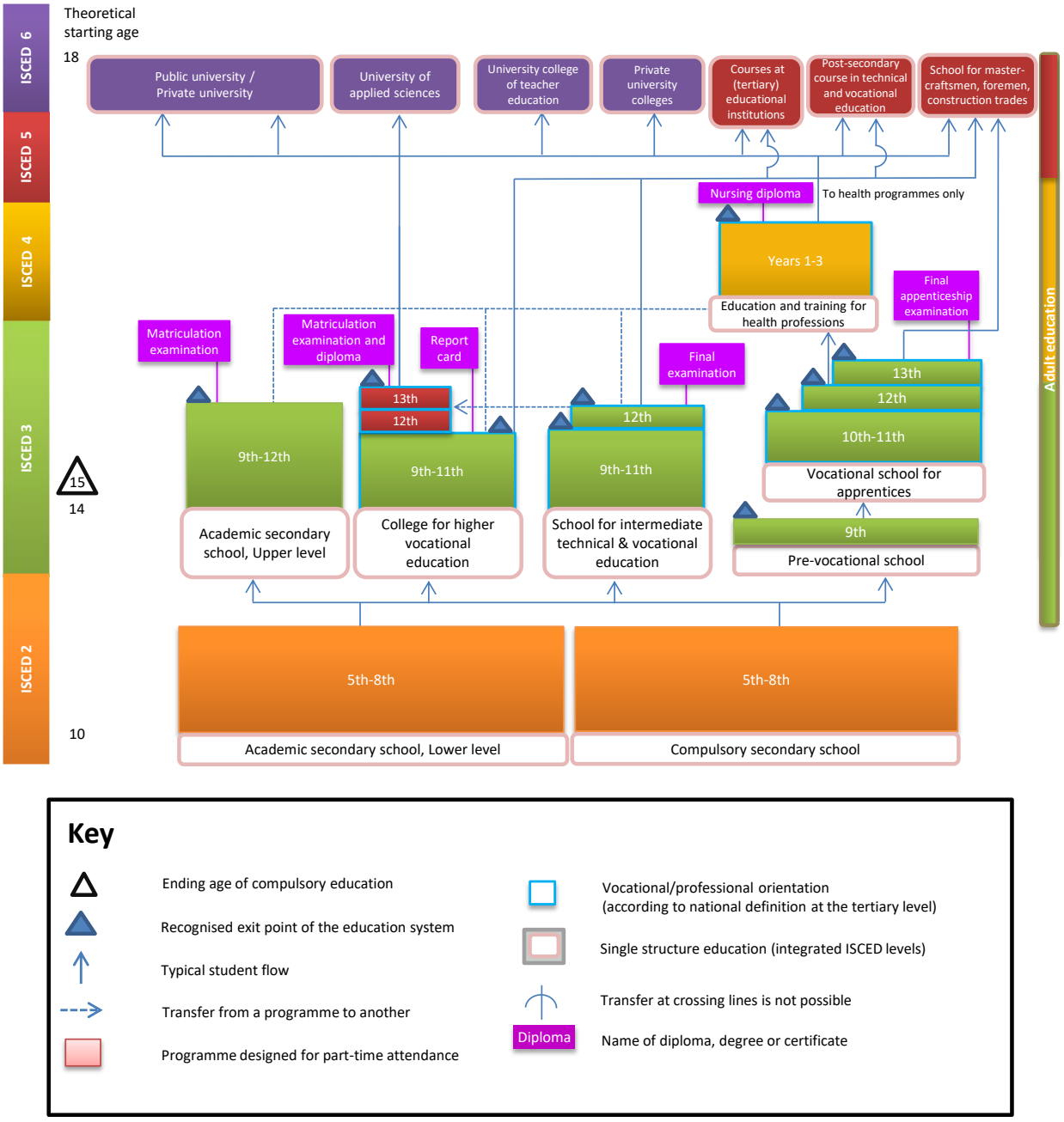
Since 2017, the *Ausbildung* bis 18 policy has required all young people to remain in education or training until age 18, reinforcing participation in VET and contributing to Austria's relatively low early school leaving rate (8.4% in 2022) (Cedefop & ibw Austria, 2023[2]).

Austria's VET system is frequently described as offering a 'double opportunity', combining early labour market entry with the possibility of progressing to higher education. Graduates of all VET pathways have opportunities to progress to further education or training. BHS graduates receive the Matura, giving them full access to university and higher vocational programmes. BMS and apprenticeship graduates can obtain tertiary access by completing the *Berufsreifeprüfung* (vocational matriculation exam), and many apprentices prepare for this alongside their training through the "*Lehre mit Matura*" scheme (Cedefop & ibw Austria, 2023[2]). BMS graduates also have the option to enter an add-on course, typically lasting 2-3 years (*Aufbaulehrgang*) (AMS Training Compass, n.d.[12]) to obtain the Matura. Apprentices may

progress to higher vocational qualifications, such as the *Meisterprüfung* (Master Craftsperson examination), which permits them to run an independent business and train apprentices (Musset et al., 2013[13]). The National Qualifications Framework (NQF) also clarifies how VET credentials compare to academic ones in terms of learning outcomes (Cedefop & ibw Austria, 2023[2]).

Figure 2.1 shows educational pathways into and after ISCED 3 VET in Austria.

Figure 2.1. The place of ISCED 3 VET in Austria's education system



Note: The reference year is 2023 (school year 2022/2023 in the northern hemisphere). Theoretical starting ages refer to the ages as established by law and regulation for the entry to a programme; actual starting ages may vary depending on the programme.
Source: Adapted from OECD (2023[14]), "Diagram of the education system: Austria", *OECD Education GPS*, http://gpseducation.oecd.org/CountryProfile?primaryCountry=AUT.

2.2. Curriculum structure and assessment procedures

The curricula of Austrian ISCED 3 vocational education and training (VET) programmes are centrally regulated and explicitly competency-based. The Federal Ministry of Education, Science and Research is responsible for curriculum development in school-based VET, while the Federal Ministry of Labour and Economy oversees training regulations for apprenticeships. In both cases, social partners are closely involved through formal consultation mechanisms, such as curriculum committees for school-based VET and advisory boards for apprenticeship (see Section 2.6), ensuring alignment with over 230 occupation-specific training profiles that define the skills and competences expected in each trade (Cedefop & ibw Austria, 2023[2]).

All VET curricula are structured around clearly defined learning outcomes and competences, consistent with the Austrian National Qualifications Framework (NQF). Curricula for each qualification are formalised through national framework documents and specify the knowledge, skills, and application contexts expected upon programme completion (Cedefop & ibw Austria, 2023[2]). They also define the allocation of instructional time across general education, vocational theory, and practical training/work-based learning. In full-time school-based programmes (BMS, BHS), approximately one-third of the curriculum is typically dedicated to practical and work-related learning, including workshops, labs, and internships, although this varies by type and field of study.

In school-based VET, the curriculum combines general education, vocational theory and practical components. Programmes at ISCED level 3 (such BMS) typically include German, English, mathematics, civics and economics, alongside applied vocational subjects such as office administration, accounting, and information and communications technology. Curriculum documents specify learning outcomes and weekly instructional hours by subject, with approximately 32-36 hours of instruction per week across all domains. Practical learning is embedded through a combination of practical school-based exercises (e.g. practice firms, workshops) and mandatory short-term internships in companies, ensuring that students gain hands-on experience aligned with their field of study (see Section 2.3). While the national curricula define learning outcomes and amount of mandatory work placement in weeks, the exact volume and structure can vary by programme type and institution (Eurydice, 2025[15]).

Higher-level programmes (e.g. in BHS engineering colleges, which include ISCED 3 and up to ISCED 5) offer more advanced technical subjects, such as electronics or mechanics, as well as intensive laboratory or workshop-based training. In all cases, at least one foreign language is compulsory, with more offered in fields such as tourism (Cedefop & ibw Austria, 2023[2]).

In the apprenticeship track, the curriculum is divided between workplace and school settings. The in-company training of apprentices is based on a structured framework defined at the national level. For each apprenticeship occupation, the Ministry of Labour and Economy issues a training regulation (*Ausbildungsordnung*), developed in consultation with the Federal Advisory Board on Apprenticeship, which includes representatives of employers and employees (Cedefop & ibw Austria, 2023[2]). Each regulation includes an occupational profile (*Berufsbild*), which sets out the full range of practical skills and professional knowledge to be acquired during the company-based part of an apprenticeship. These competencies are organised by year of training to ensure progressive learning. Based on this national standard, each company prepares a company training plan (*Betrieblicher Ausbildungsplan*), detailing how the required competencies will be delivered within the workplace context. A certified in-company trainer (*Ausbilder*) is responsible for implementing this plan and ensuring that the apprentice gains experience across all mandated areas.

The school-based part of apprenticeships is delivered through part-time vocational schools (*Berufsschulen*), whose curricula are defined by the Ministry of Education, Science and Research. These curricula cover trade theory, related technologies, and general subjects (e.g. German, English, applied mathematics and civics) (Cedefop & ibw Austria, 2023[2]). Instruction typically follows either a weekly

pattern (one to two days per week) or block release (e.g. 8-10 weeks per year), depending on the region and occupation. Teaching is modularised and outcome-oriented, ensuring coherence with workplace learning and providing apprentices with key transversal competences such as communication and digital literacy (Cedefop & ibw Austria, 2023[2]).

Curriculum and assessment alignment across the two learning venues is ensured through national-level co-ordination between the Ministry of Education, Science and Research and the Ministry of Labour and Economy, supported by formal input from social partners. School curricula are explicitly designed to complement the competences defined in the occupational profiles (*Berufsbild*), and curriculum updates are often conducted in parallel with revisions to training regulations. This joint development process ensures that apprentices progress coherently through both practical and theoretical content. The apprenticeship-leaving examination (*Lehrabschlussprüfung*), administered by the Economic Chambers, serves as a shared endpoint, assessing knowledge and skills acquired across both settings (see Section 2.6).

To help apprentices prepare for this exam, several providers offer preparatory courses (*Vorbereitungskurse zur Lehrabschlussprüfung)*. Major providers include WIFI (the training arm of the Economic Chamber), bfi (Labour-Chamber network) and several regional adult-learning centres. Courses are offered in evening, weekend or intensive block formats – often with a blended online component – and focus on revising trade theory, calculations and the practical tasks specified in the Berufsbild (WIFI Austria, 2024[16]). Under the federal *Lehrlingsförderung* scheme, apprentices can apply for a reimbursement of up to 100% of course fees (WIFI Austria, 2025[17]; Wiener Arbeitnehmerinnen Förderungsfonds (Vienna Employee Promotion Fund), n.d.[18]; Institute for Advanced Studies Vienna, 2025[19]).

Responsibility for ensuring alignment between the workplace and school-based elements lies primarily with the two federal ministries (the Ministry of Labour and Economy for in-company training and the Ministry of Education, Science and Research for school curricula), which co-ordinate through formal consultation with the social partners and advisory bodies such as the Federal Advisory Board on Apprenticeship. Curriculum development processes for *Berufsschulen* are designed to align with the occupational profiles (*Berufsbild*) and learning outcomes of each apprenticeship trade, thereby ensuring that school instruction complements workplace learning. Regional apprenticeship offices (*Lehrlingsstellen*) also play a role in monitoring training quality and coherence.

Assessment in Austrian VET combines continuous evaluation with final certification examinations. In all settings, teachers assess students through written, oral and practical tasks. Pupils receive semester and annual report cards. If performance in a subject is insufficient, students may sit repeat exams or – under specific conditions – progress conditionally, as regulated by the School Education Act. Apprentices' workplace learning is monitored by their certified trainers, who may conduct internal assessments or organise training workshops to evaluate progress and ensure all required competencies are covered. In school-based VET programmes, students are also assessed during their internships, often through activity reports or supervisor feedback, which are reviewed by the school and may contribute to final project work or evaluations (see further details in Annex 2.A). However, official grades are issued by vocational schools, which also certify school completion (Eurydice, 2025[5]).

Each VET track concludes with a formal examination process:

- **Final Exam at BMS (*Abschlussprüfung*):** This exam, is conducted by a school examination board but follows national legal frameworks and guidelines defined in the School Education Act and relevant ordinances (Eurydice, 2025[5]). While individual schools have some flexibility in how the exam is implemented (e.g. choosing tasks or adapting content to the field of study), the general structure, subjects covered, and certification outcomes are standardised across the country. Exams typically include written and oral components and may integrate practical elements, depending on the subject area. The resulting certificate is state-recognised under the Vocational Training Act and may confer rights similar to those of an apprenticeship certificate in relevant

trades. One- or two-year pre-vocational schools do not have a final board exam; they end with a school certificate only (Eurydice, 2025[3]).

- ***Reife- und Diplomprüfung* (maturity and diploma certificate) at BHS:** The five-year colleges culminate in the comprehensive matriculation and diploma exam. Since 2015/16, the format of this exam has been standardised nation-wide in line with the general education Matura, with some adaptations for vocational context. Students typically undertake a diploma project or thesis in their final year which is submitted and later defended (presented) as part of the exam. The exam itself has written and oral components: candidates choose *either three written and three oral exams, or four written and two oral exams*. Written exams include standard subjects (German, a foreign language, Mathematics) and a vocational subject and are administered simultaneously nationwide. The oral exams cover specialised vocational topics and/or general subjects (standardised nationally), with specific questions determined by the respective subject teachers of a school, and include the defence of the diploma project before an examination board that includes external commissioners. The certificate grants both general university access and a vocational qualification at EQF level 5. Students who fail one or more parts of the exam, can retake those parts in subsequent sessions (Eurydice, 2025[3]).
- **Apprenticeship-Leaving Exam (*Lehrabschlussprüfung*):** The final examination for apprentices is administered by the regional Apprenticeship Offices within the Economic Chambers and governed by federal law (*Berufsausbildungsgesetz*). The content and structure of the exam are based on national training regulations (*Ausbildungsordnungen*), ensuring comparability across Austria. The exam is conducted by a board of industry experts and is only permitted once the apprentice has received the final certificate from the vocational school confirming completion of the school-based component. Successful candidates receive the *Lehrabschlusszeugnis* (certificate of apprenticeship), which confers nationwide recognition as a qualified skilled worker (Eurydice, 2025[3]). Retakes are permitted, with no fees for second or third attempts (Cedefop & ibw Austria, 2023[2]).

2.3. Work-based learning (WBL) in school-based programmes

Work-based learning is a central element not only of apprenticeships but also of Austria's school-based VET programmes. Although BMS and BHS students are in full-time schooling, their curricula are deliberately "practice-oriented", integrating real and simulated work experiences to complement classroom learning (Cedefop & ibw Austria, 2023[2]). Many VET teachers themselves have industry experience (see Section 2.5), allowing students to encounter a real-world perspective. Additionally, there are several mechanisms through which practical learning is incorporated in school-based VET:

- **Mandatory work placements (internships):** Most school-based VET programmes also include mandatory work placements in companies. These internships, typically completed during summer breaks, are an official component of the curriculum and are required for graduation. BHS programmes include the most extensive internships – usually totalling 8-12 weeks across the five years – although the required duration can vary by field. For instance, a student at a tourism college may complete up to eight months of internship time, often distributed across seasonal periods (Cedefop & ibw Austria, 2023[2]). Engineering students at Colleges of Engineering and Crafts (*Höhere Technische Lehranstalten, HTL*) might undertake placements in industrial settings for four weeks each after the third and fourth years. BMS programmes generally require shorter placements, such as a four-week internship between the second and third years. Students arrange placements with support from schools, and they must document their activities, which may be assessed jointly by employers and teachers. These internships also allow companies to get to know students, which can serve as a recruitment pipeline.

- **Company projects and partnerships:** Many VET schools maintain close relationships with local companies that contribute to curriculum delivery and assessment. These partnerships often result in co-developed learning projects, particularly in the final year. For example, business students may develop marketing strategies for local firms, or IT students might code a functional prototype for a client. These assignments are frequently counted as part of the diploma project in BHS programmes and must meet both academic and industry standards. Final assignments in school-based VET are frequently developed in collaboration with companies, providing students with opportunities to engage with real-world workplace challenges (Cedefop & ibw Austria, 2023[2]).

2.4. Provider types

Austrian ISCED 3 vocational education and training (VET) is delivered by different types of providers operating under a nationally standardised framework. The main provider types are i) full-time vocational schools and colleges, and ii) part-time vocational schools. The schools and colleges are typically specialised by field, e.g. healthcare VET schools and business colleges.

While the focus of this subsection is on institutional providers ("school"-type providers), it should be noted that companies are an integral part of VET provision in Austria. In the dual system, companies are official training providers. Around 27 000 firms, from small workshops to large enterprises, are authorised to provide apprenticeships (Wirtschaftskammer Österreich – Abteilung für Statistik (Austrian Federal Economic Chamber - Department of Statistics), 2023[20]) and are formally recognised as part of the VET system's provider network. To train apprentices, companies must meet certain criteria (adequate facilities, qualified trainers, coverage of the main aspects of a profession) and are subject to approval and periodic checks by the Economic Chamber and apprenticeship authorities. Some large companies run in-house training centres to deliver parts of the curriculum, acting similarly to schools. Supra-company training centres (ÜBA) offer apprenticeship training for young people who cannot find a regular company placement, especially those from disadvantaged backgrounds (Cedefop & ibw Austria, 2023[2]).

2.4.1. Vocational schools and colleges (Schulische VET)

These full-time institutions include Intermediate Vocational Schools (BMS) and Higher Vocational Colleges (BHS). Both follow national curricula developed by the Federal Ministry of Education, Science and Research, with the exception of agriculture BHS under the Ministry of Agriculture, and some healthcare programmes historically under Health (Cedefop & ibw Austria, 2023[2]). There are over 500 BMS and BHS schools combined, serving around 40% of upper-secondary students (OECD, 2017[21]).

Common types of BMS schools include:

- Technical and Trade Schools (e.g. electrical engineering, carpentry, metallurgy), preparing mid-level technicians and skilled craft workers.
- Schools of Business and Administration (Handelsschulen), focused on office administration, accounting and business skills.
- Schools for Social and Service Professions, including tourism and design at intermediate level.
- Healthcare VET Schools, offering nursing assistant programmes.

Higher Vocational Colleges provide the five-year programmes BHS programmes. Key sub-types of these institutions include:

- Colleges of Engineering and Crafts (*Höhere Technische Lehranstalten, HTL*), specialising in areas such as civil and mechanical engineering, IT, and electronics.
- Business Colleges (*Handelsakademien, HAK*), focused on economics, marketing, finance and general education.

- Colleges for Management and Services (*HLW*), offering programmes in hospitality, tourism, nutrition and design.
- Colleges for Agriculture and Forestry, operated under the Ministry of Agriculture.
- Colleges for Early Childhood Education, training preschool teachers with a teaching qualification and Matura.

The provinces (Länder) may be involved in administering these schools (e.g. providing facilities through provincial school boards), but curricular control and teacher employment are largely federal (see Section 2.6).

Most vocational schools and colleges are under the responsibility of the Ministry of Education, Science and Research, but there are some exceptions. For example, the Agricultural and Forestry Schools (*Land- und forstwirtschaftliche Schulen*), are overseen by the Federal Ministry of Agriculture, Forestry, Regions and Water Management in collaboration with provincial authorities. They offer vocational education programmes that typically culminate in diplomas and school-leaving examinations, providing qualifications equivalent to those from other vocational schools. These schools primarily serve students from rural areas or those interested in green and land-based sectors, and often integrate practical training in school-owned farms or forestry sites (Cedefop & ibw Austria, 2023[2]; Federal Ministry of Agriculture and Forestry, Climate and Environmental Protection, Regions and Water Management, n.d.[22]).

The VET institutions are mostly public or publicly funded private institutions (see Section 2.7). In the case of private institutions, these are often run by religious organisations, charitable foundations, or sectoral associations. Many of these schools hold public-law status (*Öffentlichkeitsrecht*), which grants them official recognition equivalent to public schools. This status allows them to deliver state-approved curricula and enables students to sit for national examinations, such as the *Matura*. Programmes offered mirror those of public BMS or BHS tracks and lead to the same qualifications. While technically private, most of these schools receive public subsidies and do not charge significant tuition fees. Other schoolssuch as Montessori or Waldorf education- are completely private and cannot issue school certificates such as Matura and also do not receive state funds (Berka and Wieser, 2018[23]).

2.4.2. Part-time vocational schools (Berufsschulen)

The part-time vocational schools deliver the off-the-job component of apprenticeship training. They are public schools organised by province and vocational field. Depending on regional demand, a province may have multiple *Berufsschulen* offering the same or different specialisations. For example, there may be several vocational schools for metal trades across different cities within a province, as well as multiple schools for retail, particularly in urban areas with higher concentrations of learners. Attendance follows a weekly or block-release model. Apprentices typically attend the *Berufsschule* nearest to their training company or in their province, sometimes boarding there during block release. These schools are supervised by the Education Ministry (Cedefop & ibw Austria, 2023[2]). There are over 100 part-time VET schools across Austria, collectively training tens of thousands of apprentices each year (Cedefop & ibw Austria, 2023[2]).

Institutions like WIFI (Institute for Economic Promotion, run by the Economic Chamber) or bfi (run by the Labour Chamber) provide preparatory and compensatory training for apprentices and supplement company-based learning where needed. While primarily considered adult or continuing education providers, they intersect with initial VET in supporting the dual system for those who need an alternative path.

2.5. VET teachers and trainers' qualifications and professional development

Austria's vocational education and training (VET) system relies on well-qualified teaching and training personnel. Teachers in VET schools fall into three broad categories: general subject teachers, teachers of theoretical vocational subjects, and teachers of practical vocational subjects. Additionally, in-company trainers (*Lehrlingsausbilder*) are responsible for workplace training in apprenticeships.

For teachers in VET schools, training routes and entry requirements differ based on the subject area and school type, though in all cases, teacher training in covers both general education subjects and theoretical and practical vocational subjects.

Teachers of general education subjects – such as mathematics, languages, or sciences – in full-time vocational schools (BMS/BHS) follow a standardised academic teacher education programme, identical to that of their counterparts in other school types introduced in the 2013 reform. They typically complete a combined Bachelor's and Master's degree through a co-operation between universities and University Colleges of Teacher Education (*Pädagogische Hochschulen*), often with a combination of two subjects. A one-year induction phase is required upon entry into the profession, during which they are mentored by an experienced teacher and evaluated at the end of the year (Cedefop & ibw Austria, 2023[2]).

Teachers of theoretical vocational subject in BMS/BHS are responsible for delivering subject-specific vocational theory – such as business administration, engineering principles, or IT systems – in a classroom setting. They must demonstrate both pedagogical competence and substantial industry experience prior to or alongside their entry into teaching. They usually enter the profession after several years in their occupational field. In the fields of Nutrition, Information and Communication (Applied Digitalisation), or Fashion and Design, vocational theory subject teachers complete a dedicated vocational teacher education programme at a University College of Teacher Education. This programme prepares future teachers to instruct students aged approximately 14-19 in their vocational specialisations, combining subject knowledge, didactics, and practical school placements. For other fields, candidates typically hold a subject-specific master's degree from a university as well as several years of relevant professional experience. While teaching, they complete a pedagogical Bachelor's degree (240 ECTS credits) at a University College of Teacher Education, with the option of a Master's degree (60 ECTS).

Teachers of practical vocational subjects in BMS/BHS are responsible for instructing hands-on vocational skills – such as machining, welding, or culinary techniques – typically in workshops or labs. For Nutrition, Information and Communication, or Fashion and Design, practical vocational subject teachers follow similar dedicated training routes as those of theoretical vocational subject teachers. In all other fields, these teachers are typically qualified through a vocational diploma (e.g. *Reife- und Diplomprüfung* from a BHS) or a master craftsperson exam and must have several years of professional experience. They then complete a Bachelor's programme in "Dual Vocational Education and Technology and Trades" on a part-time basis alongside their teaching duties.

Similarly, teachers at part-time vocational schools complete their teacher training at universities of teacher education for the following subject areas: (1) General education and business-related subjects (2) theoretical vocational subjects, and (3) Practical vocational subjects. During their first years of teaching at school, they also complete the Bachelor's degree programme "Dual Vocational Education as well as Technology and Trades" alongside their teaching responsibilities.

Teacher recruitment in Austria's vocational education and training (VET) system is a shared responsibility between the regional Boards of Education (*Bildungsdirektionen*) and school leadership. The *Bildungsdirektionen* oversee the formal recruitment process, including advertising vacancies, evaluating applications and making appointments for public VET schools. However, school heads play an influential role in candidate selection. Under Austria's federal contract staff legislation, headteachers may comment on applicants and propose preferred candidates to the education boards (Education Profiles, 2023[24]).

Following the 2017 education reform, school leaders in VET institutions also gained broader responsibilities over staff management and quality assurance, which has strengthened their role in shaping the teaching workforce (European Training Foundation (ETF), 2023[25]; OECD, 2021[26]). While appointments remain subject to formal approval by the *Bildungsdirektionen*, this collaborative approach ensures that hiring decisions are both administratively sound and responsive to school-specific educational needs.

Continuous professional development (CDP) is mandatory for teachers. All teachers – regardless of school type and whether they teach general or vocational subjects – must undertake up to 15 hours of CPD per year under the Public Service Code. Activities include pedagogical seminars, curriculum training and technology updates, and are delivered mainly by University Colleges of Teacher Education. While the core CPD requirements are the same across teaching types, vocational teachers often pursue additional industry-specific training to stay current with sector developments (e.g. new equipment, regulatory changes, or evolving workplace practices) (Cedefop & ibw Austria, 2023[2]).

Trainers in companies supervising apprentices must also meet defined requirements. Under the Vocational Training Act, every company providing apprenticeships must designate at least one authorised trainer. By law, each apprentice must be supervised by an assigned trainer. Trainers must be at least 18 years old and demonstrate both technical and pedagogical competence. These competencies can be recognised through a trainer exam (*Ausbilderprüfung*), a certified 40-hour trainer course (often offered by the Economic Chamber), or by holding an equivalent qualification such as the Master Craftsperson diploma. Most trainers are skilled employees who supervise apprentices alongside their primary role, although some larger companies employ dedicated training staff (Cedefop & ibw Austria, 2023[2]).

For in-company trainers, CPD is voluntary but encouraged. The Economic Chamber and regional authorities offer modular courses and trainer forums on topics such as instructional methods, digital tools and diversity management. Many provinces operate *Ausbilderakademien* (trainer academies), and the Chamber subsidises up to EUR 2 000 per year per trainer, provided they attend at least eight hours of training annually. This support has led many in-company trainers to undertake pedagogical refreshers or specialised courses to better coach their apprentices (Cedefop & ibw Austria, 2023[2]). Additionally, some companies provide internal trainings for their trainers or allow them to attend external workshops on work time.

2.6. Governance

The governance of vocational education and training (VET) at ISCED 3 in Austria involves close co-operation between federal ministries, provincial authorities, education providers, and social partners. This multi-level structure ensures that VET remains aligned with labour market needs while maintaining consistent educational standards across the country.

At the federal level, the Ministry of Education, Science and Research (BMBWF) oversees school-based VET provision, including curriculum design, teacher training and employment, and quality assurance for the schools and colleges that deliver BMS and BHS programmes and the *Berufsschulen*. It is responsible for the legal framework for schooling through acts such as the School Organisation Act and School Education Act. Within the Ministry of Education, Science and Research, the Directorate for General and Vocational Education is specifically tasked with pedagogical and vocational aspects of VET, including curriculum development, school improvement, and national and international co-operation (Cedefop & ibw Austria, 2023[2]). The Ministry of Labour and Economy (BMAW) oversees the company-based aspect of dual training. It issues training regulations for each recognised apprenticeship trade, supervises the implementation of the Vocational Training Act (*Berufsausbildungsgesetz*), and manages apprenticeship-related promotion and quality assurance in collaboration with the Economic Chamber. The BMBWF is also responsible for monitoring educational outcomes through indicators such as graduation and dropout rates,

while apprenticeship data are collected by BMAW and WKO (Federal Ministry of Science, 2014[27]). Other ministries are also involved in VET governance. The Ministry of Agriculture, Forestry, Regions and Water Management oversees agricultural and forestry colleges, while the Ministry of Health previously administered health-related VET. However, since 2016, most nursing and health professions training has been gradually transferred to tertiary-level institutions under the oversight of the Ministry of Education, Science and Research, with existing sub-tertiary programmes set to be phased out by the end of 2025 (Federal Law Gazette for the Republic of Austria (Bundesgesetzblatt für die Republik Österreich), 2016[28]; Cedefop & ibw Austria, 2023[2]).

Austria's VET governance is characterised by strong involvement of the social partners. Employer and employee organisations – particularly the Austrian Economic Chamber (WKO), the Chamber of Labour (AK), and relevant trade unions – are formally involved in developing VET content and structures. Curriculum committees ("*Lehrplan-Kommissionen*") for school-based programmes include social partner nominees who help shape curricula and occupational standards (Cedefop & ibw Austria, 2023[2]). For apprenticeships, the Federal Advisory Board on Apprenticeship (*Bundes-Berufsausbildungsbeirat*) advises the Ministry of Labour and Economy on new apprenticeship profiles, revisions, and broader reforms (Federal Ministry of Science, 2014[27]). Composed of employer and employee representatives and government officials, this board assesses proposals developed with the help of expert institutions such as Institute for Research on Qualifications (ibw) and ensures that training content reflects evolving occupational needs. Studies on skill needs inform this process at sectoral and regional levels, ensuring that new content (such as in digitalisation or green technologies) is embedded in a timely manner. In recent years, for instance, new apprenticeships in IT and updates to technical college curricula have been introduced to reflect demand from employers.

While education is primarily a federal competence, provinces (Länder) contribute by owning and maintaining school infrastructure, providing equipment (especially for part-time vocational schools and some BMS/BHS), and co-financing teachers' salaries. In some cases, provinces fully finance teacher salaries (e.g. in certain provincial schools), while in others – such as agricultural and forestry colleges – they share costs with the responsible federal ministry. For example, salaries at agricultural colleges are typically split 50/50 between the province and the Ministry of Agriculture (BML). Each province hosts a Board of Education (*Bildungsdirektion*), which functions as a decentralised branch of the Ministry of Education, Science and Research. These boards supervise school operations, oversee teacher recruitment and deployment (see Section 2.5), ensure national curricula are implemented, and adapt delivery to local conditions such as adding regionally relevant elective modules or adjusting school timetables (Cedefop & ibw Austria, 2023[2]).

In apprenticeship training, sub-national autonomy is reflected in the operation of the Apprenticeship Offices (*Lehrlingsstellen*), located in the provincial Economic Chambers. These offices register apprenticeship contracts, monitor company training quality, organise the final examination (*Lehrabschlussprüfung*), and issue certificates (Eurydice, 2025[6]). Although these functions are governed by federal law, they are administered regionally, allowing alignment with local labour market conditions. Some provinces also implement their own apprenticeship promotion schemes, offering additional subsidies or incentives for firms to train apprentices in strategically important sectors – often supplementing federal-level funding incentives (see Section 2.7).

Since 2017, Austria has introduced a principle of school autonomy across the education system, including in VET. Schools and colleges have increased flexibility to deviate from established pedagogical and organisational practices, including adapting the way in which they deliver the nationally-set curricula, forming cross-class groupings, and managing lesson length and teaching time (Linz, 2024[29]). They also have greater leeway in contextualising curricula to reflect student interests, teacher strengths, and regional characteristics. This approach aims to support inclusive, learner-centred teaching by giving schools tools to better respond to local and student needs (Eurydice, 2025[6]).

To support system-wide co-ordination, Austria has established formal and informal mechanisms. At the national level, inter-ministerial working groups and regular co-ordination meetings between the Ministry of Education, Science and Research, the Ministry of Labour and Economy and social partners help align policies across education and employment domains. These platforms facilitate dialogue on curriculum development, training regulations, and systemic reforms.

2.7. Funding

Austria's vocational education and training (VET) system is publicly prioritised and jointly funded by federal, provincial and employer contributions. While funding structures differ between school-based and dual apprenticeship pathways, both are designed to minimise financial barriers for learners and ensure the system is adequately resourced.

Upper-secondary VET schools (both full-time and part-time) are fully integrated into the public education system. This is also the case for supra-company training institutions (*Überbetriebliche Lehrausbildung*, ÜBA), which provide apprenticeship training for learners who are unable to secure a company placement. These institutions are fully publicly funded, primarily by the Public Employment Service (AMS) with additional provincial support in some cases. Public funding covers core costs, including teacher salaries, curriculum development, facilities, and operational expenditures. In 2020, about 19% of Austria's education budget (4.9% of GDP) was spent on upper-secondary education of which VET programmes are predominant. Per-student public spending in upper-secondary vocational institutions (12% of education budget) is typically higher than for general upper-secondary institutions (7%) due to smaller class sizes in workshops and the cost of technical equipment (OECD, 2023[14]). Each year, budgets are allocated for updating technology so that students train on up-to-date equipment. Provincial and municipal authorities co-finance school infrastructure and may also contribute to teacher salaries, particularly in sectors outside the remit of the Education Ministry – such as agricultural and healthcare schools (Cedefop & ibw Austria, 2023[2]). High-cost items (machines, lab equipment) for school workshops are sometimes co-funded through industry partnerships.

Students at public BMS/BHS or part-time vocational schools do not pay tuition. Private VET providers with public-law status receive subsidies allowing them to waive or minimise fees. All upper-secondary learners (regardless of programme type) may be eligible for extended family allowances up to age 24, subsidised school transport for a flat fee of EUR 19.60 per year, and free textbooks. Targeted grants are available through the Schooling Allowances Act, including annual school allowances (EUR 1 608), boarding and travel grants (up to EUR 1 964 and EUR 150, respectively), and special allowances for learners in hardship or preparing for final exams after leaving work. Apprentices benefit from additional supports: the state covers up to 100% of fees for preparatory courses for the apprenticeship-leaving exam, waives exam fees for second and third attempts, and co-funds Erasmus+ mobility opportunities (e.g. EUR 15 per day for foreign placements). Furthermore, the "Digi cheque" scheme provides full funding (up to EUR 500 per course) for up to three supplementary training courses in areas such as digitalisation or sustainability, enabling apprentices to broaden their skillset beyond the core curriculum (Cedefop & ibw Austria, 2023[2]).

In the dual apprenticeship track, employers and the public sector share responsibility for training costs. Public authorities cover the entire cost of part-time vocational schooling, including staffing and infrastructure, and apprentices are not charged tuition or exam fees, including resits. Firms pay apprentices' wages, which are based on collective agreements, in the last year apprentices receive 80% of a skilled workers salary–(Osterreich Wirtschaftskammer; Gewerkschaft gpa Meine, 2024[30]). Salary levels vary a lot according to the professions. Florists are at the lower end with approximately EUR 730 in the first year and EUR 1 050 in the last year. Cooks are more in the average field with EUR 1 050 in the first year and EUR 1 040 in the last year. Construction is at the top end, apprentices earn EUR 1 309 in the first year and EUR 2 617 in the third year. Some firms also pay higher salaries than the minimum wages

from the collective agreements (Gehaltskompass, 2023[31]). In addition, firms cover the cost of in-house training, materials, and trainer time (Cedefop & ibw Austria, 2023[2]; Eurydice, 2025[32]).

To incentivise employer training provision, Austria offers a comprehensive subsidy scheme. Since 2008, training companies can apply for a basic subsidy (*Basisförderung*) equal to three months' apprentice wages in year one, two months in year two, and one month in each subsequent year (Wirtschaftskammer Österreich – Abteilung für Statistik (Austrian Federal Economic Chamber - Department of Statistics), 2023[20]; Wirtschaftskammer Steiermark (Austrian Economic Chamber), 2025[33]). The grant is paid only after each apprenticeship year has been completed, provided that (i) the apprentice contract was valid for the full year (or ended regularly by the final examination), (ii) the firm is an authorised training company under the Vocational Training Act, and (iii) the apprentice received at least the collectively-agreed minimum wage.

Additional targeted subsidies are available: firms may receive bonuses for training under-represented groups, such as women in technical fields, youth with disabilities, disadvantaged youth, or adult apprentices (EUR 400-900 per month) (Arbeitsmarktservice Österreich (Austria's Public Employment Service), 2024[34]). If an apprentice passes the final exam with distinction, employers receive a performance bonus of EUR 200–250 (Wirtschaftskammer Steiermark (Austrian Economic Chamber), 2025[35]). Further, employers who invest in trainer development may receive up to EUR 2 000 per trainer per year, as discussed above. Companies also benefit from reduced non-wage labour costs: health insurance contributions for apprentices are only 3.35% (vs. 7.65% for regular employees), and accident insurance is fully covered by the Austrian Accident Insurance Agency (AUVA) (Federal Institute for Vocational Education and Training, 2024[36]; Cedefop & ibw Austria, 2023[2]).

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Annex 2.A. Examples of curriculum structure and assessment procedures for three ISCED 3 VET qualifications

To illustrate how the above elements come together in practice, this annex presents three examples of upper-secondary VET programmes in Austria:

- Example 1: Apprenticeship in Retail Sales
- Example 2: Three-year BMS in Business Administration
- Example 3: Five-year BHS in Mechanical Engineering (HTL Maschinenbau).

Each example outlines the programme's structure (subjects, credits, practical training) and key assessment features, as well as pathways after completion.

Example 1: Apprenticeship in retail sales (Einzelhandelskaufmann/-frau) – ISCED 3 apprenticeship

This three-year apprenticeship leads to the EQF level 4 qualification "Apprenticeship Certificate in Retail Trade." It is one of Austria's most common apprenticeships, offering 14 specialisations (e.g. fashion, electronics, food), which companies may choose based on their business model (Federal Ministry of Science, 2014[27]; Wirtschaftskammer Steiermark (Austrian Economic Chamber), 2023[37]).

Apprentices spend about 80% of their time in-company, typically three to four days per week, following a company training plan (Betrieblicher Ausbildungsplan) that operationalises the nationally binding occupational profile (Berufsbild) set out in the Retail Trade Training Regulation (Cedefop & ibw Austria, 2023[2]; The Federal Ministry of Science, 2015[38]). The training plan cannot omit or shorten any competence from the national *Berufsbild*, but it may add firm-specific tasks or change the exact sequencing provided the yearly core competences are covered.

The Retail Trade Training Regulation outlines the skills requirements in each year: In year 1, apprentices learn basics like stocking shelves, greeting customers, and using the cash register. Year 2 focuses on customer service, complaint handling and inventory, while year 3 introduces advanced skills such as merchandising, store accounting, and specialisation-specific knowledge. A qualified in-company trainer supervises progress, with apprentices maintaining a skills logbook. The company's qualified trainer mentors the apprentice, demonstrating tasks and gradually increasing the apprentice's independent work, with apprentices maintaining a skills logbook.

In parallel, apprentices attend part-time vocational school (Berufsschule), typically one day per week – or two days in some regions during the final year – over the course of their apprenticeship. The curriculum is defined nationally by the Ministry of Education and is detailed in the framework curriculum for vocational schools (Bundesministerium Bildung (Federal Ministry of Education, Science and Research of Austria), 2025[39]) It stipulates a total of 1 260 hours of instruction across three years, divided among specific subject areas: 280 hours in Applied Economics, 120 hours in Vocational Foreign Language, 120 hours in Business Project Practice, 100 hours in Sales Promotion and Merchandise Presentation, and 360 hours in Sales Internship, among others.

Instruction is structured to develop both professional and transversal competences and is explicitly competence- and outcome-oriented. For example, one defined learning outcome is: *"The apprentice is able to conduct a complete sales conversation with a customer – starting from the initial contact through to closing the sale and handling objections."* The curriculum emphasises active and practical learning methods, including simulations, role-plays, and case studies. Many schools complement this with simulated retail environments (*Übungsgeschäfte*), where apprentices practice setting up displays, operating point-of-sale systems, or managing inventory under realistic conditions.

Apprentices are continuously assessed in both settings. Trainers provide feedback, while teachers conduct tests in vocational theory, assignments (like a small project to plan a promotional campaign), and oral exams in subjects like communication. Annual report cards are issued by the school. The company confirms training completion through the signed logbook.

The final apprenticeship examination (*Lehrabschlussprüfung*) is administered by the regional economic chambers (*Wirtschaftskammern*) and is structured according to the national training and examination regulations (*Ausbildungs- und Prüfungsordnungen*). These regulations are issued by the Federal Ministry of Labour and Economy (*Bundesministerium für Arbeit und Wirtschaft*) and define the specific assessment criteria for each apprenticeship occupation (Wirtschaftskammer Steiermark (Austrian Economic Chamber), 2025[40]).

- A written test on retail knowledge and calculations (e.g. receipts, discounts, VAT). In some provinces, part of this may be integrated into a project.
- A practical/oral exam often based on a role-play sales scenario. Candidates demonstrate product knowledge, communication, and sales technique, and may also complete a logistical task (e.g. checking a delivery).

The exam board (one chair, typically a vocational school teacher or chamber official, and two assessors from the retail industry) evaluates performance in both components according to set criteria. Distinctions (e.g. "good success") may be awarded to particularly strong apprentices.

Upon passing, the apprentice receives an Apprenticeship Certificate "Einzelhandelskaufmann/-frau" by the chamber (Eurydice, 2025[41]). This qualification allows them to work as a shop assistant, department manager trainee, etc., and with additional experience, they can advance to store management. Many retail apprentices continue working at their training company post-qualification.

Example 2: Three-year BMS for Commercial Clerks at commercial schools (Handelsschule) – ISCED 3 School-based VET

A three-year BMS programme for Commercial Clerks at a commercial school (Handelsschule) leads to an EQF level 4 qualification. The programme provides vocational education in business and administration for students aged approximately 15-18, culminating in a diploma recognised as a "Qualified Commercial Clerk" (*Kaufmännischer Assistent*). It prepares graduates for entry-level administrative, clerical, and junior accounting roles, and offers progression routes to higher education through bridging options (Eurydice, 2025[41]). The curriculum is set nationally by the Ministry of Education, Science and Research and is delivered in a standardised format across all schools, though schools may include optional modules depending on local needs.

The national curriculum defines the weekly instructional hours for each subject over the three years of the Handelsschule. General education subjects such as German, English, mathematics, and civic education make up approximately 40% of instruction time, while vocational subjects – such as accounting, business administration, and office management – account for about 50%. The curriculum includes a detailed "Stundentafel" specifying lesson hours by subject and school year (Bundesministerium Bildung, 2018[42]) (Bundesgesetzblatt (Federal Law Gazette), 2025[43]). Some schools offer elective modules on topics such

as sales and retail; students must take between four and six weekly hours of electives over the three-year programme, chosen from a school-defined list in line with national guidelines. Courses often include simulations, such as preparing balance sheets or drafting business correspondence. Across all curricular activities, there is an emphasis on soft skills like presenting and teamwork.

The final 10% of the curriculum encompasses practical training components. This includes participation in a Übungsfirma (practice firm), where students simulate various company departments to apply their business knowledge in a controlled environment. Additionally, students are required to complete a compulsory internship (*Pflichtpraktikum*) of 150 working hours, typically undertaken during the summer break between the second and third years (Judenburg, n.d.[44]) (Bundesgesetzblatt (Federal Law Gazette), 2025[43]). This internship provides real-world experience in the commercial sector and is documented through a practical training portfolio. Across all practical components, there is an emphasis on developing soft skills such as presenting and teamwork.

Assessment is ongoing and includes written tests, business simulations, and practical assignments (e.g. preparing financial statements or business documents). Advancement depends on passing yearly assessments, with opportunities for exam resits (Eurydice, 2025[41]).

In the final year, students take the Abschlussprüfung (final exam), consisting of:

- **Written exams**: commonly one in German (or communication skills), one in Accounting and Business Administration (could include creating financial statements and answering theoretical questions), and possibly one in Applied Maths or Foreign Language focusing on business context.
- **Oral exam**: students present and discuss a case study or project (often linked to their *Übungsfirma* or internship), demonstrating their understanding of business processes and core economic concepts.

All elements are nationally regulated in terms of structure and content, though schools can link the final oral exam to the internship or practice firm experience. Upon passing, students receive a *Final Certificate* (*Abschlusszeugnis der Handelsschule*), which confers a recognised professional qualification equivalent to an apprenticeship in related business roles (Eurydice, 2025[5]).

Example 3: Five-year BHS in Mechanical Engineering (HTL Maschinenbau) – ISCED 3/5 School-based VET

The Höhere Technische Lehranstalt (HTL) for Mechanical Engineering is a five-year full-time BHS programme preparing students (starting from age 14-15) for careers in engineering or further study. It spans ISCED levels 3 (upper secondary) and 5 (post-secondary non-tertiary), culminating in the Reife- und Diplomprüfungszeugnis, which confers both a Matura and a professional diploma at EQF level 5**.** Graduates attain EQF level 5 and the title “Ingenieur” and can be awarded the engineering degree equivalent title “Ing.” after three years of work experience and a professional review. This programme prepares students to become mid-level engineers, technicians, or to pursue higher education in engineering.

The curriculum comprises approximately 40 hours of instruction per week, with a clearly prescribed distribution between general education, theoretical engineering subjects, and practical/laboratory-based training, as defined by the Ministry of Education’s national curriculum for higher technical colleges. Weekly instructional hours for each subject area are specified across all five years, ensuring consistency across institutions. General education subjects – such as mathematics (including advanced calculus), German, English (with technical components in later years), physics, chemistry, history, civics, geography, economics, and physical education – typically account for about one-third of total hours. Technical instruction covers core fields such as mechanics, materials science, computer-aided design (CAD), electronics, automation, applied science, and project management. Practical learning involves hands-on

work in workshops and laboratories, including tasks like milling, welding, operating CNC machines, and conducting materials testing or fluid mechanics experiments. Project-based learning is introduced in the fourth year and intensifies in the fifth year, culminating in a diploma thesis. While the curriculum is highly prescriptive in terms of subject content and time allocation, schools have some flexibility to tailor elective offerings or implement locally relevant projects within the defined framework (Bundesministerium Bildung (Federal Ministry of Education, Science and Research of Austria), n.d.[45]) (Bundesgesetzblatt (Federal Law Gazette for the Republic of Austria, 2015[46]).

Students must complete eight weeks of industry internship – typically four weeks after years 3 and 4 – in firms or workshops (Eurydice, 2025[6]). During these internships, students may for example assist technicians on a production line, or shadow engineers in a design office. They often submit a reflective report, which is reviewed by the school.

In the final year, students complete a diploma project (*Diplomarbeit*), often in teams and in collaboration with companies. For mechanical engineering, this might involve designing and prototyping a tool or automating a production process. Projects are documented in a thesis and presented during the final examination (Eurydice, 2025[41]).

Students are continuously assessed in all subjects through exams, lab work, and projects. Promotion requires satisfactory performance, though one marginal grade may be tolerated. The final exam (Reife- und Diplomprüfung, Matura and Diploma) includes:

- **Written exams** in German, mathematics, a foreign language, and a technical subject (e.g. mechanical design), and are administered simultaneously nationwide (Eurydice, 2025[41]).
- **Oral exams** in which students present and defend their diploma project in front of the commission (Eurydice, 2025[41]) and answer oral questions in two or three subject areas. The oral examinations are conducted within a nationally standardised framework that outlines the structure, subject areas, and assessment criteria. Students present and defend their diploma projects before an examination committee. While the specific questions and topics are determined by the school's teachers to reflect the student's coursework and project, they must adhere to the national guidelines ensuring consistency in assessment standards. The exam committee, chaired by an external commissioner appointed by the Ministry (often an experienced HTL teacher from another school), includes the school’s teachers and sometimes an industry expert. They assess both the project and the student’s theoretical understanding (Eurydice, 2025[41]).

The combination of academic (Matura) and professional (Diploma project) elements fulfills the double qualification. Students must pass all parts to receive a qualification and can retake a failed part that in a subsequent session if needed. Upon passing, the student receives the *Reife- und Diplomprüfungszeugnis* for Mechanical Engineering, which explicitly states their general university eligibility and the engineering diploma.

3 Vocational education and training in Denmark

Despite its relatively small size, the upper-secondary vocational education and training (VET) system in Denmark plays a crucial role in the country's education landscape. It offers a dual system that combines school-based instruction with apprenticeship training in various occupational fields. There are multiple pathways for students to enter VET and multiple pathways into further education for those who choose. The curriculum is structured into a basic course followed by a main course, with a significant emphasis on work-based learning. Governance of the VET system involves a strong partnership between the state and social partners. VET is free for students and publicly financed, while the costs of work-based learning is largely covered by employers.

3.1. Place of VET in the overall education system and pathways into and after VET

Denmark's upper-secondary education system is voluntary and typically begins at age 16 after completion of compulsory basic education (*Folkeskolen*, covering Grades 0-9, with an optional Grade 10) (OECD, 2022[1]). Students can choose between general academic upper-secondary programmes and vocational programmes (*erhvervsuddannelser*, EUD). Vocational upper-secondary programmes are offered in a broad range of occupational fields and are organised as a dual system combining school-based instruction with apprenticeship training in companies. There are over 100 different vocational specialisations in Denmark, which have been structured into *four broad entry routes*: *(1)* Care, health and pedagogy; *(2)* Office, commerce and business services; *(3)* Food, agriculture and "experiences" (hospitality/tourism); and *(4)* Technology, construction and transportation (Cedefop & University College Copenhagen (UCC), 2023[2]). All VET programmes lead to nationally recognised skilled worker qualifications at ISCED level 3 upon completion.

A relatively small share of Danish upper-secondary students undertake VET. In 2021, 19% of 15-19 year-old upper-secondary students were enrolled in VET programmes in Denmark (OECD, 2023[3]). VET programmes in Denmark typically span 3 to 4 years in duration, which is slightly longer than general upper-secondary programmes (3 years) (OECD, 2022[1]). This longer duration is due to extensive workplace training requirements (usually about two-thirds of the programme spent in apprenticeships) (Cedefop & University College Copenhagen (UCC), 2023[2]).

Admission into upper-secondary VET (EUD) is open to youth who have completed compulsory schooling. Entry requirements include having achieved at least a grade 2.0 (on the 7-point scale) in Danish and mathematics in the Grade 9 or Grade 10 leaving examinations. Students who do not meet these requirements have alternative pathways to enter VET (Box 3.1). There is also no age limit for starting initial VET – many students enter after one or more years in other education or the labour market. For example, 39% of upper-secondary VET students were aged 25 or over in Denmark in 2021 (OECD, 2024[4]). Students aged 25 years or over follow a shortened adult track (EUV, *Erhvervsuddannelse for voksne*) that credits their prior experience (European Commission, 2024[5]).

Box 3.1. See every learner: Alternative pathways into VET in Denmark

Denmark has introduced several measures to ensure young people who are not immediately ready for VET at age 16 can still access vocational education at a later stage. Students finishing lower secondary school without the required grades in Danish and Mathematics have access to preparatory options to boost their skills and eventually enter VET:

- EUD10 (Grade 10 vocational pathway) – An optional Grade 10 programme with a focus on VET preparation. EUD10 allows students to improve basic academic skills (especially in Danish and maths) and explore vocational subjects in a school setting, so that they can meet the entry requirements for a vocational programme (European Commission, 2025[6]). Many youth who need an extra year opt for this targeted Grade 10, which combines normal academic curriculum with hands-on workshops and career guidance towards VET. Successful completion can lead directly into a VET foundational course.
- FGU – Preparatory Basic Education and Training (*Forberedende Grunduddannelse*) – A new comprehensive preparatory programme launched in 2019 as a merger of previous schemes. FGU is a flexible education of up to 2 years for 15–24 year-olds who are not in education or employment and lack the qualifications for youth education. It offers individually tailored teaching in basic academics, practical skills workshops, and work-based learning internships,

aiming to motivate and qualify learners to enter either VET or general upper-secondary programmes (Ministry of Children and Education, 2022[7]).

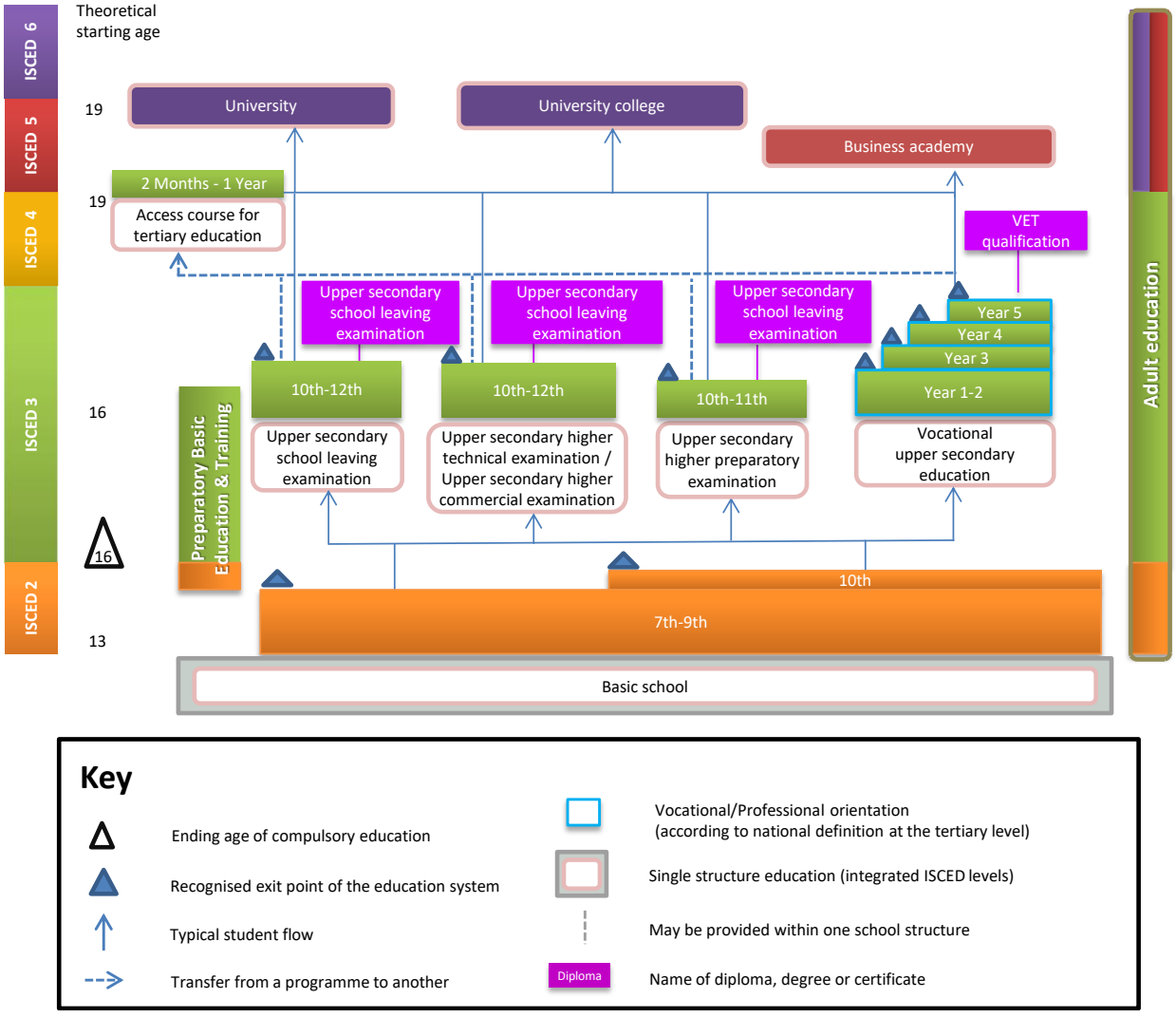
- "*Ny Mesterlære*" (New Apprenticeship) – An alternative entry route into VET for students with a very practical learning style. In *Ny Mesterlære*, the entire first year of the VET programme (the basic course) is spent in a company as an apprentice, under close guidance of a mentor "master" craftsman (Cedefop & University College Copenhagen (UCC), 2023[2]). This on-the-job immersion replaces the school-based basic course and is intended for those who learn better through work than in the classroom. After this first year, the student continues with the regular dual programme (joining the main course).

In addition to these programmes, municipalities and VET schools provide enhanced guidance and support to help at-risk youth access VET. For example, guidance counsellors work with students in compulsory school to identify those who might benefit from EUD10 or FGU, and special initiatives exist to create local training placements for youth who have difficulty finding an apprenticeship (including school-based training centers, *skoleoplæring*, where available) (UddannelsesGuiden (The Education Guide), n.d.[8]). These pathways reflect Denmark's goal that at least 90% of all young people achieve an upper-secondary qualification by age 25 (Ministry of Children and Education, 2022[7]).

Upon completing the programme and passing the final trade test (*svendeprøve*), graduates of upper-secondary VET receive a journeyman's certificate that is nationally recognised by employers across the labour market (Federal Institute for Vocational Education and Training (BIBB), 2024[9]). Many use this qualification to directly enter trades and crafts, private companies or public sector jobs. However, an increasing share also pursues further education. Graduates can access specific tertiary programmes – short-cycle higher VET programmes at academies (*erhvervsakademiuddannelser*) or professional bachelor programmes in related fields. Moreover, Denmark offers a hybrid EUX option (*Erhvervsfaglig studentereksamen*) whereby motivated students can graduate with both a skilled worker diploma and a full general upper-secondary exam, giving them general eligibility to higher education alongside their vocational qualification. The EUX pathway extends the course of study to roughly 4-4½ years and entails additional academic subjects at higher levels, reflecting the double qualification (Cedefop & University College Copenhagen (UCC), 2023[2]).

Figure 3.1 shows educational pathways into and after ISCED 3 VET in Denmark.

Figure 3.1. The place of ISCED 3 VET in Denmark's education system



Note: The reference year is 2023 (school year 2022/2023 in the northern hemisphere). Theoretical starting ages refer to the ages as established by law and regulation for the entry to a programme; actual starting ages may vary depending on the programme.
Source: Adapted from OECD (2023[10]), "Diagram of the education system: Denmark", *OECD Education GPS*, https://gpseducation.oecd.org/CountryProfile?primaryCountry=DEN.

3.2. Curriculum structure and assessment procedures

Upper-secondary initial VET in Denmark is built on the Act on Vocational Education and Training (*Lov om erhvervsuddannelser*) and curriculum decrees (*bekendtgørelser*) issued by the Ministry of Children and Education. These prescribe a two-stage structure of Basic Course (Grundforløb 1 & 2, normally 20 weeks each) and Main Course (*hovedforløb*) for upper-secondary VET (Cedefop, 2025[11]).

- The basic course is school-based and provides fundamental knowledge and skills common to a broad occupational field, preparing the student for specialisation. The basic course is split into *Grundforløb 1* (20 weeks, for those entering directly after Grade 9 or Grade 10) and *Grundforløb 2* (20 weeks) (NEG, n.d.[12]).

  - In *Grundforløb* 1, the curriculum focuses on broad introductory content related to one of the four main vocational areas (e.g. care, business, technology, etc.), including practical projects and basic theoretical concepts.
  - *Grundforløb* 2 is oriented toward the specific trade that the student wishes to pursue (e.g. carpentry, electrical installations, healthcare) and must be completed before entering a training contract in that trade's main programme (NEG, n.d.[12]).
  - At the end of the basic course, students typically take a basic course examination (*grundforløbsprøve*). Passing this exam and meeting any trade-specific requirements are necessary to progress to the main course (NEG, n.d.[12]). Students receive a certificate listing the subjects and levels attained in the basic course (Cedefop, 2012[13]), which serves as the foundation for their individual training plan in the main course.
- The main course (*Hovedforløb*) constitutes the core of the vocational programme, where students alternate between periods of college-based instruction and apprenticeship training in a company. During the college-based sessions in the main course, students typically attend blocks of theoretical and workshop training that complement their on-the-job experience. By law, a minimum of 50% of programme duration must be spent as on-the-job training (many trades exceed this) (Cedefop & University College Copenhagen (UCC), 2023[2]). All Danish VET programmes include a significant work-based component: a typical youth EUD programme comprises about 2/3 of the time in enterprises and 1/3 in school (Cedefop & University College Copenhagen (UCC), 2023[2]).

For each of Denmark's 100 or so VET programmes, a social-partner trade committee (*fagligt udvalg*) composed of employer and employee representatives drafts and updates a more detailed and binding programme order (*uddannelsesordning*), building on the high-level curriculum decree. Each order contains a joint competence description (*fælles kompetencebeskrivelse*) that translates labour-market skill needs into knowledge, skills and competence goals for school and workplace learning (Cedefop & Copenhagen University College, 2022[14]) Within this framework, curricula for the classroom element of VET programmes consist of four types of subjects:

1. Basic subjects (*grundfag*) – general education subjects (such as Danish, mathematics, English, natural science, social studies) taught at varying levels to ensure students attain core skills.
2. Area subjects (*områdefag*) – vocational theory and practical subjects common to the broader occupational area.
3. Speciality subjects (*specialefag*) – trade-specific technical subjects and skills directly related to the student's chosen specialisation.
4. Elective subjects (*valgfag*) – optional courses chosen by the student (or offered by the college) to deepen or broaden competencies, including possible higher-level general subjects for those pursuing EUX (UddannelsesGuiden (The Education Guide), n.d.[8]).

For every basic, area, speciality or elective subject, a subject syllabus (*fagplan*) spells out what the learner has knowledge of, is able to do, and is competent to do. These outcomes are tied to Denmark's 7-point grading scale, whose grade descriptors indicate the degree to which the goals are met (UddannelsesGuiden, n.d.[15]). Colleges must respect the aforementioned elements when they write their local teaching plans.

Assessment procedures in Danish VET are closely aligned with the learning objectives of each programme defined in decrees and programme orders. Throughout both school and workplace phases, apprentices undergo continuous assessment. In school, they receive grades or pass/fail evaluations in their courses, and must attain passing marks in the required basic subjects and vocational area subjects. In-company training is evaluated through the achievement of practical competencies; employers and local training advisors certify when an apprentice has mastered certain tasks. The workplace training is guided by training logbooks or competence checklists corresponding to the curriculum, developed by sectoral trade

committees. The apprentice's skills are periodically assessed by the company trainer and the VET college to ensure all required competences are being developed. Notably, each apprentice has an individual training plan agreed upon by the student, the VET college, and the employer, which outlines the sequence of school modules and work placements.

The culmination of an initial VET programme is the final examination, which is normally a comprehensive trade test (*svendeprøve*). This final exam is set by the trade committee for that occupation and typically consists of a practical project or work sample, often accompanied by an oral or written theoretical test. A panel of examiners – usually including industry representatives and teachers – evaluates the performance using national criteria. Upon passing the final exam, the apprentice is awarded the journeyman's certificate, formally recognising them as a skilled worker (Federal Institute for Vocational Education and Training (BIBB), 2024[9]; Cedefop & Copenhagen University College, 2022[14]). The final certificate also lists the courses completed and their grades.

3.3. Work-based learning (WBL) in VET programmes

Work-based learning is the cornerstone of Danish upper-secondary VET, which can be characterised as a unified apprenticeship system. By law, a minimum of 50% of programme duration must be spent as on-the-job training and a typical youth EUD programme comprises about 2/3 of the time in enterprises and 1/3 in school. Students are responsible for obtaining a training placement, with support from the school, while employers are responsible for offering placements. To enter the main course, a student must have a signed training agreement with an approved company. Approximately 65% of VET students had secured an apprenticeship by the end of their basic course in 2022, while many other students do so after a longer period (Cedefop & University College Copenhagen (UCC), 2023[2]).

There are also mechanisms to support WBL even when a regular company apprenticeship is not immediately available. Students who do not immediately find an employer placement have the option (in many programmes) to continue their practical training at a school-based training centre (*skolepraktik*, also known as *praktikcenter*). These training centres, usually attached to VET colleges, simulate workplace environments and carry out real or practice production tasks so that the apprentice can keep learning practical skills until they secure a company spot (Cedefop & University College Copenhagen (UCC), 2023[2]). School-based apprentices receive hands-on assignments and often work on projects for actual clients (e.g. producing furniture for local institutions in a woodworking programme) under instructor supervision. The goal is to transfer them to a company apprenticeship as soon as possible; the school training is a safety net to prevent dropout due to lack of placement. Not all VET programmes offer the *skolepraktik* option – it is available in trades where there is a shortage of apprenticeship places or as determined by the trade committee.

During the work-based learning component, the employer is responsible for providing training according to the national curriculum decrees and programme orders. Companies must be approved as training establishments by trade committees, which involves meeting criteria such as having the range of work and qualified staff to train an apprentice (Cedefop & Copenhagen University College, 2022[14]) (Cedefop & Copenhagen University College, 2019[16]). Local *training committees* (*lokale uddannelsesudvalg*) associated with each college help ensure quality WBL by assisting in vetting local companies and mediating any issues between apprentices and firms (Cedefop & University College Copenhagen (UCC), 2023[2]). Every apprentice has a designated journeyman or supervisor at the workplace who oversees their learning. The training plan specifies which practical skills and tasks the apprentice should experience during each placement period. Work-based learning in Denmark is not confined to a single employer in many cases – apprentices can split their apprenticeship ("*kombinationsaftale*") between multiple enterprises if needed to obtain all required skills (commonly done in smaller firms). Additionally,

short internship exchange periods are possible, wherein an apprentice temporarily trains at another company (or abroad) to gain specific experience.

The government and social partners have taken steps to strengthen WBL and ensure sufficient apprenticeship opportunities, including through the use of financial incentive and compensation for training companies (see Section 3.7).

3.4. Provider types

In Denmark, upper-secondary VET programmes are delivered by vocational colleges (*erhvervsskoler*). These colleges are state funded and operate as technical colleges (*tekniske skoler*), health and social colleges (SOSU *skoler*) or business colleges (*handelsskoler*) (OECD, 2022[1]). In 2021 there were 83 vocational colleges in Denmark, some of which also offered general upper-secondary courses (European Commission, 2024[17]).

All vocational colleges in Denmark are classified as self-governing public institutions under the authority of the Ministry of Children and Education. This means they operate independently on a day-to-day basis but rely on government funding and must adhere to national regulations and curricula. Each college is governed by a board (*bestyrelse*) that has overall responsibility for school management, finances, and strategic decisions. By law, the governing board includes representatives of local employers and employee organisations (social partners), as well as members of the school staff and students. The board appoints the college director/principal and approves budgets, and it decides which VET programmes and how many student places the college will offer (Cedefop & University College Copenhagen (UCC), 2023[2]). Municipalities do not have a role in running VET Colleges as they do in general upper-secondary schools - their role is more about youth guidance and supporting students' transition.

Despite their autonomy, vocational colleges are subject to national regulations regarding programme provision. They can only offer the specific VET programmes for which they are approved by the Ministry, usually based on regional labour market needs. In some areas, more than one college may offer the same programme, leading to competition for students. In other cases, a college may be the only provider of a niche programme nationwide.

After years of network consolidation, a typical VET college today offers multiple entry routes and specialisations – often covering both technical and commercial programmes. The majority of VET colleges specialise in technical and commercial education. A smaller number offer agricultural and social and healthcare qualifications (Cedefop & Copenhagen University College, 2019[16]). Colleges may also offer supplementary training such as adult vocational training (AMU) and higher vocational programmes (Academy Profession degrees), creating hubs of vocational learning (sometimes branded as "campuses").

In addition to VET colleges, a small array of other institutions are involved in delivering parts of VET. Private training centres or institutions can offer more niche programmes, typically under special agreements. For instance, some apprenticeship training in craft trades can occur in guild training workshops or vocational academies. There are also agricultural training centres (*landbrugsskoler*) for farming and horticulture programmes and Maritime training schools for ship-related vocations. The school-based training centres (*praktikcentre*) attached to vocational colleges are also considered part of the provider landscape – these centres, usually located at the colleges, take in students who are in the school-based apprenticeship track and co-ordinate their practical assignments. Importantly, all these provider types operate under the same national qualifications framework and quality assurance system.

3.5. VET teachers and trainers' qualifications and professional development

The VET workforce in Denmark is composed of two categories of teachers: general subject teachers and vocational subject teachers (including workshop instructors) (OECD, 2022[1]). General subject teachers in VET (for subjects like Danish, English, mathematics, etc.) typically have an academic education similar to gymnasium (general school) teachers. This includes a university degree in the subject and a professional teaching qualification (often a Professional Bachelor's in Education). Vocational subject teachers, on the other hand, are usually recruited from industry and have a background as skilled workers or professionals in the trade they teach. By regulation, a vocational teacher is expected to have a relevant vocational qualification (at least at the level they will teach) and substantial work experience – typically a minimum of five years of industry experience (Cedefop & University College Copenhagen (UCC), 2023[2]). Many vocational teachers are master craftsmen, technicians or former supervisors who transition into teaching after a career in the trade.

Denmark mandates that all VET teachers acquire pedagogical training while in service. There is no requirement to possess a teaching diploma at the point of hire for vocational teachers. Instead, newly hired VET teachers must enrol in the Diploma in Vocational Pedagogy (*Diplomuddannelsen i Erhvervspædagogik*) within the first two years of employment. This is a part-time in-service training programme equivalent to 60 ECTS credits (one year of full-time study) at EQF level 6, typically completed over 2-4 years alongside teaching duties. New teachers usually teach under the guidance of experienced colleagues while they pursue this diploma. The programme must be completed within 6 years of hire (Cedefop & University College Copenhagen (UCC), 2023[2]) and colleges typically finance or heavily subsidise this training as part of staff development.

In addition to formal qualifications, Denmark places emphasis on industry experience for VET trainers. Many workshop instructors and part-time teachers are still connected to industry or come on temporary contracts from companies. Vocational colleges hire teachers directly and have autonomy in recruitment, which means they can bring in experts from business for specific courses without lengthy formalities. Teacher recruitment panels often include industry representatives as well, to ensure candidates have the right profile (Cedefop & University College Copenhagen (UCC), 2023[2]).

Continuous professional development (CPD) for VET teachers is encouraged but not centrally mandated beyond the initial diploma. There is no statutory requirement for a fixed number of in-service training days per year for VET teachers. Instead, each college is responsible for developing a staff development plan that aligns with its goals and ensures teachers keep their skills current (Cedefop & University College Copenhagen (UCC), 2023[2]). Common CPD activities include short courses on new technologies, participation in development projects, or industry placements. Teachers frequently engage in peer learning groups, attend conferences (such as the annual Vocational Education Conference), and some pursue further degrees (like a Master's in education) voluntarily.

Regarding in-company trainers (the master craftspersons who guide apprentices at workplaces), Denmark does not impose a compulsory training requirement. Company trainers are usually experienced journeymen or supervisors who take on apprentices as part of their job. Various resources are available to them, including short voluntary courses on mentoring apprentices (often offered by the trade committees or adult training centres), but these are not mandatory (Cedefop & University College Copenhagen (UCC), 2023[2]). Instead, quality is maintained by the approval process for training companies and the oversight by local training committees. Some sectors have developed guidelines or one-day seminars for new apprentice supervisors to introduce them to pedagogy and the VET structure. The government and social partners encourage participation in such courses to improve the training quality in companies.

3.6. Governance

Denmark's VET governance is characterised by a strong partnership between the State and the social partners (employers' and workers' organisations), combining centralised regulation with decentralised delivery. At the highest level, the Danish Parliament (Folketing) and the Ministry of Children and Education hold legislative and executive authority over VET. The primary law governing upper-secondary VET is the Act on Vocational Education and Training (*Lov om erhvervsuddannelser*), which sets out the objectives, structure, and responsibilities in the system. The Ministry issues detailed regulations and national curricula for each vocational programme, typically in the form of ministerial orders developed in consultation with social partner committees (Cedefop & Copenhagen University College, 2022[14]; Cedefop & Copenhagen University College, 2019[16]). The Ministry also allocates funding to colleges, supervises quality assurance, and monitors outcomes. However, the content and updating of VET programmes are heavily influenced by labour market stakeholders through a corporatist governance structure.

A central body in the governance system is the National Advisory Council for VET (*Rådet for de Grundlæggende Erhvervsrettede Uddannelser)* (Cedefop & Copenhagen University College, 2022[14]). This council consists of about 31 members representing employers' organisations, trade unions, and other stakeholders, and it advises the Ministry on overall VET policy, such as the need for new programmes, major reforms, or structural adjustments (OECD, 2022[1]). For instance, the advisory council monitors societal and technological developments and can recommend the creation of a new apprenticeship programme or the merger of existing ones if occupations converge. While its role is advisory, its recommendations carry weight due to the consensus-based approach in Denmark.

The main driver of detailed curriculum and qualification decisions are the National Trade Committees (*faglige udvalg*). There are roughly 50 trade committees in Denmark, each responsible for one or more of Denmark's 100 or so VET programmes (OECD, 2022[1]). A trade committee is a statutory body composed equally of 10-14 representatives from the relevant employer associations and trade unions for that sector. The trade committees are financed by the employer levy (AUB), reinforcing their independence (Cedefop & Copenhagen University College, 2022[14]). These committees are legally tasked with a range of responsibilities:

- **Designing and updating programmes**: Trade committees propose the curriculum frameworks, including duration of the programme, the division between school and apprenticeship (e.g. 2:1 work/school ratio), and the competencies to be achieved. They formulate the learning objectives and final examination requirements for their trades, ensuring alignment with industry skill needs (Cedefop & Copenhagen University College, 2019[16]). They also decide on any specialisations (tracks) within the programme and the optional electives that can be offered (Cedefop & Copenhagen University College, 2022[14]). Any significant changes (like introducing a new technology module) typically originate from the trade committee and are then approved by the Ministry.
- **Approving training companies**: Trade committees (often delegating to regional bodies) grant approval to companies that wish to take apprentices, verifying that the company's work and facilities will provide sufficient training opportunities (Cedefop & Copenhagen University College, 2019[16]). They can withdraw approval if a company fails to meet training obligations.
- **Conflict resolution**: If disputes arise between an apprentice and their employer (for example, about training conditions or contract terms), the trade committee acts as an arbitration panel of sorts (Cedefop & Copenhagen University College, 2019[16]). They mediate conflicts and can ultimately decide on solutions such as moving the apprentice to another firm.
- **Examinations and certification**: Trade committees play a key role in the final assessment. They either set the journeyman's test assignments or approve them, appoint external examiners (censors), and oversee the conduct of exams. They are responsible for issuing the

official journeyman's certificates to those who pass, thus controlling entry into the trade as qualified workers (Cedefop & Copenhagen University College, 2019[16]). This makes them the guarantors of skill standards.

- **Analysing skill needs**: Trade committees monitor trends in their sector (e.g. new regulations, technological change) and initiate curriculum updates or new short courses accordingly. They often run development projects or surveys to keep training relevant (Cedefop & Copenhagen University College, 2022[14]).

At the local level, each vocational college has one or more Local Training Committees (*lokale uddannelsesudvalg*) for each broad programme area it offers (Cedefop & Copenhagen University College, 2019[16]). These are subsets of the national committees or their local representatives, again including employers and employees, along with college staff. The local committees adapt the implementation of programmes to regional conditions: they advise the college on elective subjects to offer, local business partnerships, and outreach. They also help in the very practical task of finding enough apprenticeship placements by mobilising local companies (Cedefop & University College Copenhagen (UCC), 2023[2]).

The vocational colleges themselves are governed by boards that include social partner representatives, and they enjoy autonomy in administration and teaching methods (pedagogy, teacher hiring, etc.) within the boundaries set by the national framework (Cedefop & University College Copenhagen (UCC), 2023[2]). Colleges are accountable to the Ministry through annual reports and performance indicators (e.g. completion rates, employment outcomes). The Ministry uses a set of quality indicators and audits to supervise colleges – for example, if a college has very low completion, the Ministry can initiate an improvement plan. There is also an external evaluation body, the Danish Evaluation Institute (EVA), which periodically evaluates VET programmes or thematic issues (like quality of apprenticeships) and provides recommendations to the Ministry and schools.

3.7. Funding

Denmark's ISCED 3 VET system is publicly financed and enrolment is free of charge for students. The funding responsibilities are shared between the government and employers. Broadly, the State (central government) funds the school-based education component, while companies bear the costs of the work-based training component – with significant subsidies and sharing mechanisms in place.

Vocational colleges receive funding from the national government primarily through a "taximeter" system of per-student grants. Colleges are funded based on their enrolment and student activity, incentivising colleges to attract and retain students (Cedefop & University College Copenhagen (UCC), 2023[2]). Different programmes or subject areas may have different rates reflecting cost differences. The funding formula also rewards completion: colleges may receive additional output-based grants when students pass exams or complete their apprenticeship.

In addition to the per-student funding, each college gets an annual base grant to cover fixed costs (facility maintenance, administration. All the state grants are combined into a block grant that the college can use autonomously This block grant approach gives colleges flexibility in budgeting – for instance, they can decide to invest in new workshops or extra teacher training. In 2022, the Danish State's total expenditure on initial VET was about DKK 3.5 billion (approximately EUR 470 million. By comparison, government spending on general upper-secondary education was much (around DKK 12.9 billion in 2022), largely reflecting greater student numbers. Spending on preparatory programmes (FGU, etc.) and other youth training was about DKK 2.7 billion (Cedefop & University College Copenhagen (UCC), 2023[2]).

A "social taximeter" supplement provides extra funds for colleges based on the number of disadvantaged students, to ensure inclusive education. The government additionally finances national support initiatives,

such as development projects, new equipment grants (for expensive technology updates), and the training of VET teachers (e.g. the aforementioned DKK 400 million for teacher upskilling was a targeted fund).

Funding for work-based learning comes primarily from employers via the Employers' Reimbursement Fund (*AUB, Arbejdsgivernes Uddannelsesbidrag*). Every employer, both public and private, pays a flat annual contribution per employee to AUB (for example, around DKK 3 000 per full-time employee in recent years). This creates a collective fund to support apprenticeships. From this fund, companies that train apprentices receive reimbursements to offset the wages paid to apprentices during periods when apprentices are attending school. In Denmark, apprentices are paid a salary by their employer for the entire apprenticeship (both work and school periods) as stipulated in collective agreements. The AUB fund also finances various bonuses and incentives. As of the 2020 tripartite deal, companies that meet or exceed certain apprentice intake targets get a bonus rebate on their AUB contributions, whereas those who take in very few may pay an additional surcharger. This effectively rewards active training companies and pushes companies in sectors with training shortages to contribute more financially. Furthermore, AUB covers costs of school-based apprenticeships – if a student is in the skolepraktik scheme, their training allowance (a student stipend similar to apprentice wage) is funded by AUB so that the vocational college can support them until they find a real employer (Cedefop & University College Copenhagen (UCC), 2023[2]).

For students, initial VET is free and there are no tuition or examination fees. Young VET students under 18 receive no statutory student stipend (since education is free and they typically live with parents), but once they sign a company contract, they start getting the apprentice wage paid by the employer. Students over 18 who are in the school-based part without an apprenticeship can receive the normal state Education Grant (SU), the same as academic students (UddannelsesGuiden (The Education Guide), n.d.[8]). Apprentices' wages are negotiated by unions and are usually a percentage of a qualified worker's wage, increasing each training year (for example, starting at ~60% and ending at 80-90% by the final year).

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Annex 3.A. Examples of curriculum structure and assessment procedures for three ISCED 3 VET qualifications

To illustrate how the above elements come together in practice, this annex presents three examples of upper-secondary VET programmes in Denmark:

- Example 1: Electrician (Elektriker) – a technical trade in the *Technology, construction and transportation* sector.
- Example 2: Social and Health Care Assistant (Social- og sundhedsassistent) – a healthcare programme in the *Care, health and pedagogy* sector.
- Example 3: Carpenter (Tømrer) under "Træfagenes byggeuddannelse" – a construction trade in the *Technology, construction and transportation* sector (woodcraft building programme).

Each example outlines the programme's structure (basic and main course components, school and apprenticeship breakdown, key subjects) and its assessment structure (including any final project or exam specifics). These examples demonstrate the common dual model as well as the diversity of content across vocational fields.

Example 1: Electrician (Elektriker) – a technical trade in the Technology, construction and transportation sector

The Electrician programme is one of Denmark's larger vocational programmes, preparing students for careers in electrical installations, maintenance, and automation. Electricians plan, install, and repair electrical systems in buildings, infrastructure, and industrial settings. Within the programme, there are a couple of specialisation levels often referred to as *Elektriker 1* and *Elektriker 2* (which historically indicated standard and advanced options, though today all follow a unified structure with optional modules) (UddannelsesGuiden, n.d.[18])The typical duration of the electrician VET programme is 4 years and 6 months (up to 5 years if all optional modules are taken or if pursuing the EUX track) (UddannelsesGuiden, n.d.[18]). This includes the basic course and main apprenticeship course. An overview of the curriculum structure is shown in Annex Table 3.A.1.

Annex Table 3.A.1 shows the detailed course and credit structure for the Elektriker Programme, drawing on the national curriculum decree, trade-committee programme order and public guidance sites and college handbooks.

Annex Table 3.A.1. Course and credit structure for the electrician (Elektriker) programme

Segment	Duration	Content and subjects
Basic course 1 & 2	*40 weeks* (20 + 20 weeks)	– Basic subjects: Danish (level E), Mathematics (level D), Physics (level E) (NEG, n.d.[12]) – Area subjects: Introduction to electricity and energy, IT and networking basics, workplace safety. – Vocational foundation: Hands-on projects (e.g. wiring simple circuits, solar cell basics) and theory classes covering fundamental electrical principles. – Completion: Basic course project + exam; must be passed to enter apprenticeship.
Main course (Apprenticeship and school)	*Approx. 3 years 10 months* (incl. 4–5 school blocks)	– On-the-job training: ~ 150 weeks of apprenticeship in one or more electrical installation companies. The apprentice works under supervision on real tasks: installing electrical systems in houses and offices, industrial motor controls, cabling, troubleshooting, etc., progressively taking on more independent work. – School periods: ~ 40–45 weeks split into 4–5 blocks at the vocational college. Each block lasts 8–10 weeks and focuses on specific competences: e.g. Block 1: installation techniques (residential wiring, lighting circuits), Block 2: automation and control (PLC controllers, industrial systems), Block 3: communications and security (network cabling, alarm systems), Block 4: advanced topics and prep for final project. – Subjects at school: Electrical theory (Ohm's law, circuit design), automation technology, technical drawing (electrical diagrams), use of testing instruments, applicable laws and regulations (electrical code), as well as continuing maths and physics applied to electricity. There are also short courses in customer service and entrepreneurship (for those who may start their own business). – Electives and specialisation: The programme includes elective modules (approx. 4 weeks in total) which an apprentice can choose based on interest or company needs – e.g. green energy systems (solar panel installation), building management systems, or elevator systems. These allow deeper specialisation. EUX students take additional courses like Danish A, Physics B, Chemistry C during these periods (extending total duration to ~5 years) (El-Forbund, n.d.[19]).

Source: Danish Ministry of Children and Education (n.d.[20]), TEKNIQ Arbejdsgiverne, www.tekniq.dk/.

The electrician programme concludes with a comprehensive final assessment – the Journeyman's Test (svendeprøve) – typically held in the last 4-8 weeks of the programme (overlapping with the final school block). For electricians, this test takes the form of a practical project and an oral defence. Apprentices are given a real-world inspired task set by the Electrical Trade Committee (for example, *design and install the complete electrical system for a small house or an industrial section*). Over several days, the apprentice must produce wiring diagrams, perform required calculations (loads, fuse sizing, etc.), and physically construct the installation on a test board or mock-up – including mounting panels, cables, outlets, switches, motors or alarm systems as specified. Additionally, the apprentice typically submits a brief report or is questioned orally about the project. They must explain how their installation meets safety regulations and client requirements, demonstrating theoretical understanding of their practical work. External examiners (experienced electricians appointed by the trade committee, called *censors*) join a college instructor to evaluate the journeyman project, suing set criteria. The examiners jointly assign a grade (using the 7-point grading scale). Successful candidates are awarded the Electrician Journeyman's Certificate, officially recognising them as a skilled electrician. This certificate enables immediate entry into the trade as a qualified electrician (Cedefop & University College Copenhagen (UCC), 2023[2]).

Example 2: Social and Health Care Assistant (Social- og sundhedsassistent)

The Social and Health Care Assistant programme (often abbreviated *SOSU-assistent* in Danish) trains students to provide professional caregiving and basic nursing. Social and Health Care Assistants work in settings such as nursing homes, home care services, hospitals, and institutions for people with disabilities. Their role includes observing and improving patients' or clients' health status, providing personal care and rehabilitation, administering medication, and guiding eldercare or social service aides (such as social- og sundhedshjælpere) (UddannelsesGuiden, n.d.[21]). It is a cornerstone programme in the care sector of

Danish VET, addressing the needs of an aging population and the health services workforce. The SOSU Assistant programme's duration is about 3 years 10 months for most students, including the basic course (UddannelsesGuiden, n.d.[21]). It can be extended up to 4 years 7 months if the optional academic track (EUX) is pursued (UddannelsesGuiden, n.d.[21]).

Annex Table 3.A.2 shows the detailed course and credit structure for the Programme, drawing on the national curriculum decree, trade-committee programme order and public guidance sites and college handbooks.

Annex Table 3.A.2. Course and credit structure for the Social and Health Care Assistant (Social- og sundhedsassistent) programme

Segment	Duration	Content and subjects
Basic Course 1 & 2 (SOSU GF1+GF2)	*20 – 40 weeks* (typically 20 weeks if the student has completed another upper secondary or relevant foundation, otherwise 40 weeks total)	• Basic subjects: Danish, Mathematics, English, and Natural science (at levels required for the care sector (UddannelsesGuiden, n.d.[21])) These may be taken in GF2 depending on prior education. • Introductory themes: Care, health and pedagogy introduction – basic anatomy, psychology, and social care knowledge common to welfare programmes (Ministry of Children and Education, 2019[22]). In GF1, students explore the broad field of "Care, health and pedagogy" and get an overview of SOSU and related programmes (Ministry of Children and Education, 2019[22]). • Specific foundation: In Grundforløb 2, the content is targeted to the Social & Health pathway. Students learn fundamental skills such as basic nursing procedures, hygiene and infection control, communication with patients, and teamwork in care settings (UddannelsesGuiden, n.d.[21]). They are introduced to working with the elderly and disabled, and topics like welfare technology and rehabilitation principles. • Completion: GF2 ends with a project and examination. Students must demonstrate basic care competencies (e.g. a simulated patient care scenario) in order to progress to the main programme (UddannelsesGuiden, n.d.[21]).
Main Course (Apprenticeship + college periods)	*Approx. 2 years 9 months* (incl. at least 4 school periods; total ~48 weeks in school for youths) (SEVU, 2019[23])	• On-the-job training (praktik): ~98 weeks of practical training in workplaces, divided into 3 main internship periods (SEVU, 2019[23]). These placements typically cover: (1) elderly care in a municipal setting (e.g. nursing home or home care service), (2) psychiatric care and mental health services, and (3) somatic healthcare in a hospital ward (SEVU, 2019[23]). During each practicum, students work under supervision of qualified staff to perform gradually more complex care tasks – from daily living assistance and documentation in elder care, to supporting nurses with medical tasks in hospitals. By the final practicum, they are effectively functioning in an assistant nurse capacity, planning and providing patient care. • School periods: 4–5 blocks of college-based instruction (totaling ~1 year of study) interspersed between the internships (SEVU, 2019[23]). At school, students delve into the theory and skills underpinning their practical work. Key subjects and themes include: Nursing and caregiving (professional patient care, basic medical procedures, first aid and CPR certification); Disease knowledge (common illnesses, symptoms, prevention and rehabilitation (UddannelsesGuiden, n.d.[21])). Pharmacology and medication administration (safe handling of medicines) (UddannelsesGuiden, n.d.[21]); Mental health and psychology; Health promotion and preventive care (nutrition, exercise, hygiene); and Communication and ethics (how to communicate with and empower patients/clients with respect and cultural sensitivity) (UddannelsesGuiden, n.d.[21]). Practical skills are practiced in simulation labs at school (e.g. practicing measuring vital signs, wound care, assisting with mobility). Students also continue general subjects like Danish and *social science* at a level that qualifies them for further studies in healthcare (UddannelsesGuiden, n.d.[21]). • Special focus: Throughout the main course, there is emphasis on documentation and collaboration – students learn to document care actions in records and to work in teams with nurses, physiotherapists, doctors, etc., ensuring a cohesive patient care plan (UddannelsesGuiden, n.d.[21]). They also learn to guide and mentor Social & Health Care Helpers (the lower-tier workers), reflecting their future supervisory role.

The Social and Health Care Assistant programme concludes with a comprehensive final exam that tests both practical and theoretical competencies required for safe professional practice (SEVU, 2019[23]). The final assessment typically occurs during the last school period. Students must complete a project assignment – often a case-based project drawing on one of their practicum experiences or a simulated patient scenario. The exam itself usually consists of an oral examination (mundtlig prøve) based on the project (SEVU, 2019[23]) and there may also be a practical demonstration element. The final exam panel includes external examiners appointed by the trade committee alongside the college teacher (SEVU, 2019[23]). Upon passing the final exam, the student is issued a Social- og Sundhedsassistent certificate, which qualifies them to work as a licensed Social & Health Care Assistant. Graduates also obtain the right to use the protected title and may pursue further education in nursing, if they wish (the assistant certificate gives conditional access to nursing programmes, often after some experience or additional courses).

Example 3: Carpenter (Tømrer) – under Træfagenes byggeuddannelse

The Carpenter programme in Denmark is offered as a specialisation within *"Træfagenes byggeuddannelse"* – the umbrella Woodcraft Construction programme. This broad VET programme covers three specialisations (trades): Tømrer (Carpenter), Gulvlægger (Floor layer), and Tækkemand (Thatcher) (UddannelsesGuiden (The Education Guide), n.d.[8]). The Carpenter track trains students in constructing and renovating wooden structures, such as building timber-framed houses, installing roofs and flooring, fitting windows and doors, constructing wooden staircases, and performing interior finishing carpentry. Many carpenters are employed by small contracting firms or eventually become self-employed craftsmen (UddannelsesGuiden (The Education Guide), n.d.[8]). The duration of the *Træfagenes* programme for a carpenter is between 4 years and 4 years 6 months (including the basic course) for the standard route (Retsinformation, 2019[24]). Students who start right after Grade 9 typically do the full 4½ years (because they attend both GF1 and GF2).

Annex Table 3.A.3 shows the detailed course and credit structure for the Programme, drawing on the national curriculum decree, trade-committee programme order and public guidance sites and college handbooks.

Annex Table 3.A.3. Course and credit structure for the Carpenter (Tømrer) – under Træfagenes byggeuddannelse programme

Segment	Duration	Content and subjects
Basic Course 1 & 2 (*Træfag GF1+GF2*)	*20–40 weeks* (typically 40 weeks for new school-leavers, split into 2×20 week courses)	• Basic subjects: Mathematics (often to at least level D), Danish, English, and Physics/Science – these underpin technical calculations and communication in the trade. Carpentry students, especially in GF2, focus on maths relevant to construction (geometry for roof angles, measurement, etc.) and technical drawing basics. • Workshop introduction: During GF1, students in the "Construction" entry route get a broad intro to building trades. They learn general construction safety, how to use hand and power tools, and basic building techniques common to multiple trades (e.g. simple bricklaying, basic woodworking joints) – giving them a feel for different specialisations before they commit (Ministry of Children and Education, 2019[22]). • Specific foundation (GF2): In the carpentry-focused Grundforløb 2, students concentrate on wood construction basics. They practice making simple wooden structures and joints, reading simple blueprints, and are introduced to carpentry theory. Key topics include material science for wood (types of lumber, quality, treatment), basic structural principles, and workplace health & safety (e.g. working at heights, tool safety) (Retsinformation, 2019[24]). They might build small projects like a

Segment	Duration	Content and subjects
		doghouse, a section of a wall, or a basic roof model as part of their training. • Completion: GF2 ends with a project that often involves constructing a small wooden structure from a given drawing, testing students' basic carpentry skills and ability to follow technical instructions. There is an exam on the vocational theory and basic subjects. Passing this is required to enter the apprenticeship (main course) (Ministry of Children and Education, 2019[22]).
Main Course (Apprenticeship + college blocks)	*Approx. 3 years 6 months* (incl. 5 school blocks; total ~55 weeks in school for a standard youth pathway (NEXT, n.d.[25]))	• On-the-job training: ~146–150 weeks of apprenticeship (around 3 years) in construction companies. Apprentices typically rotate through different job sites and possibly different employers to gain a range of experience. Under the supervision of journeyman carpenters, they perform tasks such as: framing wooden structures for walls and roofs, installing insulation and vapor barriers, laying wooden flooring, hanging doors and installing windows, building formwork for concrete, and interior trim work. They learn to work in teams on construction sites, co-ordinate with masons, plumbers, and electricians, and follow building codes. Because the programme allows for school-based apprenticeship as a fallback (via school workshops or centers) (NEXT, n.d.[25]), apprentices who cannot find a company placement continue to train in realistic workshop projects until they secure a placement. • School periods: The carpenter main course is organised into 5 themed school blocks (each ~8–10 weeks) (NEXT, n.d.[25]). In each block, apprentices return to the vocational college (which could be a technical college or a specialised construction school) for intensive training in specific areas of the trade. For example: Block 1: *Floor construction and technical drawing;* Block 2: *Roof work and Building science;* Block 3: *Energy and advanced structures;* Block 4: *Interior finishing and wet rooms;* Block 5: *Traditional joinery and Final project preparation.* • Optional modules: Like other trades, carpenters have elective short courses during their training (e.g. specialised restoration techniques, working with new sustainable materials, or CNC woodworking machinery). EUX carpenters take additional academic courses (maths A, physics B, etc.) usually spread out during the college blocks or in an extra semester, which extends the overall training to around 5 years (Uddannelser, 2018[26]).

The culmination of the carpenter programme is the Journeyman's Test (Svendeprøve) in the final school block, overseen by the carpentry trade committee (*fagligt udvalg*) with local exam co-ordinators. The journeyman's test for carpenters is a substantial practical project that must be completed individually under exam conditions, typically over about 10 working days (around 37 hours) in the school's workshops (Gymnasieuddannelser, 2024[27]). Key aspects include performing a project task prepared by the trade committee, produce detailed construction drawings for the project, and then builds the piece in the workshop within the allotted time. Upon completion, the finished project and the drawings are evaluated by a panel of external examiners, typically master carpenters from industry appointed by the trade committee, along with a teacher observer (Cedefop & University College Copenhagen (UCC), 2023[2]). They assess the work against set criteria and may question the apprentice. Each aspect (drawings, the constructed piece, oral defence) is considered in the overall mark, with marks given according to the 7-point scale. Apprentices who pass the journeyman's test receive the Carpenter Journeyman Certificate, formalising them as a qualified *træfagenes tømrer*. This opens employment as a skilled carpenter.

4 Vocational education and training in Finland

Upper-secondary vocational education and training (VET) in Finland occurs during compulsory schooling (to age 18). National qualification standards define required competencies and learning outcomes, and programmes are modular and tailored through personal study plans. Work-based learning (WBL) is mandatory and implemented through either training agreements, without strict minimum levels of WBL, or apprenticeships. VET programmes are delivered by public and licensed private providers, who develop their own curricula based on the national qualification requirements. Teachers in VET meet three requirements: appropriate field qualification, relevant work experience, and pedagogical training. Governance of VET is centralised in regulation but decentralised and flexible in implementation, with social partners and local stakeholders strongly involved. Core funding ensures equity, while performance- and outcome-based financing rewards providers for students' outcomes.

4.1. Place of VET in the overall education system and pathways into and after VET

Finland's upper-secondary education comprises two main tracks – general upper-secondary school (*lukio*) and vocational education and training (*ammatillinen koulutus*). Both typically start at age 16 after nine years of comprehensive basic education (*peruskoulu*). Following a recent reform, compulsory education was extended to age 18 (or until an upper-secondary qualification is attained) in 2021, meaning virtually all 16-year-olds must continue and are assured a place in upper-secondary studies (Eurydice, 2025[1]; European Agency for Special Needs and Inclusive Education, 2025[2]). Both general and vocational upper-secondary are free of charge for students, including teaching materials and daily school meals.

Students choose either the general or vocational path, with each pathway lasting three years in nominal duration and granting eligibility for higher education upon completion (Eurydice, 2025[1]). About 42 different initial vocational qualifications (*perustutkinnot*) are defined at the national level, covering all major industries and occupational sectors. Each qualification is broad-based, aiming to impart fundamental skills in the field plus some specialisation (competence area) chosen by the student (Cedefop; Finnish National Agency for Education, 2022[3]). All vocational students, regardless of institution or age, participate in training in real workplaces as part of their studies. In 2021, 45% of 15-19 year-old upper-secondary students were enrolled in VET programmes in Finland (OECD, 2023[4]).

Admission to upper-secondary VET is primarily based on the basic education certificate. There are no high-stakes entrance exams, but popular programmes may use applicants' grade point average and other criteria for selection (Cedefop, 2019[5]). In certain fields (e.g. social and health care, technology, business) VET programmes receive more applicants than available places (Cedefop; Finnish National Agency for Education, 2022[3]).

For those who finish basic education without the necessary skills or who are undecided, Finland provides preparatory pathways (Box 4.1).

Box 4.1. See every learner: Alternative VET pathways for students at risk in Finland

Preparatory education for upper-secondary education (Tutkintokoulutukseen valmentava koulutus, TUVA)

Finland has integrated "second chance" routes to guarantee that every learner can enter upper-secondary VET or general education. In 2022, a new Transitional Preparatory Education (TUVA) programme was introduced, combining the roles of prior preparatory courses into one unified pathway. TUVA is a one-year programme (extendable if needed) designed for students who have completed basic education but are not yet ready to start an upper-secondary qualification. This includes those who did not attain a study place, school-leavers with low grades, immigrants needing language support, or others uncertain about their career direction. TUVA students follow an individual plan that may include basic academic subjects, Finnish/Swedish language lessons, study skills, career guidance, and periods of workplace orientation (Eurydice, 2025[1]). The aim is to strengthen their capabilities and confidence for pursuing a qualification the following year.

TUVA does not grant a qualification itself; however, time spent in TUVA counts as part of compulsory schooling (since education is mandatory until 18) and importantly, it improves students' prospects of success in VET. A student can, for example, use TUVA to raise their maths and language proficiency, learn about different vocational fields through hands-on projects, and get counselling on applications. By the end of the programme, most TUVA participants advance into a vocational or general upper-secondary programme.

Preparatory education and training for work and independent living (Työhön ja itsenäiseen elämään valmentava koulutus, TELMA)

For learners with special educational needs due to disabilities, Finland also offers a tailored preparatory track called TELMA (*Työhön ja itsenäiseen elämään valmentava koulutus*). TELMA focuses on life skills and functional abilities, preparing students with severe learning difficulties for work activity centers or independent living to the extent possible (Cedefop; Finnish National Agency for Education, 2022[3]). Together, TUVA and TELMA ensure that "no one is left behind" in the transition beyond basic education – every young person has a supported route toward further learning or work.

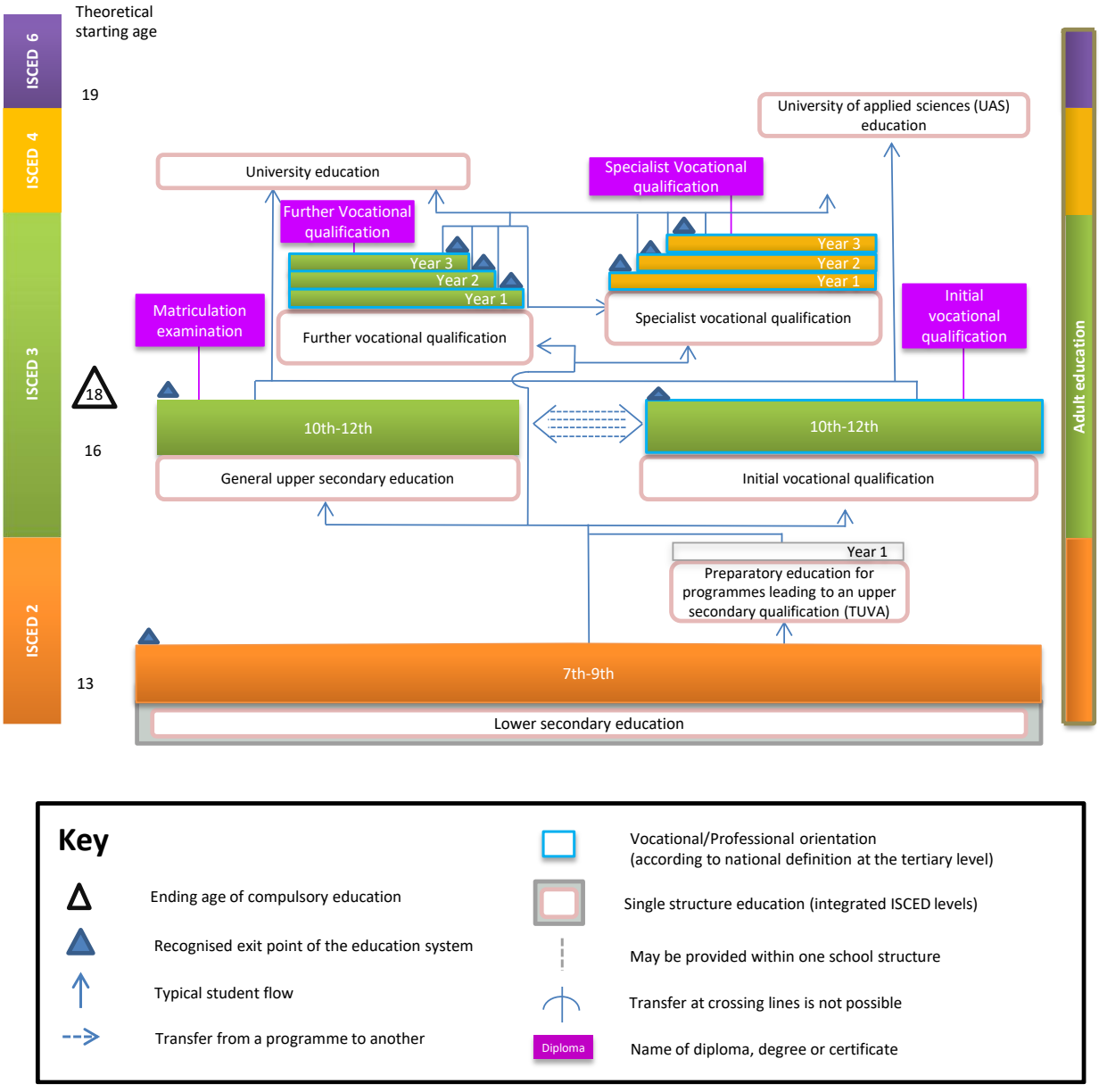
Finnish VET is primarily oriented towards employment, but also provides routes to higher learning. Upon graduation, VET students receive a vocational qualification certificate a vocational qualification (*ammatillinen perustutkinto*, EQF level 4) that facilitates their transition to the labour market. As of 2021, about 79% of 25–34 year-olds with a vocational upper-secondary qualification were employed (though this rate is somewhat lower than in peer Nordic countries) (Ministry of Education and Culture of Finland, 2023[6]).

Completing a vocational qualification also awards general eligibility for tertiary education. VET graduates may sit for the national matriculation exam if they wish, or apply straight to universities of applied sciences (UAS) or universities as general school graduates can (Cedefop, 2019[5]). Around one-fifth of vocational graduates pursue further education relatively soon after graduation, often in UAS which offer bachelor's degrees in fields like engineering, health care, or business (Cedefop; Finnish National Agency for Education, 2022[3]).

Finland also has a well-developed system of continuing vocational qualifications. After some work experience, individuals can pursue further vocational qualifications (*ammattitutkinto*, also EQF 4) or specialist vocational qualifications (*erikoisammattitutkinto*, EQF 5) to deepen or specialise their expertise.Indeed, the average age of VET students in Finland is about 28 years (above the OECD average age of 21) (Ministry of Education and Culture of Finland, 2023[6]). When adult students are included, 68% of all upper-secondary students are enrolled in vocational programmes, reflecting the strong participation of adults returning for vocational qualifications (Ministry of Education and Culture of Finland, 2023[6]).

Figure 4.1 provides an overview of Finland's education system, highlighting the place of ISCED 3 VET and the pathways into and beyond it.

Figure 4.1. The place of ISCED 3 VET in Finland's education system



Note: The reference year is 2023 (school year 2022/2023 in the northern hemisphere). Theoretical starting ages refer to the ages as established by law and regulation for the entry to a programme; actual starting ages may vary depending on the programme.
Source: Adapted from OECD (2023[7]), "Diagram of the education system: Finland", *OECD Education GPS*, https://gpseducation.oecd.org/CountryProfile?primaryCountry=FIN.

4.2. Curriculum structure and assessment procedures

Finnish upper-secondary VET programmes are outcomes-oriented and competence-based, structured into modular qualifications rather than fixed, year-by-year courses. Each national vocational qualification (*perustutkinto*) has a national qualification standard describing what a learner must demonstrate to be awarded the qualification, and a set of competence requirements and study modules (units), rather than detailed subject-matter syllabi. Learning outcomes incorporate relevant key competences for lifelong learning (e.g. digital skills, sustainable development, entrepreneurship) as integrated parts of vocational

skills, rather than as separate subjects. This integration was strengthened in the 2018 reform – now every vocational skill criterion also implicitly covers applicable transversal skills (for instance, a task assessment may consider the student's teamwork, communication or problem-solving abilities alongside technical execution) (Cedefop; Finnish National Agency for Education, 2022[3]).

The Finnish National Agency for Education (*Opetushallitus*/EDUFI) establishes national qualification standards, and convenes broad-based working groups (including employers, trade unions, teachers, and sometimes students) to develop and periodically update these requirements. While providers have flexibility in delivery, the overall qualification requirements ensure that graduates attain a common core of skills and knowledge regardless of where or how they studied (Cedefop; Finnish National Agency for Education, 2022[3]).

An initial vocational qualification is formally 180 competence points (*osp, opintopistettä*), which corresponds to approximately three years of full-time study for a young student (Cedefop, 2019[5]). However, the duration can vary as each learner progresses according to a Personal Competence Development Plan (see below). The qualification is divided into two main components: common units which cover general education content and comprise 35 competence points, and vocational units specific to the field which comprise 145 competence points (JYU Online Courses, 2024[8]). The vocational units are further categorised into compulsory and optional modules. For each vocational unit, competence requirements specify the skills and knowledge the student must have and the criteria for acceptable performance. Table 4.1 summarises the typical composition of an initial VET qualification under the current curriculum framework.

Table 4.1. Composition of a Finnish vocational upper-secondary qualification (ISCED 3)

Components of qualification	Competence points (cp)
Common units (general studies modules): (1) Communication and Interaction (language and communication skills, including Finnish/Swedish, second national language, and a foreign language), (2) Mathematics and Science, (3) Society and Working Life (civics, entrepreneurship, health, ICT, etc.)	35 cp
Vocational units – compulsory modules	*Varies* (e.g. ~50–60 cp)
Vocational units – optional/specialisation modules	*Varies* (e.g. ~85–95 cp)
Total scope of qualification	**180 cp**

Source: JYU Online Courses (2024[8]), *Variety of qualifications*, https://onlinecourses.jyu.fi/mod/page/view.php?id=5303#:~:text=A%20vocational%20qualification%20consists%20of,vocational%20unit%20in%20the%20qualification.

All students in upper-secondary VET programmes must complete common units (35 cp) which cover general transferable skills and basic knowledge. These common studies are grouped into three broad areas: (1) Communication and Interaction (language and communication skills, including Finnish/Swedish, second national language, and a foreign language), (2) Mathematics and Science, and (3) Society and Working Life (civics, entrepreneurship, health, ICT, etc.). The aim of the common units is to ensure that vocational students attain key competencies for lifelong learning and citizenship – for instance, basic numeracy, language proficiency, and understanding of working life rights and responsibilities (JYU Online Courses, 2024[8]). These studies also secure the academic foundation for those who may continue to higher education.

All students in a programme must also complete compulsory vocational modules, which provide broad foundational skills in the occupation. They must also select among optional or specialisation modules, which may reflect their interests and/or local industry needs (Cedefop; Finnish National Agency for Education, 2022[3]). While the 145 vocational competence points are standard, the breakdown between compulsory and optional vocational units differs by programme (as defined in each qualification's national requirements). For example, in the Vocational Qualification in Business, students take two compulsory

modules (total 40 points) and then select optional modules totalling 105 points in topics like marketing, entrepreneurship or customer experience (Business College Helsinki, n.d.[9]).

A cornerstone of Finnish VET is the personal competence development plan (HOKS) that is drawn up for every student at the start of their programme. This plan is created jointly by the student and a guidance counsellor or teacher, and if possible with input from a workplace representative, to tailor the qualification path to the individual's needs and prior learning. The HOKS documents the student's existing competencies and maps out what units they will study, in what order, and through which learning methods (school-based instruction, on-the-job training, projects, etc.) (Cedefop; Finnish National Agency for Education, 2022[3]). It also covers any additional support the student might require (for example, language support for immigrants or special education services for those with learning difficulties). Under the HOKS, the length of time to complete a qualification can vary depending on how long it takes them to master competencies. There are no "grade levels" or fixed cohorts in vocational schools; instead, each student's journey is individualised (Cedefop, 2019[5]).

Finnish VET has a distinctive practical unit-based assessment system focused on competence demonstrations (*näyttö*). There are no national final examinations in vocational subjects; instead, students demonstrate their skills in each module through real or simulated work tasks, which are then assessed against the national criteria. On-the-job performance is a key part of assessment: during work-based learning stints (see Section 4.3), employers and instructors observe the student's skills, and often the formal demonstration is integrated into a work placement. The Finnish Education Evaluation Centre (FINEEC) periodically audits the quality of these competence demonstrations to ensure reliability across providers and that assessment criteria are applied consistently. When a student (and their instructors) judge that they are ready in a particular competence area, the VET provider arranges a supervised demonstration, often in a workplace or authentic environment, where the student performs tasks to show their competence. These performances are evaluated by two assessors: a teacher and a workplace representative (such as a company trainer or master craftsman) whenever possible (Cedefop; Finnish National Agency for Education, 2022[3]). The assessment criteria for each module are set out in the national qualification requirements, typically at three grade levels (excellent, good, satisfactory). Numerical grades are then awarded on a scale of 1 (satisfactory) to 5 (excellent) in most cases. Once learners have successfully completed all modules as per their personal plan, they are awarded a nationally recognised vocational qualification certificate by the provider.

4.3. Work-based learning (WBL) in school-based programmes

Work-based learning is an essential element of Finland's VET system. All vocational students, regardless of institution or age, participate in training in real workplaces as part of their studies. The 2018 reform explicitly removed rigid time requirements and instead encouraged maximum flexibility in organising WBL, with the guiding principle that skills should be acquired in authentic work environments whenever possible. In practice, this means there is no fixed minimum or maximum length of on-the-job training set at the national level. Instead, each student's Personal Plan (HOKS) specifies how much of their learning will occur at workplaces, depending on the nature of the qualification and the student's needs (Cedefop; Finnish National Agency for Education, 2022[3]). Typically, a young full-time student will spend at least several months of the 3-year programme in workplaces, and in some cases substantially more – often around one third of their study time. For adult students or those in apprenticeship-type contracts, the share can be much higher.

Finland distinguishes two main models of work-based learning within VET. About 4 in 5 VET students are in school-based VET with training agreements, while 1 in 5 have apprenticeship contracts (Cedefop; Finnish National Agency for Education, 2022[3]). Both types of WBL have formal arrangements between the VET provider and an employer, but they differ in legal status and responsibilities:

- Training agreement (*koulutussopimus*): This is a non-employment work placement, essentially an internship. Under a training agreement, a student goes to a workplace to learn and practice skills according to an agreed plan, but they are not hired as an employee. Training agreements are very flexible – they can be as short as a few weeks or as long as many months, and a student can have multiple training agreements with different companies to cover various modules. Every training agreement is guided by learning objectives (tied to the student's curriculum) and the student's progress is supervised by a workplace instructor and monitored by the VET provider. Training agreements can also be used for international on-the-job learning (e.g. Erasmus+ internships abroad) (Cedefop; Finnish National Agency for Education, 2022[3]). For youth in initial VET, the predominant model remains a school-based programme enriched with significant on-the-job periods via a training agreement, rather than a full apprenticeship from the start.
- Apprenticeship training (*oppisopimus*): This is the employment-contract model of VET. An apprenticeship is a fixed-term work contract between the student (as an apprentice) and an employer, where the apprentice works and learns on the job, and in parallel completes the required studies with the VET provider. Apprentices must be at least 15 years old, and they are paid a salary (determined by collective agreement) for the work they perform. In an apprenticeship, the workplace is the principal learning environment – typically 70–80% of the training time is spent at work, with the remainder spent in theoretical or classroom instruction as needed. The law no longer dictates how or where the "school-based" learning must occur; if the company can provide all necessary theory training internally, the apprentice might not need to attend classes at all. In practice, most apprentices do periodically attend the vocational school (or online classes) for certain technical or general subject lessons. The apprenticeship arrangement is facilitated by the VET provider, which helps match the student and employer, formalises the contract, and ensures the training plan meets curriculum requirements. Employers hosting apprentices receive a training compensation or subsidy from the provider/state to offset mentorship costs (the amount is agreed case-by-case) (Cedefop; Finnish National Agency for Education, 2022[3]).

Finland does not separate "apprenticeship VET" and "school VET" into distinct tracks at the qualification level – they are simply different arrangements to achieve the same vocational qualifications. Crucially, students can also mix and transition between these two WBL forms. For example, a student might start with a training agreement at a company, and if the employer later decides they are a good fit, they could convert it into an apprenticeship contract to complete the qualification while employed. The personal study plan will outline the pathway and can be adjusted if an apprenticeship opportunity arises mid-study (Cedefop; Finnish National Agency for Education, 2022[3]).

In WBL in school-based VET programmes, students are supervised by designated workplace instructors (employees trained or briefed in mentoring) and continue to have contact with their vocational teacher. The teacher might visit the workplace to observe or discuss progress. The learning is guided and goal-oriented, meaning the student is not just an extra pair of hands; they are there to learn specific competencies and are gradually allowed to perform more complex tasks as they prove competent. Employers benefit by gaining potential future employees familiar with their operations, and many companies consider WBL a recruitment tool. A survey-based feedback system was introduced wherein both students and employers provide input on the success of the work-based training, which in turn factors into the provider's performance funding (an incentive for schools to ensure quality placements) (Cedefop; Finnish National Agency for Education, 2022[3]).

4.4. Provider types

Responsibility for delivering ISCED 3 vocational programmes in Finland rests with a variety of authorised VET providers (*koulutuksen järjestäjät*), which include public entities and private organisations operating

under a license from the Ministry of Education and Culture (Cedefop; Finnish National Agency for Education, 2022[3]). Despite the mix of ownership types, nearly all VET provision is publicly financed and adheres to the national core curricula. Providers have considerable autonomy in organising training, but must satisfy the quality and equity conditions of their license. As of 2022, there were 139 registered public and private VET providers in Finland:

- Public providers: The majority of vocational students (roughly 80%) are enrolled in institutions maintained by local authorities (municipalities) or joint municipal federations. Many smaller municipalities have combined resources to form regional consortiums that operate vocational colleges (for example, a group of neighbouring towns jointly running a vocational institute serving the whole region). In addition, a few state-owned institutions exist for specific purposes – for instance, the Sámi Education Institute in northern Lapland, which is state-funded and provides VET in Sami languages for the indigenous Sámi people. By law, municipalities carry the duty to ensure youth have access to upper-secondary education, so even if a municipality doesn't run its own school, it must arrange (and finance) places for its residents in a neighbouring area or through another provider. Public providers (municipal or joint) tend to be multi-field colleges offering a range of vocational programmes under one roof (e.g. a single college might have departments for technology, business, health care, hospitality, etc. as seen in Vantaa Varia example (Vantaa Vocational College, n.d.[10]). They typically also offer adult education and short courses as there is no sharp division between "youth VET schools" and adult vocational centres (Cedefop; Finnish National Agency for Education, 2022[3]).
- Private providers: About one-fifth of VET students attend institutions operated by private entities. These providers can be foundations, non-profit associations, companies, or other registered organisations. Private providers must obtain a government license and meet the same curriculum requirements as municipal colleges, and receive the same public funding (Cedefop; Finnish National Agency for Education, 2022[3]). Private vocational institutions in Finland often specialize in particular fields or serve niche groups. For instance, Business College Helsinki (maintained by a private foundation) focuses on business and ICT training, including English-language programmes. Some religious or cultural organisations also run vocational schools (e.g. a folk high school offering both general and vocational tracks). Another subset of private providers includes companies or state-owned enterprises that offer VET mainly for their own industry needs – examples include training centres in the forestry sector or the railway company's vocational school. However, even these function within the national qualifications framework and often enrol external students too. A few institutions specialise in special needs vocational education, catering to students with disabilities who require tailored instruction and support. Some providers cater to Finland's Swedish-speaking minority: six providers operate in Swedish as the language of instruction, and two are bilingual (Finnish/Swedish).

Over time, Finland has moved from a very fragmented provider network to a more consolidated one. In the mid-1990s there were hundreds of providers, many small, compared to 139 today. The largest providers (in the biggest cities) can have several campuses and thousands of students. Each provider's license specifies the fields of education and maximum number of students they are allowed to educate. Providers can choose which specific qualifications to organise under those broad fields and can adjust their programme mix in response to local demand (Cedefop; Finnish National Agency for Education, 2022[3]). If they want to expand into a new field or increase student intake, they must apply to the Ministry for a license amendment.

Once granted a licence, VET providers in Finland have a high degree of autonomy in how they arrange education. A provider can innovate with e-learning, simulations, on-the-job training models, etc., as long as students meet the competence requirements. Providers develop their own local curricula based on the national qualification requirements, which can include adding locally relevant content or additional modules to meet regional labour market needs. They also hire staff (teachers, counsellors, etc.) and manage

facilities on their own budgets. Municipal providers are governed by local education boards, while private ones have their own boards or trustees.

Collaboration with the world of work is a core expectation for all providers. By regulation, each provider must have an advisory board or similar co-operation mechanism with local employers and employee representatives to ensure training aligns with skill needs (Cedefop; Finnish National Agency for Education, 2022[3]). Many providers maintain local programme councils for each field, mirroring the national working life committees, to continuously get feedback from companies on curriculum and student performance.

4.5. VET teachers and trainers' qualifications and professional development

Finland's VET teachers are highly trained professionals, typically bringing a combination of industry experience and pedagogical education to their roles. In vocational institutions, there are generally two categories of teachers: vocational subject teachers (who teach the specific trade skills) and common studies teachers (who teach language, maths, etc., similar to general education teachers). Additionally, some staff act as workplace instructors or trainers (especially in apprenticeships) and there are special needs teachers and guidance counsellors to support students. To become a teacher of vocational subjects in an upper-secondary VET, one must typically meet three requirements: appropriate field qualification, relevant work experience, and pedagogical training (Cedefop; Finnish National Agency for Education, 2022[3]).

- Educational qualification in the field: Teachers are required to have at least an appropriate higher education degree in their vocational field, usually a bachelor's or master's degree. In fields where a higher education degree may not exist or is less common (for example, some crafts or practical trades), a teacher can qualify by having the highest possible vocational qualification in that field (Cedefop; Finnish National Agency for Education, 2022[3]).
- Work experience: Vocational teachers must have several years of work experience in their field. The requirement is generally a minimum of 3 years of relevant industry experience (and often more) before entering teaching. This ensures teachers have practical, up-to-date knowledge of the trade. In reality, many VET teacher trainees are mid-career professionals (average age around 40) who have spent a significant portion of their career in industry before switching to teaching. Finland also permits alternative pathways to alleviate teacher shortages: in certain technical fields, an expert can become a teacher by first obtaining a further/specialist vocational qualification plus the pedagogical training, acknowledging their practical mastery even if they lack a traditional degree (Cedefop; Finnish National Agency for Education, 2022[3]).
- Pedagogical training: All VET teachers must complete a formal teacher pedagogical training programme of 60 ECTS credits (approximately one year of full-time study) (Studyinfo, n.d.[11]). This is typically done at one of the vocational teacher education colleges, which are units within universities of applied sciences dedicated to teacher preparation. The pedagogical training covers educational science basics, vocational pedagogy, assessment methods, curriculum design, special education, and teaching practice under supervision (JYU Online Courses, 2024[12]). Many candidates undertake this study part-time or alongside work – flexibility is high, with distance and blended learning options, so people can become qualified without leaving their jobs entirely. During the training, trainees often do teaching internships at vocational schools to hone their skills. Once the 60-credit programme is completed, the person is awarded a Teacher's Pedagogical Qualification, which alongside their field degree and experience, makes them officially qualified ("competent") to hold a teaching position (Cedefop; Finnish National Agency for Education, 2022[3]).

For teachers of common units (academic subjects like languages, mathematics within VET), the requirements are similar to those in general upper-secondary: usually a master's degree in the subject plus teacher pedagogy. They too must complete the 60 ECTS pedagogical studies (often through university faculties of education rather than the vocational teacher colleges).

Vocational teachers in Finland are generally employed by the education providers (municipal or private). Their working conditions and salaries are comparable to those of general education teachers (Cedefop; Finnish National Agency for Education, 2022[3]). The collective agreements ensure standard benefits, and a vocational teacher with similar experience/qualifications earns roughly the same as a general upper-secondary teacher. Finland encourages industry placements for teachers (teachers can take temporary assignments or sabbaticals to work in industry) and invites industry experts into schools as visiting instructors. There are also cases of part-time teachers who still work in industry and teach occasional courses, bringing fresh insight (for example, a master electrician running a company might teach 1-2 days a week at a vocational institute).

As in other education sectors, VET teachers are expected to engage in continuous learning. While there is no strict requirements for CPD participation in Finland, employers (municipalities or private college boards) are contractually obliged to provide opportunities for teacher training and skills upgrading. Each year, the Ministry of Education and Culture, in co-operation with EDUFI, sets priority areas for national in-service training initiatives, and earmarks funding for those. Recent focus areas have included digital pedagogy, competence-based assessment practices, inclusion of students with special needs, and co-operation with working life. Providers receive government grants to send their teachers to these trainings, often organised by universities or central agencies (Cedefop; Finnish National Agency for Education, 2022[3]).

Vocational colleges typically have annual development days, encourage peer learning, and support teachers in pursuing further degrees (some vocational teachers undertake a master's or doctoral studies in education or in their technical field while teaching). There is also a tradition of teacher networks: teachers from different schools teaching the same subject (say automotive technology or chemistry) meet in workshops or online communities to share teaching materials and industry updates.

4.6. Governance

Governance of vocational upper-secondary education in Finland is shared between national authorities and local providers, with a strong emphasis on stakeholder involvement and outcome-based regulation. The Finnish VET system operates under a framework of national legislation and core curricula, but delivery is decentralised to autonomous providers (municipalities, consortiums, or private entities as described in Section 4.4). This governance model can be characterised as "centralised goals, decentralised implementation", ensuring consistency in qualifications across the country while allowing flexibility to meet regional needs (Cedefop; Finnish National Agency for Education, 2022[3]).

The primary law governing VET is the Vocational Education and Training Act 531/2017, which took effect in 2018 as part of a comprehensive reform. This Act, along with associated Government Decrees, lays out the structure of the vocational qualification system, the competence-based approach, admissions, student rights, and the responsibilities of providers. It unified separate youth and adult vocational provisions into one system and introduced the personal study plan and new funding model. Another significant piece of legislation is the Act on Compulsory Education 1214/2020, which extended compulsory schooling to upper secondary, thereby imposing new obligations on VET providers to accept and support all young learners until 18 (European Agency for Special Needs and Inclusive Education, 2025[2]). General education laws like the Youth Guarantee and education financing laws also intersect with VET. National-level VET policy is formulated by the Ministry of Education and Culture (MOEC), which has overall responsibility for education strategy, drafting legislation, and budget allocation. The Ministry sets broad objectives for VET

in its strategies and in the Government Programme (e.g. goals for increasing apprenticeship use, promoting digital learning, or improving quality assurance).

Under the MOEC, the Finnish National Agency for Education (EDUFI, *Opetushallitus*) is the central administrative body for implementing education policy, including VET. EDUFI is tasked with preparing the National Qualification Requirements for each vocational qualification (essentially the national curricula). It convenes working groups with representatives from employers' organisations, trade unions, teacher groups and sometimes student bodies to develop these requirements and keep them up-to-date (Cedefop; Finnish National Agency for Education, 2022[3]). Once approved, the National Qualification Requirements are binding for providers. EDUFI also manages the joint application system for upper-secondary admissions, administers development projects, and maintains the digital database of national curricula and the student study record registry. It oversees the recognition of prior learning and foreign qualifications, and produces statistics and analysis on VET.

Finland has no inspectorate that regularly inspects schools. While not a regulator in the traditional sense, the Education Evaluation Centre (FINEEC) conducts evaluations and audits of education quality, including VET. FINEEC undertakes thematic evaluations of VET and may audit provider-level quality systems. By law, VET providers must self-evaluate their operations and participate in external evaluations (Cedefop; Finnish National Agency for Education, 2022[3]) which FINEEC facilitates. The results feed back into development but do not carry punitive consequences; rather, they are used for continuous improvement and informing policy if needed.

A distinctive feature of Finnish VET governance is the systematic involvement of social partners. Nationally, Working Life Committees (*Työelämätoimikunnat*) corresponding to each broad sector (and qualification) have been established by law. These committees consist of equal representation from employer organisations and trade unions of the sector, as well as teacher representatives and often self-employed professionals for fields where relevant. Their mandated role is to ensure the quality of competence demonstrations and to develop the qualifications. They do this by, for example, validating the assessment criteria, sampling and reviewing completed student assessment records from providers across the country, and giving recommendations if inconsistencies are found. They also propose updates to qualification requirements when they see new skill needs. Although they don't have direct regulatory power, any major change in curriculum or policy is expected to be negotiated and agreed upon in partnership with these social partners (Cedefop; Finnish National Agency for Education, 2022[3]).

Most vocational colleges have advisory boards or local committees for each vocational field they teach (sometimes called leadership groups or industry advisory councils). These include local company representatives, sometimes union reps and alumni, who meet periodically to discuss the programme content, suggest improvements, and assist in arranging internships and apprentice positions (Cedefop; Finnish National Agency for Education, 2022[3]). This local employer engagement helps tailor the nationally-set curricula to local conditions – for instance, a college in a maritime region might, with stakeholder input, emphasise shipbuilding skills in its curriculum, whereas an inland college might focus on metal fabrication. Moreover, such councils help providers respond quickly if local labour demand shifts (say, a new factory opens and needs mechanics, the school can adjust optional modules accordingly).

Finnish VET governance emphasises trust and improvement over control. Providers must have an internal quality management system and are encouraged to voluntarily seek feedback and engage in learning with other institutions. The funding model's effectiveness component indirectly governs quality by measuring graduate outcomes and satisfaction – a provider whose graduates consistently fare poorly would see funding impacts, prompting action. In 2022, Finland introduced new national quality criteria for VET providers (for example, requiring that each provider have a plan for developing staff competencies, or for ensuring the consistency of assessment) (Cedefop; Finnish National Agency for Education, 2022[3]). Compliance with these criteria is monitored through providers' self-assessment reports which are reviewed by authorities.

Locally, municipal and joint municipal providers are overseen by boards usually appointed by municipal councils (hence containing local politicians, employer reps, etc.), which set broad strategy and approve budgets. Private providers have boards of directors or trustees as per their founding charter. Each vocational school is led by a Principal (*Rehtori*), who is pedagogically and administratively responsible. Many larger institutions have departmental heads for each educational sector (e.g. Head of Technology Department, Head of Services Department) (Vantaa Vocational College, n.d.[10]). Principals in VET have similar status to those in general education and often have a teaching background plus management training. They have autonomy to recruit staff (within budget limits), make partnership agreements with companies, and decide on internal resource allocation (like which new equipment to buy, which programmes to emphasise).

4.7. Funding

Finland's vocational upper-secondary education is publicly funded and provided free of charge to students, with a funding model that increasingly emphasises outcomes and efficiency. The financing of VET involves both the central government and local authorities, and since the 2018 reform, a unified funding framework covers all vocational training (young and adult, school-based and apprenticeship) (Cedefop; Finnish National Agency for Education, 2022[3]).

Vocational education financing is a combination of state and municipal funding. Unlike general upper-secondary schools (which are fully municipal-funded with state grants in the background), VET providers receive direct funding from the central government based on a formula, but municipalities also contribute a substantial share. Approximately 70% of public funding for VET comes from municipalities (largely via their general education budgets) and 30% from the State subsidies (Cedefop; Finnish National Agency for Education, 2022[3]). For municipally-run institutions, the municipality's own tax revenue covers part of the costs, supplemented by a block grant from the central government. For private providers, the state funding covers the majority of costs, with any shortfall possibly made up by the owning organisation or modest tuition fees for non-basic programmes (e.g. providers can charge for some adult courses or services).

Students pay no tuition or textbook fees in upper-secondary VET. Materials and tools that students need for training are generally provided by the school or subsidised (especially after the extension of compulsory education, when free learning materials were expanded to cover upper secondary) (Eurydice, 2025[1]). Students also receive a daily free meal and have access to free health services at school (Vantaa Vocational College, n.d.[10]).

Under the current model (fully in effect from 2022), funding to each provider is composed of: core funding (70%), performance-based funding (20%), effectiveness-based funding (10%), plus a small strategic funding element (Cedefop; Finnish National Agency for Education, 2022[3]).

- **Core funding (70%)** – This is essentially enrolment-based funding. It is calculated on the number of students (measured in full-time equivalent) at the provider. The state uses a formula that accounts for the volume of training provided. However, different fields have a different "price" or coefficient due to varying costs. For example, training an aviation mechanic or a forestry machine operator is far more expensive than training a retail salesperson. Finland's funding model accounts for these differences by assigning different coefficient values to different study programmes. For instance, in the funding formula for core funding, each student is weighted (a forestry student might count as 1.8 "student units" vs a business student as 1.0). The National Agency (EDUFI) publishes these coefficients (sometimes referred to as the "price list") annually to guide how providers' core funding is calculated (Finnish National Agency for Education, 2025[13]). Core funding's purpose is to ensure providers have stable base financing to maintain capacity and keep education available

in all regions and fields, regardless of short-term outcome fluctuations (Cedefop; Finnish National Agency for Education, 2022[3]).

- **Performance funding (20%)** – This part rewards providers for outputs, specifically the number of qualifications and qualification units completed by students (Cedefop; Finnish National Agency for Education, 2022[3]). In other words, funding follows successful completions. Each full qualification attained contributes to performance points for the provider (and partial completions of modules also count).
- **Effectiveness funding (10%)** – This component allocates money based on the outcomes of graduates and feedback from stakeholders. A portion of effectiveness funding is directly tied to student feedback collected through a national survey taken at the start and end of studies. Another portion is tied to graduates' employment or higher study enrolment at ~6 months to a year after graduation (this data is tracked via national registers) (Cedefop; Finnish National Agency for Education, 2022[3]). VET providers have autonomy in using funds, but they must deliver these outcomes or else face funding dips.
- **Strategic funding (~approximately 0-5%)** – Parliament or the Ministry can allocate a small share of funding for strategic priorities or development initiatives (Cedefop; Finnish National Agency for Education, 2022[3]). This is not fixed in percentage annually but is an additional mechanism. For example, a certain amount might be reserved to implement the compulsory education extension (helping schools provide free materials and guidance for the new age group) and to develop digital learning tools.

Another difference is apprenticeships vs school-based costs. Apprenticeship training is notably cheaper for the education budget per student-year because the apprentice's wages are paid by the employer (not the school), and apprentices typically spend less time on campus. The funding system acknowledges this by effectively channelling more funds per student to providers for school-based students and less for apprentices. However, providers do pay employers a negotiated training compensation for each apprentice, which is factored into their costs (Cedefop; Finnish National Agency for Education, 2022[3]).

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Annex 4.A. Examples of curriculum structure and assessment procedures for three ISCED 3 VET qualifications

To illustrate how Finland's competence-based curriculum is applied in practice, this annex presents three examples of upper-secondary VET qualifications (ISCED 3) in different fields. Each example outlines the qualification's structure (modules and competence points), key learning outcomes, and the approach to work-based learning and assessment in that programme. These examples correspond to real qualifications under the national framework as of 2025, demonstrating the diversity of vocational pathways:

- **Example 1:** *Vocational Qualification in Electrical and Automation Engineering* (Sähkö- ja automaatioalan perustutkinto) – with a competence area as an **Electrician**.
- **Example 2:** *Vocational Qualification in Social and Health Care* (Sosiaali- ja terveysalan perustutkinto) – with the qualification title **Practical Nurse** (lähihoitaja), focusing on healthcare.
- **Example 3:** *Vocational Qualification in Business* (Liiketoiminnan perustutkinto) – with a focus on **Customer Service and Sales** (merkonomi).

Each qualification carries 180 competence points and leads to an EQF level 4 certificate.

Example 1: Electrical and Automation Engineering (Electrician)

The *Vocational Qualification in Electrical and Automation Engineering* prepares students for careers in the electrical and automation field, such as building electricians, automation installers, and maintenance technicians. Annex Table 4.A.1 shows the typical structure of the Electrical and Automation Engineering (Electrician) VET programme.

Annex Table 4.A.1. Composition of the Electrical and Automation Engineering (Electrician) programme (ISCED 3)

Components of qualification	Competence points (cp)	Key learning outcomes
Common units (general studies modules): (1) Communication and Interaction (language and communication skills, including Finnish/Swedish, second national language, and a foreign language), (2) Mathematics and Science, (3) Society and Working Life (civics, entrepreneurship, health, ICT, etc.)	35 cp	Develops literacy in Finnish/Swedish and a foreign language, applies maths/science to electrical work.
Vocational units – compulsory modules: Basic Skills in Electrical and Automation Work and Electrical and Automation Installations, Electrical Power Technology	*Varies* (e.g. 70–90 cp)	*Works safely under EN 50110 & Finnish Electrical Safety Act; interprets electrical drawings & symbols; uses test/measurement instruments; documents work digitally; acts sustainably and cost-consciously.* *Plans and installs LV & ELV circuits (≤ 1 000 V AC) in residential and commercial buildings; selects and cables protective devices; tests insulation, fault-loop impedance & RCDs; hands over compliant installation documentation.*
Vocational units – optional/specialisation modules: E.g. Electrical Network Construction, Building Automation,	*Varies* (e.g. 55–75 cp)	*E.g. Installs HVAC-automation field devices, DDCs and KNX/Modbus networks; commissions and adjusts control loops.* *Installs and parametrises variable-speed drives & soft-starters*

Components of qualification	Competence points (cp)	Key learning outcomes
Renewable Energy Systems (e.g. Solar PV Installation), or Security System Installation.		*up to 400 kW, integrates into automation systems.* *Sizes, installs and grid-commissions roof-mounted PV arrays up to 1 000 V DC following SFS 6000-7-712.* *Constructs LV overhead and underground distribution networks and associated substations, etc.*
Total scope of qualification	**180 cp**	

Source: Europass (2009[14]), Vocational Qualification in Electrical and Automation Engineering, 120 credits, Study Programme/Competence Area in Electrical and Automation Engineering, Automation Assembler/Electrician (EN), www.theme-eu.net/ressoucres/results/occupations/mechatronic/ECS_Theme_Mechatronics_FI_AutomationAssembler.pdf#:~:text=Composition%20of%20the%20qualification%20The,Electrical%20and%20Automation%20Engineering%20specialising;
Hyria (n.d.[15]), Hyria, www.hyria.fi/hyria-english; Taitotalo Finland (n.d.[16]), Taitotalo, www.taitotalo.com/en/us/

In terms of the required units for the Electrical and Automation Engineering (Electrician) programme:

- **Common units (35cp)** in languages, maths, etc., are integrated, and electrical students may choose to focus their common studies in applied maths/physics related to electricity.
- The compulsory vocational modules cover fundamental competences like reading electrical schematics, using tools and materials safely, installing electrical circuits and automation components, and understanding regulations. After the core, students choose a *competence area* – in this example, the **Electrician** track. Electrician-focused students take an additional compulsory module specific to Electrical Power Technology (20 cp) covering topics such as electrical distribution systems and energy technology.
- Optional modules allow students to deepen or broaden their skills. There is flexibility to choose modules that align with local industry needs or personal interest – for instance, a student interested in industrial automation might take an optional module in PLC programming, whereas another might take one in data cabling and networks (Europass, 2009[14]).

Electrical students usually spend significant time in authentic worksites. During Year 2, a student might have a 6-week on-the-job training period with an electrical contractor. In Year 3, a longer WBL period (perhaps 8-10 weeks) is common, often serving as the capstone training. WBL often doubles as the setting for final *competence demonstrations*. For example, as a culmination, the student might be tasked with independently wiring a small house from scratch (lighting circuits, fuse panel, network cabling). The workplace mentor and the vocational teacher jointly assess this performance on criteria like technical accuracy, adherence to safety rules, and ability to interpret the electrical drawings (Europass, 2009[14]).

The National qualification standard defines learning outcomes for four assessment dimensions (Work process; Work methods & tools; Problem-solving & quality; Collaboration & customer orientation) and three grade categories with five scores (Excellent (5); Good (3-4); Satisfactory (1-2)) for all vocational units. In the Electrical and Automation Engineering (Electrician) programme for “Work methods and tools”, for example, a student could receive:

- A grade of excellent and score of 5 if they select the most appropriate method, materials and measuring devices; use digital tools skilfully; comply with SFS 6002 & company QMS.
- A grade of satisfactory and score of 1-2 if they need guidance in selecting tools; and follow instructions to complete work (JEDU Koulutuskeskus, 2022[17]) (Finlex, 2017[18]).

Typically, an electrician student graduates with not only the diploma but also some additional industry certificates like first aid, which providers arrange knowing employers value them. Throughout their training, students also take an *Electrical Safety Card* course and exam (a certification often required in Finland to work on electrical sites), though that is supplementary to the qualification itself. Graduates of this qualification can work as electrician apprentices (fully authorised electrician status in Finland often requires

two years of work experience plus an extra standardised test for an electrical contractor's license). Many immediately find employment with construction or electrical service companies. The broad content (including some automation) also enables them to work in industrial maintenance or continue studies, for example pursuing an Electrical Engineering UAS degree.

Example 2: Social and Health Care (Practical Nurse)

The **Vocational Qualification in Social and Health Care** (Sosiaali- ja terveysalan perustutkinto) equips learners to work as *lähihoitaja* (Practical Nurse) in hospitals, primary-care centres, home-care services and other health-care settings. Graduates can perform basic nursing, medication administration and rehabilitative tasks under Finland's patient-safety legislation, and they may specialise – at ISCED 3 – in competence areas such as Nursing & Care (*Sairaanhoidon ja huolenpidon osaamisala*) (Samiedu.fi, n.d.[19]) (Superliito.fi, 2024[20]). Annex Table 4.A.2 shows the typical structure of the Practical Nurse VET programme.

Annex Table 4.A.2. Composition of the Social and Health Care (Practical Nurse) programme (ISCED 3)

Components of qualification	Competence points (cp)	Key learning outcomes
Common units (*YTO*) – (1) Communication & Interaction, (2) Mathematics & Science, (3) Society & Working-life skills	**35 cp**	Develops literacy in Finnish/Swedish and a foreign language, applies maths/science to health calculations, and acts ethically and sustainably at work. (Samiedu.fi, n.d.[19]).
Vocational units – compulsory modules: • Client Encounter & Guidance (*Asiakkaan kohtaaminen ja ohjaaminen*, 20 cp) • Promoting Well-being & Functional Capacity (*Hyvinvoinnin ja toimintakyvyn edistäminen*, 25 cp) • Medication Administration in the Practical-nurse's Scope (*Lääkehoidon toteuttaminen*, 10 cp)	**55 cp**	Communicates empathetically, plans evidence-based care, monitors vital signs, administers medicines safely, documents digitally and safeguards patient privacy (Opetushallitus utbildningsstyrelsen (National Board of Education), 2024[21]) (Samiedu.fi, n.d.[19]).
Vocational units – optional / specialisation (competence-area) modules – *Nursing & Care* path: • Clinical Nursing Practice (*Sairaanhoitotyössä toimiminen*, 30 cp) • Home-care Nursing (*Kotihoidossa toimiminen*, 30 cp)	**≈ 60 cp**	Provides holistic nursing, performs wound-care and infection control, carries out point-of-care tests, plans home-care services and promotes client independence (Samiedu.fi, n.d.[19]) (Superliito.fi, 2024[20]).
Additional optional units – e.g. Wound Care, Sample Collection, Palliative Care, Health-tech for Well-being, Mental-health & Substance Abuse Work	**15-30 cp**	Deepens or broadens competence; for instance, *Haavanhoito* 15 cp focuses on evidence-based wound management and dressing selection (takk.fi, n.d.[22]).
Total scope of qualification	**180 cp**	

In terms of the required units for the Social and Health Care (Practical Nurse) programme:

- **Common units (35 cp)** integrate language, STEM and civics; many providers contextualise maths to drug-dose calculation and physics to mobility-aid ergonomics (Samiedu.fi, n.d.[19]).
- **Compulsory vocational core (55 cp)** builds the foundation: respectful client interaction, health-promotion skills, and safe pharmacotherapy under the National Medicines Agency (Fimea) guidelines (Samiedu.fi, n.d.[19]) (Opetushallitus utbildningsstyrelsen (National Board of Education), 2024[21]).
- After the core, students select **one competence area**. In this example the *Nursing & Care* path adds two compulsory 30 cp units covering clinical nursing in wards and home settings – together worth **60 cp** (Samiedu.fi, n.d.[19]).
- **Optional units (15-30 cp)** offer flexibility. A learner aiming for acute care might choose *Näytteenotto hoitotyössä* (Sample Collection), whereas another headed for gerontology could take *Ikääntyneiden akuuttitilanteissa toimiminen* (studentum.fi, n.d.[23]).

Finnish regulations require that *at least 40 cp* of the 180 cp be acquired through supervised work-based learning, typically split across Years 2 and 3 (OSAO, 2015[24]).

- **Year 2:** a 6-week placement on a primary-care ward introduces morning-shift routines, medication rounds and electronic patient records.
- **Year 3:** an 8-to-10-week placement – often the capstone – may be completed in a surgical ward or home-care team. The student plans a full shift, administers oral and sub-cutaneous medicines, documents care and evaluates outcomes.
- **Assessment:** the workplace mentor and VET teacher jointly observe the demonstration and grade it within seven days, uploading the result to the national KOSKI register (OSAO, 2015[24]) (Finlex, 2017[18]).

The National qualification standard defines learning outcomes for four assessment dimensions (Work process; Work methods & tools; Problem-solving & quality; Collaboration & customer orientation) and three grade categories with five scores (Excellent (5); Good (3-4); Satisfactory (1-2)) for all vocational units. In the Social and Health Care (Practical Nurse) programme for "Work methods and tools", for example, a student could receive:

- A grade of excellent and score of 5 if they select the most appropriate care methods, evidence-based protocols and digital records; and follow infection-control best practice rigorously.
- A grade of satisfactory and score of 1-2 if they need help choosing tools; and follow instructions to complete work (Opetushallitus Utbildningsstyrelsen (Finnish National Agency for Education), 2024[25]) (Finlex, 2017[18]).

By graduation, a Nursing & Care Practical Nurse must show they can plan and implement evidence-based nursing, administer medicines safely, monitor client outcomes and work autonomously within a multi-professional team. (Opetushallitus Utbildningsstyrelsen (Finnish National Agency for Education), 2024[25]) (Superliito.fi, 2024[20]). Providers often embed additional industry certificates (e.g. Hygiene Passport, First-Aid EA 1) because employers value them (Superliito.fi, 2024[20]). Once all required units are passed, the student receives the qualification; most take up positions in municipal hospitals, home-care services or continue to a Nursing B.Sc. programme (StadinAO, n.d.[26]) (Step-koulutus, n.d.[27]).

Example 3: Business (Customer Service and Sales)

The **Vocational Qualification in Business – Customer Service & Sales** builds broad commercial literacy, strong customer-experience skills and sales competence for work in retail, e-commerce and service organisations. From 1 August 2024 the national curriculum narrows the compulsory core to 40 osp and modernises the optional menu with digital-commerce, sustainability and AI-aware modules (Utbildningsstyrelsen Opetushallitus (Finnish National Agency for Education), 2024[28]). Annex Table 4.A.3 shows the typical structure of the Business (Customer Service and Sales) VET programme.

Annex Table 4.A.3. Composition of the Business (Customer Service and Sales) programme (ISCED 3)

Components of qualification	Competence points (cp)	Key learning outcomes
Common units – Communication & Interaction, Mathematics & Science, Society & Working-life skills	**35 cp**	Strengthens multilingual communication (FI/SV/EN), applies numeracy to pricing & margin, and acts responsibly in digital and sustainable business contexts (perho.fi, n.d.[29]).
Vocational units – compulsory **core**• Operating in a Business Environment (*Liiketoimintaympäristössä toimiminen*, 25 cp)• Customer Service (*Asiakaspalvelu*, 15 cp)	**40 cp**	Understands business structures, digital tools, circular-economy basics and AI opportunities; serves customers in three languages, tailors solutions and documents interactions in CRM. (Utbildningsstyrelsen Opetushallitus (Finnish National Agency for Education), 2024[28]).

Components of qualification	Competence points (cp)	Key learning outcomes
Vocational units – optional / specialisation menu (select ≥ 105 cp) – typical Customer Service & Sales choices: • Sales Work 30 cp• Digital Commerce Operations 15 cp• Visual Merchandising 15 cp• Cash-desk Services 15 cp• Marketing Communication 30 cp• Customer-experience Development 15 cp	**≈ 105 cp**	e.g. *Sales Work 30 cp*: plans goal-oriented B2C/B2B sales, uses KPI follow-up and reporting; *Digital Commerce* 15 cp: manages product data, optimises search & conversion; *Marketing Communication* 30 cp: produces multi-channel content and evaluates AI-supported campaigns. (Utbildningsstyrelsen Opetushallitus (Finnish National Agency for Education), 2024[28]) (OSAO, n.d.[30]).
Total scope of qualification	**180 cp**	

In terms of the required units for the Business (Customer Service and Sales) programme:

- **Common units (35 cp)** integrate maths into margin and VAT calculations, science into product life-cycle impacts and civics into consumer-protection law. (perho.fi, n.d.[29]).
- **Compulsory vocational core (40 cp)** provides the commercial "driver's licence": learners analyse the firm's ecosystem, use office-suite & collaboration software securely, and practise multilingual service encounters across channels. (Opetushallitus Utbildningsstyrelsen (Finnish National Board of Education), 2024[31]).
- **Optional vocational units (≥ 105 cp)** let students deepen in retail, e-commerce, marketing or financial services. A learner aiming for omnichannel retail can combine *Sales Work 30 cp*, *Myymälässä toimiminen 15 cp* and *Digital Commerce 15 cp*, while another interested in events might pick *Marketing Communication 30 cp* plus *Event Organisation 15 cp*. (Utbildningsstyrelsen Opetushallitus (Finnish National Agency for Education), 2024[28]). Finnish VET rules require learners to acquire **at least 30 osp** through supervised WBL – most providers schedule one 6-week placement in Year 2 and an 8-12 week capstone in Year 3. (City of Helsinki, 2016[32]) (tredu.fi, 2025[33]).
- **Year 2 sample:** a department-store placement where the learner rotates between customer-service desk and the sales floor, logging KPIs and shadowing inventory processes.
- **Year 3 sample (capstone):** the learner plans and executes a promotional campaign, staffs point-of-sale events, reports sales and evaluates customer feedback.
- **Demonstration & assessment:** workplace mentor and VET teacher jointly observe practical tasks, apply the national criteria, agree a grade within seven days and enter it in the KOSKI register. (Business College Helsinki, 2021[34]).

The National qualification standard defines learning outcomes for four assessment dimensions (Work process; Work methods & tools; Problem-solving & quality; Collaboration & customer orientation) and three grade categories with five scores (Excellent (5); Good (3-4); Satisfactory (1-2)) for all vocational units. In the Business (Customer Service and Sales) programme for "Work methods and tools", for example, a student could receive:

- A grade of excellent and score of 5 if they select optimum sales techniques, digital tools and data for decisions; and comply with GDPR and cybersecurity policies.
- A grade of satisfactory and score of 1-2 if they need help choosing tools; and follows instructions to complete work (Valtioneuvoston asetus ammatillisesta koulutuksesta (Government Decree on Vocational Education and Training), 2017[35]).

A Customer Service & Sales merkonomi must demonstrate the ability to analyse business environments, deliver multilingual customer service, drive profitable sales, use digital commerce tools and act responsibly and sustainably (Utbildningsstyrelsen Opetushallitus (Finnish National Agency for Education), 2024[28]) (Peda.net, n.d.[36]). Providers usually embed extra certificates (e.g. Hygiene Passport, First-Aid EA 1) that employers value. Graduates find work as sales advisors, customer-experience specialists, e-commerce co-ordinators or continue to business studies at universities of applied sciences. (OSAO, n.d.[30]).

5 Vocational education and training in Germany

Germany's upper-secondary VET system offers both apprenticeships and school-based programmes, with flexible entry routes and recognised qualifications that support employment and further education. Curricula blend federally issued training regulations with Länder framework syllabi, and competence is certified through chamber-run exams and Länder-supervised school assessments. School-based VET includes workplace internships that differ in duration by programme and state. Training is delivered by companies, vocational schools and specialised centres or inter-company workshops. Vocational teachers need a subject-relevant university degree plus pedagogical training, while in-company trainers must hold an occupational qualification and trainer permit. Governance is tripartite, shared by federal and state authorities and social partners. Funding mirrors these roles: Länder pay for schools, employers finance in-company training, and targeted public schemes support SMEs and disadvantaged groups.

5.1. Place of VET in the overall education system and pathways into and after VET

Germany's upper-secondary education offers two main pathways: general education and vocational education and training (VET). Most students enter upper-secondary VET with the *Mittlerer Schulabschluss* (also known as the *Realschulabschluss*), an intermediate school-leaving certificate awarded after Year 10 that qualifies them for dual apprenticeships or full-time vocational schools. Students with the *Hauptschulabschluss* – a more basic certificate typically earned after Year 9 – may also enter VET, particularly in programmes requiring fewer academic prerequisites (Kultusminister Konferenz (The Standing Conference of the Ministers of Education and Cultural Affairs), 2023[1]). Furthermore, older youth with pre-requisite qualifications may undertake upper-secondary VET, and about one-sixth of those in vocational programmes are adults aged 23 or over (Kultusministerkonferenz (The Standing Conference of the Ministers of Education and Cultural Affairs), n.d.[2]) (with an average starting age of 20 years (OECD, 2023[3]). In 2021, 32% of 15-19 year-old upper-secondary students in Germany were enrolled in vocational programmes.

The prevailing form of VET is the dual system, which offers apprenticeships that combine part-time vocational training in schools with in-company training based on national standards (see Sections 5.2 and 5.6). At upper-secondary level (ISCED 3), about 88% of VET learners are enrolled in dual programmes covering over 320 recognised occupations, while around 12% follow full-time school-based routes, concentrated in sectors such as health, education and social care (Federal Institute for Vocational Education and Training (BIBB), 2023[4]; Kultusministerkonferenz (The Standing Conference of the Ministers of Education and Cultural Affairs), n.d.[2]). Of all VET learners, approximately 34% are women and 66% are men (Bundesamt Statistiches (German Federal Statistical Office), 2023[5]). Female learners are highly represented in full-time school-based programmes – especially preparing for careers in childcare, nursing or social work – while men dominate apprenticeships in trades, industry and technical occupations (OECD, 2022[6]).

In the dual system, apprentices are considered employees in training and receive a monthly allowance in line with either the minimum training allowance or collective agreements. Programmes usually last three years, though some run for 2 or 3.5 years depending on the occupation. High-performing graduates from two-year programmes can extend their training by 1-1.5 years so as to acquire the complete set of skills required of the profession qualification. Duration can also be shortened or lengthened based on prior learning or individual progress (OECD, 2022[7]). The programmes lead to an apprenticeship certificate.

School-based vocational programmes at ISCED level 3 (*Berufsfachschulen*), generally last one to three years and involve classroom and workshop instruction, sometimes augmented by brief work placements (internships) (OECD, 2022[6]). These programmes lead to a state-recognised vocational qualification equivalent in level to an apprenticeship certificate. School-based programmes focus on areas where apprenticeships are less common or where public/regional authorities prefer scholastic training routes. For example, training for state-certified educators (*Kindergärtner/in*), certain healthcare assistant roles, or design/IT assistants are through school-based routes. In some cases, especially in health occupations (e.g. nursing until recent reforms), these school-based programmes are the primary training pathway. School-based VET often integrates general education courses, and some programmes allow students to obtain an upper-secondary leaving certificate alongside vocational qualifications (OECD, 2022[6]).

For students who do not initially meet requirements for skilled training, one-year pre-vocational programmes (*Berufsvorbereitungsjahr*) or introductory training (*Einstiegsqualifizierung*) internships can serve as a stepping stone into apprenticeships (OECD, 2022[8]). Such programmes often target those with lower secondary qualifications or migrant youth, combining basic education with vocational orientation. Though not delivering a full VET qualification on their own, they are part of the broader VET system's effort to integrate all school-leavers into skilled training or employment. Box 5.1 provides more details about these programmes, as well as other efforts to make VET accessible to all learners.

Box 5.1. See every learner: Supporting disadvantaged learners in Germany's VET system

Germany offers multiple stepping-stone programmes to help disadvantaged learners transition into vocational education and training (VET) or employment. These include both school-based and apprenticeship-type options, tailored to diverse support needs. Most are publicly funded and co-ordinated by the Federal Employment Agency (*Bundesagentur für Arbeit*) or Länder authorities.

Introductory training (Einstiegsqualifizierung, EQ)

EQ is a 6–12-month paid internship in a company for young people unable to secure an apprenticeship. Interns work under contract, receive a monthly allowance (up to EUR 262) and full social insurance, reimbursed by the Federal Employment Agency. EQ participants also attend part-time school and receive a final reference from the employer, and about 45% move into a full apprenticeship within one year.

Assisted training (Assistierte Ausbildung flex, AsA flex)

AsA flex supports apprentices at risk of failure with tailored academic and social-pedagogical help. It was originally limited to people with learning disabilities and social disadvantage, though that limitation was dropped in 2021. It includes a pre-apprenticeship coaching phase (up to 18 months) and accompaniment during the apprenticeship. Support covers tutoring, job coaching and mediation with employers. About 25 600 apprentices used AsA flex in 2022.

One-year pre-vocational school (*Berufsvorbereitungsjahr, BVJ*)

BVJ is a full-time school-based programme for early school-leavers without a training contract. It offers basic education, initial vocational orientation and work tasters, and may lead to a lower secondary school certificate (*Hauptschulabschluss*). Länder fund and operate these programmes as part of the "transition system".

Introductory vocational year (*Berufsgrundbildungsjahr, BGJ*)

The BGJ is another one-year school-based course, often credited toward the first year of an apprenticeship. It targets those who are undecided or need to build vocational readiness. It can also help school dropouts catch up on the secondary school leaving certificate. In some sectors (e.g. agriculture, construction), BGJ is mandatory before entering dual training.

VET centres for young people with disabilities (*Berufsbildungswerke, BBW*)

BBW are specialised residential centres combining therapeutic, educational and vocational training services for youth with physical, cognitive or psychological disabilities. They support around 16 000 participants per year and are regulated under the Social Code Book IX. Most BBW participants pursue recognised vocational qualifications under the Vocational Training Act (BBiG) or Crafts Code (HwO), often in adapted formats, which are classified at ISCED level 3. These qualifications are equivalent in level to those in mainstream dual VET and lead to employment as skilled workers, tailored to the needs and capacities of the learners.

Source: IBB Dortmund, (n.d.[9]), IBB (Internationales Bildungs- und Begegnungswerk) website, https://ibb-d.de/?lang=en; Bundesagentur für Arbeit (n.d.[10]), Berufsausbildungsbeihilfe (Vocational training allowance (BAB), www.arbeitsagentur.de/bildung/ausbildung/berufsausbildungsbeihilfe-bab, IHK Potsdam (n.d.[11]), Industrie- und Handelskammer (IHK) Potsdam website, www.ihk.de/potsdam/, Bundesministerium fur Bildung und Forschung (n.d.[12]), Federal Ministry of Research, Technology and Space website, www.bmftr.bund.de/DE/Home/home_node.html; Rehadat Addressen (n.d.[13]), Rehadat Addressen website, www.rehadat-adressen.de/; BBW Sudhessen (2025[14]), bbw-suedhessen website, www.bbw-suedhessen.de/; Bundesagentur fur Arbeit (n.d.[15]), Bundesagentur fur Arbeit website, www.arbeitsagentur.de/; Bundesamt fur Migration und Fluchtlinge (2025[16]), Federal Office for Migration and Refugees website, www.bamf.de/DE/Startseite/startseite_node.html.

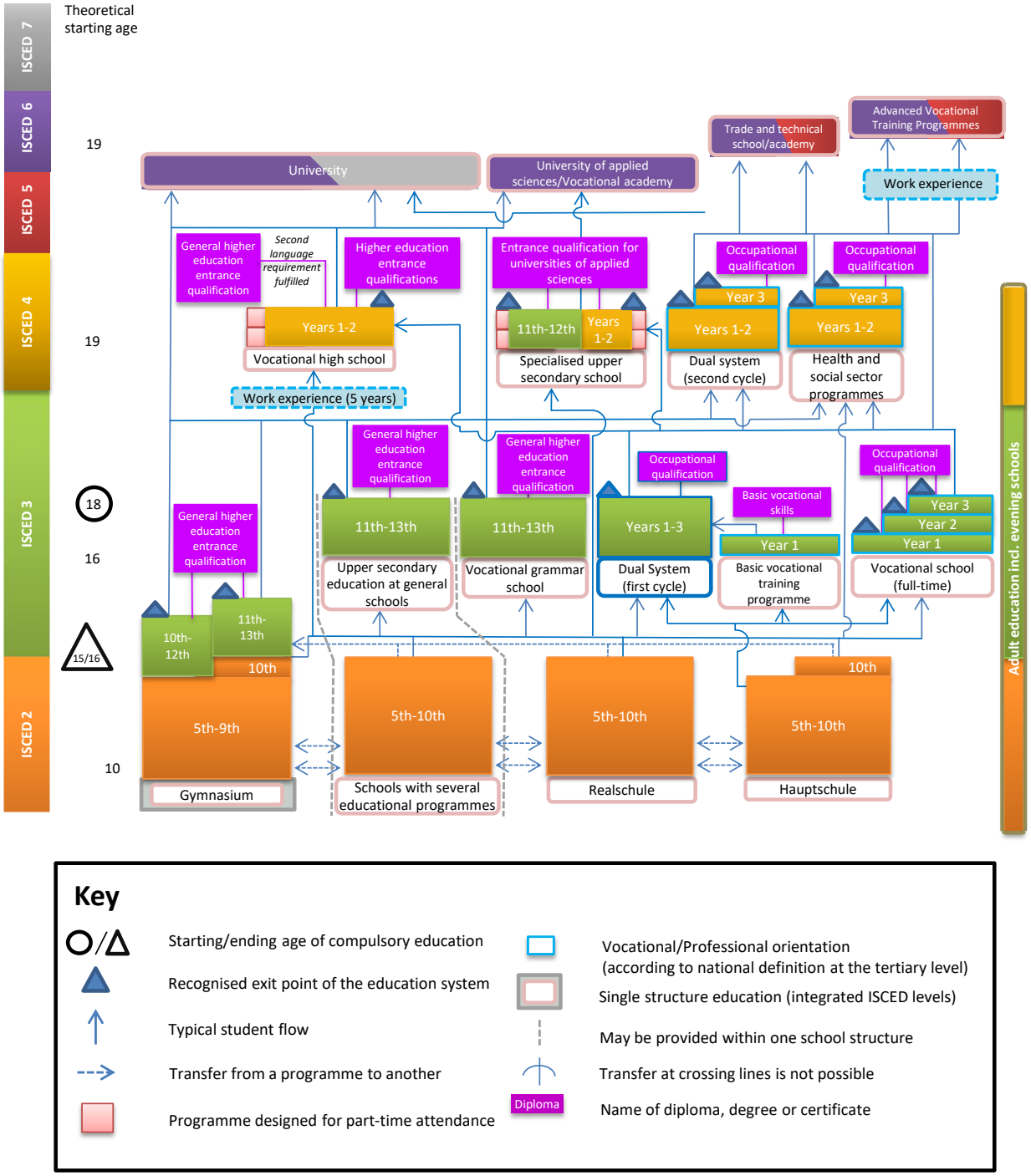
German ISCED 3 VET is primarily oriented toward direct labour market entry, but it can also open pathways to further education. Graduates of upper-secondary VET receive nationally recognised certificates that qualify them to work as skilled professionals. Completing certain VET programmes can grant access to post-secondary or tertiary education, depending on the programme and additional qualifications (OECD, 2022[6]). For example, some school-based vocational programmes confer a *Fachhochschulreife* (entrance qualification for universities of applied sciences), and dual apprenticeship graduates can qualify for tertiary studies by taking an additional exam or completing a bridging course (OECD, 2022[8]). Around 30% of new apprentice entrants already hold a university entrance diploma (Abitur) (OECD, 2023[3]).

In addition to dual programmes and the school-based programmes, Germany also offers other ISCED 3 programmes that combine academic and vocational elements and that automatically grant access to higher levels of education. The *Berufliches Gymnasium* (or *Fachgymnasium*) offers a three-year upper-secondary programme that awards the Abitur (university entry diploma) with a focus on a vocational subject like economics, technology, or nutrition (OECD, 2022[6]). Another option is the *Fachoberschule* (specialised upper-secondary school), which offers typically a 2-year programme open to holders of thelower-secondary diploma (*Mittlerer Schulabschluss*). It combines general education with vocational specialisation and extended internships, and leads to qualification for universities of applied sciences.

Overlap between the different ISCED 3 provisions is limited: most industrial and craft occupations exist only in the dual system, while most health and social-care roles are taught only in schools. A small number of fields, such as IT, offer both routes: a three-year apprenticeship (*Fachinformatiker/in*) alongside a two-year school-based assistant course, the latter yielding a narrower licence (Federal Institute for Vocational Education and Training (BIBB), 2023[4]).

Figure 5.1 provides an overview of Germany’s education system, highlighting the place of ISCED 3 VET and the pathways into and beyond VET.

Figure 5.1. The place of ISCED 3 VET in Germany's education system



Key

- Starting/ending age of compulsory education
- Recognised exit point of the education system
- Typical student flow
- Transfer from a programme to another
- Programme designed for part-time attendance
- Vocational/Professional orientation (according to national definition at the tertiary level)
- Single structure education (integrated ISCED levels)
- May be provided within one school structure
- Transfer at crossing lines is not possible
- Diploma — Name of diploma, degree or certificate

Note: The reference year is 2023 (school year 2022/2023 in the northern hemisphere). Theoretical starting ages refer to the ages as established by law and regulation for the entry to a programme; actual starting ages may vary depending on the programme.
Source: Adapted from OECD (2023[17]), "Diagram of the education system: Germany", *OECD Data Explorer*, https://gpseducation.oecd.org/CountryProfile?primaryCountry=DEU.

5.2. Curriculum structure and assessment procedures

The curricula for vocational education and training (VET) at ISCED level 3 in Germany are underpinned by two main frameworks: the federally regulated training regulations (*Ausbildungsordnungen*) for apprenticeships and the curricula authorised by the Länder framework curricula for vocational schools (*Rahmenlehrpläne*) adopted by each Land and co-ordinated nationally by the Standing Conference of Ministers of Education and Cultural Affiars (*Kultusministerkonferenz*, KMK). These frameworks reflect the dual structure of VET provision – through both dual apprenticeships and school-based programmes – and are aligned with the German Qualifications Framework for Lifelong Learning (*Deutscher Qualifikationsrahmen für lebenslanges Lernen*, DQR), which is referenced to the European Qualifications Framework (EQF). ISCED 3 VET qualifications correspond to DQR/EQF level 4 (Federal Ministry for Research, Technology and Aeronautics (Bundesministerium für Forschung, Technologie und Raumfahrt), n.d.[18]).

In the dual system, the Federal Ministry of Education, Family Affairs, Senior Citizens. Women and Youth (BMBFSFJ), together with employers, trade unions, and Länder governments, develops and updates the training regulations that govern the in-company component of each recognised occupation (Federal Ministry of Justice and Consumer Protection (BMJV), 2005[19]). As of 2025, there are over 320 recognised apprenticeship occupations in Germany (Federal Institute for Vocational Education and Training (BIBB), 2025[20]). Each training regulation consists of three elements:

- An occupational profile (*Berufsbild*), defining core tasks and competence areas.
- A training plan (*Ausbildungsrahmenplan*), outlining the schedule for acquiring competences.
- Examination requirements (*Prüfungsanforderungen*), detailing structure and content of assessments.

The Federal Institute for Vocational Education and Training (Bundesinstitut für Berufsbildung, BIBB) co-ordinates this process through its main board (*Hauptausschuss*), which includes representatives from employers, trade unions, the federal government, and the Länder (Federal Institute for Vocational Education and Training (BIBB), 2017[21]). Social partners are also directly involved in assessment governance for apprentices: examination boards (*Prüfungsausschüsse*) at the chamber level include employers, employee representatives and vocational teachers, and are responsible for designing, administering and grading the final apprenticeship exams (European Commission, 2025[22]). The quality assurance system ensures national consistency in certification, which supports both the portability of qualifications and their recognition by employers across the country.

Framework curricula are structured around interdisciplinary learning fields (*Lernfelder)* aligned with the occupational profile rather than traditional subjects. Each learning field integrates knowledge and skills from different disciplines to reflect real occupational tasks – such as combining legal knowledge, IT, and communication skills in a module on customer service (Kultusminister Konferenz, n.d.[23]). Framework curricula set benchmark time allocations for each learning field, typically amounting to seven or eight weekly hours in the first training year depending on the occupation.

Vocational schools (*Berufsschulen*) implement framework curricula developed and approved by Länder authorities, co-ordinated through the KMK. The Länder regulate the exact distribution of lessons and may offer supplementary or remedial modules, such as preparatory courses or instruction towards the entrance qualification for universities of applied sciences (European Commission, 2025[22]). While employers and unions do not co-develop framework curricula, they may still contribute at the regional or institutional level – for example, through advisory boards, curriculum consultations, or by offering practical placements (see Sections 5.3 and 5.6). In the dual system, *Vocational schools* and training companies share a joint educational mission. While companies focus on occupational training, schools complement this by

fostering both vocation-related and general competences, such as communication, ethics, and civic awareness.

Assessment procedures differ by programme type but follow common quality standards. In dual apprenticeships, the competent chambers (e.g. *Industrie- und Handelskammern*, *Handwerkskammern*) administer both interim (*Zwischenprüfungen*) and final examinations (*Abschlussprüfungen*), based on national criteria. An interim examination typically takes place midway through the programme and covers the competencies outlined for the first 18 months of training. Some occupations use a "stretched" final examination (*gestreckte Abschlussprüfung*) instead, where Part 1 takes place earlier in training and contributes to the final result alongside Part 2 at the end of training. The final exam typically consists of written, oral and practical components and tests occupational competence in line with the training regulation. Passing the exam grants a nationally recognised vocational qualification such as the title of *Geselle* (in crafts) or *Facharbeiter/in* (in industry) (Andreas Stöhr, 2017[24]) along with a certificate from the vocational school.

In school-based VET (e.g. *Berufsfachschule*, *Fachoberschule*, *Berufliches Gymnasium*), assessment is regulated by the Länder. It generally includes continuous evaluation (e.g. coursework, classroom performance) and a final examination. Programmes vary in structure and aim, but all successful graduates receive a state-recognised vocational qualification. The final examination often includes general subjects (e.g. mathematics, languages, politics), vocational subjects and a specialisation area. In *Beruflichen Gymnasien und Berufsoberschulen* programmes, double qualifications may be awarded through parallel academic and vocational assessments (Kultusminister Konferenz (The Standing Conference of the Ministers of Education and Cultural Affairs), 2024[25]; Verbraucherschutz, n.d.[26]).

5.3. Work-based learning (WBL) in school-based programmes

In Germany, school-based VET programmes at ISCED level 3 typically integrate mandatory work-based learning (WBL) components. In contrast to dual apprenticeships, work-based learning in these programmes is typically delivered through defined internship periods rather than as part of a continuous training contract (OECD, 2022[6]). The structure and duration of WBL vary by federal state and programme type. In full-time vocational schools (*Berufsfachschulen*), learners may complete internships lasting between four and twelve weeks over the course of the programme. In programmes leading to assistant qualifications (e.g. *staatlich geprüfter Assistent/in*), WBL can account for up to 50% of total training time (Kultusminister konferenz (The Standing Conference of the Ministers of Education and Cultural Affairs), 2025[27]; European Commission, 2025[22]).

WBL in school-based programmes is especially common in sectors such as healthcare (e.g. physiotherapy), social care (elder and child care), early childhood education (e.g. educator training), and technical or commercial assistant roles.

The Länder governments govern school-based VET and regulate WBL placements through education acts and decrees. Vocational schools collaborate with local companies to organise placements, which are embedded in the school's curriculum. Schools select or approve the participating enterprises and ensure that placements align with intended learning outcomes. Teachers are appointed to supervise the internship period, liaise with company mentors, and monitor learners' progress (European Commission, 2025[28]).

Enterprises are not legally required to provide placements and are generally not compensated. Nonetheless, some Länder operate support schemes – such as *Praktikumsakquise* in Nordrhein-Westfalen – to help schools secure placements, especially in high-demand sectors or for disadvantaged learners.

The assessment of WBL is the responsibility of the school. Methods vary and may include reflective journals, project-based evaluations, or practical observations conducted jointly by school staff and

enterprise mentors. Completion of the WBL component is typically documented in the learner's school transcript and may contribute to the final grade in some Länder (European Commission, 2025[22]).

The Länder also establish quality standards for WBL. These may include criteria for selecting host enterprises, the appointment of qualified company mentors, school monitoring procedures, and performance evaluations. Teachers often visit companies or conduct remote check-ins during the internship. In some Länder, binding framework agreements (*Rahmenvereinbarungen*) help formalise co-operation between schools and employers.

5.4. Providers

Germany's VET programmes at ISCED 3 are delivered by a range of providers operating under the oversight of state education authorities or chambers, depending on the model. The principal provider types include vocational schools, companies (for apprenticeships), specialised vocational schools, trade and technical schools, and other institutions (e.g. health sector schools), each with distinct roles.

In the dual system, companies are the central training providers, as apprentices spend the majority of their time (3-4 days per week) training at the workplace. Over 432 000 firms in Germany were training apprentices in 2019 (about 21% of all companies in Germany). However, not every company can provide apprenticeship training – roughly only half of German companies meet the eligibility criteria (appropriate facilities, qualified trainers, sufficient scope of work) (OECD, 2022[29]). Those that do participate are of all sizes, though larger firms are more likely to train than small ones. Companies deliver the practical, work-based component of VET, following the national training plan (*Ausbildungsrahmenplan*) for the occupation. They employ apprentices under a contract and pay them a training allowance. Firms benefit from apprentices' productive contribution and often hire them upon completion, but they also bear training costs.

To support smaller or highly specialised companies that cannot cover the full range of required skills, there are inter-company vocational training centres (*Überbetriebliche Berufsbildungsstätten*) run by chambers or industry associations (OECD, 2022[8]). These centers provide supplemental off-site practical training in specific techniques or equipment (*Überbetriebliche Lehrlingsunterweisung ÜLU*) that a small firm might lack. These trainings are funded by the Federal Ministry for Economic Affairs and Energy and the Länder as a way to ensure training quality in SMEs To ensure that the vocational training centres (*Überbetriebliche Berufsbildungsstätten*) can provide modern and high-quality classrooms and equipment, the Federal Ministry for Education, Family Affairs, Senior Citizens, Women and Youth promotes also – together with the Federal Ministry for Economic Affairs and Energy and the Länder – the renovation or new construction of these centres.

Additionally, some firms collaborate in consortia (*Verbundausbildung*) where two or more companies share an apprentice, each teaching different components of the occupation so that collectively they fulfill the training plan (OECD, 2022[8]).

Vocational schools are the main institutional providers of off-the-job education in the dual system. There are over 1 500 vocational schools across Germany (Federal Institute for Vocational Education and Training (BIBB), 2018[30]) operated by Lander or sometimes municipal authorities. They deliver the part-time schooling that complements in-company training for apprentices, typically 1-2 days per week or in block release format. Vocational schools teach vocational theory, related academics (such as technical maths, business studies), and general subjects (like language, civics) to ensure apprentices receive a well-rounded education (OECD, 2022[7]). *Vocational schools* are not limited to dual apprentices: in many regions they also host pre-apprenticeship classes and other preparatory programmes (OECD, 2022[8]). They also often provide remedial instruction or language support if needed. Decline in apprentice numbers have led some vocational schools to merge or broaden their offerings (Federal Institute for Vocational Education and Training (BIBB), 2018[30]).

Specialised Vocational Schools (*Berufsfachschulen*) are full-time vocational schools that offer 1-3-year school-based VET programmes (as described in Section 5.1). Specialised vocational schools operate in almost all Länder and concentrate on fields that do not follow the dual model. Specialised vocational schools are often public, but there is also a significant number run by private or church organisations, especially in health and social sectors. They are under Länder jurisdiction and must meet state curriculum requirements. Uniquely, Berufsfachschulen can offer different types of programmes, overlapping somewhat with other providers. For example, specialised vocational schools cover a broad set of fields – they dominate training in health, social care, and childcare, which are mostly outside the dual system, but they also offer programmes in fields where apprenticeships exist (like IT or commerce) in a school format. There is also overlap in "pre-apprenticeship" training – both vocational schools and specialised vocational schools may run one-year vocational orientation courses. Overall, specialised vocational schools account for the second-largest share of VET enrolments (after vocational schools) at ISCED 3-4, reflecting the popularity of school-based tracks in some regions and sectors (OECD, 2022[8]). They cater both to youths entering directly after lower-secondary and, in certain programmes, to young adults.

The Fachoberschule is a two-year upper-secondary vocational school (Grade 11 and Grade 12) requiring the *Mittlerer Schulabschluss* (Realschulabschluss) for admission. It operates within vocational subject areas such as technology, business, health, design, nutrition, agriculture, or environmental technology (European Commission, 2025[28]). The curriculum blends theoretical instruction and practical workplace experience in the first year, progressing to a fully school-based programme in the second. Successful completion awards the qualification for universities of applied sciences (Würzburg, n.d.[31]; Haxhiavdyli, 2024[32]). The FOS thus offers a vocational–academic hybrid pathway at ISCED 3 that is distinct from dual apprenticeships and full-time VET schools.

Vocational Grammar Schools (Berufliche Gymnasien/Fachgymnasien) provide a hybrid general/vocational programme culminating in the Abitur. They can be seen as providers of general upper secondary education with a vocational orientation (fields like economics, technology, agronomy, etc.). Students spend three years (Grade 11, Grade 12 and Grade 13) and graduate with a university-entry qualification, plus foundational vocational knowledge in their specialisation. While these schools are not "VET" in the sense of delivering a certified occupation, they illustrate the diversity of provider institutions in Germany's upper-secondary landscape. They fall under the responsibility of the Länder and are usually attached to vocational school centres.

5.5. VET teachers and trainers' qualifications and professional development

There are two main categories of instructors in ISCED 3 VET in Germany: VET teachers (teaching in VET programmes at Vocational schools/Berufsfachschulen) and in-company trainers (Ausbilder in firms). VET teacher is a regulated profession requiring formal higher education and teacher training. VET teaching staff are further divided into three subgroups based on their subject specialisation and training pathway:

1. Teachers of vocational subjects/theory, who deliver subject-specific theoretical content (e.g. business studies, mechanical engineering).
2. Teachers of general education subjects, who teach core subjects like mathematics, languages, and civics.
3. Teachers of vocational practice (often referred to as *Werklehrer* or *Fachlehrer*, depending on the Länder), who focus on hands-on instruction and workshop-based learning.

Teachers of vocational theory and general education subjects follow a similar academic route: both typically complete a university degree at the master's level that includes subject-specific content as well as pedagogical studies in vocational or general education. After university, they complete a teacher traineeship (*Referendariat*) - typically a 1.5 to 2-year period of supervised practical training in a school

setting. They must also pass two state examinations – one after university and one at the end of the school-based internship – to obtain their full teaching qualification. Additionally, individuals qualified to teach general subjects in academic secondary schools (e.g. *Gymnasium*) can also teach those subjects in VET programmes (OECD, 2022[6]).

Teachers of vocational practice, by contrast, are usually recruited from among experienced industry professionals who hold a high-level vocational qualification – such as a *Meisterbrief* (master craftsperson diploma) or a relevant bachelor's degree. Rather than following the university route, they undertake a continuing teacher education programme regulated by Länder law. This programme includes pedagogical coursework and a practical school placement and concludes with a state examination. Once qualified, they are authorised to teach practical workshops or applied specialist subjects (OECD, 2022[6]).

To address subject-area gaps – particularly in technical fields – the Länder have also expanded alternative certification routes. These allow professionals from industry to enter teaching as "side entrants" without a full teaching qualification. While about 48% of vocational teachers in 2019/20 were fully qualified (42% in vocational theory, 6% in vocational practice), nearly 20% entered through alternative pathways. Most of these side entrants are engineers or other university graduates who transition from industry into teaching, often without formal pedagogical training. Others are master craftspersons or technicians recruited as "hybrid" teachers bridging practical and theoretical instruction (OECD, 2022[6]). To attract such candidates, many Länder have relaxed entry requirements and expanded fast-track certification programmes. General-subject teachers (26% of the workforce in 2019/20) usually come from Gymnasium pathways.

Germany places growing emphasis on mentoring, induction, and continuing professional development (CPD) to support new and existing VET teachers (OECD, 2021[33]). While CPD requirements are regulated at the Länder level, most Länder set expectations for regular participation – typically around 10-20 hours per year – through school laws or collective agreements (European Commission, 2025[34]). Structured induction and mentoring programmes are in place for both fully qualified teachers and side entrants, helping them transition into teaching roles. Professional development offerings include pedagogical training, subject-specific updates, and courses on digital teaching tools and Industry 4.0 technologies (Cedefop & ReferNet, 2025[35]) (National initiatives such as the Digital Pact for Schools provide targeted funding for digital infrastructure and tools, also in joined cross-Länder platforms (Hubbs) and to build digital competences among vocational educators. Teachers can also pursue further vocational qualifications – such as the AEVO certificate (Trainer Aptitude Regulation, see below) – or advanced technical degrees to expand both pedagogical and occupational expertise (Federal Institute for Vocational Education and Training (BIBB), 2024[36]).

On the enterprise side, training is conducted by workplace supervisors and mentors or *Ausbilder* (trainers). The Vocational Training Act stipulates that companies must have at least one "responsible trainer" who is personally and professionally apt to guide apprentices. To ensure this, in-company trainers must hold a Trainer Aptitude Certificate (*Ausbildereignung*, AEVO), obtained by passing the Ada-Schein (*Ausbildung der Ausbilder*) examination and mandated by the Trainer Aptitude Regulation (OECD, 2022[6]). Typically, this means a prospective trainer – who is a skilled worker or master in the company – attends a short course on training methods, pedagogy, and legal responsibilities, and then passes the chamber-administered trainer exam. In crafts, Master Craftsperson (Meister) qualifications explicitly include a pedagogical component qualifying the holder to train apprentices. The chambers verify trainer qualifications and company suitability before registering apprentices (OECD, 2022[8]).

Large companies often have full-time training personnel and even training workshops, whereas in small companies a line supervisor or senior craftsman takes on the trainer role alongside regular duties. As of 2020, there were over 650 000 certified trainers in Germany, a testament to industry's commitment to training standards. In their day-to-day role, trainers plan the apprentice's tasks to ensure all required skills are taught, provide instruction and feedback on their work, and co-ordinate with vocational schools. Many firms rotate apprentices through departments and mentors while maintaining the oversight of the

responsible trainer. Trainers can advise or require improvements if a company lacks capabilities to cover the training content and can direct apprentices to supplementary inter-company courses (OECD, 2022[8]).

Employers in Germany are generally supportive of trainer development and often facilitate participation in professional development activities (OECD, 2022[29]). Many employers cover course fees or offer time off for preparation. Larger companies may provide structured in-house training, mentorship, or access to external CPD courses to keep trainers updated on new technologies, regulatory changes, and instructional techniques. Chambers of commerce and crafts regularly provide workshops and updates for trainers (Elbe-Weser, n.d.[37]) and some Länder support local initiatives to improve trainer quality, especially in SMEs.

5.6. Governance

German VET at ISCED level 3 operates under a complex governance structure that balances federal, state, and social partner responsibilities, underpinned by robust legal frameworks. The cornerstone is the federal Vocational Training Act (*Berufsbildungsgesetz, BBiG*), first enacted in 1969 and most recently updated in 2005 and 2020, which, together with the Crafts and Trade Code (*Handwerksordnung*), regulates all fundamental aspects of apprenticeships. These laws define the recognition of training occupations, outline the requirements for in-company training staff, training companies and examination procedures, and ensure that training content is standardised nationwide (OECD, 2022[29]).

At the federal level, the Federal Ministry of Education, Family Affairs, Senior Citizenship, Women and Youth (BMBFSFJ) has overall responsibility for VET policy and for the in-company training component of dual programmes (OECD, 2022[6]). The BMBFSFJ oversees the development of training regulations for each occupation (in close collaboration with the social partners, see below) and co-ordinates VET strategy with other ministries (for instance, the Ministry of Economic Affairs is involved in financing specific training initiatives in the crafts sector (OECD, 2022[8]).

The Federal Institute for Vocational Education and Training (BIBB) conducts research, provides policy advice, and plays a lead role in developing and updating national training regulation (*Ausbildungsordnungen*) for apprenticeships (OECD, 2022[6]). It hosts standing committees where the social partners (employer associations and trade unions), the federal government, and state (Länder) representatives jointly negotiate the content of training regulations (see more below).

Responsibility for the school-based component of VET – including both full-time school-based programmes and the vocational school portion of dual apprenticeships – lies with Germany's 16 federal states (Länder). State Ministries of Education (*Kultusministerien*) regulate the vocational schools and are in charge of hiring and training VET school teachers. Through the Standing Conference of Länder Ministers of Education (*Kultusministerkonferenz, KMK*), the states co-ordinate educational standards, including the framework curricula taught in vocational schools that complement federal training regulations. Each Länder enacts its own education laws that cover school-based VET, but in practice the basic structure of programmes is similar nationwide due to the consensus-building role of the KMK (OECD, 2022[6]).

Social partners – employers and trade unions – play a fundamental role in Germany's VET system. At the national level, their representatives sit on the BIBB Main Board and various vocational training committees, where they initiate updates to training regulations and propose new occupations (OECD, 2022[6]). For example, if an industry sees demand for a new skill (such as IT security), employer groups can work with BIBB to develop a new apprenticeship occupation or modernise an existing one. Every few years, training regulations for each occupation are reviewed in committees including employer experts to keep standards current. At the regional level, employers influence VET through chamber assemblies and regional VET committees, advising state authorities on school programmes and helping co-ordinate apprenticeship supply and demand.

Industry and Commerce Chambers (*Industrie- und Handelskammern, IHKs*) and Chambers of Crafts (*Handwerkskammern, HWKs*) play a key and statutory role in Germany's VET system. These are self-governing public bodies representing employers in their sectors and regions. By law, all companies training apprentices must be a member of the relevant chamber, and all apprenticeship contracts must be registered with a chamber. There are 79 IHKs and 53 HWKs across Germany (OECD, 2022[29]) with legally entrusted with vital regulatory functions in the apprenticeship system: they advise and approve companies to ensure they meet training standards, maintain a register of training contracts, organise interim and final examinations, and issue the official skilled worker certificates (see Sections 5.2 and 5.5) (OECD, 2022[8]). They also co-ordinate examination boards which administer the uniform final exams for each occupation (see Section 5.2). Locally, chambers often convene apprenticeship committees that bring together companies, schools and unions to discuss training provision and resolve any issues with training contracts or exams.

Engaging employers directly provides the backbone of the dual system by offering apprenticeship placements. German employers voluntarily take on apprentices (there is no legal requirement to train), thereby co-investing in education (see Section 5.1). The consistency and legal backing reduce the risk for employers and create a more level playing field (e.g. all must pay at least minimum apprentice remuneration, follow curriculum, etc.). Large companies may even run collaborative training centres benefiting their local SME suppliers. Employers also contribute by participating in job fairs, school partnerships, and apprenticeship marketing to ensure a robust pipeline of applicants.

Employers are also involved in assessing and certifying apprentices. Through the chambers, employer delegates serve on examination committees that design and administer the practical and theoretical exams at the end of training (OECD, 2022[29]). For instance, a master craftsperson from industry might sit on the panel for a mechatronics apprentice's final test, evaluating whether the apprentice can troubleshoot machinery to industry expectations. Such involvement means the private sector effectively co-certifies new workers, reinforcing credibility of the qualifications. Sector associations often exchange best practices on training.

5.7. Funding

Upper-secondary vocational education and training (VET) at ISCED level 3 in Germany is financed through a shared responsibility model involving public authorities and private employers. Public funding primarily supports the school-based component, while employers bear the costs of in-company training (in the case of apprenticeship).

The Länder (federal states) and municipalities finance vocational schools, covering expenses such as teacher salaries, facilities, and equipment (Federal Institute for Vocational Education and Training (BIBB), 2024[38]). In 2021, public expenditure on VET schools amounted to approximately EUR 6.4 billion (Bundesamt, 2022[39]). The federal government plays a more limited role in recurrent funding for school-based VET but contributes to the broader VET system by funding national programmes, innovation initiatives, and the operations of the Federal Institute for Vocational Education and Training. For example, the federal government's VET-related expenditures totalled around EUR 700 million in 2021 ((BIBB), Federal Institute for Vocational Education and Training, 2022[40]).

The federal government may also provide targeted funding through competitive grant programmes and co-financed initiatives, often supported by the European Social Fund Plus (ESF+). One example is the Jobstarter programme, launched in 2006 by the Federal Ministry of Education and Research (now BMBFSFJ) and co-funded by the ESF, which aimed to strengthen regional training structures, particularly for small and medium-sized enterprises (SMEs), by increasing the number of in-company training places, supporting matching processes between firms and young people, and promoting structural improvements to the VET system ((BIBB), Federal Institute for Vocational Education and Training, 2022[40]).

Chambers of commerce and industry (*Industrie- und Handelskammern, IHKs*), which oversee apprenticeship examinations and provide training-related advisory services, are funded through mandatory employer membership contributions rather than general public subsidies (Pfeifer et al., 2021[41]).

Employers play a central role in financing dual apprenticeships by covering the costs of in-company training. These include apprentice remuneration, trainer salaries, materials, and administrative overhead (Federal Institute for Vocational Education and Training (BIBB), 2024[38]). In 2022, average apprentice remuneration was approximately EUR 1 057 per month, though this varied by sector – from around EUR 901 in craft trades to EUR 1 139 in healthcare. Firms in Germany are estimated to invest approximately EUR 28 billion (GBP 24.2 billion) annually in apprenticeship training. On average, companies incur gross training costs of around EUR 18 000 per apprentice per year, of which about EUR 12 000 is recouped through the productive contribution of apprentices, resulting in a net cost of roughly EUR 6 000 (Pfeifer et al., 2021[41]). However, studies also show that when longer-term benefits are taken into account – such as lower recruitment costs, reduced turnover, and the ability to retain skilled workers already familiar with company processes – training often yields a positive return on investment over time (Pfeifer et al., 2020[42]).

There is no national training levy; firms are not obliged to contribute unless they choose to train apprentices. However, sector-specific training funds exist in some trades, such as construction, where collective agreements require all companies to contribute, regardless of whether they train (Federal Institute for Vocational Education and Training (BIBB), 2025[43]).

The apprenticeship component of dual VET is treated as part of normal business operations, and firms can deduct associated expenses (e.g. apprentice wages, trainer time) as standard personnel and operating costs. No specific tax credits or subsidies apply to firms offering apprenticeships, except in a few targeted areas. However, SME employers can benefit indirectly from publicly funded inter-company training centres (*Überbetriebliche Berufsbildungsstätten*), which offer complementary training modules that small firms may be unable to provide in-house due to their specialisation (Federal Institute for Vocational Education and Training (BIBB), 2022[44]).

While most firms receive no direct subsidies for training, targeted financial incentives aim to maintain training opportunities in sectors or groups with lower market participation. For example, employers that train disadvantaged youth, individuals with disabilities, or those who complete a pre-apprenticeship internship (*Einstiegsqualifizierung*) may receive monthly subsidies from the Federal Employment Agency (Federal Institute for Vocational Education and Training (BIBB), 2024[45]). The internship subsidy is currently set at EUR 247 per month, plus social security contributions. In addition, some Länder operate schemes providing bonuses for companies that train single parents, women in technical trades, or apprentices displaced from bankrupt firms. Public funding is also available for joint training networks (*Verbundausbildung*), where multiple firms collaborate to train an apprentice. These programmes are co-financed by federal, Länder, and ESF+ budgets (Federal Institute for Vocational Education and Training (BIBB), 2024[45]).

Apprentices also benefit from full coverage under Germany's social insurance system and do not pay tuition fees. To ensure minimum earnings, a statutory minimum training wage was introduced in 2020. In 2025, first-year apprentices were entitled to at least EUR 682 per month, increasing annually (Deutscher Gewerkschaftsbund (German Trade Union Confederation), n.d.[46]). Additional financial support is available to apprentices through the *Berufsausbildungsbeihilfe* (BAB), a grant from the Federal Employment Agency for trainees who live away from home or face financial hardship. This grant helps cover housing, transport and living costs (Bundesagentur für Arbeit, n.d.[10]).

Students in full-time school-based VET programmes do not receive an apprenticeship wage. However, they may qualify for financial aid under the Federal Training Assistance Act (*Bundesausbildungsförderungsgesetz – BAföG*). These means-tested grants support eligible students with monthly living expenses and are particularly relevant in sectors such as health and social care, where

training is school-based. In some of these programmes (e.g. nursing), learners may also receive an allowance from the training provider (often a hospital), aligned with public sector pay scales (Statistiches Bundesamt, Federal Statistical Office (Destatis), 2023[47]). Overall, learners face no study or training fees, regardless of age. Adults in full-time VET can also access BAföG, if eligible.

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Annex 5.A. Examples of curriculum structure and assessment procedures for three ISCED 3 VET qualifications

To illustrate how curricula and assessments are implemented in Germany's upper-secondary VET, this annex presents three representative examples:

- Example 1: Apprenticeship in Plumbing and Heating (Anlagenmechaniker SHK) – Dual Craft Apprenticeship (ISCED 354, EQF 4).
- Example 2: General Nursing Programme (Pflegefachfrau/-mann) – School-based Health VET Programme (ISCED 353/454, EQF 4).
- Example 3: Apprenticeship in IT Specialist (Fachinformatiker/in) – Dual IT Apprenticeship (ISCED 354, EQF 4).

Each example outlines the programme's structure (content, duration, and training venues) and the assessment procedures, highlighting the prescriptiveness of curricula and the division of responsibilities.

Example 1: Apprenticeship in Plumbing and Heating (Anlagenmechaniker SHK) – *Dual Craft Apprenticeship (ISCED 354, EQF 4)*

The *Anlagenmechaniker/in für Sanitär-, Heizungs- und Klimatechnik* (Plumbing and Heating Systems Technician) is a dual apprenticeship programme in Germany regulated at the national level. The programme lasts three and a half years and leads to a nationally recognised journeyman certificate (*Gesellenbrief*) issued by the relevant regional Chamber of Crafts (*Handwerkskammer*). The dual structure combines practical training in a company (usually three to four days per week) with theoretical instruction at a part-time vocational school (*Berufsschule*) (typically one to two days per week).

The legal basis for the programme is the training regulation (Federal Institute for Vocational Education and Training (BIBB), 2016[48]) (issued by the Federal Ministry for Economic Affairs and Energy (*Bundesministerium für Wirtschaft und Energie*) in agreement with social partners. This regulation defines the occupational profile (*Berufsbild*), the minimum training content for each year, and the examination requirements. It includes a company-based training plan (*Ausbildungsrahmenplan*) that prescribes which skills must be taught during each year. These cover areas such as installing and maintaining piping systems, sanitation, heating, ventilation and air-conditioning (HVAC) technology, energy-efficient building systems, and customer service.

In parallel, the Standing Conference of the Ministers of Education and Cultural Affairs (*Kultusministerkonferenz*, KMK) has approved a national framework curriculum (Kultusminister Konferenz (Secretariat of the Standing Conference of the Ministers of Education and Cultural Affairs), n.d.[49]) for vocational schools, which each federal Länder implements through its own school legislation. This curriculum is structured around 13 interdisciplinary learning fields that reflect typical occupational tasks. These fields include "Planning and manufacturing simple pipe systems", "Installing sanitary systems", and "Implementing climate protection and energy efficiency". The curriculum prescribes a total of 1 020 hours of vocational instruction over the full training period. General education subjects, if taught, are regulated separately by Länder education authorities.

Each learning field defines the occupational tasks, required knowledge and skills, and didactic principles for instruction. For example, in the field "Installing heating systems and implementing climate protection measures," apprentices are expected to learn about combustion systems, emissions, hydraulic balancing, and relevant regulations on environmental and energy efficiency. The curriculum allows for pedagogical flexibility in how content is delivered, but the scope and sequence of topics are tightly prescribed.

In-company training follows the *Ausbildungsrahmenplan*, which sequences the acquisition of competencies over the four training years. In the first year, apprentices learn foundational skills such as reading technical drawings, measuring and bending pipes, and using basic hand tools. In the second and third years, they take on more complex tasks such as installing and servicing heating systems, working with solar thermal units, and carrying out leak testing. In the final phase, apprentices are expected to independently complete complex installations, troubleshoot HVAC systems, and interact with customers. Training progress is documented in a logbook (*Berichtsheft*) maintained by the apprentice and monitored by the company's certified trainer (*Ausbilder*), typically a master craftsperson (*Meister/in*). Co-ordination between school and workplace is facilitated by the prescribed curriculum and periodic communication.

Assessment in this apprenticeship is standardised nationwide and managed by the regional Chamber of Crafts (Handwerkskammer). Apprentices undergo an interim examination (often a *Gesellenprüfung Teil 1*) halfway through the programme, which serves as diagnostic feedback. The apprenticeship concludes with a final examination (*Gesellenprüfung*) set by the chamber's examination board. This final exam has practical and theoretical components: typically, the apprentice must complete a practical task (e.g. solve a heating system fault) within a given time, under observation. They also submit documentation relating to the task (planning calculations, materials used, safety measures) and undergo an oral questioning about their work.

In addition, there are written exams covering trade theory. All chambers base their tests on federal regulation, which explicitly details the exam requirements. The exam board is composed of master craftspersons, employee representatives, and vocational school teachers. To pass, the candidate must achieve at least "sufficient" in each part (grades are standardised nationally). Upon passing, the apprentice is issued a certificate, which is valid across Germany and allows holder to work independently.

While most graduates directly enter the labour market, the qualification also opens pathways to further professional education – for instance, progression to a master craftsperson course (*Meisterschule*) or specialised upskilling in renewable energy systems.

Example 2: General Nursing Programme (Pflegefachfrau/-mann) – *School-based Health VET Programme (ISCED 353/454, EQF 4)*

The general nurse training ("*Pflegefachkraft*") is a three-year full-time vocational programme in the healthcare sector that exemplifies Germany's school-based VET pathway. It is delivered primarily through vocational nursing schools (*Pflegeschulen*), supplemented by extensive practical training in healthcare facilities. This programme was established by the Nursing Professions Act of 2020, which unified previously separate specialisations (elderly care, general nursing, pediatric nursing) into a single generalist qualification (Wittig, 2022[50]). Students enrolled in nursing VET are typically contracted as *trainees* by a hospital, clinic or care home that partners with the vocational school – so, although it is classified as school-based, it functions as a dual structure between the nursing college and practical training sites (but outside the remit of the Chambers of Crafts/Industry).

The national curriculum is governed by a federal Training and Examination Ordinance for Nursing. The curriculum mandates at least 2 100 hours of classroom-based theoretical and practical instruction at the nursing school, and 2 500 hours of supervised practical training in various health care settings (Wittig, 2022[50]). These hours are spread over the three years and cover a wide range of competencies:

e.g. nursing science and theory, anatomy and physiology, patient communication, ethics and law, as well as practical skills in general medicine, surgery, geriatrics, pediatrics, and community care.

The theoretical curriculum is modularised into broad fields such as “Supporting patients in rehabilitation and self-care.” Each module lists detailed learning outcomes that align with professional nursing standards and the EU requirements for nurse training (which specify minimum training hours and content across the EU) (Gazette), 2018[51]). The curriculum is highly standardised nationally – all nursing schools follow the core content and hour distribution set by federal regulations.

The practical training component is equally structured: trainees must rotate through multiple placements, including hospital general wards, pediatric units, psychiatric care, and elderly nursing homes. Co-operation agreements between schools and training providers stipulate which skills are to be practiced in each rotation and that each student gets the required mix of experiences. This prescriptive framework leaves relatively little flexibility – providers can exceed the minimum hours, add electives, or adapt teaching methods, but cannot reduce the core content. The Länder are responsible for implementing this framework: they authorise nursing schools, supervise the quality of teaching, and organise the state examinations.

A typical sequence in the programme might involve blocks of several weeks of theoretical instruction followed by a practical rotation. For instance, during a theory block, students learn about pharmacology, nursing care planning, and infection control through lectures, simulations, and case studies. They might practice skills such as wound dressing changes or measuring vital signs in a controlled lab setting at school. Following this, in a clinical rotation, the trainee works under the supervision of licensed nursing staff to apply those skills with real patients – initially observing and assisting and gradually performing tasks independently. Each student is assigned a qualified practical mentor at the training site (usually a senior nurse) who guides and evaluates them.

There is also an interim evaluation (often at the end of the second year) to assess whether the student is progressing adequately in both theory and practice. At the end of the three years, students undertake a rigorous state examination overseen by the Land’s health authority, consisting of three parts: *written, oral, and practical*. The written exam typically covers major subject areas (e.g. one paper on general nursing and internal medicine, one on surgery and pediatrics, one on geriatrics and community care), standardised at the state or national level with essay and case-based questions.

The oral exam allows examiners to probe the student’s knowledge in areas like ethics, law, or specific patient scenarios; it is often conducted by a board at the nursing school and might involve case vignettes where the candidate must explain how they would assess and care for a patient.

The practical exam is perhaps the most pivotal: the trainee must demonstrate nursing care for a real patient (or a simulation) under exam conditions (Gazette), 2018[51]). For example, the student might be assigned a patient, perform a nursing assessment, plan and carry out several nursing interventions, and then document and present the care they provided. Examiners (which include nursing instructors and an external nursing expert appointed by the authority) observe this and question the student on their decisions – essentially assessing clinical reasoning and hands-on skill. The exam board is formed according to law, typically including: a representative of the state authority (who chairs it), nursing school teachers, and experienced nurses from practice.

To be admitted to the exam, students must have completed all required hours of training; there is some leeway for absences, but exceeding certain limits requires making up training time. The grading follows a unified scale (Very Good to Insufficient) and students must pass all three parts; a failure in one part usually means that part can be retaken once, after additional training if needed. Upon passing, graduates receive a state-recognised qualification as “Pflegefachfrau” or “Pflegefachmann”, entitling them to practice as licensed registered nurses across Germany (Gazette), 2018[51]) The certificate is accompanied by an EU diploma supplement.

Example 3: Apprenticeship in IT Specialist (Fachinformatiker/in) – *Dual IT Apprenticeship (ISCED 354, EQF 4)*

The IT specialist apprenticeship (Fachinformatiker/in) is a three-year dual vocational programme that prepares learners for skilled work in the digital and information technology sector. It leads to a nationally recognised qualification in one of four specialisations: Application Development (Anwendungsentwicklung), System Integration (Systemintegration), Data and Process Analysis (Daten- und Prozessanalyse), or Digital Networking (Digitale Vernetzung) (Federal Institute for Vocational Education and Training (BIBB), 2020[52]) (Apprentices train in both a company (Ausbildungsbetrieb) and a part-time vocational school (Berufsschule).

The 2020 training regulation (Ausbildungsordnung) defines a common occupational profile (berufsprofilgebende Fertigkeiten, Kenntnisse und Fähigkeiten) for all IT specialisations, covering areas such as system architecture, programming, IT security, support, and agile project management. Each specialisation builds on this shared core with additional, occupation-specific training content. The regulation includes an in-company training plan (Ausbildungsrahmenplan), which sequences skill acquisition over the three training years. For example, System Integration apprentices begin with setting up operating systems and user accounts and progress toward configuring complex network infrastructures by Year 3. Companies have flexibility in how they deliver training, but they are required to ensure that apprentices gain exposure to all prescribed competences by graduation.

The framework curriculum for vocational schools (Rahmenlehrplan), jointly agreed by the Standing Conference of the Ministers of Education and Cultural Affairs (KMK), translates the training regulation into structured learning fields. For all specialisations, the curriculum consists of 960 hours of occupation-specific instruction (berufsbezogener Unterricht), distributed across 12 learning fields. These include topics such as developing and providing client-specific information technology systems; implementing software solutions; ensuring IT security; and analysing data and processes. Each learning field is described with concrete, action-oriented learning objectives, such as “students can plan, implement and evaluate IT systems using project methods” (Kultusminister Konferenz (Secretariat of the Standing Conference of the Ministers of Education and Cultural Affairs), n.d.[49]) (While the curriculum is standardised nationally, schools and teachers can choose the specific programming languages, tools or case studies that best fit their local labour market. Instruction is largely project-based: learners often work in teams to simulate real IT development projects and produce working applications or systems.

Apprentices in alternate between workplace training in a company and part-time classroom instruction at vocational school (Berufsschule). Typically, apprentices spend three to four days per week on the job, and one to two days per week at school, though some Länder use full-time block-release models (Federal Institute for Vocational Education and Training (BIBB), 2002[53]). For example: an apprentice might spend Monday to Wednesday at the company, learning how to expand a database and write SQL queries for a project; later that week in school, their class might cover relational database theory and query optimisation, reinforcing the practical experience with formal knowledge. Employers and schools are mandated to co-ordinate by the Vocational Training Act and in some cases, teachers visit companies or vice versa to ensure synergy.

Companies document apprentices’ exposure to tasks prescribed by the Ausbildungsrahmenplan, and address any gaps (e.g. by sending the apprentice for a short stint at an inter-company training centre or partnering firm if the company’s own workflow doesn’t cover a specific skill). At the same time, instructional methods are flexible. Many vocational schools use real-world project pedagogy – classes might develop a small software application from start to finish as a term project, covering analysis, coding, testing, and presentation. Apprentices also benefit from the professional setting at work: they contribute to actual IT projects under supervision and gradually take on more responsibility. By the third year, it’s common for an apprentice to manage a medium-sized project module independently.

The IT specialist apprenticeship uses a two-part final assessment (*gestreckte Abschlussprüfung*), reflecting an updated assessment model introduced in many modern occupations. This model includes two formally weighted parts: Part 1 (Abschlussprüfung Teil 1) and Part 2 (Abschlussprüfung Teil 2), both of which are overseen by the regional Chamber of Industry and Commerce.

Part 1 takes place in the second year of training and contributes 20% to the overall final grade. It focuses on basic professional knowledge and skills, with a written examination testing areas such as IT systems, application development, system integration, and economic/social contexts. The exam duration and content are specified in the regulation depending on the specialisation.

Part 2 occurs at the end of the third year and carries 80% of the final grade. It comprises:

- A company-based project (*betrieblicher Auftrag*) selected by the apprentice and approved by the IHK. The apprentice must independently plan, execute, and document this project over several weeks. For example, a system integration apprentice might design and implement a secure network infrastructure.
- A technical discussion (*fachliches Gespräch*) where the apprentice presents the project to an examination panel and answers questions about technical choices, methodology, and outcomes.
- Written examinations on core IT topics, including systems and networks, programming, databases, and IT security, plus a separate paper on economic and social studies (*Wirtschafts- und Sozialkunde*) that tests general workplace knowledge.

The examination content and weighting are legally defined in the regulation and further detailed in annexes. The project and documentation are evaluated using defined criteria, including problem analysis, technical accuracy, implementation, and reflection. The IHK approves project topics.

The examination board typically consists of qualified IT professionals, employee representatives, and vocational school teachers, in accordance with the Vocational Training Act. They apply uniform national grading standards. A minimum grade of “sufficient” (*ausreichend*) in each component is required to pass.

Upon successful completion, the IHK awards the nationally recognised qualification “Fachinformatiker/in” with the relevant specialisation. This certificate confirms the holder’s status as a skilled worker in the IT field and provides access to further career paths, such as certified IT specialist (Geprüfter IT-Entwickler, IT-Projektleiter) or even higher education if combined with the university entrance qualification.

6 Vocational education and training in the Netherlands

Upper-secondary vocational education and training (VET) in the Netherlands is a popular choice and has over 700 programmes on offer. Institutions design their own curricula based on nationally defined, competence-based qualification files, developed with expert committees of social partners. Work-based learning represents at least 20% of school-based VET and at least 60% of apprenticeships. Programmes are delivered by a range of publicly funded regional training centres and occupational colleges. Teachers must meet national competence standards, typically a teaching license, teaching qualification, or pedagogical certificate. VET is overseen by the Ministry of Education, with qualifications managed by the Cooperation Organisation for Vocational Education, Training and the Labour Market (SBB). Upper-secondary VET is publicly funded and free for students under 18.

6.1. Place of VET in the overall education system and pathways into and after VET

The Netherlands' upper-secondary education typically starts at age 16 after eight years of primary education (*basisonderwijs*) and four years of lower secondary education (*voortgezet onderwijs*). Upper-secondary vocational education and training (VET) (*middelbaar beroepsonderwijs [MBO]*) includes over 700 programmes offered by schools throughout the Netherlands across four qualification levels, each preparing for different job complexity (Government of the Netherlands, n.d.[1]). Level 1 (assistant training) programmes last up to 1 year and are classified as ISCED level 2. Levels 2-4 are classified as ISCED 3 and include level 2 (basic vocational) programmes that usually take 2 years and prepare for operational roles; level 3 (professional vocational) programmes that take about 3 years, training students to carry out tasks independently; and level 4 (middle-management or specialist) programmes that last 3-4 years and prepare graduates for more complex work and supervisory responsibilities (Government of the Netherlands, n.d.[1]).

VET programmes are offered in four nationally defined categories: (1) Technology & Engineering, (2) Economics & Business, (3) Health & Welfare, and (4) Agriculture & Environment (OECD, 2022[2]). In 2021, 55% of 15-19 year-old upper-secondary students were enrolled in vocational programmes in the Netherlands (OECD, 2023[3]). As upper-secondary VET institutions also serve and attract many adult learners, the average age of students is 23 years old (OECD, 2023[3]).

While formally post-compulsory, education remains mandatory until age 18 or until a student obtains a *startkwalificatie* – a basic qualification defined as at least a diploma at MBO level 2, a higher general upper-secondary diploma (*Hoger Algemeen Voortgezet Onderwijs [HAVO]*), or a pre-university diploma (*Voorbereidend Wetenschappelijk Onderwijs [VWO]*).

Students in upper-secondary VET can choose between school-based (*beroepsopleidende leerweg,* BOL) or apprenticeship (*beroepsbegeleidende leerweg,* BBL) pathways, which lead to the same qualifications (Eurydice, 2023[4]) (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]). In 2024, 70% of upper-secondary VET students were enrolled in school-based programmes and 30% in apprenticeships, reflecting a recent rise in apprenticeship enrolment relative to school-based routes. School-based students are mostly between 16 and 20 years old, while apprentices tend to be older, with nearly half over the age of 25 (Ministerie van Onderwijs, Cultuur en Wetenschap (The Ministry of Education, Culture and Science), 2024[6]). Students may switch between school-based and apprenticeship programmes, subject to placement availability. Apprentices are employed and paid a trainee's wage.

Students typically enter upper-secondary VET at age 16 after completing lower-secondary education in the Netherlands. In lower-secondary school (ages 12 to 16), around 54% of secondary students follow a pre-vocational track (VMBO) and the remainder pursue general tracks (HAVO/VWO) oriented toward higher education (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]). The pre-vocational track comprises four learning pathways: theoretical (TL), mixed (GL), middle-management vocational (KB), and basic vocational (BB). These differ in academic content and determine upper-secondary VET entry level. Graduates of theoretical, mixed, and middle-management pre-vocational tracks can enter upper-secondary VET level 3 or 4, while basic vocational graduates typically enter upper-secondary VET level 2 (Onderwijsloket, 2024[7]; Government of the Netherlands, n.d.[1]). Students from general education (HAVO) can also transfer to upper-secondary VET and often do so at level 4. Bridging programmes and combined lower-upper-secondary VET routes help support transitions between tracks and into upper-secondary VET (Cedefop, 2023[8]).

The Netherlands has implemented multiple targeted measures to enhance inclusion and retention among disadvantaged learners in upper-secondary VET (Box 6.1).

Box 6.1. See every learner: Supporting disadvantaged learners in the Netherlands' VET system

The Netherlands has various supports for disadvantaged learners to access upper-secondary VET.

Schakelprogramma & transition support

Upper-secondary VET colleges offer bridging and preparatory programmes ("*schakelprogramma*") for learners transitioning from pre-vocational secondary education to upper-secondary education (both VET and general), or those who struggled academically. These programmes help build basic skills, boost confidence, and support smoother progression into full upper-secondary VET programmes (European Commission, 2023[9]).

VET student funds for vulnerable learners

Since August 2021, each upper-secondary VET institution must operate a VET student fund (MBO-studentenfonds) supported by an additional EUR 10 million per year in government funding distributed nationally. Colleges use these funds to assist learners facing financial hardship, such as covering course materials, transport costs, or childcare. The fund can also support pregnant students, helping reduce drop-out due to financial barriers (De Leijgraaf, 2021[10]; Cedefop & ReferNet, 2025[11]).

Inclusive education improvement agenda ("JOB MBO")

As part of the *Agenda for VET 2023–27*, the Ministry of Education, Culture and Science launched the "JOB MBO" initiative to enhance well-being, social safety, and accessibility for VET students with support needs. This includes measures like free study materials for under-18s (from 2024-25), enhanced student guidance, and safeguarding vulnerable groups during internships. Each college must monitor students' sense of safety, mental health, and satisfaction with support services, especially for those with disabilities or from disadvantaged backgrounds (Ministerie van Onderwijs, 2023[12]).

"MBO Accessible" website and support initiatives

This accessible upper-secondary VET platform compiles information on available support, including language assistance for migrants, disability services, and provisions for early school leavers. It provides information on support available for specific groups: learners with disabilities, low-skilled youth, migrants/refugees, and those from socio-economically disadvantaged regions (ReferNet, 2025[13]).

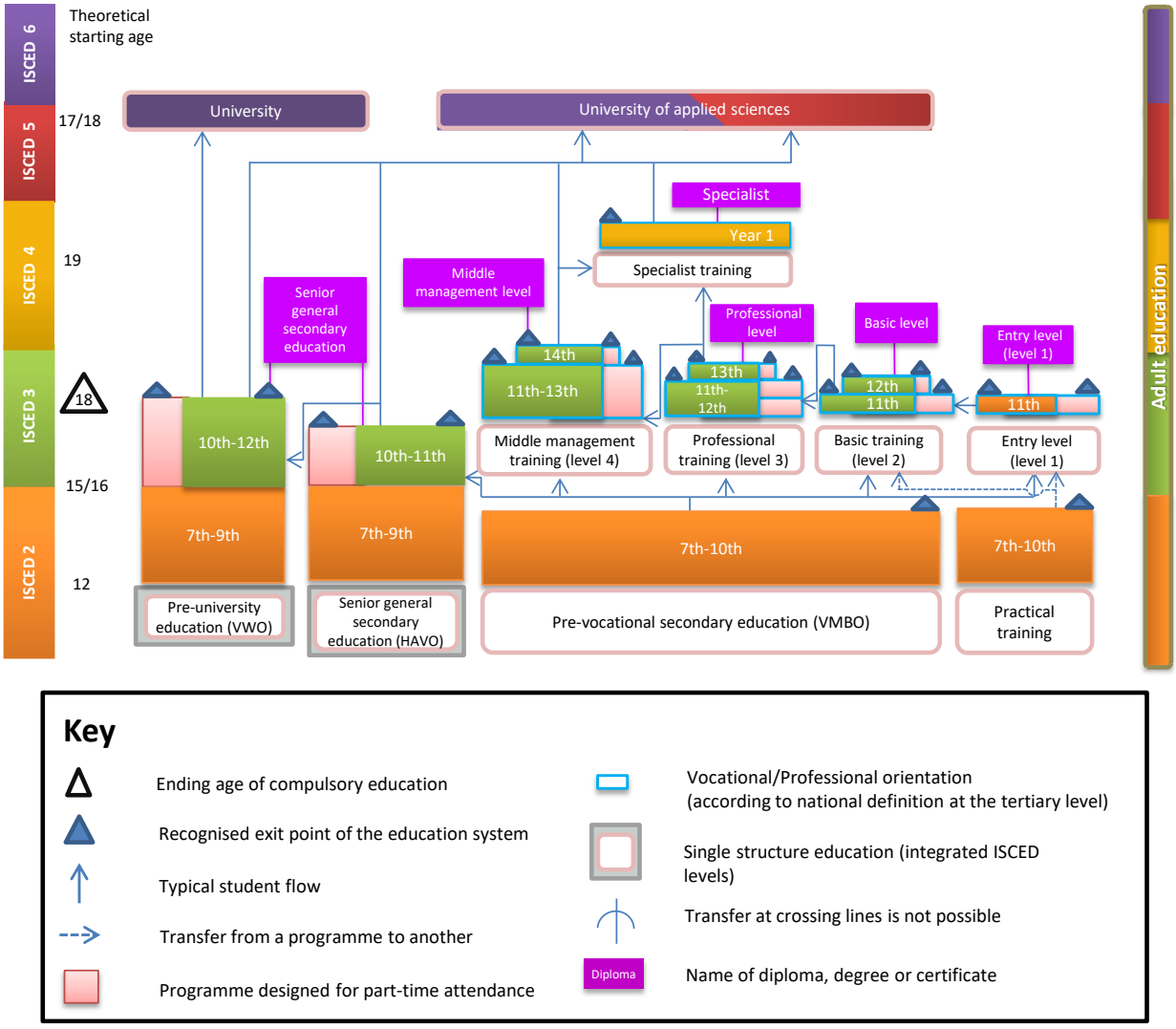
Upper-secondary VET graduates at all levels can enter the job market directly in the occupational field for which they trained. Additionally, successful completion of an upper-secondary VET level 4 diploma gives access to associate degree (ISCED 5) and professional bachelor programmes (ISCED 6) in higher vocational education (universities of applied sciences [HBO]) (Government of the Netherlands, n.d.[1]). Indeed, about 30% of upper-secondary VET level 4 graduates continue directly into HBO bachelor's programmes (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]). A larger proportion eventually obtain a higher VET degree after some time in the labour market or further study, though this share has slightly declined in recent years (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]). Upper-secondary VET graduates cannot directly enter research universities and usually must first complete a year of a university of applied sciences or a university access programme (OECD, 2023[3]). Graduates of upper-secondary VET levels 2 and 3 may also progress vertically within VET – for example, a level 2 graduate can enrol in a level 3 course in the same field, and a level 3 graduate can advance to a level 4 programme (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]).

Upper-secondary VET graduates who enter the workforce can later upskill through part-time study or 1-year post-secondary VET programmes (ISCED 4), which lead to advanced professional certificates

(specialist training). These programmes require a prior upper-secondary VET level 3 or 4 diploma and support further skill development, such as master craftsman qualifications (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]).

Figure 6.1 shows educational pathways into and after ISCED 3 VET in the Netherlands.

Figure 6.1. The place of ISCED 3 VET in the Netherlands' education system



Note: The reference year is 2023 (school year 2022/2023 in the northern hemisphere). Theoretical starting ages refer to the ages as established by law and regulation for the entry to a programme; actual starting ages may vary depending on the programme.
Source: Adapted from OECD (2023[14]), "Diagram of the Education System: Netherlands", *OECD Education GPS*, https://gpseducation.oecd.org/CountryProfile?primaryCountry=NLD.

6.2. Curriculum structure and assessment procedures

Upper-secondary VET curricula are structured around a national qualifications framework, with all programmes defined by competence-based qualification files (*kwalificatiedossiers*) that outline the required skills, knowledge, and learning outcomes for each occupation (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]). Introduced in their current form following a major

2016 reform, these files aim to create consistency across institutions. There are over 170 qualification files covering around 500 distinct vocational qualifications (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2019[15]). Qualifications within the same file share a common occupational domain but differ by level (e.g. MBO 2 vs MBO 4), specialisation, or job complexity. For example, a single file in the retail sector might include separate qualifications for retail assistant (MBO 2), sales specialist (MBO 3), and branch manager (MBO 4). The files also contain more than 1 000 optional modules (*keuzedelen*) that schools can offer qualification file is developed by expert committees under the Cooperation Organisation for Vocational Education, Training and the Labour Market (*Samenwerkingsorganisatie Beroepsonderwijs Bedrijfsleven*, SBB) – a legally established public-private partnership of employer organisations, trade unions, and MBO institutions – with input from employers, unions, and VET colleges (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]).

Each file includes (SBB, n.d.[16]; Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]):

- A generic component, which all upper-secondary VET students must follow, covering Dutch language, mathematics/numeracy, citizenship, and English (English is mandatory at level 4).
- A basic vocational component, which defines fundamental competencies for a broad occupational field (e.g. ICT or healthcare). For example, a file for a business occupation might describe skills like office software, bookkeeping, and customer communication. In some fields (e.g. tourism) files include additional foreign languages.
- One or more optional modules, which focus on job-specific skills for a defined specialisation (e.g. car mechanic vs. motorcycle technician in the automotive file) and represent roughly 10-15% of training time.

While the files define what must be learned, individual upper-secondary VET institutions are responsible for designing the curriculum (opleidingsprogramma) — that is, how the file's learning outcomes will be achieved. Institutions determine the programme structure, teaching methods, sequencing of content, and delivery of work-based learning. They also select which optional modules to offer, allowing them to address regional labour market needs or support cross-cutting skills such as sustainability or entrepreneurship (OECD, 2022[17]). Typically, optional modules are integrated into the curriculum with their own learning outcomes and assessment procedures. The Inspectorate of Education (*Inspectie van het Onderwijs*) surveys whether VET institutions comply with national regulations, such as minimum instructional hours, curriculum implementation based on qualification files, and assessment standards and inspects teaching and exam quality (The Foundation for Cooperation on Vocational Education, Training, and the Labour Market (SBB), n.d.[18]; The Foundation for Cooperation on Vocational Education, Training, and the Labour Market (SBB), n.d.[19]).

Upper-secondary VET programmes combine classroom-based instruction, practical training in school workshops, and workplace learning (see Section 6.3). The government sets minimum instructional time in the Adult and Vocational Education Act. The structure and minimum hours for a typical three-year school-based (BOL) programme would be:

- 1 800 hours of school-based instruction and practice, including theoretical lessons, skills lab sessions, project-based learning, simulated workplace activities within the school.
- 900 hours of work-based learning (*beroepspraktijkvorming*, BPV), through internships in companies (Inspectie van het Onderwijs, Ministerie van Onderwijs, Cultuur en Wetenschap, n.d.[20]).

This amounts to around 2 700 hours over 3 years, with an average of 32-35 hours per week. Schools can flexibly organise work placement time, using weekly internships (e.g. 1-2 days per week) or full-time block placements over several weeks (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]).

Many VET schools organise teaching in modules or cross-curricular projects, rather than teaching each subject in isolation. For example, instead of having separate classes for communication and planning, students may complete an integrated project that develops both competencies. However, regardless of the structure, students must still demonstrate all the required competencies defined in the national qualification file (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]; Government of the Netherlands, n.d.[1]).

BBL (apprenticeship) programmes require students to spend at least 60% of their total programme time in the workplace. A typical three-year BBL programme includes:

- ~2 400-2 700 hours of work-based learning (BPV) with a recognised training company, where the student is employed and gains hands-on experience.
- 600-900 hours of school-based instruction, typically one day per week, covering general subjects and theoretical components related to the qualification (Inspectie van het Onderwijs, Ministerie van Onderwijs, Cultuur en Wetenschap, n.d.[20]).

As with BOL, students in BBL must meet all learning outcomes defined in the national qualification file, and employers are responsible for supporting and evaluating workplace learning.

Assessment in upper-secondary VET combines school-based examinations and centralised tests to certify that students meet the requirements set out in the national qualification files. Under the Adult and Vocational Education Act, VET schools are responsible for assessing both vocational and general learning outcomes in both the school-based and apprenticeship pathways (Overheid.nl, 2025[21]). Internal examination boards within each VET school oversee the quality of assessment procedures, ensuring that they are valid (i.e. measure the intended competencies) and reliable (i.e. produce consistent results). While assessments are administered by teachers, the boards are responsible for monitoring whether the overall process meets legal and educational standards.

In both school-based and apprenticeship programmes, work-based learning is a formal part of the assessment. Employers – specifically workplace mentors – must assess student performance and submit formal evaluations to the school to be included in the evaluation. A school instructor may visit or stay in contact to monitor progress and ensure that the internship is meeting curricular goals. The final assessment of a competency might occur during the internship. For example, a hospitality student might demonstrate the competence “plan and organise an event” by organising a small event at the internship employer, which is then evaluated jointly by the company supervisor and a teacher.

In addition to school- and company-based assessments, students must complete centrally administered exams in Dutch language, mathematics, and – in level 4 programmes – English. These tests are developed at the national level (Inspectie van het Onderwijs (Inspectorate of Education), 2022[22]). Since 2023, passing the Dutch language exam has been mandatory for obtaining the diploma. For English (at level 4), the central exam must be taken and passed if it is part of the qualification file. The central mathematics exam is also administered nationally, but students are not required to pass it to receive the qualification. Their results are recorded and included on the diploma supplement (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]). These national tests are identical for school based and apprenticeship students, ensuring consistent standards across both routes. Other general subjects, such as citizenship education or career orientation, are assessed through school-developed methods, often in the form of projects or integrated assignments.

Students receive an upper-secondary VET diploma upon successfully completing three components: vocational competency assessments, general subjects (including central exams where required), and the required work-based learning hours. The Diploma is the formal credential issued by the Ministry of Education, Culture and Science (*Ministerie van Onderwijs, Cultuur en Wetenschap*, OCW), which certifies that the student has attained a recognised qualification as defined in the national qualification files. It specifies the qualification title (i.e. the occupational specialisation), the MBO (VET) level (2, 3, or 4), pathway (school-based or apprenticeship) and any completed optional modules (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]). Qualifications at MBO levels 2-4 are considered **f**ull upper-secondary credentials that allow entry into the labour market or further education (*startkwalificaties*). Level 1 (entry-level) awards a diploma at the assistant level but is not considered a full upper-secondary qualification under Dutch law (Eurydice, 2023[23]). Students who do not complete the full programme may receive a certificate for successfully completed components, but only the diploma confers formal qualification status.

6.3. Work-based learning (WBL) in school-based programmes

Upper-secondary VET students in school-based programmes spend roughly 20-60% of their time work-based learning (*beroepspraktijkvorming (BPV)* or “stage” (internship), while those in apprenticeship programmes spend at least 60% of their time at a workplace.

The Adult and Vocational Education Act prescribes minimum durations for WBL in school-based programmes. For example, in a three-year school-based programme, a student must complete at least about 900 hours of internship (which may be split into multiple periods) (Inspectie van Onderwijs (Inspectorate for Education), n.d.[24]). In practice, many school-based VET students spend one or two days per week at a company or undergo longer blocks of full-time internships, especially in the later stages of their programme. School-based students typically do not get a salary but sometimes receive a small allowance (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]).

The exact arrangement of work-based learning varies by institution and field. Often, first-year students start with shorter or observational internships after an initial school period, to introduce them to the work environment. In subsequent years, the intensity increases: students take on more complex tasks during internships and may have extended placement blocks. A typical example is the upper-secondary Nursing (level 4) programme, where in the 3rd and 4th year a student is in clinical practice roughly 24 hours per week (three days) and attends classes the other 12 hours per week (deltion.nl, n.d.[25]). Schools prepare students for internships through simulation and practice in school workshops. Many VET schools have facilities like training restaurants, salons, or construction labs where students learn skills in a controlled environment.

All BPV placements must take place at an accredited training company. The SBB is legally tasked with accrediting and supervising companies to ensure they offer a suitable learning environment. There are tens of thousands of accredited companies across the Netherlands covering all sectors – from small retail shops and farms to large hospitals and multinational firms. The SBB maintains a portal (Stagemarkt.nl) where students and schools can find approved internship offers. Each company undergoes an accreditation check for having appropriate facilities, a qualified workplace mentor, and the ability to let the student practice the required competencies. The quality of in-company trainers is one of the accreditation criteria: workplace supervisors are generally expected to be a qualified worker in the field (often MBO level 3/4 or higher) and some pedagogical skills or training in mentoring (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]). Companies are re-evaluated periodically by SBB to maintain their status as learning companies.

During a placement, the student, school, and company sign a training agreement detailing the duration, learning goals, and supervision arrangements. Students maintain a training log or portfolio to record

activities and reflect on learning. Workplace mentors (*praktijkopleiders*) provide guidance and evaluate the student's performance on the job. By law, the company's input must feed into the student's assessment (see Section 6.2) (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]).

While both routes lead to the same qualifications, apprenticeship programmes (BBL) differ from school-based VET in that students are employees from the outset. They spend at least 60% of their time in paid work at an accredited training company and attend school one day per week for classroom instruction. Unlike school-based students, apprentices sign an employment contract and earn a salary (Cedefop, & ReferNet, 2025[26]).

6.4. Provider types

Vocational education at ISCED 3 in the Netherlands is delivered mainly by specialised VET schools (*MBO-scholen*), encompassing several provider types. There is a relatively small number of institutions nationwide, but each serves a large region or specific sector. As of 2023, there are 57 public VET schools at upper-secondary level, funded by the Ministry of Education (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]). These can be categorised into three main types:

1. **Regional Training Centres (*Regionale Opleidingscentra,* ROC):** These are large, multi-sectoral publicly-funded colleges offering a broad range of vocational programmes (from technology and economics to healthcare and services). There are 39 ROCs across the country (OECD, 2022[17]) A ROC typically has multiple campuses in its region and enrols thousands – sometimes tens of thousands – of students. They often have departments or campuses devoted to different sectors.
2. **Occupational colleges (*Beroepscolleges):*** the Netherlands' 16 occupational colleges are former specialised vocational colleges and former agricultural training centres [AOCs]. They provide programmes in graphics/media design, maritime training and specialised craftsmanship (for instance, goldsmithing/jewellery). They also provide programmes in horticulture, animal care, farming, food technology, landscape design, and related "green" professions (Ministerie van Onderwijs, Cultuur en Wetenschap (Inspectorate of Education), n.d.[27]) (OECD, 2022[17]; Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]).
3. **Special institutions for students with disabilities:** In addition to the above, there is one publicly funded vocational school specifically tailored to students with hearing, speech, or language disabilities (to provide extra support in vocational training) (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]).

Collectively, these schools enrolled around 470 000 students (across MBO levels 1-4) in 2023 (down from almost 480 000 the year before) (deltion.nl, n.d.[25]). The average VET school hosts over 8 000 students, though actual sizes range widely (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]; OECD, 2022[17]) – some ROCs in major cities have 20 000+, while a specialised occupational college might have only a few hundred. All the above institutions are publicly funded and adhere to national regulations. They have considerable autonomy (as per the WEB law) in governance and finances (see Section 6.6), but they must meet accreditation and quality requirements (OECD, 2022[17]).

Each VET school typically offers programmes across the four broad sector categories: (1) Technology & Engineering, (2) Economics & Business, (3) Health & Welfare, and (4) Agriculture & Environment. A regional training centre will usually have departments for each of these sectors (except agriculture may be left to agricultural training centres). For example, a large regional training centre will have a technical institute (offering electrical, mechanical, IT, building trades), a business institute (offering retail, administration, tourism), a health institute (offering nursing, social care), etc. Specialised occupational colleges focus on one category (e.g. an art & design college falls under economics/creative sector, an

agricultural college covers the green sector exclusively) (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]; OECD, 2022[17]).

All public VET schools offer both school based and apprenticeship pathways for most qualifications. Some institutions have a larger share of apprentices, especially in technical fields or for adult learners. For instance, a regional training centre with strong industry connections in manufacturing might have many apprentices enrolled, whereas a regional training centre in an area with fewer companies might lean more on school-based training. The flexibility to run school-based or apprenticeship programmes (or both) lies with providers and is often demand-driven. During economic booms when employers seek apprentices, VET providers can expand apprenticeship offerings (MBO Raad, 2023[28]). Conversely, if fewer jobs are available, providers ensure school-based pathways are available so students can remain in full-time school until the labour market improves.

In addition to publicly funded VET colleges, around 100 accredited private providers deliver upper-secondary VET programmes. These usually target adult learners (with a small minority of upper-secondary VET students) or niche fields. (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]). While they receive no government subsidy for initial VET, they must meet national accreditation criteria, follow qualification files, and are subject to Inspectorate oversight (OECD, 2022[17]).

All MBO schools (public or private) must be accredited by the Ministry of Education. The Inspectorate for Education conducts quality assessments and issues periodic reports on each institution. Measures include student success rates, exam quality, financial management, and adherence to standards outlined in qualification files and financial. Schools that underperform can be put under stricter supervision or, in rare cases, lose the right to offer certain programmes, although this is rare (OECD, 2025[29]).

To be eligible to host work-based learning – whether in school-based or apprenticeship pathways – companies must also be formally recognised as training enterprises (*erkend leerbedrijf*) by the SBB. Recognition is granted based on criteria such as workplace relevance, presence of a qualified mentor, and alignment with qualification requirements (SBB, n.d.[16]). As of 2024, over 250 000 companies are registered as training enterprises, covering a wide range of sectors. The SBB is legally mandated to oversee the recognition, monitoring, and quality assurance of training enterprises. SBB also maintains Stagemarkt.nl, the national portal where students and schools can find approved internship placements.

6.5. VET teachers and trainers' qualifications and professional development

Dutch VET teachers are required to meet national standards similar to those in general education, with additional pathways to accommodate industry experts transitioning into teaching. The (Overheid.nl, 2020[30]) (Wet BIO) lays down competence requirements for all teachers, including those in vocational education. According to this law, every VET school must keep a competence file on each teacher, demonstrating that the teacher meets professional standards in subject knowledge, pedagogy, and didactics (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]).

In upper-secondary VET, a teacher typically must hold one of the following:

- A second-degree (*tweedegraads*) teaching license: a 4-year bachelor's degree from a university of applied sciences that qualifies graduates to teach in lower secondary general education as well as MBO (with one specialised subject). Entry typically requires holding an upper-secondary diploma, either in general education (HAVO/VWO), or in VET at MBO level 4 (Eurydice, 2023[31]; OECD, 2022[2]).
- A first-degree (*eerstegraads*) teaching license: a master's teaching degree from a university of applied sciences, enabling teaching in upper-secondary general education (OECD, 2022[2])

Admission requires a bachelor's degree in the specialisation subject and typically teaching experience (Universiteit Leiden (Leiden University), n.d.[32]).

- An industry degree plus a pedagogical certificate (*Pedagogisch Didactisch Getuigschrift*, PDG) (OECD, 2022[2]). This certificate is obtained through a 1-2 year course (depending on prior experience and part-time arrangements) at a university of applied sciences, and covers teaching methods and classroom management.

For vocational practical lessons, VET schools may employ instructors (*praktijkinstructeurs*) or workshop supervisors who might not be fully licensed teachers but work under a teacher's supervision. The law recognises such roles, but it stipulates that teaching teams must include fully qualified teachers responsible for oversight (Inspectie van Onderwijs (Inspectorate for Education), n.d.[24]). Since 2017, instructors must meet minimum competency standards, including demonstrable vocational expertise and pedagogical skills, as defined in the General Administrative Regulation (*Algemene Maatregel van Bestuur [AMvB]*) (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]; Raad, 2018[33]).

In-company trainers, who supervise apprenticeships or internships, are not school staff but must meet professional and pedagogical standards. Since 2018, they are generally expected to hold a qualification at or above the level they supervise and have basic coaching skills. The SBB offers training and resources, and company accreditation requires competent mentors to be in place (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]).The SBB and sector bodies facilitate "train the trainer" workshops for company staff, which school teachers sometimes help deliver (OECD, 2022[2]).

Continuous professional development (CPD) for VET teachers is primarily the responsibility of VET schools, which have full HR autonomy under the WEB Act. While CPD hours are not nationally mandated, the Inspectorate of Education evaluates whether schools systematically support teacher professionalisation as part of its quality assurance reviews. This includes checking whether schools have a coherent professional development plan and offer opportunities for pedagogical and subject-specific upskilling (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]). Schools receive funding via block grants to support CPD and often offer in-house training or partner with universities of applied sciences for advanced programmes.

Since the mid-2010s, efforts have promoted research-mindedness (*onderzoekend vermogen*) among VET teachers (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]) including practice-based research with university partners. Initiatives by the government and the Council of VET institutions (*MBO Raad*) include teacher development teams (*Lerarenontwikkelteams*) for cross-school curriculum innovation and industry internships for teachers. Some teachers also retain part-time roles in industry to stay connected to practice.

6.6. Governance

At the national level, the Ministry of Education, Culture and Science (OCW) oversees VET policy, legislation, and funding. OCW defines the qualification structure, pathways, and core requirements for instruction and assessment (see Section 6.2). It also sets teacher qualification standards (via the Wet BIO), monitors system performance, and funds institutions (see Section 6.7). OCW additionally provides tools for system transparency and monitoring. The main legal framework for upper-secondary VET is the Adult and Vocational Education Act (*Wet educatie en beroepsonderwijs, WEB*), which is established and enforced by OCW (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]).

OCW works closely with the Cooperation Organisation for Vocational Education, Training and the Labour Market (*Samenwerkingsorganisatie Beroepsonderwijs Bedrijfsleven, SBB*), a legally established public-private partnership of employer organisations, trade unions, and VET schools. SBB is responsible for

maintaining national qualification files (see Section 6.2), accrediting companies for work placements, and supplying labour market data and forecasts (OECD, 2025[29]). Sectoral committees within SBB – composed of industry and education representatives – develop and update these qualification files, including the occupational profiles (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]). When these committees propose a new or revised qualification profile, it must be approved by SBB's board (which includes social partners and educational representatives) and then officially accredited by the OCW.

The Netherlands' Inspectorate of Education plays a key role in overseeing the quality of VET schools (OECD, 2025[29]). It conducts regular inspections and thematic reviews to assess compliance with legal requirements – such as minimum teaching hours and examination standards – and monitors overall institutional performance (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]). The Inspectorate operates under a "proportional inspection" regime: well-performing colleges receive lighter-touch oversight, while institutions showing signs of risk are subject to more intensive scrutiny. In serious cases, the Inspectorate can require corrective measures and may advise the Ministry of Education to impose sanctions, such as budget reductions or institutional mergers. If a VET school wishes to deviate from national time standards (e.g. to introduce innovative teaching methods), it must demonstrate educational quality and secure approval from its participation council, a legally mandated body within each institution composed of staff and student representatives that must be consulted on key organisational and educational matters (see below) (Inspectie van het Onderwijs, Ministerie van Onderwijs, Cultuur en Wetenschap, n.d.[20]). The Inspectorate publishes an annual report on the state of quality in the VET sector.

Dutch VET schools operate with substantial autonomy, grounded in the Constitution's guarantee of educational freedom and the (*Wet educatie en beroepsonderwijs, WEB*). While the Ministry of Education, Culture and Science defines the national qualification framework and funds institutions through block grants, schools independently decide which qualifications to offer, how to structure curricula (within the boundaries of the national qualification files), and how to deliver teaching. They determine pedagogy, staffing (within national collective labour agreements), and programme offerings based on local labour market needs. VET schools are fully in charge of recruiting teachers. Individual institutions advertise vacancies, usually through school governing bodies (*college van bestuur*), on national job portals like Meesterbaan.nl, and frequently on their own websites (onderwijsloket, 2024[34]). Eligible candidates may, they apply directly to MBO institutions. Hiring decisions rest with the school's governing body, which conducts its own selection and appoints teachers in alignment with the institution's needs and budgets. Schools also manage partnerships with employers and may provide additional services such as adult education or contract training for municipalities and firms (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]). Internally, each VET school is governed by a Board of Directors (*College van Bestuur*), accountable to a Supervisory Board (*Raad van Toezicht*), with operational management typically structured by campus or department. The Board of each college signs a funding agreement with the Ministry and is responsible for meeting statutory obligations (e.g. minimum teaching hours, accredited qualifications).

Institutions must also meet legal transparency and accountability requirements. Each year, they publish public reports detailing financial data and key performance indicators, which are reviewed by the Inspectorate of Education. Stakeholder participation within schools is ensured through a mandatory participation council (*medezeggenschapsraad*), comprising staff and student representatives. This body holds advisory and co-decision rights on matters such as budgeting, school policy, and curriculum organisation, providing a formal mechanism for student and staff input in institutional governance (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]).

Co-ordination across VET schools is facilitated via The Council of VET schools (*MBO Raad*), which operates at sector level to represent school interests in policymaking (Cedefop, & Centre for Expertise in

Vocational Education and Training, (ECBO), 2023[5]). The MBO Raad negotiates with government on matters like performance agreements innovation funds. To support knowledge exchange and system development, MBO Knowledge Hubs have been established by MBO Raad and OCW in areas such as teaching and examination, lifelong learning, and citizenship education. These hubs provide practical guidance, organise events, and facilitate peer learning among institutions (OECD, 2022[17]).

At the regional level, many VET colleges have advisory boards of local employers for each department. These advisory councils help shape the translation of national qualifications into curricula and projects. They also co-ordinate internships and graduate placements. There's no formal regional government role in MBO, but there is increasing alignment with regional economic policy. For example, Regional Investment Funds (RIF) have been used to finance collaborative projects between colleges, companies, and local governments to develop innovative training in key growth sectors (like renewable energy or ICT).

6.7. Funding

Upper-secondary vocational education in the Netherlands is free for students under 18 and is co-financed by the government, households (for students 18 and older), and employers. Students aged 18 and over pay modest fees: in 2023/24, school-based VET students (BOL) paid a statutory annual tuition fee of EUR 1 357, while apprentices (BBL) paid a lower course fee of a few hundred euros due to their shorter training duration and time spent working (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]). To reduce financial barriers, students over the age of 18 can access national student financing (*studiefinanciering*), which includes basic and supplementary grants, income-based loans, and public transport cards (Government of the Netherlands, n.d.[1]). For students in levels 1 and 2, grants are non-repayable; for those in levels 3 and 4, the financing resembles higher education loans, but may be converted into grants upon completion.

Public funding plays the dominant role. In 2020, total spending on VET was estimated at 1.1% of GDP, of which the government financed 0.8% and private sources (households and companies) the remaining 0.3% (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]). Public MBO institutions (and accredited private ones for funded programmes) receive a lump-sum grant (*blokbijdrage*) from the OCW each year. The funding model has several components:

- A base funding per student, weighted by programme type and pathway (e.g. technical programmes receive more due to higher costs).
- An allocation for each diploma (qualification) awarded (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]).
- Targeted funding linked to performance agreements with the Ministry, supporting priorities like student guidance and excellence programmes (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]).
- Institutional-level fixed components, including regional or overhead adjustments.

The exact formula is complex and periodically updated. In 2019, the government expenditure per VET learner in upper-secondary was about EUR 8 200. This figure includes all school costs and is comparable to spending per general secondary student. VET schools decide how to allocate the budget, as long as they meet legal obligations. They must account for spending in annual reports, and inefficiencies can be flagged by the Inspectorate of Education (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]).

Employers contribute by paying wages to apprentices and often providing some stipends or travel reimbursement to school-based interns. In sectors like construction or engineering, apprenticeship wages are governed by collective labour agreements (often starting around 20-30% of a qualified worker's wage

in the first year, rising each year). To encourage firms to train, the government operates the apprenticeship subsidy scheme (*Subsidieregeling Praktijkleren*). Companies that host an apprentices can receive a subsidy up to a maximum of EUR 2 700 per student per year, particularly for students in sectors with shortages and students from vulnerable groups (Praktijkleren Nederland, 2016[35]; Rijksdienst voor Ondernemend Nederland (RVO), 2013[36]).

The largest expenditure for VET schools is personnel (salaries of teachers, support staff). Given the practical nature of VET, class sizes are often smaller in workshops and labs, and equipment costs are significant. Many schools also spend on student support services (career guidance, remedial support for those with difficulties, etc.), especially to reduce dropout.

Within the Dutch VET funding system, the Ministry of Education, Culture and Science (OCW) provides additional earmarked funds for specific policy priorities, including: incentives to reduce early school leaving; additional support for students with special needs under the *passend onderwijs* framework; innovation and excellence grants (e.g. the *Regionaal Investeringsfonds MBO* for school–employer collaboration); and separate funding for adult education, provided by both OCW and municipalities.

Non-subsidised private providers finance themselves via tuition fees from students or contracts with companies. However, if a private provider's programme is recognised, their students can be eligible for student finance and the companies for the apprenticeship subsidy, creating a partially level playing field.

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Annex 6.A. Examples of curriculum structure and assessment procedures for three ISCED 3 VET qualifications

To illustrate how the above elements come together in practice, this annex presents three examples of upper-secondary VET programmes in the Netherlands:

- Example 1: Apprenticeship in Retail Sales (MBO 2, BBL).
- Example 2: School-based programme in Financial Administration (MBO 3, BOL).
- Example 3: School-based programme in Nursing (MBO 4, BOL).

Each example demonstrates how the national qualification files are implemented in curriculum and assessment at the micro level, as well as pathways after completion.

Example 1: Retail Salesperson (Verkoper) – MBO 2 Apprenticeship (BBL)

The *Verkoper* (Retail Salesperson) qualification is a level 2 upper-secondary VET programme (ISCED 3, EQF 2), typically completed in two years. Offered in both school-based (BOL) and apprenticeship (BBL) formats, the BBL pathway mainly serves young pre-vocational (VMBO) graduates or working adults in retail. The programme prepares students for roles such as shop assistant or cashier, focusing on sales, product knowledge, and customer service.

In the apprenticeship route, students are employees of an accredited retailer (leerbedrijf) and spend most of the week on the job. A typical schedule is 4 days per week working in a store and 1 day at school for lessons (Zadkine, n.d.[37]). Over 2 years the apprentice must complete at least ~1 220 hours of work-based learning (*beroepspraktijkvorming*, BPV) – roughly 610 hours per year – and around 400 hours of in-school instruction per year (Inspectie van Onderwijs (Inspectorate for Education), n.d.[24]) (zorgacademie, n.d.[38]) (Overheid.nl, 2025[21]). In practice this means about 32 hours per week of *paid* work in the shop, and 6-8 hours per week in the classroom. Annex Table 6.A.1 summarises the components of the Verkoper apprenticeship programme.

Annex Table 6.A.1. Indicative structure of the MBO 2 Retail Salesperson (BBL) programme (2 years, apprenticeship

Programme component	Study load	Content and subjects
Workplace training (BPV)	≥1 220 hours (over 2 years)	On-the-job training 4 days/week in a store under a mentor. Student performs all key retail tasks: stocking goods, assisting customers, handling sales transactions, etc., with increasing independence.
School instruction (lessons)	Instruction (lessons) ~800 hours (≥400 per year)	1 day/week at school covering: • **Vocational modules:** retail practice and theory (sales techniques, customer service, product knowledge, store procedures, etc. • **General subjects:** Dutch language, basic maths (calculating prices/discounts), and civics (e.g. employee rights, customer rights).
Optional modules (keuzedelen)	~480 hours total (included in above)	Elective topics to broaden or deepen skills. Examples: e-commerce, visual merchandising, sustainability, digital skills. Each keuzedeel has specific learning outcomes and an exam.

Source: Inspectie van der Onderwijs, (n.d.[24]), Teaching time in secondary vocational education, www.onderwijsinspectie.nl/onderwerpen/onderwijstijd/onderwijstijd-in-het-middelbaar-beroepsonderwijs#:~:text=Urennorm%20bbl%20Entreeopleiding%201%20850,elk%20leerjaar%20minimaal%20610; Alfa-college (2025[39]), Retailmedewerker (Verkoper), www.albeda.nl/opleiding/retail-commercie/retailmedewerker-verkoper-bbl#:~:text=Hoe%20je%20bij%20ons%20leert; Zadkine (n.d.[37]), Retail medwerker (Verkoper), www.zadkine.nl/opleidingen/business/retail-medewerker-verkoper-bbl#:~:text=Je%20kunt%20onder%20andere%20uit,aanbod%20kan%20per%20studiejaar%20wijzigen, Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), (2023[5]), Vocational education and training in Europe – Netherlands': system description, www.cedefop.europa.eu/en/tools/vet-in-europe/systems/netherlands-u3.

The national qualification file for Verkoper defines core tasks (kerntaken) that the student must demonstrate. These include (1) receiving and processing goods (e.g. accepting deliveries, stocking shelves), (2) selling products and providing service to customers (engaging customers, advising, selling, handling complaints), and (3) completing sales transactions (operating the cash register and finalising purchases) (ROC Nederland, n.d.[40]). In the school curriculum, these outcomes are translated into practical modules and projects. For example, at the Albeda VET school, for example the programme is delivered in a series of 10-week modules. Each module integrates theory and practice: students learn retail concepts in class and immediately apply them at work. The content covers tasks such as greeting customers, conducting sales conversations, building product displays, processing incoming stock, and basic store administration (Allbeda, n.d.[41]). Throughout the year, some schools also use realistic practical assignments ("challenges") to enhance learning – for instance (Zadkine, n.d.[37]). College has students complete eight on-site retail challenges per year in collaboration with real stores (Zadkine, n.d.[37]). Alongside the vocational content, students study general subjects. Dutch lessons focus on workplace communication (speaking with customers, writing simple notes), maths is taught in the context of retail calculations (making change, discounts), and civics/biology might address topics like consumer rights or working safely in a shop. English is not compulsory at level 2, though some programmes include a basic English module (especially if the student may progress to level 3).

During the 4 workdays, the apprentice follows a company training plan aligned with the national occupational competencies. In the first months, the apprentice conducts simple tasks – stocking shelves, greeting customers – under close supervision. As time progresses, they take on more responsibilities: by mid-programme, they may handle sales independently for routine transactions, manage a section of the store, and deal with basic inquiries. By the end, they might take on returns, resolving customer complaints, or training newer staff in simple tasks. The workplace mentor uses a checklist to ensure the apprentice gets exposure to all required tasks. The apprentice maintains a logbook of activities which is reviewed by the school's training advisor periodically. The logbook includes successful sale, or photos of a merchandise display they arranged, or a testimonial from their supervisor about their reliability.

Assessment includes a combination of practical evaluations and knowledge tests. For the practical component, an assessor (often the school instructor, sometimes together with the company mentor) will conduct an observation assessment on-site: the apprentice is observed interacting with a customer (role-play or real) – greeting, sales talk, closing the sale – and scored against criteria (clarity of communication, meeting customer needs, product knowledge displayed, etc.). Another practical exam might be a task like setting up a promotional end-cap display or doing an end-of-day cash count, to verify those competencies. To complement the practical assessment, the assessor reviews the logbook maintained by the apprentice throughout the training, ensuring all competence units are covered.

For the theoretical assessment, the VET college will set written or computer-based exam. The exam may include basic calculation relevant to discounting, or a quiz on store safety rules and consumer rights. Dutch language proficiency is assessed partly via central examination at 2F level. There may also be an internal exam for speaking/listening skills in Dutch, tailored to customer communication scenarios. A central maths 2F exam is taken but is not required to pass for the diploma (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]). English is usually not mandatory at level 2, but if included, is assessed via an internal test.

The examination board of the MBO college validates that all assessments meet the quality standards. The Education Inspectorate reviews whether practical exams align with the national qualification file – checking, for example, that key retail tasks are properly assessed. They also ensure companies are involved in the process, for example by providing appraisal from the mentor that contributes to the apprentice's final grade or competency sign-off (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]).

A qualified *Verkoper* (Retail Salesperson) at MBO 2 is considered to have a basic entry qualification for the labour market. Many graduates go straight into employment – often staying with the training employer or moving to a larger store. They work as retail assistants, cashiers, or stock controllers. Additionally, the diploma allows progression to an MBO 3 programme, typically the Retail Supervisor (*Verkoopspecialist*) or Entrepreneurial Retail programme. Indeed, many who want career growth in retail will climb the ladder – from *Verkoper* (level 2) to *Verkoopspecialist* (level 3, learning to supervise a department) to possibly *Filiaalmanager* (Store Manager, which is an MBO 4 programme) over time. Since the Verkoper programme is relatively short, young graduates sometimes immediately enrol in level 3 to improve their prospects. Others might branch to a different field at level 3 (for example, switching to an MBO 3 in commerce or another sector), but typically one stays in the economic domain.

Example 2: Financial Administrative Assistant (Financieel Administratief Medewerker)– MBO 3 School-based Programme (BOL)

The *Financieel Administratief Medewerker* is a level 3 upper-secondary VET programme in the Netherlands (ISCED 3, EQF level 3), completed in three years via the school-based route (BOL) (though a parallel apprenticeship rout is also available). It prepares students for support roles in financial administration, such as junior financial clerk, accounts assistant, or payroll support staff in companies, public services, and non-profit organisations. Entry is typically based on a VMBO diploma or a level 2 MBO qualification in a related field (Samenwerkingsorganisatie Beroepsonderwijs Bedrijfsleven (Foundation for Cooperation on Vocational Education, Training and the Labour Market), 2015[42]) (Kennispunt MBO, n.d.[43]).

The programme includes around 1 800 hours of classroom and practical training at school and 800-900 hours of internship (*beroepspraktijkvorming*, BPV) over three years (Inspectie van het Onderwijs, Ministerie van Onderwijs, Cultuur en Wetenschap, n.d.[20]) (Overheid.nl, 2025[21]).The curriculum is organised around key vocational competencies: controlling and editing financial records (e.g. cash, bank, sales, and purchase journals), managing accounts receivable and payable (e.g. issuing and checking invoices,

monitoring payment terms), and processing quantity-based records (e.g. hours worked, cost units). Students learn to use bookkeeping software, maintain accuracy, and apply a critical mindset when handling confidential and financial data (MBO Bonaire, 2021[44]).

The programme's total study load is around 3 000 hours over 3 years, balanced between school and internship. Students spend roughly 1 800 hours in classroom-based instruction and simulated practice, and about 900 hours in work-based learning (stage) at companies (Inspectie van Onderwijs (Inspectorate for Education), n.d.[24]). In each year, this translates to about 32 weeks of classes (at ~30 hours/week) and the remainder devoted to practical training. The curriculum is structured around vocational competencies defined in the qualification file. Annex Table 6.A.2 outlines the main components of the Financial Admin Assistant programme.

Annex Table 6.A.2. Indicative structure of the MBO 3 Financial Administrative Assistant programme (3-year BOL)

Programme component	Study load	Content and subjects
Classroom and lab training	~1 800 hours (over 3 years)	School-based learning including: • **Vocational subjects:** bookkeeping and accounting practice, use of financial software, business calculations, office administration. • **General subjects:** Dutch language (2F), English (A2/B1 level), mathematics (2F), and citizenship (including economics and ethics of finance). • **Integrative projects:** e.g. mock accounting exercises, simulated office tasks, team projects to mirror real financial workflows.
Internships (BPV stages)	~800–900 hours	Work placements in finance departments (approx. 20–25% of programme). Often 2 main internship periods: e.g. one ~2-month block in year 2 and a longer ~3-5 month block in year 3. During internships, students practice on real tasks: processing invoices, checking ledgers, assisting with payroll or budget reports, under supervision of a workplace mentor.
Optional modules (keuzedelen)	~720 hours total (3 × 240 hours)	Electives to deepen or broaden skills. For example: *Spreadsheet Analysis*, *Digital Accounting*, *Business English*, or *Entrepreneurship*. The student must complete several keuzedelen (total ~720 hours) – each with specific learning goals and assessments – to graduate.

Source Astrum College (n.d.[45]), Keuzedelen (Electives), www.astrumcollege.nl/studeren-bij-astrum-college/keuzedelen#:~:text=Keuzedelen%20,klokuren%20%3B%20Niveau%204; Inspectie van het Onderwijs (Inspectorate of Education) (n.d.[24]), Onderwijstijd in het middelbaar beroepsonderwijs (Teaching time in secondary vocational education), www.onderwijsinspectie.nl/onderwerpen/onderwijstijd/onderwijstijd-in-het-middelbaar-beroepsonderwijs#:~:text=Urennorm%20bbl%20Entreeopleiding%201%20850,elk%20leerjaar%20minimaal%20610.

According to the national qualification file, the core learning outcomes for this qualification include maintaining financial records, handling accounts payable and receivable, and managing various quantitative records (Samenwerkingsorganisatie Beroepsonderwijs Bedrijfsleven (Foundation for Cooperation on Vocational Education, Training and the Labour Market), 2015[42]). Students learn to maintain daily journals (ledgers) by recording transactions in purchase and sales journals accurately, manage debtors and creditors by processing incoming and outgoing invoices and monitoring payments, and handle quantitative data such as hours-worked administration or stock counts (MBO Bonaire, 2021[44]).

Practical training is supported through simulations (e.g. a mock accounting office) and internship placements. Internships may take the form of two periods (e.g. 8-10 weeks in year 2 and 12-20 weeks in year 3) or a spread model (e.g. 2 days/week over a semester), depending on the school. During internships, students work under supervision in finance departments – processing invoices, assisting in credit control, maintaining records, or helping prepare payroll. They apply skills in data entry, document checking, and financial accuracy, learning to handle sensitive information with care.

Assessment combines school-based exams and workplace evaluation. School exams test both theoretical knowledge and practical skills – for instance, writing a professional letter in Dutch, performing a VAT calculation, or using financial software to prepare a ledger. Dutch and English reading/writing are centrally examined, while other competencies are assessed through internal tests. For practical exams, students complete integrated assignments – such as processing a batch of invoices or reconciling payment records – often in a simulated business setting. Final assessment may include a capstone task that tests planning, accuracy, and task prioritisation.

Internship performance is also assessed. Students are evaluated by their workplace mentor and must often submit a portfolio including reflections, examples of completed tasks, and a report on the organisation. The school's internship supervisor validates these assessments and ensures alignment with qualification requirements. The examination board oversees quality assurance, and the Inspectorate of Education reviews whether assessments match the national standard, especially for practical and generic skills.

Graduates of this programme are equipped to work independently in financial support roles across sectors. Common positions include junior financial administrator, accounts clerk, payroll assistant, or cost control assistant. The diploma also qualifies students to progress to a level 4 MBO programme, such as *Bedrijfsadministrateur* (Business Administrator), or a more specialised pathway in areas like finance, human resources, or logistics. With a level 4 diploma, further progression to HBO (higher professional education) becomes accessible.

Example 3: Nurse (Verpleegkundige) – MBO 4 School-based Programme (BOL)

The *MBO-Verpleegkundige* is a high-level vocational programme (MBO 4, EQF level 4) that trains students to become registered nurses at the vocational level. In the Dutch context, this qualification allows graduates to work as general nurses in hospitals, nursing homes, home care, mental health, etc., and is aligned with the European nursing directive (making it quite comprehensive). It is an upper-secondary VET programme that lasts four years. Graduates receive the diploma "*Verpleegkundige*" which also gives them access to the official nurses' registry (BIG register) after meeting any additional requirements (there's a close alignment with BIG legislation on training hours and content) (Inspectie van het Onderwijs, Ministerie van Onderwijs, Cultuur en Wetenschap, n.d.[20]). This programme is exclusively offered in the school-based route (BOL), though there are also adult-upgrading routes in dual form for existing healthcare workers. Typical entry into the MBO 4 Nursing programme is pre-vocational graduation (with high achievements) or from an MBO 3 in healthcare. Many entrants are 16-17-year-olds coming directly from secondary school, though a significant number may be adult learners or career changers.

The nursing programme spans four years and must meet a higher-than-usual hour requirement due to statutory and EU guidelines. Students complete at least 4 000 hours of training over the four years (Inspectie van Onderwijs (Inspectorate for Education), n.d.[24]). In practice, schools structure this as roughly 40-42 weeks per year with an average of 25-30 hours per week of activities (which may be split between school and clinical practice). Approximately 50-60% of the time is dedicated to practical training (clinical placements and skills labs), and 40-50% to theoretical instruction. Annex Table 6.A.3 provides a general breakdown by year.

Annex Table 6.A.3. Example structure of the MBO 4 Nursing programme (4-year BOL)

Year	Main focus	School-based learning	Clinical training (BPV)
Year 1	Introduction to nursing basics	~3–4 days per week in classroom and skills lab (anatomy, nursing fundamentals, basic care skills). General subjects (Dutch, English, maths, biology, social studies) integrated.	~1–2 days per week in a care facility (towards end of year). For example, Nova College's first-year students do an 18-week internship, 2 days/week in elderly or disability care to apply basic care skills. Focus on assisting with daily care under close supervision.

Year	Main focus	School-based learning	Clinical training (BPV)
Year 2	Developing skills in varied contexts	~2–3 days per week classes (nursing processes, pharmacology, patient communication, etc.). Skills lab for more advanced procedures (e.g. injections, wound care).	Increased practice through block placements. E.g. two internships of ~9 weeks full-time. Settings often include a nursing home and a hospital. Students rotate through different departments to gain broader experience.
Year 3	Professional consolidation	~1–2 days per week classes (specialised knowledge: mental health, pediatrics, etc.; plus remaining general subjects like Dutch at 3F level). Theoretical focus on clinical reasoning and care planning.	Heavy on-the-job training. Many programmes have students in clinical practice ~3 days (24 hours) per week throughout year 3 For example, at Deltion College third-years spend 24h/week in stage and 12h in classes Placements may include hospitals, psychiatric care, home nursing, etc., to cover all core domains.
Year 4	Final clinical proficiency	~1 day per week class (mostly for debriefing, advanced theory, exam preparation). Some schools front-load any remaining theory early in year 4.	Extensive internships, often approaching a junior staff nurse role. Students commonly have a long final internship (e.g. 6 months) where they take on nearly full nursing responsibilities under supervision. This is the capstone practical experience (sometimes called *uitstroomstage* or graduation internship).

Source: Verpleegkundige (Nurse) (n.d.[45]), Keuzedelen, www.astrumcollege.nl/studeren-bij-astrum-college/keuzedelen#:~:text=Keuzedelen%20,klokuren%20%3B%20Niveau%204; MPO-Verpleegkundige (Nurse), (n.d.[46]) (MPO Nurse), (2025), deltioncollege.nl, www.deltion.nl/opleidingen/mbo-verpleegkundige.

The nursing school curriculum combines theoretical instruction in health sciences with hands-on skills training in labs where students practice procedures like taking vital signs and injections using mannequins or role-play. It emphasises the nursing process and critical thinking – assessing patient needs, planning interventions, and evaluating outcomes – as well as communication and teamwork skills, including engaging with patients, families, and healthcare teams. Students also gain specialised knowledge in areas like maternity, mental health, geriatrics, and rehabilitation. General education includes Dutch (with medical terminology and report writing), English (B1), and maths focused on medication dosages and fluid balances. Civics content covers healthcare laws and ethics, such as patient rights.

Assessment combines theoretical, practical, and workplace-based evaluations. Students take knowledge exams on topics such as anatomy, physiology, and common diseases, typically through written or computer-based formats. Although not mandated nationally, it is common practice for schools to administer a high-stakes medication calculation test – reflecting the profession's emphasis on safety and precision. Practical skills are regularly assessed in simulation labs through structured exams. For instance, students may be tested on performing a sterile wound dressing or administering an injection, observed by an instructor using a checklist to verify each step is performed correctly, including hygiene, communication, and procedural accuracy. Critical skills must be demonstrated successfully before students can progress.

Internships include integrated assessments such as the proof of competence exam (*proeve van bekwaamheid*), where students are observed by both school and workplace assessors over a shift while delivering real patient care. They are expected to perform a full range of nursing duties – such as administering medication, conducting handovers, monitoring vitals, and documenting in patient records – while demonstrating professionalism, teamwork, and planning.

Students also compile a portfolio with case studies, reflective writing, and documented skills, which provides evidence of their development and integration of theoretical knowledge into practice. Additionally, students take general education exams: Dutch and English reading/writing are centrally assessed at 3F and B1 levels respectively, and a 3F maths exam applies. However, due to the high importance of dosage accuracy in nursing, many schools also require an internal medication maths exam to be passed with 100% accuracy, even if national maths exam rules are less stringent (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]).

All these pieces must be passed to graduate. The examination board ensures that the clinical assessments meet the national qualification requirements as well as the Dutch nursing competency framework. The nursing qualification file is closely linked to the national occupational profile for nurses (which in turn aligns to EU Directives). The Inspectorate also checks that nursing programmes meet the required training hours and content breadth (statutory training hours beyond standard MBO applies due to healthcare law) (Inspectie van het Onderwijs, Ministerie van Onderwijs, Cultuur en Wetenschap, n.d.[20]).

MBO nursing graduates can register as qualified nurses and work in hospitals, long-term care, psychiatric institutions, etc. They typically start as staff nurses on a ward or in home care teams, performing direct patient care under supervision of senior nurses or doctors. Many MBO 4 nurses later pursue a Bachelor of Nursing, often after gaining work experience. Universities of applied sciences offer shortened programmes for MBO-qualified nurses (typically 2½ years instead of 4). Bachelors in nursing open doors to broader roles in leadership, research, or specialisation. Around 91% of MBO 4 nursing graduates who continue studying enrol in a higher vocational education programme (Cedefop, & Centre for Expertise in Vocational Education and Training, (ECBO), 2023[5]).

7 Vocational education and training in Norway

All students who finish compulsory schooling in Norway have a legal right to upper-secondary education, including vocational education and training (VET), irrespective of their grades. VET programmes are guided by national curricula focused on competence-based learning, and they typically follow a "2+2" model of two years in school and two in apprenticeship. Work-based learning begins in the first two years in school and increases during apprenticeships in the last two years. Most VET is delivered by public schools that also deliver general upper-secondary education. VET teachers must have both industry experience and pedagogical training, and ongoing professional development is encouraged. The system's governance is tripartite, involving government, employers and unions, and multi-level, involving national and county authorities. Funding is primarily public, with no tuition fees for students and comprehensive support for apprentices and training firms.

7.1. Place of VET in the overall education system and pathways into and after VET

Norway's upper-secondary education (*videregående opplæring*) system offers both academic and vocational tracks, typically beginning at age 16 after ten years of compulsory schooling (OECD, 2020[1]). Students choose among five general academic programme areas and ten vocational education programme areas (OECD, 2020[1]) (Cedefop, & Norwegian Directorate for Higher Education and Skills, 2023[2]). These ten upper-secondary VET programmes are: (1) Agriculture, Fishing and Forestry (*Naturbruk*); (2) Building and Construction (*Bygg- og anleggsteknikk*); (3) Crafts, Design and Product Development (*Håndverk, design og produktutvikling*); (4) Electricity and Electronics (*Elektro og datateknologi*); (5) Hairdressing, Floral, Interior and Retail Design (*Frisør, blomster, interiør og eksponeringsdesign*); (6) Healthcare, Childhood and Youth Development (*Helse- og oppvekstfag*); (7) Information Technology and Media Production (*Informasjonsteknologi og medieproduksjon*); (8) Restaurant and Food Processing (*Restaurant- og matfag*); (9) Sales, Service and Tourism (*Salgs, service og reiseliv*); and (10) Technical and Industrial Production (*Teknologi- og industrifag*).

The VET programmes are three to four years in duration, and lead to over 190 nationally recognised vocational qualifications at EQF level 4 (ISCED 353) upon completion (OECD, 2022[3]; Utdannings-direktoratet (Norwegian Directorate for Education and Training), 2024[4]). The VET programmes prepare students for skilled employment in a wide range of sectors and also provide pathways to further education. In 2021, 45% of 15-19 year-old upper-secondary students were enrolled in VET programmes in Norway (OECD, 2023[5]).

All young people who finish compulsory lower secondary school in Norway have a statutory right to complete upper-secondary education and training, ensuring access even for those with lower grades (OECD, 2022[3]). The right to upper-secondary education lasts until a student has obtained either university admission certification or a vocational qualification (trade or journeyman's certificate, passed vocational examination, practice candidates whose substantial work experience has been certified), regardless of the time it takes to achieve this. Those who have obtained final qualifications at a lower level, for example a practice certificate, still retain the right to complete (Utdanningsdirektoratet (Norwegian Directorate for Education and Training), 2025[6]). Because all students have a right to upper secondary education, Norway does not use "pre-vocational" or bridging programmes in the way some other countries do. Instead, to prevent dropout and support students at risk to obtain a qualification, Norway has developed *alternative VET pathways* within the upper-secondary system (Box 7.1). There is no strict minimum academic achievement requirement to enter a VET programme; however, if a particular school or programme is oversubscribed, admission is determined by prior school grades. Students may switch pathways or pursue additional qualifications – the system's permeability allows movement between vocational and academic routes, aided by bridging options (described below).

Box 7.1. See every learner: Alternative VET pathways for students at risk in Norway

Norway has introduced targeted initiatives to support students who have difficulties succeeding in VET programmes. Two key examples are the *Certificate of Practice scheme* and the *Apprenticeship Candidate scheme*, which offer more flexible, workplace-oriented training for those at risk of dropping out.

Certificate of Practice (Praksisbrev)

This two-year alternative VET pathway is aimed at teenagers who struggled in lower secondary school, and alternates school and workplace training. Students spend part of each week in a company and part in school, focusing on practical skills. At the end of two years, they earn a Certificate of Practice, documenting basic competencies in a trade. Crucially, they can transition to a full apprenticeship afterward to pursue a journeyman's certificate. The strong workplace component and early contact with employers are credited with keeping these students engaged and improving their prospects of completing upper-secondary VET (OECD, 2020[1]).

Apprenticeship Candidate (Lærekandidatordningen)

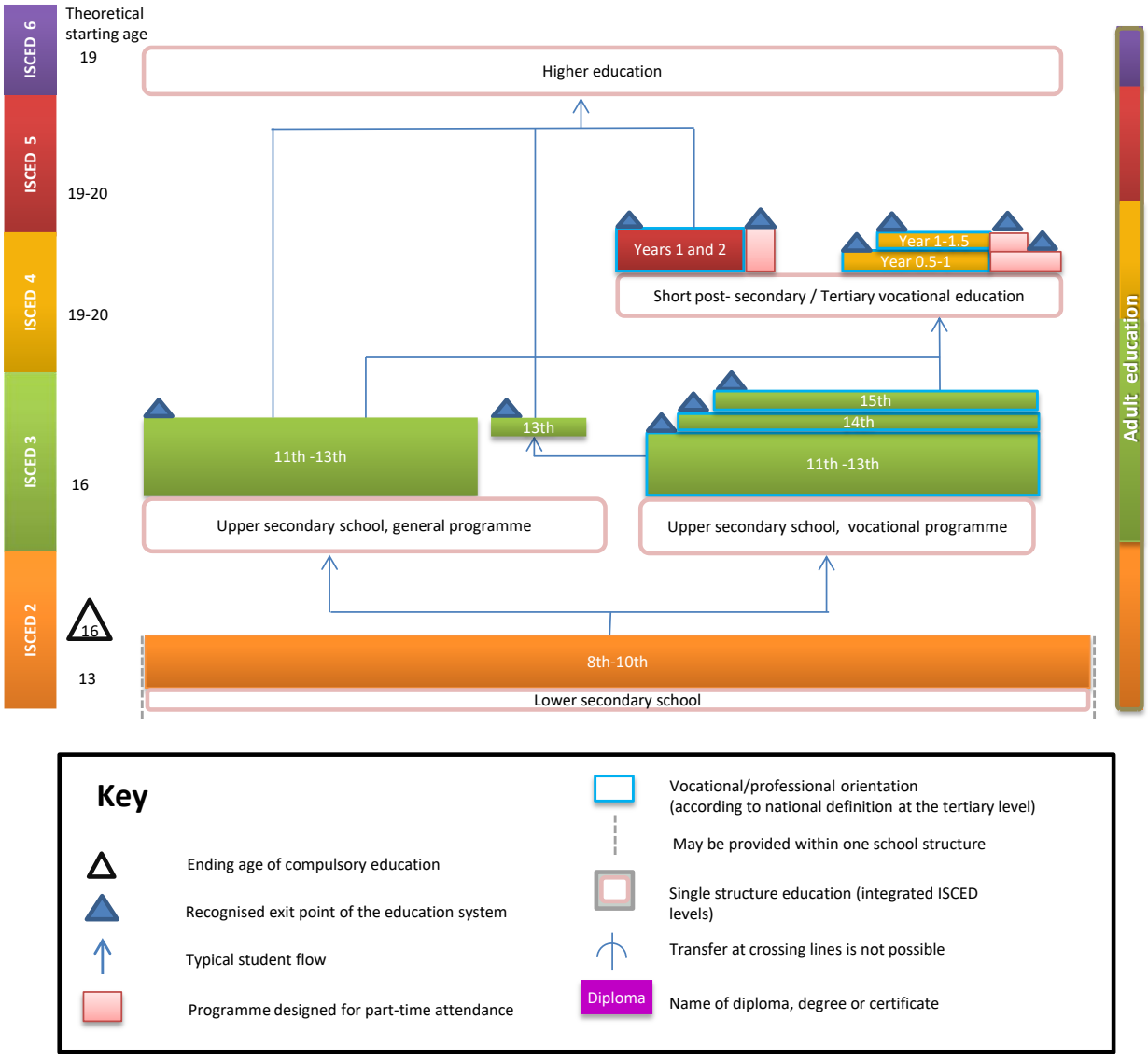
This scheme is designed for learners who cannot meet all the requirements of a full trade certificate due to academic or learning challenges. As "apprenticeship candidates," they follow an individually adapted training plan in a company, aiming for a more limited competence assessment. The programme focuses on developing practical work skills and employability. While relatively few apprenticeship candidates later advance to a full trade certificate, this pathway provides a valued partial qualification and improves their employment outcomes. It represents a "safety net" so that even students with significant difficulties can attain formal proof of skills for the labour market.

Sources: OECD (2020[1]), Education Policy Outlook. Norway, www.oecd.org/content/dam/oecd/en/about/projects/edu/education-policy-outlook/country-profile-Norway-2020.pdf; Cedefop (n.d.[7]), Certificate of Practice (Praksisbrev), www.cedefop.europa.eu/en/tools/vet-toolkit-tackling-early-leaving/resources/certificate-practice-praksisbrev, Utdannings-direktoratet (The Norwegian Directorate for Education and Training (2021[8]), Norwegian Directorate for Education and Training (UDIR), Utdannings-direktoratet (The Norwegian Directorate for Education and Training (2021[8]), Trainee, www.udir.no/utdanningslopet/videregaende-opplaring/andre-varianter/larekandidat/.

After completing ISCED 3 VET, graduates in Norway have multiple progression pathways. The primary destination for most is the labour market. In fact, within one year of passing the trade/journeyman's exam, about 82% of graduates are employed. At the same time, VET graduates can and do pursue further education and training. Many enter post-secondary vocational colleges (*fagskoler*), which offer short-cycle higher VET (EQF 5) in specialised fields (OECD, 2022[3]). Others aim for higher education. While a vocational trade certificate alone does not confer general university entrance eligibility, Norway provides a well-established bridging route. VET students can take a one-year supplementary programme (*påbyggingsår*) in academic subjects to obtain the university admissions certification. This bridging course covers advanced Norwegian, English, mathematics and other theory to equate the academic requirements of general studies. It is common for those who fail to secure an apprenticeship placement to switch to the academic bridging path.

Figure 7.1 provides an overview of Norway's education system, highlighting the place of ISCED 3 VET and the pathways into and beyond it (Box 7.1).

Figure 7.1. The place of ISCED 3 VET in Norway's education system



Note: The reference year is 2023 (school year 2022/2023 in the northern hemisphere). Theoretical starting ages refer to the ages as established by law and regulation for the entry to a programme; actual starting ages may vary depending on the programme.
Source: Adapted from OECD (2023[9]), "Diagram of the education system: Norway", *OECD Education GPS* https://gpseducation.oecd.org/CountryProfile?primaryCountry=NOR.

7.2. Curriculum structure and assessment procedures

Upper-secondary VET programmes in Norway are built on national curricula that define learning outcomes, content, and assessment criteria for all subjects. The Ministry of Education and Research holds overall responsibility for VET curriculum and regulates what is taught. A major curriculum reform known as Knowledge Promotion 2020 introduced updated competence-based curricula for both general and vocational education. These new curricula place emphasis on relevant skills, in-depth learning and adaptability to future needs, to ensure that programme content aligns with labour market requirements (Cedefop, & Norwegian Directorate for Higher Education and Skills, 2023[2]).

Most vocational programmes follow the "2+2" model, comprising two years of school-based education followed by two years of apprenticeship training in a company (OECD, 2022[3]). In the school phase (Vg1 and Vg2) students receive both general education and vocational instruction. In the apprenticeship phase (Vg3 and Vg4) training is almost entirely work-based (details in Section 7.3). A few programmes use modified structures – for instance, "medical secretary" is delivered as 3 years in school (3+0) with an extended in-school practical component, while a small number of technical trades use a 1+3 model (one year school + three years apprenticeship) (Regjeringen (Ministry of Foreign Affairs), n.d.[10]).

Within each programme, the curriculum is divided into:

- **Common core subjects (*fellesfag*):** mandatory academic subjects that all VET students study, providing a baseline of general education. These are Norwegian (first language), English, Mathematics, Natural Science, Social Science, and Physical Education. The scope and level of these courses in vocational programmes are slightly adapted compared to academic programmes, but they follow national subject curricula. Students are assessed and examined in these subjects similarly to their peers in general studies (including centrally administered exams in some subjects).
- **Programme subjects (*programfag*):** vocational theory and practical subjects specific to the programme area. These are defined centrally for each programme and Vg1/Vg2 level. In Vg1 (the first year), programme subjects provide a broad introduction to the vocational field. In Vg2 (the second year), the programme subjects become more specialised and trade-specific, as students split into narrower specialisations within the programme (Utdannings-direktoratet (Norwegian Directorate for Education and Training), 2020[11]). These programme subjects combine classroom learning with workshop practice.
- **In-depth practice (*Yrkesfaglig fordypning, YFF*):** a unique component of Norwegian VET curricula allowing students to deepen their practical skills in an area of interest. YFF is an integral part of Vg1 and Vg2, where students can spend time in actual workplaces or school workshops to apply what they've learned and explore specific trades. Schools often arrange short-term internships at local companies as part of YFF, or have students work on practical projects simulating industry tasks. YFF has no separate exam but is graded pass/fail based on participation and learning achieved.

Each subject syllabus defines *competence aims* (*kompetansemål*) that students should reach, rather than prescribing detailed content (Cedefop, & Norwegian Directorate for Higher Education and Skills, 2023[2]). For instance, in the Vg2 Electrician syllabus, an aim might be "the student can plan and perform the installation of an electrical circuit according to regulations and evaluate their work for safety and functionality." The new (2020) curricula emphasise core elements and interdisciplinary themes (like digital skills, sustainability, health & life skills) across subjects. Teaching methods are not dictated by the national curriculum – teachers and schools have pedagogical freedom to decide how to achieve the outcomes (Cedefop, & Norwegian Directorate for Higher Education and Skills, 2023[2]) – but there is an expectation of integrating practical and theoretical learning. Practical workshops, project-based learning, simulations, and group work are common pedagogical approaches in VET classrooms.

Assessment in Norwegian VET is criterion-referenced to learning outcomes. Teachers and examiners assess whether students/apprentices meet the defined competence goals. During the two school years, teachers use a variety of assessment methods – written tests, practical skill demonstrations, project work, etc. – to gauge competency. Student performance in each subject is continuously assessed by teachers, and students receive grades (normally on a scale from 1 to 6, where 6 is highest and 2 is the minimum passing grade). VET students must sit certain centrally administered and externally graded examinations in their common academic subjects (e.g. Norwegian, English or Maths) (Cedefop, & Norwegian Directorate for Higher Education and Skills, 2023[2]). They may also have local exams in some vocational theory subjects, prepared and graded at the county level (Cedefop, & Norwegian Directorate for Higher Education and Skills, 2023[2]). Towards the end of Vg2, many counties require an optional cross-disciplinary practical

exam (*tverrfaglig praktisk eksamen*) in the programme subjects, while others rely on extended in-depth practice. Students must pass their exams and all subjects to be eligible to enter an apprenticeship (or to receive a school completion certificate) (utdanning.no, 2025[12]).

In the apprenticeship, employers and training supervisors provide feedback throughout, but the formal final evaluation is the independent trade test. Indeed the culmination of upper-secondary VET is the trade/journeyman's examination (*fag- eller svenneprøve*). This is a comprehensive *practical–theoretical exam* and is required to earn the full vocational qualification (trade certificate) (Cedefop, & Norwegian Directorate for Higher Education and Skills, 2023[2]). The examination is prepared and overseen by an independent Examination Board (*Prøvenemnd*) for the specific trade, typically consisting of experienced craftspersons from industry (appointed by the county). Performance is evaluated against national criteria, and the outcome is graded "Very well passed" or "Well passed".

7.3. Work-based learning (WBL) in school-based programmes

Work-based learning is central part of Norwegian upper-secondary VET, both in the school phase (years 1 and 2) and apprenticeship phase (years 3 and 4).

During the school phase (Vg1 and Vg2) programmes incorporate practical training in workplaces. As part of the curriculum's In-Depth Practice (YFF) component, many VET students go on short internships or *practice placements* with local employers, typically a day per week or in multi-week blocks (Utdannings-direktoratet (Norwegian Directorate for Education and Training), 2020[11]). These placements are usually unpaid training experiences and are structured through agreements between the school and the company. Schools themselves also have workshops and simulated work environments (e.g. kitchens for culinary students, auto garages for mechanic students) where a significant portion of learning is "hands-on." By regulation, the two school years must include practical training in workshops and/or enterprises (Cedefop, & Norwegian Directorate for Higher Education and Skills, 2023[2]).

After completing the school-based portion, students enter into an apprenticeship (*læretid*) with an approved training company. The standard apprenticeship structure (Vg3 and Vg4) lasts two years, during which the individual is both a learner and an employee. Apprenticeships are regulated by the Education Act and a national Apprenticeship Contract. Key features include:

- The apprentice signs a formal apprenticeship contract with the company (and in some cases also with a group training agency). The contract must be approved and registered by the County Education Authority, which verifies that the company is qualified to provide the training (Utdannings-direktoratet (Norwegian Directorate for Education and Training), 2020[11]; Utdannings-direktoratet (Norwegian Directorate for Education and Training), 2024[4]).
- The company is obliged to ensure the apprentice can practice the specific competencies listed in the curriculum (often through a logbook or training plan).
- Every training company must appoint a "training supervisor" (*faglig leder*) responsible for the overall training, and one or more skilled worker instructors (*instruktører*) who work directly with the apprentice on a daily basis. The training supervisor ensures the training plan is followed and liaises with the county apprenticeship authorities.
- Unlike some dual systems, Norwegian apprentices do *not* usually attend weekly vocational school during their apprenticeship. The assumption is that the necessary theory was covered in the first two years of school. However, there are often short refresher courses or workshops organised by counties or industry training offices to help apprentices prepare for the trade exam theory.
- Apprentices are considered employees-in-training. They receive a wage that increases over time – commonly starting at about 30-40% of a fully qualified worker's wage and rising to around 80-90% by the end of the apprenticeship. The wage structure is often set by collective agreements.

Employers are partially compensated for training apprentices by the state (see Section 7.7, Funding).

- To offer apprenticeships, a company must be approved as a training establishment by the county authorities. Approval criteria include having relevant production work to train the apprentice, employing qualified staff to supervise, and commitment to follow the curriculum. Many small companies cannot alone provide the full range of training so collaborate through Apprenticeship Training Agencies (*samarbeidsorgan*) – consortia of companies that jointly recruit and train apprentices. The apprentice might rotate between member companies to gain all necessary experiences.
- For the minority of students who fail to obtain an apprenticeship or have an apprentice's contract terminated, counties are responsible for providing an alternative solution. One solution is an "alternative vg3" (*skoleløp*) – a third year of school-based training covering the apprenticeship curriculum in a workshop setting. Additionally, some students who cannot find an apprenticeship choose to take the academic bridging course (switching to general study competence path).

Quality assurance and stakeholder involvement in work-based learning in Norway is underpinned by a collaborative governance approach. At the national level, the National Council for VET (SRY) and the trade-specific councils (*Faglige råd*) include employer and union representatives who influence apprenticeship standards and content. Locally, each county's Vocational Training Committee (*Yrkesopplæringsnemnd*) monitors apprenticeship provision in that region and advises on approvals of training companies and allocation of training places (Cedefop, & Norwegian Directorate for Higher Education and Skills, 2023[2]).

7.4. Provider types

Upper-secondary VET in Norway is offered by a mix of public and private providers, though the public sector predominates. The country has a unified school system in which almost all upper-secondary education – both academic and vocational – is delivered by county-level public schools owned and operated by Norway's county authorities (OECD, 2022[3]; Cedefop, & Norwegian Directorate for Higher Education and Skills, 2023[2]). There are approximately 400 upper-secondary schools across Norway, and the majority offer one or more vocational programmes in addition to general studies. Urban areas may have larger dedicated vocational colleges (e.g. an engineering college, a health training college).

Alongside the public schools, there is a small private sector in upper-secondary VET. A handful of private vocational schools (*friskoler*) exist, typically run by nonprofit foundations, religious organisations, or private companies. These must be approved by the national authorities and follow the national curricula, awarding the same trade certifications. Private upper-secondary schools receive government funding per student, and they are allowed to supplement with modest tuition fees. However, the share of students in private upper-secondary education in Norway is very low.

Because Norway's VET is highly standardised by national curricula, all providers (public or private school, or company) must adhere to the same learning goals. The county authorities co-ordinate provision to avoid duplication and fill regional skills needs. For example, not every school will offer all ten VET programmes; counties designate certain schools as "specialists" for specific programmes depending on local industry. A rural county might have one school focusing on Agriculture and another on Industrial Technology. Students have the right to attend an out-of-area school if their chosen programme is not offered locally, and in such cases they might live in a dormitory or receive a housing stipend (the state provides relocation grants to support students who must travel to access a VET programme) (Cedefop, & Norwegian Directorate for Higher Education and Skills, 2023[2]). In practice, virtually all students do get into one of their top choices and counties ensure there are enough school places in both academic and vocational streams each year.

Quality assurance of providers is handled via multiple mechanisms. Public schools are subject to national quality audits (through the county governor's office) and must report key indicators (like student completion rates, exam results). Private schools are supervised by the Directorate and can lose their accreditation for various reasons, including if they do not provide education in line with approved curricula or quality standards (Utdanningsdirektoratet (Norwegian Directorate for Education and Training), 2024[13]).Training companies are regularly evaluated by the county Vocational Training Committee, and their approval can be revoked if they fail to provide proper training or if an apprentice consistently fails exams due to inadequate preparation (Cedefop, & Norwegian Directorate for Higher Education and Skills, 2023[2]).

7.5. VET teachers and trainers' qualifications and professional development

The vocational education workforce in Norway consists of two main categories: school-based teachers and in-company trainers. Norway holds VET teachers to essentially the same formal standards as general academic teachers, with additional requirements for vocational expertise (OECD, 2022[3]).

In Norwegian upper-secondary schools, a VET teacher (*yrkesfaglærer*) typically teaches the vocational programme subjects (and often supervises workshop practice), while academic subjects (Norwegian, English, etc.) are taught by general subject teachers. By law, however, both categories are considered "teachers" with parallel qualification frameworks. All teachers, including those in vocational programmes, must have: (1) expertise in the subject/field they will teach, and (2) an approved teacher education qualification in pedagogy and didactics. For vocational teachers, the subject-matter expertise is usually demonstrated by holding a relevant trade or journeyman's certificate (and/or a relevant professional education) plus several years of industry work experience in that field (Cedefop, & Norwegian Directorate for Higher Education and Skills, 2023[2]). The national regulations specifically require that vocational teachers have at least four years of relevant work experience in the trade/industry they teach (this can be slightly reduced if they have a higher education in the field).

To acquire pedagogical competency, vocational teachers must complete teacher training through one of two main routes (OECD, 2022[3]):

- **The Practical Pedagogical Education for vocational teachers (PPU-Y) route**: This is a shorter programme (often one year full-time or 1.5-2 years part-time) taken *after* a person has the vocational qualification and work experience. It focuses on pedagogy, classroom management, and didactics for VET. Many industry professionals who move into teaching take this route. They may start teaching on a temporary basis and simultaneously enrol in PPU to earn their teaching certificate. The government provides grants to schools to give newly hired un-certified VET teachers paid time-off to study pedagogy and covers the cost of a substitute teacher (Cedefop, & Norwegian Directorate for Higher Education and Skills, 2023[2]).
- **The Vocational Teacher Education Bachelor's route**: Less common than the PPU-Y route, several universities and colleges offer a dedicated *3-year bachelor's degree in vocational teacher education*. Students in these programmes are often young people who choose teaching as a career from the start, focusing on a particular vocational area (e.g. technology, healthcare). The curriculum interweaves subject-specific content, workshop practice, and pedagogical training, and usually includes practicums in schools. Graduates earn a Bachelor of Vocational Education, and there is even an option to extend to a 2-year Master's degree in vocational pedagogy for further specialisation (Cedefop, & Norwegian Directorate for Higher Education and Skills, 2023[2]).

Norwegian law does not impose a strict requirement for in-service teachers to periodically re-certify or undergo specific hours of continuous professional development (CPD), and CPD is increasingly decentralised to counties (OECD, 2022[3]). However, there is an expectation and culture of ongoing professional development supported by the employer (the county school) and national programmes.

A new system for competence development for teachers in kindergarten and schools, including teachers and instructors in VET, will be implemented from 2025 (regjeringen.no, 2025[14]). For now, VET teachers can take part in the same general CPD opportunities as other teachers (courses on classroom management, ICT in teaching, etc.). Additionally, the government has introduced some VET-specific upskilling initiatives. One innovative measure is a secondment programme (utveksling) that encourages VET teachers to spend some time in industry and company trainers to spend time in schools (Cedefop, & Norwegian Directorate for Higher Education and Skills, 2023[2]). Through a national funding programme (*Kompetanse for kvalitet*), VET teachers can apply to take further studies (often part-time) in either advanced trade technology or in pedagogy, with the state covering tuition and some salary costs.

Instructors and training supervisors in apprenticeships are crucial educators in the Norwegian VET system. The authorities set expectations that these trainers should be skilled and experienced workers. Some companies voluntarily have their trainers take a course (like the “Train the Trainer” seminars offered by counties or employer associations). The Government offers online training resources and short courses for apprentice instructors. Many trainers also attend continuing education workshops via their industry networks or the Apprenticeship Training Agencies, which may host seminars on mentoring.

7.6. Governance

The Education Act 2024 provides the legislative framework for VET in Norway. It establishes the right to upper-secondary education, and covers upper-secondary education for adults. The Act states that the county municipalities are responsible for public upper-secondary education, and has rules on, education’s scope and content, the organisation of teaching, and vocational training provided by businesses, among other things (Regjeringen (Ministry for Foreign Affairs), 2025[15]). Policy direction is framed by two recent White Papers: the Completion Reform (Fullføringsreformen) – Meld. St. 21 (2020–2021) – which sets a 90% completion goal and strengthens the right to complete upper-secondary education; and Meld. St. 11 (2024–2025) Skilled workers for a new era – with higher vocational education, which sets priorities for higher vocational education (fagskoler) and continuing VET (Regjeringen (Ministry of Foreign Affairs), 2020[16]).

Governance of ISCED 3 VET in Norway involves a combination of national oversight and decentralised management, with a strong role for social partners (employers and unions) in decision-making. The system can be described as a tripartite, devolved governance model:

- **At the national level**, the Ministry of Education and Research sets the legal framework (laws and regulations) and national curricula for VET (Cedefop, & Norwegian Directorate for Higher Education and Skills, 2023[2]). The Ministry is responsible for overall strategy and major reforms. Under the Ministry, the Norwegian Directorate for Education and Training is responsible for upper-secondary VET (for youth and adults), while the Norwegian Directorate for Higher Education and Skills is responsible for tertiary VET. The Directorate for Education and Training develops curriculum details, issues guidelines, administers funding schemes, and oversees quality assurance nationally. All qualifications, including vocational trade certificates, are defined in the National Qualifications Framework, and their standards are set at national level.
- **At the county level**, Norway’s county authorities (fylkeskommuner) have the mandate to organise and deliver upper-secondary education, including VET (Cedefop, & Norwegian Directorate for Higher Education and Skills, 2023[2]). This means counties own the public vocational schools, hire teachers, and are responsible for admitting students and providing training places. Counties receive block grants from the state (and have some local tax revenue) to fund schools and apprenticeships (see Section 7.7). They also approve apprenticeship contracts and training companies. Each county has an Office of Upper-Secondary Education and Training led by an education director, which handles day-to-day administration of VET (school operations, exams,

apprenticeship monitoring, etc.). While adhering to national curricula, counties have some flexibility in resource allocation – e.g. deciding how many VET classes to open, which locations to offer certain programmes, and investments in equipment.

  - Each county is legally required to have a Vocational Training Committee (*Yrkesopplæringsnemnda*) (Cedefop, & Norwegian Directorate for Higher Education and Skills, 2023[2]). This committee has a tripartite composition and education sector representatives. It advises the county on all important VET matters. For example, it gives recommendations on approving training establishments, it monitors the supply and demand for apprenticeships, and it can mediate if issues arise between apprentices and companies.

- **Social partner involvement**: A hallmark of Norwegian VET governance is the institutionalised involvement of employers' organisations and trade unions at all levels (OECD, 2022[3]; Cedefop, & Norwegian Directorate for Higher Education and Skills, 2023[2])
  - At the national level, the Ministry is advised by the National Council for Vocational Education and Training – in Norwegian *Samarbeidsrådet for yrkesopplæring (SRY)* (Cedefop, & Norwegian Directorate for Higher Education and Skills, 2023[2]). The SRY is a top-level body comprising representatives from national employers' associations, national trade union federations, relevant government agencies, and other stakeholders. It meets regularly to discuss VET policy and provides input on major issues (curriculum reforms, capacity, new trades).
  - Directly under the SRY are ten National Vocational Training Councils (Faglige råd) – one for each vocational programme area (OECD, 2022[3]; Cedefop, & Norwegian Directorate for Higher Education and Skills, 2023[2]). These councils are made up of experts from the specific industry (for example, the construction trades council includes contractors' federation reps, construction unions, etc., as well as some educators). They have a defined role in *curriculum development*: they propose updates to trade curricula, and suggest the establishment of new specialisations or the discontinuation of obsolete ones.
- At the **institutional (school) level**, each public VET school has a management team (principal and department heads) responsible to the county, and also often an advisory council for each vocational programme they offer. These school-level advisory councils include local employers and sometimes alumni and students, providing grassroots feedback on the programme. For instance, the automotive programme at a school might have an advisory board with local car repair shops and car dealers who meet with teachers to discuss training content and opportunities for student practice.

7.7. Funding

Upper-secondary VET in Norway is publicly funded and free of charge for students. The financing responsibilities are shared between the central government and the county authorities, with no tuition fees for learners in either the school-based or apprenticeship components (Utdanningsdirektoratet, n.d.[17]). In practice, this means the government covers the costs of instruction, school operations, and also heavily subsidises apprenticeship training in companies. Private expenditure in this sector is minimal – only about 3% of total spending on secondary education comes from private sources (e.g. minor fees, private school contributions) (OECD, 2023[18]) – reflecting Norway's strong commitment to education as a public good.

The Norwegian central government provides block grants to each county for education, as part of an income distribution and tax equalisation system. Counties have the autonomy to allocate these funds among schools. The grant amount is calculated based on factors like the number of students, regional cost levels, and the proportion in vocational programmes (since VET is recognised as more expensive per student than general education). There isn't a separate earmarked budget for VET vs general within the

block grant – counties decide – but the formula accounts for the higher resource needs in VET (smaller class sizes in workshops, equipment, etc.). In addition to block grants, the central government runs specific targeted grants for priority areas in VET, such as equipment upgrades or new initiative pilots.

Counties use their funds to cover school operating costs, like teacher and staff salaries (which form the bulk of costs), facilities maintenance, utilities, and instructional materials. Schools also provide materials and equipment needed for VET at no cost to students. The state's student aid fund (*Lånekassen*) also provides a small annual equipment grant (*utstyrsstipend*) to every upper-secondary student in a VET programme, which varies by field – trades known to require more personal gear get a larger stipend (Lånekassen, n.d.[19]).

While Norway does *not* universally offer free school meals at upper secondary (unlike at lower levels), many counties subsidise meals or have arrangements for affordable canteens. Transport costs are often covered – counties typically provide free or discounted bus passes to students who have to commute beyond a certain distance. Additionally, if a student must live away from home to attend a specific VET school, they can receive housing and board allowances. The State Educational Loan Fund (*Lånekassen*) administers needs-based grants and loans for upper-secondary students. Typically, students under 18 living at home don't get stipends (as parents are expected to support them), but those over 18 or living away can get a monthly study grant depending on parental income. For apprentices (who usually start at age 18 or 19), they receive a wage from their employer rather than student support, but if an apprentice's wage is very low they may be eligible for supplementary loans from *Lånekassen* (Lånekassen, n.d.[20]).

A significant element of VET funding is the training subsidy to companies that take on apprentices. The government provides a grant for each apprentice to the host firm (or training agency). In 2025, this apprenticeship grant is approximately NOK 182 000 per apprentice over the two-year training period (about USD 17 000) – though it varies slightly by trade and region (Norges Bondelag, 2025[21]).

In addition to direct costs, Norway invests in support structures: career guidance centres, follow-up services for dropouts (the Follow-Up Service is a county service mandated to track and offer training/work to youth not in education or employment), and training offices (which often get some funding indirectly as described). The Follow-Up Service, for instance, is funded through county budgets to ensure every youth who doesn't immediately continue is contacted and given a second chance opportunity – these could include alternative training programmes that the county funds (sometimes one-year projects combining basic work training and schooling, often in collaboration with NAV, the Labour and Welfare Administration) (Utdannings-direktoratet (The Norwegian Directorate for Education and Training), 2022[22]).

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Annex 7.A. Examples of curriculum structure and assessment procedures for three ISCED 3 VET qualifications

To illustrate how the above elements come together in practice, this annex presents three examples of upper-secondary VET programmes in Norway, each highlighting a different sector:

- Example 1: Electro and Computer Technology programme (Elektro og datateknologi) – Electrician (Elektriker) training pathway.
- Example 2: Healthcare, Childhood and Youth Development programme (Helse- og oppvekstfag) – Health Care Worker (Helsefagarbeider) pathway.
- Example 3: Technology and Industrial Production programme (Teknologi- og industrifag) – Industrial Mechanic (Industrimekaniker) pathway.

Each example outlines the programme's structure (subjects, practical training, apprenticeship) and assessment approach from start to finish.

Example 1: Electro and Computer Technology (Elektro og datateknologi) – Electrician (Elektriker)

The Electro and Computer Technology programme prepares students for careers in the electrical and electronics trades. It covers a broad range of content – from power distribution and electrical installation to automation and digital communications systems. Within this programme, one of the most popular specialisations is the Electrician trade, which leads to the Electrician Certificate (*fagbrev elektriker*), qualifying individuals to install and maintain electrical wiring and equipment in buildings.

Annex Table 7.A.1 shows the structure of the Programme.

Annex Table 7.A.1. Structure of the Electrician VET pathway (Electro programme)

Stage	Setting & Duration	Key Content and Activities
Vg1 – Electro & Computer Tech.	School, 1 year (approx. 38 weeks)	– Common core subjects (Norwegian, English, Maths, etc.) – ~15 lessons/week. – Programme subjects: Basics of electrical theory, energy systems, data/ICT fundamentals (classroom + workshop practice). – YFF: Practical projects in school (e.g. wiring simple circuits) and short industry visits.
Vg2 – Elenergi og ekom (Electrical systems)	School, 1 year	– Common core subjects continue (~12 lessons/week). – Programme subjects: Advanced electrical installation techniques, automation basics, regulations and documentation. Significant workshop time (wiring light/power circuits, etc.). – YFF: Longer industry placement (1-2 weeks) with an electrical contractor.
Vg3–4 – Apprenticeship (Electrician)	Company, 2.5 years (on-the-job training)	– Full-time work as apprentice electrician. – Gradual skill development: Year 1 assistive tasks, Year 2 independent tasks (installations, troubleshooting). – Attend any required short courses (e.g. first aid, electro-theory refreshers). – Document learning in logbook; meet all curriculum competencies (e.g. residential, commercial wiring, alarm systems, panel assembly).

In the first year (Vg1) at school, students receive a foundational introduction to electrical engineering and electronics. Common core subjects (Norwegian, English, Maths, Science, Social Studies, Physical Education) take up about 50% of the time. Programme subjects in Vg1 include basic electrical theory (Ohm's law, circuits), Energy and Control Systems (introducing how electrical systems and automation work), and Data and Electronics (covering simple electronics and IT networks) (utdanning.no, n.d.[23]). Students spend extensive time in the school's workshop, and practical YFF projects might involve wiring a mock household circuit board or assembling a small electronics kit.

In the second year (Vg2) at school, students wanting to become electricians choose the Electrical Energy and Communication (Elenergi og Ekom) specialisation. Common core subjects continue (Norwegian, English, etc., slightly advanced from Vg1), and programme subjects now focus on electrical installations, automation systems, and electro-technical documentation. Students gain hands-on practice in wiring lighting systems, outlet circuits, fuse panels, fire alarm and telecom systems. Each student typically completes at least one extended practical assignment, and likely spend a period in a real electrical firm.

In years 3 and 4, students sign an apprenticeship contract with an electrical installation company. Over the next two years, they work full-time as an Electrician Apprentice, gradually taking on more complex tasks. The training supervisor at the company ensures the apprentice's work covers all competence goals (including newer technologies like smart-home systems).

Throughout this path, learning outcomes are defined centrally. For example, by the end of Vg2, a student is expected to "be able to plan and install a complete low-voltage electrical circuit with the appropriate components and protections, and test it for functionality and safety." By the end of the apprenticeship, they should "independently perform electrical installation work in accordance with current regulations, and troubleshoot and repair faults in electrical systems." These outcomes are verified in the fagprøve. Grading in school courses follows the 1-6 scale, while the apprenticeship phase culminates in a pass/fail (with merit designation possible) on the trade test (Cedefop, & Norwegian Directorate for Higher Education and Skills, 2023[2]).

Example 2: Healthcare, Childhood and Youth Development programme (Helse- og oppvekstfag) – Health Care Worker (Helsefagarbeider)

The Healthcare, Childhood and Youth Development programme is a broad VET track preparing students for occupations in health care, social care, and early childhood education. One major qualification from this programme is Health Care Worker (Helsefagarbeider), which trains students to become skilled auxiliary nurses/caregivers working in hospitals, nursing homes, home care, and other health services. The Health Care Worker pathway is structured as a 2+2 model and emphasises both the theoretical knowledge of basic nursing and extensive practical caregiving skills.

Annex Table 7.A.2 shows the structure of the Programme.

Annex Table 7.A.2. Structure of the Health Care Worker VET pathway (Health & Oppvekst programme)

Stage	Setting & Duration	Key Content and Activities
Vg1 – Health & Social Care (Helse- og oppvekst)	School, 1 year	– Core subjects (Norwegian, English, etc.), including topics like communication in Norwegian and basic health-related maths. – Programme subjects: Basic health knowledge (anatomy, hygiene, first aid), child development basics, nutrition and activity planning, ethics and communication skills (utdanning.no, 2025[12]). – Practical lessons in school lab: e.g. practice bed-making, measuring pulse/BP, CPR, assisting in play for children. – Short observational practice: visits to a kindergarten or elder care home (a few days).
Vg2 – Health Worker studies (Helsearbeiderfag)	School, 1 year	– Core subjects (incl. Health-related science basics). – Programme subjects: Nursing and care techniques (wound care, vital signs, patient hygiene), common diseases and medications, psychology and dementia care, communication and professional ethics (how to handle e.g. confused patients) (utdanning.no, 2025[12]). – **Clinical simulation** in school: students rotate in a mock ward setup performing care tasks on mannequins or peers. – **Internship**: ~8–10 weeks in total at healthcare institutions (e.g. nursing home, disability center). Students assist real patients under supervision – feeding, bathing, activities, etc. – They learn to write simple reports/observations.
Vg3–4 – Apprenticeship (Health Care Worker)	Workplaces (municipal care facilities, hospitals), 2 years	– Real work as apprentice: Year 1 often in nursing home or home care; Year 2 possibly in a different setting (hospital ward, rehabilitation center) for broad exposure. – Daily tasks: morning and evening routines with patients, therapeutic exercises, basic nursing (changing simple dressings, skin care), monitoring nutrition and elimination, engaging clients in social interaction (talking, reading, walking). – Apprentices gradually handle more on their own (by second year, they might be assigned their "own" patients on shifts). – Off-job courses: some apprentices attend a few days of theory refresh or specialised training (e.g. dementia communication workshop). – Keep logbook of care situations and reflections (e.g. how they handled a restless dementia patient).

In the first year (Vg1) at school, students get a foundation in both health care and child care topics. In addition to core subjects (Norwegian, English, etc.), programme subjects cover health promotion, communication and interaction, and practice of the profession (utdanning.no, 2025[12])In the school's simulation rooms, students learn basic nursing skills and about child development and caregiving for children. Many schools arrange for students to spend short stints at elder care centers or daycare centers to observe and try simple tasks. By year-end, students should demonstrate basic care competencies and understanding of ethics (like patient confidentiality and respect).

In the second year (Vg2) at school, programme subjects go deeper into the same subjects (utdanning.no, 2025[12]). Students spend a lot of time in the school's nursing lab simulating scenarios and also cover theory. Vg2 includes a substantial internship, with each student typically having a supervised practical placement of ~8-12 weeks at health institutions. Vg2 students often face a practical cross-subject exam at the end of the year, and must also have satisfactory evaluations from their internship mentors, in order to progress.

In years 3 and 4, the apprenticeships usually take place in the municipal health and care sector or hospitals. Many apprentices spend one year in an elder care/nursing home setting and another year perhaps in home-based care or a hospital ward, to get a breadth of experience (some counties arrange rotation between different sites). As an Apprentice Health Care Worker, they gradually take on the role of an auxiliary nurse, and learn administrative tasks. During apprenticeship, they must complete a set of compulsory learning modules defined by the curriculum. At the end of the two years, the apprentice faces the Health Care Worker trade examination (fagprøve). If the apprentice demonstrates competence across

the board, they pass and receive the Health Care Worker trade certificate (fagbrev). Newly qualified Health Care Workers are job-ready to staff nursing homes, home care services, and hospitals as supporting personnel, working under the supervision of nurses.

Example 3: Technology and Industrial Production (Teknologi- og industrifag) – Industrial Mechanic (Industrimekaniker)

The Technology and Industrial Production (TIP) programme trains students for a range of technical trades in manufacturing, machinery, and technical maintenance. One representative qualification from this track is Industrial Mechanic (Industrimekaniker), a skilled tradesperson who installs, maintains, and repairs industrial machinery and mechanical systems (sometimes also called an industrial maintenance technician). This pathway emphasises mechanical engineering fundamentals, machining, and maintenance practices.

Annex Table 7.A.3 shows the structure of the Programme.

Annex Table 7.A.3. Structure of the Industrial Mechanic VET pathway (Technology & Industrial programme)

Stage	Setting & Duration	Key Content and Activities
Vg1 – Technology and Industrial (Teknologi- og industrifag)	School, 1 year	– Core subjects (maths, science) with technical context (e.g. calculating forces). – Programme: Basic metalworking (filing, sawing, drilling by hand), introduction to machining (simple lathe operations), welding basics, reading simple mechanical drawings. – Projects: Make small tools or metal objects (e.g. center punch, toolbox) to learn measuring and fabrication. – Safety modules: machine safety, protective equipment, fire safety in workshop. – Possibly short industry visits.
Vg2 – Industrial Technology (Industriteknologi)	School, 1 year	– Advanced machining: operating lathes, milling machines, including basic CNC intro; precision measurement techniques. – Fabrication: welding (MIG/TIG), cutting (oxy-fuel, plasma), sheet metal work. – Machine assembly and maintenance: assembling bearings, shafts, gear systems; basics of hydraulics/pneumatics; use of diagrams/manuals; maintenance routines (lubrication, inspection). – CAD: create or interpret mechanical drawings in CAD software. – Work placement: typically 1–2 periods in a machine shop or maintenance dept – tasks like assisting in overhauling a pump or machining real components.
Vg3–4 – Apprenticeship (Industrial Mechanic)	Company, 2 years	– Apprenticeship largely in industrial settings: factories, maintenance service companies, marine workshops, etc. – Year 1: learns routine maintenance (lubricating machines, replacing standard parts like belts, filters), shadow mechanics on breakdown repairs. Does simpler machining tasks (making bushings, simple shafts as needed for repairs). Practices various welding repairs. – Year 2: tackles more complex tasks independently: e.g. alignment of machinery, troubleshooting a pneumatic system, interpreting a machine's technical documentation to plan a repair. Possibly rotates through machining section to deepen manufacturing skill and through field maintenance jobs (travel to sites for repair projects). – By end, apprentice can plan and execute a machine repair or part fabrication with minimal guidance. – Also covers theory in practice: calculating tolerances, selecting materials for replacement parts, etc., often learned organically through tasks.

In the first year (Vg1) at school, students take core subjects with some contextualisation (e.g. maths classes might include technical maths problems on gear ratios or material strength). Programme subjects may include production, technical drawing and CAD, and maintenance and quality. Students spend a lot of time in the workshop using tools and equipment. Many schools have partnerships with local industry – for instance, an excursion to a factory to see real production processes.

In the second year (Vg2) at school, students specialise, and may cover machine tool operations, assembly and maintenance, and industrial fabrication. Theory taught alongside includes mechanics (forces, gear calculations), basics of electricity (since industrial machines have motors and control systems), and reading detailed engineering drawings and maintenance manuals. Many programmes also introduce CAD/CAM. Industrial Tech students typically go on one or two practical placements in local industry. By end of Vg2, students should demonstrate they can work independently on basic machining tasks and understand maintenance routines, which qualifies them to enter apprenticeship.

In years 3 and 4, the student becomes an apprentice industrial mechanic, usually employed by a manufacturing company, engineering workshop, or maintenance contractor. Over two years, they train on the job to achieve full journeyman competence. As they advance, apprentices learn to interpret detailed technical drawings and maintenance documentation on their own, plan work sequences, and eventually take lead on simpler jobs. After about 24 months, the apprentice is ready for the Industrial Mechanic Fagprøve. The format can vary, but often the exam task is a combination project that covers manufacturing and maintenance. If everything is satisfactory, the apprentice passes and is awarded the Industrial Mechanic journeyman's certificate.

8 Vocational education and training in Singapore

Most vocational education and training (VET) students in Singapore start at the post-secondary non-tertiary level (ISCED 4) at 17 years old. The state-owned Institute of Technical Education (ITE) is one of Singapore's main VET providers, and currently offers 99 VET programmes each comprising core and electives courses, and life skills modules. Work-based learning is mandatory and typically takes place through internships or apprentice-style traineeships. Teachers ("Lecturers") in ITE require significant sectoral expertise and often receive their pedagogical training in-house at the ITE Academy. Governance is centralised under the Ministry of Education, but also involves the Ministry of Manpower and Ministry of Trade and Industry, among others. Public investment per learner in VET is relatively high and increasing in some areas, such as student development and support activities.

8.1. Place of VET in the overall education system and pathways into and after VET

Most students begin VET only at the post-secondary level (ISCED 4) in Singapore. At the secondary level, student undergo a general secondary education, with one-third of their curriculum spent on common curriculum subjects such as Art, Music and Physical Education. For academic subjects, students will have the flexibility to take subjects at three levels, known as G1, G2, and G3 (G3 being the most demanding). At the end of their secondary education, students will sit for the Singapore-Cambridge Secondary Education Certificate (SEC) examination, comprising different papers for each subject level.[1] After secondary education, students that took predominantly G2 and/or G1 subjects at the SEC can opt for vocational pathways. The vocational/professional route consists of post-secondary non-tertiary programmes (ISCED 4) and some tertiary programmes. Because secondary ends at 16-17 and the first dedicated VET provider (ITE) is post-secondary, the modal entry to initial VET is 17, a year later than in most European comparators.

However, Singapore offers VET from the lower secondary or equivalent level (ISCED 2) for a small group of students. Four schools - Crest Secondary School, Spectra Secondary School, Assumption Pathway School, and Northlight School offer VET programmes at this level. In particular, Crest and Spectra Secondary Schools, offer a hybrid VET pathway for students who are more inclined towards practice-oriented, hands-on learning, by allowing students to offer both academic and vocational subjects. At the end of their secondary education, students will sit the SEC examination and are offered the ITE Skills Subject Certificate, which is recognised for progression to ITE. Students at Assumption Pathway School and Northlight School do not sit for the SEC, but offer the ITE Skills Certificate, which is also recognised for progression to ITE.

The Institute of Technical Education (ITE) is one of the main providers of full-time VET at the ISCED 4 level in Singapore. It offers 99 full-time post-secondary VET programmes in six broad fields: 1) Applied & Health Sciences; 2) Business & Services; 3) Design & Media; 4) Electronics & Info-Comm Technology; 5) Engineering & Built Environment; and 6) Hospitality, Culinary & Services. These include 47 National ITE Certificate (Nitec) courses and 52 Higher National ITE Certificate (Higher Nitec) courses (Ministry of Education Singapore, n.d.[1]). In recent years, roughly 10 900 secondary school leavers per year have enrolled in ITE's Nitec or Higher Nitec courses (Ministry of Education Singapore, 2024[2]) – about one-quarter of the cohort. Most others progress to polytechnics or junior colleges.

There are various pathways into post-secondary VET at ITE (Box 8.1).

Box 8.1. See every learner: ITE VET programmes in Singapore

Singapore has various pathways into VET at ITE for students with varying academic backgrounds.

Enhanced Three-year Curricular Structure

Under the enhanced curricular structure, in Year 1, students will undertake broad-based foundation courses exposing them to fundamental skills needed for the relevant industry sector. In Years 2 and 3, they will then take more specialised modules, leading to a Higher Nitec certification. From 2028, students with eligible G2-equivalent SEC results may also apply for direct entry into Year 2 of any Higher Nitec courses.

4-year Higher Nitec courses with Enhanced Foundation Programme

For students who have limited SEC passes at G1 level (i.e. 0 or 1 SEC pass at G1 level), and require more time and support to build up a foundation for post-secondary VET, this programme begins with a Preparatory Year that will prepare students for Year 1 of the Higher Nitec course. In addition to hands-

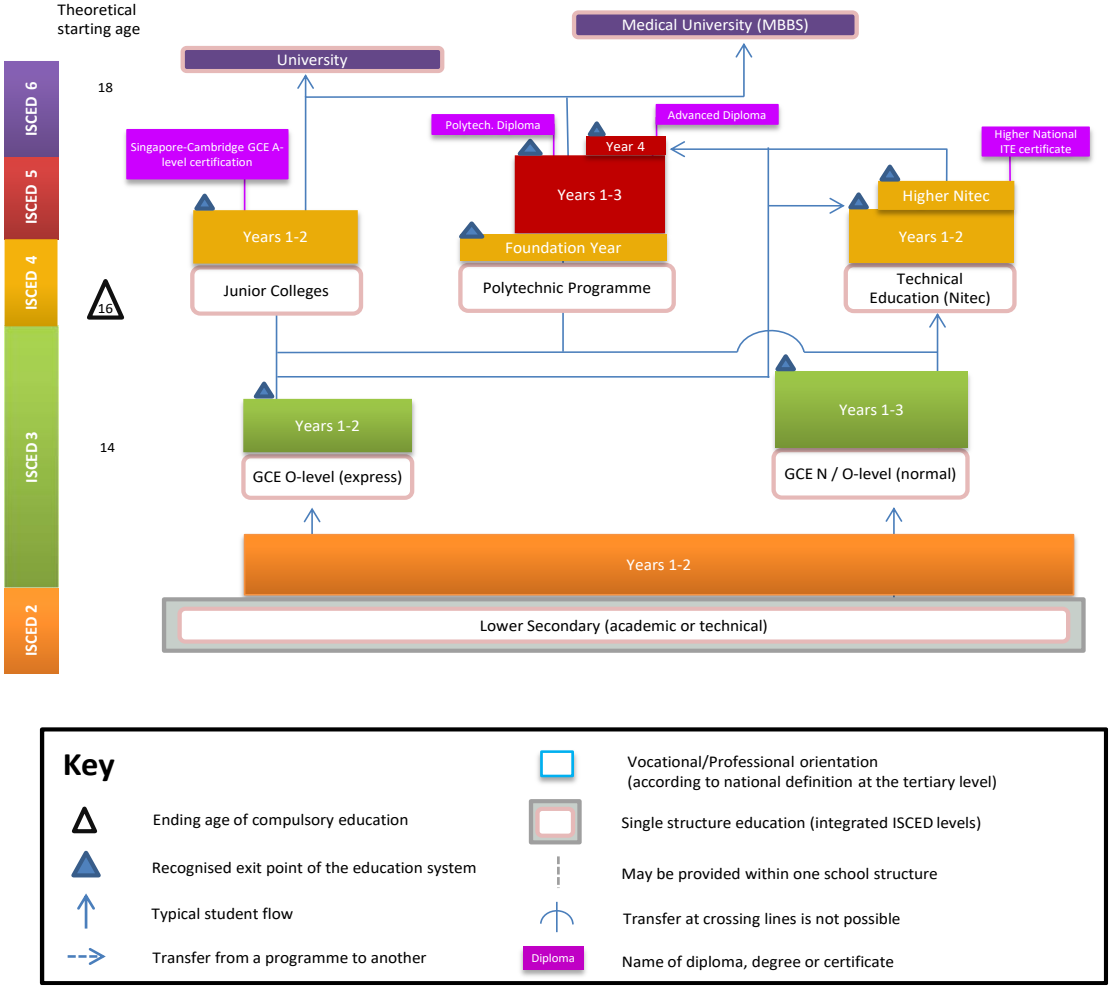
on training, both programmes will strengthen students' literacy and numeracy skills, and improve their self-confidence and motivation, preparing them for lifelong learning and success (Institution of Education, 2025[4]. This initiative was designed to improve employability of those with N(T)SEC qualifications at G1 level by giving them a shot at attaining complete level 4 qualification (Singapore Department of Statistics, 2020[3]).

Source: National Institute of Education Singapore (NIE), (2025[4]), National Institute of Education (NIE), www.ntu.edu.sg/nie.

After completing post-secondary VET programmes (ISCED 4) at ITE, graduates have pathways to either employment or further education. Many ITE graduates join the labour market in occupations ranging from nursing to automotive mechanics. An increasing share also upgrade to higher qualifications – for example, over 70% of Nitec graduates eventually pursue a Higher Nitec or other publicly-funded upgrading courses during their careers (Ministry of Education, Singapore, 2021[5]). High-performing ITE graduates may gain entry into polytechnic diploma programmes (some with course exemptions) and a minority even progress to university degrees in later years.

Unlike countries with parallel academic and vocational upper-secondary schools, Singapore's model channels students through a common secondary system and into post-secondary options (Figure 8.1).

Figure 8.1. The place of VET in Singapore's education system



Source: Adapted from UNESCO-UNEVOC (2021[6]), TVET Country Profile Singapore, https://unevoc.unesco.org/home/Dynamic+TVET+Country+Profiles/country=SGP .

8.2. Curriculum structure and assessment procedures

Post-secondary VET programmes in Singapore are centrally designed by ITE in consultation with industry. ITE's Nitec and Higher Nitec curricula are structured as modular courses that balance technical skills training, general education ("life skills"), and industry exposure.

In 2022, ITE rolled out the enhanced 3-year Higher Nitec programmes that integrate the Nitec and Higher Nitec phases into one continuous curriculum. The programme is on track to be fully implemented by 2026 with ITE taking in the last batch of students for Nitec courses in 2025 (Ministry of Education, Singapore, 2021[5]). Under this 3-year curricular structures, students undertake a broad-based Year 1 followed by more specialised training in Years 2-3, graduating with a Higher Nitec (see Section 8.3 and Section 8.7 for details). Regardless of programme length, ITE's curricula are outcomes-based and standardised nationally – the same syllabus is delivered across ITE colleges.

Each post-secondary VET course has a predefined set of core, life skills and elective modules:

- *Core Modules* impart occupational skills and knowledge for the specific trade or industry (for instance, a Nitec in Automotive Technology includes modules on Engine Maintenance, Chassis and Transmission, Electrical Systems, etc.).
- *Life Skills Modules* develop general employability skills (e.g. Communication, Teamwork, Entrepreneurship).
- *Elective Modules* which allow students some choice or specialisation within their field (The Institute of Technical Education, 2024[7]).

Post-secondary VET courses emphasise practical skills, and typically feature laboratory work, workshops or simulations, and hands-on projects. ITE works closely with industry through sectoral advisory committees to ensure module content stays current with technological developments. For instance, the curriculum for IT-related courses has evolved to include cloud computing and cybersecurity topics, reflecting industry needs (The Institute of Technical Education, n.d.[8]).

Post-secondary VET courses at ITE are defined by a set of required modules and training hours. For example, a 3-year Higher Nitec in Nursing consists of 67 credits worth of modules (the credits are proportionate to a module's learning volume) including cross-disciplinary core vocational modules, life skills modules (e.g. communication skills, digital literacy), and electives (Institute of Technical Education, n.d.[9]) (Ministry of Education, Singapore, 2025[10]). A full-time post-secondary VET course is intensive. Students attend ~35-40 hours of training per week, similar to a work schedule. Over two years, a Nitec student will receive roughly 1 800 to 2 000 hours of instruction (including classroom lessons, practical workshops, and on-site training) (SkillsFuture Singapore, 2025[11]). The enhanced 3-year Higher Nitec includes even more training hours, partly due to additional workplace attachment time (see Section 8.3). The heavy weighting on practical work is a hallmark of ITE curricula – by design, at least 70% of curriculum time is spent on practice-oriented learning (hands-on tasks, projects, lab exercises), with the remainder on theory and general subjects.

ITE employs a module-based continuous assessment system. Each module in a Nitec/Higher Nitec course is assessed individually, and students must pass all required modules to graduate. Assessments are typically a combination of written tests, practical exams (skills demonstrations), assignments, and projects. There are no high-stakes national exams analogous to A-Levels; instead, competency is measured module-by-module. Grades are awarded and contribute to a Grade Point Average (GPA). The GPA scale at ITE ranges from 4.0 (Grade A) to 0.0 (fail), similar to polytechnics (ASEM Education, 2020[12]). Importantly, some modules are graded on a Distinction/Pass/Fail basis or Pass/Fail only (especially life skills or industry attachment modules), whereas core technical modules usually carry letter grades that count towards the GPA (Institute of Technical Education, n.d.[13]). A student's final GPA is crucial for

progression opportunities – for example, a Higher Nitec student generally needs ≥3.5 GPA for assured polytechnic admission from 2027 onward (Chuan, 2023[14]) (Ministry of Education, Singapore, 2023[15]).

In practice, post-secondary VET students experience frequent assessments but with an emphasis on practical skill mastery. A typical module might have a skills test (where students perform a task in front of an assessor), a theory test, and a project or portfolio component. The final module grade reflects the student's demonstrated competencies. If a student fails a module, ITE allows re-assessment or the opportunity to retake the module in a subsequent term. The overall qualification (Nitec or Higher Nitec) is only awarded when all required modules and the internship component are successfully completed. In 2022, about 90% of ITE entrants completed their courses and graduated (Teng, 2022[16]), indicating the majority manage to meet the assessment requirements.

Upon graduation, post-secondary VET students receive a certificate and transcript listing all modules and grades. This detailed transcript aids in employment (employers can see specific skills learned) and further education admissions. Notably, polytechnics set specific GPA criteria for ITE graduates by course, and certain diplomas give credit exemptions to ITE graduates in related fields. For example, high-performing graduates from Engineering or IT related Higher Nitec can articulate into the second year of a mapped Polytechnic Diploma. Such arrangements underscore that the ITE curriculum is aligned enough with higher courses to allow advanced standing, though only top performers typically take that route.

8.3. Work-based learning (WBL) in post-secondary VET programmes

Work-based learning is a central component of Singapore's post-secondary VET programmes. All full-time post-secondary VET programmes include a mandatory industry attachment module, ensuring that students gain real-world experience in workplaces as part of their training. In ITE (ISCED 4) courses, this is analogous to the work-based learning in school-based VET seen in other countries. By policy, Higher Nitec students must complete a substantial on-the-job training stint to graduate. This typically takes the form of an Internship, usually in the final semester of the course. Under the 3-year enhanced curricula, there are two attachment periods totalling about 9 months (one ~3-month stint in Year 2 and a longer ~6-month stint in Year 3) (Ministry of Education, Singapore, 2021[5]). These attachments are arranged by ITE in collaboration with host companies.

During an internship, the training is structured with clear learning outcomes and mentorship, guided by both the employer and ITE. Each student gets a workplace supervisor, and an ITE lecturer oversees and liaises to ensure the student's tasks meet educational objectives. The student often keeps a logbook or project diary. At the end of the attachment, the student's performance is evaluated jointly by the employer and ITE, and a Pass/Fail grade (sometimes with "Distinction" for outstanding performance) is given for the attachment module.

ITE maintains oversight of WBL through periodic visits and evaluations. Employers hosting interns are briefed on training objectives and are expected to provide feedback. Many companies are repeat partners who have established training plans for ITE interns. For traineeships, employers must be approved by ITE and training plans are agreed upon at the outset. ITE lecturers (acting as trainee supervisors) conduct site visits to monitor progress. Since the final assessment responsibility lies with ITE, they ensure that the workplace learning meets competency standards. If an issue arises (e.g. an intern is not getting adequate learning opportunities), ITE can intervene or reassign the student.

Singapore has actively enhanced the quality of these internships in recent years under the national SkillsFuture movement. Initiatives termed "Enhanced Internships" were rolled out in ITE and polytechnics to extend attachment durations and improve mentoring. The focus is on giving students meaningful responsibilities rather than menial tasks. As a result, many post-secondary VET courses feature lengthened internship periods and more structured training plans with host companies (SkillsFuture

Singapore, 2025[11]). For instance, under the new 3-year Higher Nitec structure, students go on two attachments: an initial shorter placement to orient them to working life, and a second longer one where they perform more advanced duties building on prior learning (Ministry of Education, Singapore, 2021[5]).

Beyond internships embedded in full-time programmes, ITE also offers a Traineeship Scheme, which is an apprenticeship-style pathway. In the Traineeship mode, instead of attending ITE classes full-time, a student is employed by a company and receives on-the-job training while attending ITE on a part-time basis (usually 1-2 days of classes per week). Trainees are paid a training allowance by their employers (Institute of Technical Education, 2016[17]). This scheme especially suits those who prefer learning by doing in a real work environment or who have secured an employer sponsor. However, the majority of post-secondary VET students still pursue full-time campus-based programmes; the traineeship intake is a minority.

In addition to local industry placements, ITE also runs an Overseas Industrial Attachment Programme (OIAP) for a select number of students to intern abroad with foreign companies (Institute of Technical Education, 2023[18]).

8.4. Provider types

The landscape of VET providers in Singapore is straightforward and highly centralised. At the post-secondary non-tertiary level (ISCED 4), the Institute of Technical Education (ITE) is the primary provider of full-time vocational education. ITE is a public institution under the Ministry of Education, and it operates three main colleges: ITE College Central, ITE College East, and ITE College West. These were formed as part of ITE's "One ITE System, Three Colleges" model completed in 2013 (Loong, 2013[19]). Each college currently offers a range of Nitec and Higher Nitec courses, often with certain specialisation (e.g. ITE College East houses the national centres for nursing and hospitality courses, College West for automotive and business, etc.). Despite being on different campuses, the curriculum and certification are standardised across ITE – effectively making ITE one institution with multiple branches.

All ITE colleges are government-funded and administratively part of ITE. There are no privately-run technical colleges awarding Nitec/Higher Nitec. Private education providers in Singapore do offer vocational certificates or diplomas (for example, private commercial schools or industry-run academies), but these are outside the national ITE framework and typically not considered equivalent to ITE qualifications. Some private providers deliver Workforce Skills Qualifications (WSQ) courses under SkillsFuture Singapore, but WSQ certifications are modular and meant for workforce training, not initial full-time education. In terms of initial post-secondary VET for youths, ITE is the sole authorised institution conferring Nitec and Higher Nitec awards (Singapore Department of Statistics, 2020[3]).

In addition to ITE, the five public Polytechnics (Singapore, Nanyang, Temasek, Ngee Ann, and Republic Polytechnic) are important providers of professional education, offering Diplomas (ISCED 5). Polytechnics are regarded as part of Singapore's broader TVET system in terms of policy (since they produce industry-ready graduates), but formally they are tertiary institutions. Similar to ITE, polytechnics are Statutory Boards of MOE, and receive funding from the Government. Polytechnics and ITE have the autonomy to operate their own campuses and leadership. Annually, the polytechnics take in roughly 50% of the secondary cohort (about 20 000 students), whereas ITE takes in roughly 25% (about 10-11 000 students) (Ministry of Education Singapore, 2024[2]). Some ITE graduates also feed into polytechnics laterally.

Certain large companies run in-house accredited apprenticeship schemes (e.g. PSA's port training or SIAEC's aircraft maintenance training) but these usually lead to WSQ certificates or company credentials, not Nitec/Higher Nitec.

The role of industry in provision is mainly through partnership rather than as independent providers. Companies host internships and trainees, and many have training centres that co-ordinate with ITE for

students' on-site training. In the traineeship mode (Section 8.3), employers are co-deliverers of the curriculum (providing the work-based component), but the student is still officially a post-secondary VET student and ITE awards the certificate.

8.5. VET teachers and trainers' qualifications and professional development

Post-secondary VET educators in ITE Singapore are commonly referred to as *Lecturers*. Unlike some countries that distinguish "vocational instructors" from "academic teachers", ITE uses the title Lecturer for all teaching staff (a change implemented to professionalise the career, replacing the old term "Training Officers" (Institute of Technical Education, Singapore, 2012[20]). ITE lecturers for technical modules are expected to have both industry experience in their field and pedagogical competency to teach effectively. However, there is no nationwide teacher licensing specific to VET as there is for general education teachers. ITE as an institution sets its own hiring and training standards in line with civil service regulations.

Most ITE lecturers are recruited from industry. Applicants who have a relevant diploma or bachelor's degree in the field of instruction, plus several years of work experience may be eligible for an academic post in ITE.

Upon hiring, new ITE lecturers undergo an in-house teacher training programme. ITE has an internal teacher training wing (under the ITE Academy) that conducts a Pedagogical Training programme for lecturers. This is somewhat analogous to a post-graduate teaching certificate; it covers instructional strategies, assessment design, classroom management, and education psychology oriented towards technical education. New lecturers typically complete this training during their first year on the job, often through a part-time course while they begin teaching under mentorship. This system ensures a baseline of teaching competence without necessitating all hires to have formal education degrees beforehand.

ITE mandates that its lecturers continue to upgrade both their technical and teaching skills. Every lecturer has access to funded training opportunities annually. A significant form of CPD is the Industry Attachment for lecturers. ITE encourages lecturers to periodically return to industry for short stints to stay abreast of new technologies. There are also tie-ups with companies for lecturer externships and "train-the-trainer" programmes. ITE's staff development framework often sets aside a certain number of hours per year for training. Internally, ITE runs communities of practice and sharing sessions, where experienced lecturers mentor newer ones. Because ITE has three colleges, there are cross-college specialist teams for each department (e.g. all nursing lecturers across the colleges collaborate on curriculum and share best practices). This helps maintain consistency and allows pooling of expertise.

In sectors where it is harder to recruit lecturers, ITE hires adjunct instructors, engaging industry experts on a contract basis to teach specific modules or short courses. A significant portion of ITE's teaching hours is delivered by adjunct or associate trainers, especially in rapidly evolving fields where current industry practitioners can complement full-time staff. These adjuncts are vetted by ITE and usually also undergo some training orientation.

8.6. Governance

Governance of post-secondary VET in Singapore is centralised under national authorities, with significant industry involvement in advisory roles. The Ministry of Education (MOE) has overall responsibility for education and training policies. Within MOE, a dedicated division oversees the Institute of Technical Education and polytechnic sector. ITE itself is a statutory board – a semi-autonomous government agency established by law (the ITE Act) – which gives it operational flexibility while remaining accountable to MOE.

There are several levels of post-secondary VET governance in Singapore:

- **National policy and regulation:** MOE sets broad strategic directions for VET (e.g. initiatives like the SkillsFuture movement, new curricular structures, funding levels) and ensures alignment with national manpower needs. The Government, through MOE, funds ITE and polytechnics, and can mandate reforms. For instance, the move to a 3-year Higher Nitec was a joint policy decision between MOE and ITE in 2021 (Ministry of Education, Singapore, 2021[5]) as part of efforts to enhance applied education. There is also co-ordination with other ministries for specific sectors – e.g. the Ministry of Health works with MOE on nursing training expansion.
- **ITE management and industry input:** ITE is governed by a Board of Governors appointed by the Minister for Education. This board includes representatives from industry, academia, and government. Industry figures (CEOs, HR directors from key sectors) sit on the board to provide input on training relevance. The Board approves major policies, new course offerings, fee structures, etc., for ITE. In addition, ITE has numerous Industry Advisory Committees at the course or school level. For example, the School of Electronics and Info-Comm Technology in ITE might have an industry committee comprising IT companies and public agencies to advise on curriculum updates for IT courses. These bodies play a consultative role similar to programme councils in other countries – they do not make binding decisions but their recommendations influence course content and facility investments to meet industry standards.
- **Quality assurance and oversight:** Singapore does not have a separate inspectorate for VET; oversight is largely through MOE and ITE's internal quality management. MOE periodically reviews ITE's performance via KPIs (like graduate employment rate, student satisfaction surveys, etc.). ITE as a public institution is subject to public service audits (e.g. Auditor-General's Office for financial governance) and academic quality audits commissioned by MOE.
- **Local governance/autonomy:** Each of the three ITE colleges is led by a Principal. They have some autonomy in daily operations, industry partnerships, and student support initiatives, but curriculum and examinations are centrally set to maintain uniform standards. There are also local *course management teams* at each college that adapt delivery (e.g. scheduling, instructor assignments) as they see fit.
- **Industry and workforce agencies:** Beyond MOE, SkillsFuture Singapore (SSG) – a statutory board under the Ministry of Education – has a role in broader workforce development. SSG's mandate includes promoting lifelong learning and administering the WSQ system. While SSG does not govern ITE's initial training, it collaborates on initiatives such as Work-Study Diplomas (which are post-Higher Nitec apprenticeship-style programmes) and on aligning ITE curricula with the national Skills Frameworks for various industries. In governance terms, SSG ensures that continuing education and training (CET) is integrated, and ITE is actually a major provider of adult training courses as well (besides its full-time student mission).

8.7. Funding

Singapore's post-secondary VET system (ITE and polytechnics) is publicly funded. Key features of the funding model include full tuition subsidies for citizens, government development of training infrastructure, and various incentive schemes to encourage enrolment.

Government spending covers the majority of the costs of ITE education. In the fiscal year 2023/24, the recurrent expenditure per post-secondary VET student was around SGD 16 300 (approximately GBP 9 400) annually (Ministry of Education Singapore, n.d.[1]). This is comparable to per-student spending in academic secondary or polytechnic education. The figure includes instruction, training materials, student services, and administrative costs. It has risen over the years as ITE invested in modern training equipment and facilities (e.g. advanced manufacturing labs, simulation centres). Government development budgets

have funded ITE's new campus buildings and specialised workshops – the opening of ITE College Central's large campus in 2013 was a SGD 380 million project entirely funded by government capital grants (Loong, 2013[19]).

Post-secondary VET students pay only a nominal fee. Singapore Citizens enrolling in full-time Nitec or Higher Nitec programmes are charged tuition fees of roughly SGD 400-630 (GBP 230-360) per year after subsidy (Ngu, 2025[21]). The government subsidises over 90% of the true training cost for Singaporean students. These subsidies are provided directly to ITE, allowing it to charge low fees. Students can also use their Post-Secondary Edusave accounts (a government-provided education savings scheme) to offset fees, and there are bursaries and fee waivers for low-income students – meaning no student is turned away for inability to pay and ITE education is virtually free for those in financial need.

ITE's operating budget comes from MOE in the form of an annual block grant. This grant is determined by factors like enrolment numbers (MOE funds an agreed number of training places), the subject mix (engineering courses might be funded at a higher unit cost than business courses due to equipment needs), and performance indicators. There is also funding for expansion of courses in strategic sectors. For example, if the government prioritises increasing ICT skills, ITE may receive additional budget to expand ICT course capacity. Development funding (for campus upgrades, new equipment) is provided through separate development budgets and occasionally special grants. Notably, under SkillsFuture initiatives, some funding has been allocated to enhance internships – e.g. polytechnics and ITE received resources to implement the Enhanced Internships (to support longer attachments, mentor training etc.) (SkillsFuture Singapore, 2025[11]).

Employers hosting ITE interns generally do not receive direct public subsidies (unlike some European apprenticeship systems with training levies or grants). The government's approach is that the benefit of training and future recruitment incentivises employers. That said, for the Traineeship (apprenticeship) programmes, ITE co-funds certain components: for instance, ITE provides free off-job training and may give employers a small grant to support trainee development.

One initiative bridging initial and ongoing training is the SkillsFuture Earn-and-Learn Programme (now often branded as Work-Study Programme) where fresh ITE or poly grads get a sign-on incentive from the government to join a structured apprenticeship with an employer (with the employer also getting funding). This sits slightly outside the regular ITE funding but complements the transition to work.

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Annex 8.A. Examples of curriculum structure and assessment procedures for three ISCED 4 VET qualifications in Singapore

To illustrate how the above elements come together in practice, this annex presents three examples of current post-secondary VET qualifications (ISCED 4) in Singapore:

- Example 1: Nitec in Nursing.
- Example 2: Nitec in Automotive Technology (Light Vehicles).
- Example 3: Higher Nitec in Cyber & Network Security.

Each example includes an overview of the programme, its curriculum structure, work-based learning component, and progression opportunities. (Detailed module tables analogous to the Sweden chapter (Chapter 9) are not fully available publicly; hence descriptions are provided in lieu of tables.)

Example 1: Nitec in Nursing

The Nitec in Nursing is a 2-year full-time programme offered at ITE College East that prepares students to become Enrolled Nurses. It is accredited by the Singapore Nursing Board and graduates are eligible for registration as Enrolled Nurses (EN) (Institute of Technical Education, n.d.[9]), a professional qualification permitting them to work in hospitals, nursing homes, and other healthcare settings under the supervision of Registered Nurses. The programme takes in secondary leavers (mainly N(O)-Level holders or N(A) who did Sec 5).

The course comprises classroom lessons, practical skills lab training, and extensive clinical attachments. Students complete around 45 credits of core nursing modules, 10 credits of life skills, and 6 credits of electives (roughly 61 credits in total). Core modules include Anatomy & Physiology, Fundamentals of Nursing, Nursing Skills (covering procedures like wound dressing, administering injections, etc.), and Specialty Nursing (such as geriatric or mental health nursing). Life Skills modules cover communication (important for patient interaction) and teamwork. A unique aspect is the clinical simulation training – ITE's campus has simulated wards and mannequins where students practice before heading to real hospitals.

Clinical attachment is a major component. Over the 2 years, nursing students spend a total of 15 weeks (about 3-4 months) in supervised clinical placement at healthcare institutions (Lorraine Bunnag, n.d.[22]). In fact, some descriptions note *15 months* of "full-time training at ITE and a supervised clinical attachment," implying the programme integrates a long stretch of hospital training as part of the curriculum (Lorraine Bunnag, n.d.[22]). Typically, towards the end of Year 1, students go on a basic clinical posting (e.g. in a community hospital or nursing home) to practice fundamental skills. In Year 2, a longer attachment in an acute hospital ward is done, where students rotate through departments (medicine, surgery etc.) under the mentorship of clinical instructors. Performance during attachment is assessed (students must demonstrate competency in real patient care tasks).

Students must pass written exams in theoretical modules (like anatomy), practical skill assessments in the nursing labs (where they might be observed performing CPR or wound management on simulators), and clinical assessment during attachment. The clinical attachment is usually graded pass/fail; students maintain a log of skills performed and are evaluated by nurse mentors on professionalism and skill

execution. To graduate, they also undertake a final project/case study, integrating what they learned into a care plan for a patient case. The overall GPA is computed, but the primary goal is meeting competency standards for safe nursing practice. The Singapore Nursing Board may also require a licensing exam for EN registration (as of current policy, ENs register upon graduation without a separate exam, unlike Registered Nurses who take the SNB exam).

An Enrolled Nurse (with Nitec) can choose to further upgrade. With working experience and good performance, ENs can enrol in a Professional Conversion Programme (PCP) to become Registered Nurses, which typically means taking a 2-year full-time Polytechnic Diploma in Nursing (often with advanced standing). Indeed, beyond this Nitec, ITE now also offers a Higher Nitec in Nursing (3-year) programme for new cohorts, aimed to deepen skills (this effectively aligns with the new curricular structure where nursing students will spend 3 years and graduate with Higher Nitec, giving them a stronger foundation). For Nitec in Nursing graduates, Nanyang Polytechnic and Ngee Ann Polytechnic offer bridging courses to diploma. Many Enrolled Nurses work for a few years then pursue these pathways. The government also launched an ITE Work-Study Diploma in Nursing in recent years – a 2.5-year apprenticeship for existing Enrolled Nurses to earn a diploma while working (Loh, 2024[23]), enabling them to become Registered Nurses.

Example 2: Nitec in Automotive Technology (Light Vehicles)

Nitec in Automotive Technology is a 2-year course that produces automotive mechanics and technicians qualified to service and repair motor vehicles. It is offered at ITE College West and ITE College Central, with possible specialisations in Light Vehicles (cars and vans), Heavy Vehicles (trucks and buses), or Construction Equipment, depending on campus. For this example, we consider Light Vehicles, which is a common track. Graduates typically work as automotive technicians in vehicle service centres, dealerships, or fleet maintenance operations.

The course curriculum covers the major systems of modern vehicles. Core modules (about 46 credits) include Engine Technology, Drivetrain and Transmission, Electrical and Electronic Systems, Steering and Brake Systems, and Workshop Safety & Practices. Students learn to perform diagnostics and repair tasks on engines (e.g. overhauling an engine), maintain transmission systems (manual and automatic gearboxes), troubleshoot electrical issues (battery, ignition, lighting circuits), and ensure chassis components (brakes, suspension, steering) are in order. Practical training occurs in ITE's automotive workshops, which are equipped with actual cars, diagnostic scan tools, and even chassis dynamometers. Life Skills modules (9 credits) would cover communication (interacting with customers or supervisors) and teamwork (important in a workshop environment), and electives might include emerging areas like Hybrid Vehicle Technology or Air-conditioning maintenance.

In the second year, typically one full term (about 6 months) is an industry attachment at a car workshop or dealership service centre. During this internship, students work as apprentice mechanics – performing basic servicing (oil changes, tyre rotation), assisting senior technicians in repairs, and gradually handling more complex tasks like engine tune-ups or computer diagnostics, under supervision. ITE works with major automotive companies (e.g. Toyota's distributor, public bus companies, etc.) to place students. Given Singapore's industry, many attachments are at authorised service centres of popular car brands. This exposure is crucial for students to experience real-world workflow, customer service aspects, and to practice diagnostics on a variety of car models. Their on-job performance is monitored by a company mentor and an ITE supervisor. Many students get to experience working with advanced diagnostic software and tools that ITE's campus might not have, which updates their skills.

Modular exams include written tests on automotive theory (e.g. understanding of engine thermodynamics, electrical schematics) and practical tests. For instance, a practical exam may require the student to diagnose and fix a fault planted in a vehicle (like a misfiring engine or malfunctioning brake). They are

evaluated on systematic troubleshooting approach, use of tools, and successful resolution of the issue. Safety practices are strictly assessed – students must demonstrate proper use of hoists, jack stands, electrical safety when working on vehicle electronics, etc. The internship is assessed via feedback; students often have to document cases of maintenance they performed during attachment. There is no single "final exam"; rather, continuous assessments ensure students have met competency in each skill area. Typically, by graduation, a student must have successfully completed a capstone project such as fully servicing a vehicle to roadworthy condition or presenting an overhaul of a component. Module grades contribute to a GPA, which is crucial if they want to pursue further studies.

With a Nitec in Automotive Technology, graduates can start work as junior technicians. There is strong demand – automotive firms often hire directly from ITE. For those who excel (GPA ≥3.0), an option is to further their studies. ITE itself offers a unique progression: the Technical Engineer Diploma (TED) in Automotive Engineering, a 2-year work-study programme conducted jointly with Germany's Ministry of Education (a heritage of collaboration, often referred to as a "certified technician" programme). Nitec graduates with good grades can apply and, as noted in course materials, a GPA ≥3.0 allows application to the TED without needing Higher Nitec (Institute of Technical Education, n.d.[24]). Alternatively, graduates can do a 2-year Higher Nitec in Technology – Automotive Engineering (if available) or switch to a related Higher Nitec like Mechanical Engineering. Some also qualify for polytechnic diplomas in engineering fields; for instance, a few might progress to a Polytechnic Diploma in Mechanical Engineering or Automotive Engineering (though direct poly admission for Nitec holders usually requires excellent GPA). The more common path is entering the workforce and potentially returning later for part-time courses (ITE offers specialist Nitec for working adults, and there are manufacturer training certifications too).

Example 3: Higher Nitec in Cyber & Network Security

Higher Nitec in Cyber & Network Security is a 2-3 year full-time programme that prepares students for entry-level roles in cybersecurity and network administration. It is offered at ITE College East and ITE College Central. Graduates can work as security operations centre (SOC) analysts, network support technicians, or IT infrastructure specialists.

This course reflects Singapore's focus on info-communications technology. The curriculum blends networking fundamentals with cybersecurity specific skills. Key modules include: Network Fundamentals (covering setup and troubleshooting of wired and wireless networks), Server Administration (managing Windows/Linux servers), Cyber Security Essentials (covering concepts of threats, vulnerabilities, cryptography), Ethical Hacking and Penetration Testing (students learn to use tools to simulate attacks and find weaknesses), and Security Management (implementing firewalls, security policies). Students will learn to provide technical support for servers and networks as well as perform vulnerability scanning and basic incident response. There is a strong practical element – ITE's labs have setups of enterprise network equipment (routers, switches) and cyber-range environments where students practice defending against simulated cyber-attacks. Supporting modules in the Higher Nitec also cover cloud technology and scripting (Python or shell scripting) to automate tasks. General modules on project management and professionalism are included too, as these students may work in corporate IT teams.

In the final semester, students typically undergo a 3-4 month industry attachment in an IT role. They might be placed in a company's IT department, a cybersecurity firm, or a government IT agency. During attachment, tasks could include monitoring network systems, analysing security logs, assisting in tech support, or even participating in cybersecurity exercises. Given the sensitive nature of cybersecurity, some students might be assigned to more general network admin tasks initially, but they get exposure to real network infrastructures. With the new 3-year Higher Nitec structure being phased in, it's planned that students will do two attachments: one in Year 2 (to learn general IT operations) and one in Year 3 (focused

on security operations) (Ministry of Education, Singapore, 2021[5]). This extended WBL aims to build competence progressively.

Besides classroom tests on theory (e.g. network protocols, cybersecurity concepts), a lot of assessment is practical. For example, in a capstone project, students may be tasked to set up a secure network for a hypothetical company: configuring switches and routers, setting up a server with defined user accounts and permissions, implementing a firewall, and then conducting a vulnerability scan to check for weaknesses. They must document this and present it, simulating a real client presentation. There may also be timed lab tests: e.g. given a misconfigured network, fix it and ensure all PCs regain internet connectivity and required security settings within two hours. For the cybersecurity modules, a common assessment is a "red team-blue team" exercise – where some students attempt to infiltrate a prepared system and others defend, and each is evaluated on their techniques. Throughout, emphasis is on troubleshooting, following security procedures, and documenting actions (since in cybersecurity, audit trails are important). The module on Ethical Hacking is assessed by how well students can follow a methodology to legally penetrate a system and report vulnerabilities ethically. Overall, the Higher Nitec requires passing all modules plus the internship. Grading is by GPA and students often aim for at least 2.0 if they intend to move into polytechnic, since that's typically the minimum for related diploma courses (Institute of Technical Education, n.d.[25]).

This Higher Nitec is positioned as a launchpad into either the workforce or further study. On the employment side, Singapore has high demand for cybersecurity talent, so many grads take up roles as network/systems technicians with security skills or junior cybersecurity analysts. For further studies, graduates with ≥2.0 GPA can apply to polytechnic diplomas in related fields such as Cybersecurity & Digital Forensics, Network Systems & Security, or Information Technology (Institute of Technical Education, n.d.[25]).They typically enter the first year of the 3-year diploma, though a few polytechnics may grant module exemptions if the content overlaps (not guaranteed). Given the field's dynamic nature, quite a number of Higher Nitec graduates do pursue polytechnic to deepen their expertise. Another pathway is ITE's own Work-Study Diploma (WSDip) in Cyber Security & Forensics, a 2.5-year programme where the student is employed and simultaneously attains a diploma. This WSDip is co-developed with industry and allows further specialisation while working (for example, in a security operations centre). Thus, a student could graduate with Higher Nitec, get hired by a cybersecurity firm that sponsors them through the Work-Study Diploma, and emerge as an even more qualified Cybersecurity Associate with a diploma.

Note

[1] This is applicable to students from the 2024 Secondary 1 cohort, following Singapore's implementation of Full Subject-Based Banding. Previously, students were assigned to different educational streams, i.e. Normal (Technical), Normal (Academic), and Express. The G1, G2, and G3 subject levels are broadly mapped to the previous educational streams but provide greater subject-level flexibility. Nevertheless, under the previous stream construct, formal VET only began at the post-secondary level.

9 Vocational education and training in Sweden

Upper-secondary vocational education and training (VET) in Sweden occurs after compulsory education and comprises 12 vocational programmes. Each programme is based on high-level national curricula and competence profiles designed with social partner input, which are translated into more detailed programme and diploma goals and subject syllabi. In school-based VET, a minimum of 15 weeks of study time must be spent in work-based learning (WBL). Upper-secondary VET is provided by municipal schools, independent providers and specialised industry schools. The VET workforce includes foundation subject teachers and vocational teachers, each with distinct qualification requirements. Centralised curriculum and legal frameworks are delivered de-centrally by municipalities and independent providers, also involving national and local programme councils with employer and union participation. Sweden's upper-secondary VET is entirely publicly funded and free for students.

9.1. Place of VET in the overall education system and pathways into and after VET

Sweden's upper-secondary education (*gymnasieskola*) is voluntary and typically starts at age 16 after nine years of compulsory schooling (*grundskola*). It comprises 18 national programmes: 12 vocational programmes (*yrkesprogram*) and 6 higher education preparatory programmes (*högskoleförberedande program*) (Cedefop, & Skolverket (Swedish National Agency for Education), 2023[1]). The 12 vocational programmes are (1) Child and Recreation Programme; (2) Building and Construction Programme; (3) Electricity and Energy Construction Programme; (4) Vehicle and Transport Programme; (5) Handicraft Programme (e.g Hairdresser); (6) Sales and Service Programme; (7) Hotel and Tourism Programme; (8) Industrial Technology Programme; (9) Natural Resources Programme; (10) Restaurant Management and Food Programme; (11) HVAC and Property Maintenance Programme; and (12) Health and Social Care Programme. These programmes support occupational preparation across a broad spectrum of sectors and offer a nationally recognised vocational upper-secondary diploma upon completion.

As of 2023/24, approximately 367 000 students are enrolled in upper-secondary education (all programmes) across Sweden (Sveriges oficiella statistik, 2024[2]). In 2021, one-third of 15-19 year-old students in upper-secondary education pursued vocational programmes, while two-thirds choose academic tracks (OECD, 2023[3]). Vocational programmes (ISCED 353, EQF level 4) run for three years and lead to an upper-secondary vocational diploma (Cedefop, & Skolverket (Swedish National Agency for Education), 2023[1]). They prepare students for direct entry into the labour market, as well as further studies.

Admission into upper-secondary VET requires passing grades (A–E) in Swedish or Swedish as a Second Language, English, mathematics, and five other subjects (compared to nine other subjects for general upper secondary). Students who lack eligibility can attend one of four introductory programmes (*introduktionsprogram*) to reach the required level (Cedefop, & Skolverket (Swedish National Agency for Education), 2023[1]) (Box 9.1).

Box 9.1. See every learner: Alternative pathways into VET in Sweden

Sweden offers four introductory programmes (*Introduktionsprogram* [IM]) (lasting 1-3 years) to give pupils who finish compulsory school without the grades required for a national upper-secondary programme a second chance to progress or work. All IMs require an individual study plan, systematic career guidance and guaranteed access to student-health services (Skolverket (Swedish National Agency for Education), 2025[4]). Municipalities may also integrate work-experience placements and welfare support (e.g., free lunches for all students, travel cards for those far from the place of learning), which can benefit low-income families in particular (Sveriges Kommuner och Regioner, 2024[5]). IMs do not confer a VET qualification but can enable transfer into a national VET programme or entry into jobs as semi-skilled workers.

Programme-oriented option (Programinriktat val [IMV])

IMV is a bridge allowing a pupil who is missing one core-subject to enrol and transfer into their preferred programme when the subject is passed (Gymnasie Guiden, 2025[6]). Schools may open IMV both for groups and for single learners, making it a flexible on-ramp for low achievers who nevertheless have clear vocational ambitions. One follow-up study shows IMV participants record the highest transition rate to national VET and higher employment than peers in more general IMs. (Skolverket (Swedish National Agency for Education), 2025[7]).

Vocational introduction (Reintroduction [IMY])

IMY blends basic subjects with workplace training aimed at semi-skilled jobs or later entry to a vocational programme. Municipalities must also offer it to pupils from special needs schools, broadening access for disadvantaged youth with learning difficulties. IMY graduates have a significantly higher probability of being employed within two years than those graduating more academic IMs (Skolverket (Swedish National Agency for Education), 2025[7]).

Individual alternative (Individuellt alternativ [IMA])

IMA is the most personalised track. Schools assemble a 1-3-year plan mixing basic courses, therapeutic support, vocational tasters and social-skills modules for pupils lacking several passes or facing complex barriers such as truancy, neuro-divergence or family poverty (Gymnasieantagningen Storsthlm, 2025[8]). Close mentoring and a compulsory study-plan review every term help rebuild study habits and self-efficacy before students step into IMY, IMV or adult education (Skolverket (Swedish National Agency for Education), 2025[7]).

Language introduction (Språkintroduktion [IMS])

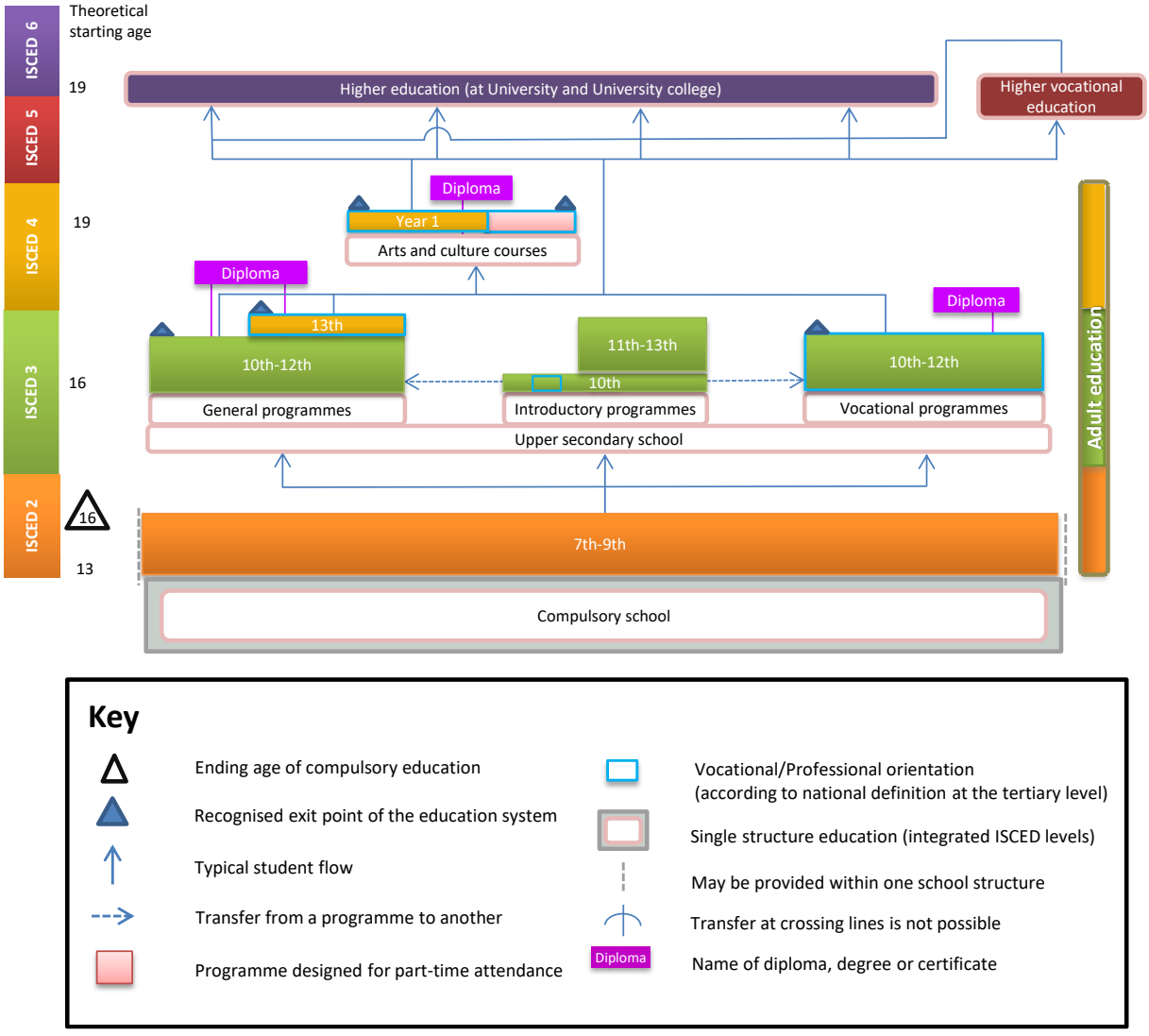
IMS targets newly arrived migrants aged up to 19 who need intensive Swedish as a Second Language (SVA) before regular VET study (Skolverket (Swedish National Agency for Education), 2025[7]; Gymnasieantagningen Storsthlm, 2025[8]). Provision can last three years and includes mathematics, English and guidance on Swedish society, with individual pacing so literate and illiterate refugees alike can advance (Skolverket (Swedish National Agency for Education), 2025[9]).

Source: Gymnasie Guiden (2025[6]), Programinriktatval, www.gymnasieguiden.se/gymnasieprogram/IMV; Skolverket (Swedish National Agency for Education) (2025[7]), Introduktionsprogram (Introductory programme), www.skolverket.se/undervisning/gymnasieskolan/introduktionsprogram; Gymnasieantagningen Storsthlm (2025[8]), Gymnasieprogram, https://gymnasieantagningen.storsthlm.se/gymnasieprogram/introduktionsprogram/.

After completing ISCED 3 VET, graduates have multiple pathways. Many enter the workforce directly – in sectors like construction or care, a large majority secure jobs within a few years of graduation. Others pursue further education and training. Until recently, vocational students did not automatically qualify for university, but had to take additional courses to do so. In 2022 only 36% of vocational graduates had taken the additional courses to obtain university eligibility (Skolverket (Swedish National Agency for Education), 2024[10]). However, a reform in 2023 introduced *grundläggande högskolebehörighet* (general eligibility for higher education) into all VET programmes by default. This means upper-intermediate courses in Swedish and English are now included in the subject syllabi, increasing the course-load of VET programmes. However, students may opt out of the extra university-preparatory courses if they prefer (instead of having to opt in as before) and still earn a vocational diploma. With or without extra university preparatory courses, VET graduates also have the option to attend higher vocational education (HVE delivered by *yrkeshögskola*, ISCED 4/5) which offers advanced VET certificates and diplomas in specific fields (Cedefop, 2023[11]).

Figure 9.1 shows educational pathways into and after ISCED 3 VET in Sweden.

Figure 9.1. The place of ISCED 3 VET in Sweden's education system



Note: The reference year is 2023 (school year 2022/2023 in the northern hemisphere). Theoretical starting ages refer to the ages as established by law and regulation for the entry to a programme; actual starting ages may vary depending on the programme.
Source: Adapted from OECD (2023[12]), "Diagram of the education system: Sweden", *OECD Education GPS*, https://gpseducation.oecd.org/CountryProfile?primaryCountry=SWE.

9.2. Curriculum structure and assessment procedures

Upper-secondary VET programmes in Sweden are based on high-level national curricula (aims and goals for all programmes), competence profiles (structured descriptions of knowledge, skills and competence graduates require for an occupation), programme and diploma goals (Examensmål) and subject syllabi (Ämnesplan) aligned with curricula and competence profiles (OECD, 2022[13]). The competence profiles are not legally binding but are advisory tools developed with input from national programme councils (nationella programråd) composed of employer & union representatives. The programme and diploma goals express learning outcomes in terms of learners' 'ability to', 'knowledge about', 'understanding of' and 'skills in', and these become more demanding at higher grades (Cedefop, & Skolverket (Swedish National Agency for Education), 2023[1]). Subject syllabi for specific courses describe the aims, core content and

knowledge requirements, the last of which has grade-linked descriptors (A–E), providing a grading scale for assessment. The mandatory 100-credit diploma project (*Gymnasiearbete*) undertaken in the third (final) year must demonstrate that the student achieves the overall programme goals.

Upper-secondary VET programmes in Sweden span three years and are built on nationally-defined courses with fixed credit values. A full programme involves 2 500 credits of coursework (which corresponds to three years of full-time study), though with the new higher education option the subject syllabi can extend up to 2 700-2 800 credits if all additional courses are taken (Skolverket (Swedish National Agency for Education), 2025[7]). Within the school-based VET pathway, a minimum of 15 weeks must be allocated to workplace training. All national programmes – academic and vocational – share a common structure defined centrally by the Swedish National Agency for Education (*Skolverket*) (Cedefop, & Skolverket (Swedish National Agency for Education), 2023[1]). This structure comprises:

- *Gymnasiegemensamma ämnen* (Foundation subjects): These are compulsory for all students and ensure all students acquire fundamental competencies and soft skills (communication, civic knowledge, etc.). They include Swedish (or Swedish as a second language), English, Mathematics, Science, Social Studies, Religion, History, and Physical Education. In vocational programmes, the foundation subjects have historically included a smaller subset of courses (e.g. Maths 1a, English 5, etc.). After 2023, vocational students take up to 900 credits in foundation subjects (instead of 600) if they follow the added Swedish 2, 3 and English 6 for higher education eligibility (gymnasium.se, 2025[14]).
- *Programgemensamma karaktärsämnen* (Programme-specific subjects): Each VET programme has foundational vocational subjects common to the field to establish core vocational competencies before specialisation, amounting to around 400 credits (Skolverket (Swedish National Agency for Education), 2025[15]). These introduce students to the knowledge and skills of the occupational area.
- *Inriktningar* (Orientations/Specialisations): Most vocational programmes offer one or more orientations that students choose, typically from the second year. An orientation is a set of courses (usually 400-600 credits) focusing on a sub-field or trade within the broader programme (Skolverket (Swedish National Agency for Education), 2025[4]).
- *Programfördjupningar* (Programme augmentation/deepening courses): These are additional elective vocational courses within the programme framework, typically 500-800 credits available, of which students choose a subset (often ~300 credits) to deepen or broaden their competencies (Skolverket (Swedish National Agency for Education), 2025[4]). The National Agency specifies which courses can be offered as programfördjupning for each programme. Schools often use these to cater to local industry needs or student interests.
- *Individuellt val* (Individual options): All students, including VET students, have 200 credits for free electives, which they can use to take courses of personal interest. They may choose to deepen vocational skills or take additional academic subjects.
- *Gymnasiearbete* (Diploma project): In the final year, every student must complete a major project of 100 credits related to their field. In vocational programmes this *gymnasiearbete* typically takes the form of a practical task or investigation demonstrating the student's vocational skills and knowledge in a real or simulated work context. The diploma project is assessed on a pass/fail basis and a "pass" is required for graduation.

While vocational programmes are built upon nationally-defined courses with fixed credit values, head-teachers and providers have flexibility with regards to which elective blocks (*programfördjupning and individuellt val*), orientations (*inriktningar*), and programme-deepening courses to offer learners (see Section 9.6).

Assessment in upper-secondary VET is course-based and criterion-referenced. Teachers assess students continuously through assignments, practical tests, and exams, and issue grades at the end of each course. Failing the diploma project or too many courses means the student receives a study certificate but not an official diploma. According to national statistics, about 79% of students complete a full upper-secondary diploma within three years (a figure that has been rising over the last decade) (Skolverket (Swedish National Agency for Education), 2024[10]). Those who do not finish in three years can continue a fourth year, switch to adult education, or receive partial study certificates. Students starting their upper-secondary education from August 2025 will have a revised grading system. Grades will be set after each level in a subject, but the grade in a higher course will cover both the higher and the lower course. As a consequence, all subjects and courses have been revised to fit in a progression model.

There are no national final exams in vocational subjects, but students sit national standardised tests in the foundation subjects (Swedish, English, and Mathematics). Teachers use these tests as one component of course assessment for those subjects. Vocational competence is primarily assessed by the school's own teachers according to the knowledge requirements in the subject syllabi, which have grade-linked descriptors that provide an A–E grading scale for assessment. To ensure reliability and relevance, many programmes involve employers in assessment: for example, during work-based learning stints, workplace trainers give feedback on the student's performance which the teacher considers when grading. In some craft-oriented programmes, there are industry certification tests that students take toward the end of their studies, which are separate from and additional to the state diploma (e.g. the ECY-certifikat in the Electricity & Energy programme). The regular school assessment, however, remains centred on course grades and the diploma project.

9.3. Work-based learning (WBL) in school-based programmes

Work-based learning is a central component of Swedish VET at ISCED level 3 and involves (parts of) courses being delivered in a workplace(s). All school-based vocational programmes include mandatory workplace training periods known as *Arbetsplatsförlagt lärande (APL)*. By regulation, a minimum of 15 weeks of a vocational student's study time must be spent in authentic work settings for a standard 3-year programme (Skolverket, n.d.[16]). This amounts to around 15% of the total instructional time, although many schools and programmes exceed this minimum. Schools usually spread these workplace periods across the second and third year (some programmes do a few weeks each term; others might have a longer block each year). Each student's WBL is structured via a formal agreement between the school and the host company. The programme and diploma goals (*Examensmål*) and subject syllabi also apply to WBL, helping to ensure WBL is not mere menial work but helps to develop the abilities, knowledge, understanding and skills defined for the programme. A workplace trainer is appointed to guide and monitor the student. This trainer collaborates with the school's vocational teacher – together they plan the tasks the student should learn and later evaluate the student's performance. However, assessment responsibility rests with the school teacher, since grades are an educational matter (Cedefop, 2023[11]). To support quality, the National Agency for Education provides guidance and training for workplace mentors.

In addition to the standard school-based VET with WBL, students can also choose an apprenticeship pathway (*gymnasial lärlingsutbildning*) following the same curricula, with over half the training at workplaces (OECD, 2022[13]). Sweden offers a formal apprenticeship track as an alternative way to complete a vocational programme. Introduced nationally in 2011, the apprenticeship pathway offers the same programmes, diplomas and subject syllabi as school-based VET, but over 50% of the education is conducted at one or more workplaces. Students can opt into apprenticeship in the first, second, or even third year of their programme, depending on local arrangements, at which point the 50% WBL requirement kicks in. Once a student becomes an apprentice, a training contract is drawn up involving the student, school, and employer, specifying how the on-the-job training is organised and which skills are to be mastered on site. In 2014, Sweden established a dedicated *Apprenticeship Centre*

(Lärlingscentrum) under Skolverket to promote apprenticeships and assist schools and employers with arranging high-quality WBL. The centre also offers courses for apprentice supervisors and encourages regional networks between schools and local industries (Cedefop, 2023[11]).

By 2022/23, roughly 13.2% of all upper-secondary VET students (about 14 000 learners) were apprentices. The government provides a targeted state grant to education providers for each apprentice and apprentices themselves are eligible for a special study allowance. Apprentices can receive an apprenticeship allowance from the state or be directly employed under a "Upper Secondary Apprentice Employment" contract (*Gymnasial lärlingsanställning, GLA*), whereby an employer pays a training wage (Cedefop, 2023[11]). Financial incentives are also available to employers (see Section 9.7).

Sweden's approach to WBL emphasises close school-employer collaboration. Each school is required to set up one or several local programme councils (*lokala programråd*) that include representatives of the local working life for their vocational programmes (Cedefop, 2023[11]). These councils often assist in finding WBL placements, ensuring training equipment is up to industry standard, and sometimes in evaluating students' final projects. The Schools Inspectorate (*Skolinspektionen*) conducts regular supervision of how schools manage workplace training.

9.4. Provider types

Upper-secondary VET in Sweden is offered by municipal and specialised providers following national curricula. Municipalities ensure access, often co-operating regionally, while independent schools – publicly funded and tuition-free – serve about a third of VET students with specialised programmes (OECD, 2022[13]).

Municipalities (*kommuner*) bear the statutory responsibility to ensure availability of upper-secondary education for their resident youth (Sveriges Kommuner och Regioner, 2024[5]) and most students attend municipally-run schools (*Kommunal gymnasieskola*). These schools are financed by municipal budgets (with state grants and tax equalisation, see Section 9.7. Funding) and are governed by elected local school boards. In some cases, county councils (*regioner*) act as education providers – historically, county authorities ran certain vocational schools like healthcare training centres and agricultural schools. Today, most of those have been transferred to municipalities. A municipality may fulfil its duty to provide upper-secondary VET by running a gymnasium school(s) of its own or in collaboration with neighbouring municipalities, or by funding places at independent schools chosen by students. Many smaller municipalities join regional consortia (*gymnasieförbund*) to jointly operate schools and share resources.

Public providers have an obligation to offer a broad range of programmes to meet student demand and regional labour needs. Not every municipality can offer all 12 vocational programmes, so students often commute or relocate to attend the programme of their choice. If a student enrolls in a public or private school outside their home municipality, the home municipality must fund their education via a set national "voucher" amount (or via a regional agreement).

A significant portion of VET is delivered by independent providers (*Fristående gymnasieskola*). These are typically privately owned schools (by companies, foundations, or non-profits) that are approved by the Schools Inspectorate to offer national programmes and receive public funding for each student. Many of these schools specialise in certain fields or pedagogical models. For example, there are niche private schools focusing only on, say, *vehicles and transport* or *IT and media*. Independent providers must adhere to the same programme and diploma goals (*Examensmål*) and subject syllabi (*Ämnesplan*), and their students sit the same national tests, ensuring comparability of outcomes. Independent schools are free for students and cannot charge tuition – they operate on the public funding plus any private sponsorships. By 2024/25, Sweden had 459 independent upper-secondary school units, representing about 36% of all upper-secondary schools (Riksförbund, 2023[17]). In terms of student enrolment, roughly 31% of secondary

students (about 114 000 out of 364 000) attend independent schools (Sveriges Kommuner och Regioner, 2024[5]).

Sweden also has a small number of industry schools (*Branschskola*) - specialised facilities jointly run by municipalities (or consortiums of municipalities) and industry to serve a whole region. These focus on fields with expensive equipment or very specialised training (like mining or aviation). It also has special national vocational arts schools. For example, some programmes like *yrkesdansarutbildningen* (professional dance) are overseen by national bodies (e.g. the Arts federation) in collaboration with school providers and grant vocational ISCED 3 qualifications (e.g. dance as a vocational arts diploma).

Finally, Sweden has voluntary, regionally governed quality-assurance networks ("college" brands) for engineering/industrial technology and health & social care respectively. They certify existing schools (public or independent) whose programmes meet industry-defined standards. For instance, Teknikcollege is a collaborative framework where clusters of schools and industries in a region co-ordinate engineering and industrial tech education, often sharing facilities and internship arrangements (Cedefop, 2023[11]).

Although outside the youth school system, municipal adult education (*Komvux*) and folk high schools also deliver ISCED 3 vocational courses, often using the same subject syllabi. For example, an adult can study a *yrkespaket* (vocational package – a cluster of courses recommended by programme councils) in plumbing or caregiving via Komvux. These programmes are financed and organised separately (under adult education legislation) but underscore that VET qualifications can be obtained beyond the age of 19 in Sweden's highly permeable system (Cedefop, 2023[11]; Cedefop, & Skolverket (Swedish National Agency for Education), 2023[1]).

9.5. VET teachers and trainers' qualifications and professional development

In Sweden, vocational teachers combine advanced industry qualifications with specialised pedagogical training and official certification. To address teacher shortages, flexible education pathways crediting professional experience have been introduced, alongside efforts to attract professionals from higher technical education fields. Continuous professional development, including industry externships and collaboration with employers, ensures teachers remain updated with evolving workplace technologies and practices (OECD, 2021[18]; OECD, 2023[19]).

The vocational education workforce in Sweden is broadly divided into two categories: subject teachers (for foundation subjects like languages, maths, etc.) and vocational teachers (for the practical and vocational subjects) (Cedefop, 2023[11]). Each group has distinct qualification requirements, though both ultimately must obtain teaching certification (*lärarlegitimation*).

To teach a vocational subject in upper-secondary VET, an individual typically needs: (a) a relevant vocational qualification or mastery in the occupational field, and (b) pedagogical training at tertiary level in the form of a vocational teacher education programme. The Swedish Education Act stipulates that a vocational teacher should have at least one level higher qualification than the level at which they teach. In practice, since upper-secondary VET corresponds to *SeQF level 4* (EQF 4), a vocational teacher is expected to have a qualification at *SeQF level 5* or higher in that field. Often this is not a formal degree but a journey-level craft certificate or similar advanced credential. In addition, professional work experience (usually a minimum of a few years) in the relevant industry is required for admission to a vocational teacher training programme (Cedefop, 2023[11]).

Sweden reformed teacher education in 2011, introducing specialised programmes for different categories of teachers. One of these is the Vocational Teacher Education programme (*Yrkeslärarprogrammet*), typically a 90-credit (1.5 years) university programme focusing on educational science, teaching methods, and supervised teaching practice specifically tailored for future VET teachers. Candidates for this

programme are often mid-career tradespeople, technicians, or professionals who bring their industry expertise and then learn how to teach and adapt their skills to a school environment. The curriculum covers pedagogy, assessment, curriculum theory, and how to integrate practical and theoretical instruction. There is also an induction period where the trainee teacher practices teaching under mentorship (Cedefop, 2023[11]).

After completing the 90 credits Vocational Teacher Education programme (*Yrkeslärarprogrammet*), a new teacher must apply to Skolverket for certification as a vocational teacher (*lärarlegitimation*). Teacher certification is a licensing system intended to assure teacher quality. According to the law, only certified teachers are allowed to issue final grades to students (Cedefop, 2023[11]). Skolverket evaluates applicants' educational credentials and work experience. In the case of vocational teachers, there is recognition of real-work experience as part of qualifications. Once certified, a teacher is authorised to teach specific subjects or courses listed on the certificate.

To address the challenge of a shortage of qualified VET teachers, various measures have been tried: shortened pathways for those with extensive work experience, campaigns to encourage industry professionals to consider teaching, and salary increases in shortage subjects. In addition, schools sometimes hire non-certified instructors (such as a skilled craftsperson without pedagogical training) on a temporary basis when no certified teacher is available. The law allows non-certified teachers to be employed for up to one year at a time, with the possibility of extension if no qualified teacher can be found. However, these teachers must work under the supervision of a certified teacher, especially for grading purposes (Cedefop, 2023[11]). These teachers can become qualified by undertaking a shortened vocational teacher education of 60 credits, since they are credited with 30 credits through their professional experience as teachers. Most programmes are offered part-time and distance, allowing participants to work and study in parallel (Antera, 2022[20]).

The teachers who deliver foundation subjects (like Swedish, English, mathematics, etc.) in vocational programmes must meet the same requirements as those in academic programmes (Cedefop, 2023[11]). They typically hold a university degree in their subject plus a teaching qualification (often a Master of Education). These teachers often teach across both vocational and academic classes. For instance, an English teacher might have classes composed of students from the Business Administration programme and others from the Science programme – the English 5 course is identical.

The Swedish law (Education Act 2010) emphasises that teachers should continuously develop their skills, but it does not prescribe exact amounts or forms of CPD. Instead, the responsibility is placed on the school principal and the governing body (municipality or company) to provide and facilitate professional development. The specifics of teachers' working time and development hours are governed by collective agreements between employers and teacher unions. The main agreement for municipal schools (also adopted by many independent schools) allocates about 104 hours per year of a teacher's working time for professional development. This is roughly 6% of annual work hours (Cedefop, 2023[11]). In practice, these hours might be used in various ways: in-service training days, courses, workshops, or self-study. Many vocational teachers engage in externship opportunities – for example, spending a few days at a company to learn about the latest equipment which they then incorporate into their teaching. Some schools have arrangements with local firms to allow teachers periodic refreshers. The National Agency for Education disseminates best practices and sometimes offers training modules (for instance, on how to coach students in workplace learning or how to integrate sustainability in vocational subjects). Additionally, through the EU's Erasmus+ programme, many VET teachers in Sweden take part in international exchanges or training courses in Europe to broaden their expertise.

9.6. Governance

Sweden's VET governance combines national-level curriculum control and legal frameworks with decentralised delivery managed by municipalities and independent providers. National and local programme councils involve employers and unions in shaping content, while the Schools Inspectorate oversees quality and compliance, in order to promote labour market alignment and local adaptability (OECD, 2024[21]). The chief law is the Education Act (*Skollag* 2010:800), supplemented by the Upper Secondary School Ordinance (*Gymnasieförordning* 2010:2039), which together stipulate the structure of programmes, students' rights, teacher requirements, etc. At the national level, the Ministry of Education and Research is responsible for education policy, and under it several agencies handle implementation and oversight.

The Swedish National Agency for Education (*Skolverket*) is the central administrative authority for the school system. It develops the national programmes, course syllabi, and regulations for all programmes (Cedefop, 2023[11]). For VET, Skolverket issues the specific programme definitions (programme goals, structures, course syllabi for each vocational programme) and updates them as needed. It also manages the teacher certification process and national school statistics. Skolverket provides support materials and evaluations to ensure the programmes/courses are delivered effectively across the country. Importantly, Skolverket convenes national reference groups to keep vocational content current (see below). While Skolverket sets "what" should be taught (learning outcomes), the "how" is largely left to schools – reflecting decentralisation. School principals and providers have flexibility with regard to which elective course blocks (individuellt val), orientations (inriktningar) and programme-deepening (program-fördjupning) courses they offer learners.

For each of the 12 national vocational programmes, there is a National Programme Council (*nationella programråd*) appointed by Skolverket. These councils consist of representatives from employers' organisations, trade unions, professional associations and sometimes higher education or public employment services. The councils have a consultative role – they advise Skolverket on the subject syllabus development, propose updates or new courses, and identify emerging skill needs in the labour market. They do not have decision-making power; final decisions rest with Skolverket and the Government (Cedefop, 2023[11]).

The Swedish Schools Inspectorate (*Skolinspektionen*) is the national authority that supervises and evaluates all schools (public and independent). It conducts regular inspections of and thematic reports on upper-secondary schools, assessing aspects like teaching quality, compliance with regulations, and student outcomes. In VET, the Inspectorate examines the quality of WBL and how schools co-operate with workplaces (Cedefop, 2023[11]). If serious deficiencies are found, the Inspectorate can mandate improvements or as a last resort revoke a school's license (in the case of independent schools) or require the municipality to take action. Recent inspection themes have included how well schools implement the new higher education eligibility courses in VET and how they ensure equal access to equipment for practical training.

At the regional/local level, governance is largely the responsibility of municipalities and independent school owners. Municipalities plan and provide education and must offer the national programmes either in its own schools or via agreements. They have autonomy in allocating resources, organising school management, adapting teaching to local circumstances and hiring teachers. In practice, school principals (rektor), organise recruitment processes, conduct interviews and decide which candidates to propose for employment contracts within the municipal (or independent-school) budget. They also co-ordinate with local businesses for WBL placements. Several municipalities might form a steering group at county level to discuss education supply vs. labour demand (especially since state grants encourage regional co-ordination in VET for adults (Cedefop, 2023[11]) which often overlaps with youth VET facilities). While

municipalities cannot change the subject syllabus, they decide, for example, which orientations of a programme to offer, based on student interest and employer input.

Each school that provides vocational programmes is expected to have Local Programme Councils (*lokala programråd*) for those programmes, mirroring national councils. These typically include local employers, craftsmen, and sometimes alumni or student representatives. Their function is to strengthen school-work life collaboration – advising on training content, helping arrange workplace training, and validating that the skills taught meet local industry requirements (Cedefop, 2023[11]).

9.7. Funding

Sweden's upper-secondary vocational education is fully publicly funded and free for students. Municipal and national funding, with tax equalisation, ensures equitable access and covers costs like study allowances, materials, and meals. Per-student funding is high due to practical training needs, and additional state grants support strategic VET priorities (OECD, 2024[21]).

The primary responsibility for financing upper-secondary schools (including vocational programmes) lies with municipalities. Each municipality allocates money from its budget (largely funded by local income taxes) to run its schools or pay for its residents in other schools. To ensure that all municipalities can provide a similar quality of education regardless of their tax base, Sweden uses a state grant and tax equalisation system. The national government gives an annual general grant to municipalities for education, calculated based on factors like population size, demographics, and socio-economic indicators (Cedefop, 2023[11]). This is supplemented by an equalisation formula that redistributes funds so that poorer municipalities receive extra support while wealthier ones contribute.

In addition to general funding, the central government provides targeted grants for specific priorities in VET. For instance, there have been earmarked funds to expand apprenticeship, to support vocational training for adults (komvux), and to improve WBL quality (Cedefop, 2023[11]). One example is the state subsidy introduced when apprenticeship was launched: schools could get a certain sum per apprentice to cover costs of co-ordinating with workplaces. These targeted funds are often time-limited and require applications, but they can significantly bolster VET provision in areas of strategic importance (like ICT or green technologies).

Since students have the right to choose schools (public or independent), Sweden employs a voucher-like funding model for upper-secondary education. Municipalities finance each student through a per-student allocation that follows the student to the school they attend. Independent upper-secondary schools (fristående gymnasieskolor) are privately managed but publicly funded on exactly the same per-student basis as municipal schools. To ensure fairness and transparency, Skolverket annually publishes a reference price list (*riksprislistan*) that estimates the average cost per student for each programme. This accounts for factors like teacher-student ratios, equipment needs, and consumables in different programmes. Vocational programmes generally cost more per student than academic programmes due to workshops, materials, and smaller practical group sizes. Indeed, there are considerable cost differences between vocational programmes themselves – some technical programmes requiring expensive machinery or consumables have much higher costs than, say, business or childcare programmes. According to Skolverket's calculations, the most costly VET programme can require more than twice the funding per student as the least costly programme (Cedefop, 2023[11]). For example, a student in Natural Resources might warrant over SEK 200 000 /year, while one in Business admin is perhaps around SEK 100 000 /year.

All essential aspects of education are covered by public funding: instruction, textbooks, tools, and for VET, personal protective equipment (PPE) and necessary materials for training are provided to the student. Students in upper-secondary education also typically get subsidised meals at school (a continuation of

Sweden's free school lunch policy). In vocational programmes, if special gear is needed (say chef uniforms, welding helmets), schools either lend them or give an allowance to students to purchase them. Transportation costs are often covered or subsidised by municipalities especially if students travel far for WBL or to another town for a programme not offered locally.

Students do not receive salaries during WBL (since they are not employees), but as noted, those who choose the apprenticeship track can receive an additional allowance on top of the student allowance from the state (approx. SEK 1 000 monthly) (Cedefop, 2023[11]). This is intended to ensure that choosing apprenticeship (and spending more time at a workplace) does not burden students financially. If an apprentice enters a *GLA employment* (see Section 9.3), then the employer pays them a wage according to union agreements (which might be lower than a fully qualified worker's wage, reflecting their trainee status).

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Annex 9.A. Examples of curriculum structure and assessment procedures for three ISCED 3 VET qualifications

To illustrate how the above elements come together in practice, this annex presents three examples of upper-secondary VET programmes in Sweden:

- Example 1: Electricity and Energy Programme (El- och energiprogrammet) – Orientation Electrical Technology (Elteknik).
- Example 2: Health and Social Care Programme (Vård- och omsorgsprogrammet – VO).
- Example 3: Building and Construction Programme (Bygg- och anläggningsprogrammet – BA) – Orientation: House Building (Husbyggnad).

Each example outlines the programme's structure (subjects, credits, practical training), learning outcomes and grading structure. This annex describes upper-secondary VET programmes for students who started before or in 2024. Sweden's National Agency for Education has recently revised subjects and courses for students starting in or after August 2025.

Example 1: Electrical and Energy Programme (El- och energiprogrammet) – Orientation Electrical Technology (Elteknik)

The Electricity and Energy Programme (EE) prepares students for careers in the electrical and IT sectors. It covers a broad range of content – from power generation and electrical installation to automation and computer networking. Within EE, students can specialise in areas like *Elteknik* (Electrical Technology), *Automation*, *Energi* (energy technology), or *Dator- och kommunikationsteknik* (computer and communications technology) (Skolverket, n.d.[22]) (Skolverket, n.d.[23]). A popular choice is the Electrical Technology orientation, which leads towards becoming an installation electrician (installing and maintaining electrical systems in buildings).

The Electrical Technology programme comprises the standard 2 500 credits (with an option up to 2 800 if including all extra courses). Annex Table 9.A.1 shows the detailed course and credit structure for the Programme.

Annex Table 9.A.1. Course and credit structure for the Electrical Technology (Elteknik) orientation

Block	Credits	# Courses	Courses (official Skolverket list)
Foundation Subjects (Gymnasiegemensamma ämnen)	900	12	English 5-6; History 1a1; Physical Education 1; Mathematics 1a; Science 1a1; Religious Education 1; Social Studies 1a1; Swedish/SvA 1-3
Programme-Specific Subjects (Programgemensamma ämnen)	400	4	Automation Technology 1 (Automationsteknik 1); Computer & Network Technology 1 (Dator- och kommunikationsteknik 1); Electrical Technology 1 (Elteknik 1); Energy Technology 1 (Energiteknik 1)
Orientation: Electrical Technology (Inriktning Elteknik)	500	5	Electrical Theory 1 (Ellära 1); Installation Technology 1 & 2 (Installationsteknik 1-2); Communication Networks 1 (Kommunikationsnät 1); Security Systems 1 (Säkerhetssystem 1)
Programme-Deepening (Programfördjupning)	600–800	~120	e.g. Electrical Distribution 1-3; Solar-PV Installation; Industrial Robotics 1-2
Individual Option (Individuellt val)	200	open	Any upper-secondary course the school offers
Diploma Project (Gymnasiearbete)	100	1	Electrical diploma project

Note: For students starting in or before 2024.

In the first year, all EE students follow a common curriculum: they take the 600 credits of foundation subjects (Swedish, English, Maths) plus the programme-specific vocational subjects (400 credits) which are foundational to the field. At the end of year 1, students select an orientation (inriktning). In year 2 and 3, they then take specialised courses totalling 500 credits in that orientation (Skolverket, 2014[24]). Students spend significant time in workshop sessions wiring circuits, installing fixtures on mock walls, and troubleshooting systems. Additionally, students choose Programme-Deepening (Programfördjupning) courses of 600-800 credits. Schools often tailor these offerings to local industry needs. For instance, a school in a region with many industrial automation firms may offer extra PLC programming courses, while another might offer solar energy installation as a deepening course. Students can also take 200 credits of any upper-secondary course the school offers under the Individual Option (Individuellt val). Each student's exact course portfolio thus vary.

Learning outcomes and an A-E grading structure for each subject are defined centrally by the Swedish National Agency for Education (Skolverket). For example, for the Electrical Technology 1 (Elteknik 1) subject, the learning outcomes are to:

- use suitable tools and measuring instruments safely
- plan, perform and evaluate basic low-voltage work
- apply regulations on electrical safety and environment
- interpret simple drawings and symbols
- communicate using technical terminology.

In terms of grades:

- Grade A is given to a student who independently performs electrical tasks with very good skill and safety, explains electrical principles in a detailed and nuanced way, and shows strong environmental awareness.
- Grade E is given to a student who performs basic electrical tasks with some skill and safety, gives a general explanation of electrical principles, and shows acceptable environmental knowledge.

All students must complete a Diploma Project (Gymnasiearbete) to graduate. An EE student's diploma project might involve planning and installing an electrical system for a small mock building or designing an automation solution – for example, building a programmed model of smart home lighting. They must write a report linking to theory and often present the project to a panel (sometimes including an industry representative). The project is graded pass/fail and demonstrates their readiness for working life.

Over the three years, an EE student has at least 15 weeks of WBL (workplace training). Commonly, this is arranged as shorter stints during year 2 and a longer block in year 3. An electrician student typically does WBL with electrical contractors or maintenance departments. For example, in year 2 they might spend 4 weeks with a local electrician company assisting on residential wiring jobs (installing outlets, lighting, running cables under supervision). In year 3, they might do 6-8 weeks at a larger industrial site or construction project, getting exposure to more complex three-phase installations or automation systems. During WBL, the student follows regular work hours and tasks, while a licensed electrician at the company acts as trainer. The student keeps a logbook tied to school learning outcomes – e.g. documenting that they have practiced reading electrical blueprints, or performed certain types of installations. As in all VET programmes, the student's WBL is assessed against the same course knowledge-requirement grids that apply in the classroom. The workplace mentor and the vocational teacher jointly collect evidence and grade the course(s) concerned, and each school draws up an individual WBL plan mapping workplace tasks to those national course outcomes; this plan is local and not published centrally.

Example 2: Health and Social Care Programme (Vård- och omsorgsprogrammet – VO)

The Health and Social Care Programme (VO) prepares students for roles in healthcare and caregiving, primarily as *undersköterska* (enrolled nurse/healthcare assistant) in elder care, hospitals, or disability support. As of 2023 and the regulation of the profession, this programme has no formal orientations (inriktningar) – it is designed as a cohesive curriculum covering various aspects of care, from basic nursing and medicine to social services. This change was made recently to broaden students' competence; previously there were tracks like *health care*, *social care*, or *psychiatric care*, but now all students receive a comprehensive foundation (Skolverket, n.d.[23]). Students can still customise their learning through programme deepening (programfördjupningar).

The full programme comprises the standard 2 700 credits (the extra 200 credits come from Swedish 3 and English 6, added automatically since 2023). Annex Table 9.A.2 shows the official course-and-credit structure.

Annex Table 9.A.2. Course and credit structure for the Health and Social Care Programme (Vård- och omsorgsprogrammet – VO)

Block	Credits	# Courses	Courses (official Skolverket list)
Foundation Subjects (Gymnasiegemensamma ämnen)	900	12	English 5-6; History 1a1; Physical Education 1; Mathematics 1a; Science 1a1; Religious Education 1; Social Studies 1a1; Swedish/SvA 1-3
Programme- Specific Subjects (Programgemensamma ämnen)	1300	6	Anatomy & Physiology 1 & 2; Nursing 1 (Omvårdnad 1); Health Care 1 (Hälso- och sjukvård 1); Social Care 1 (Social omsorg 1); Gerontology & Geriatrics (Gerontologi och geriatrik)
Programme-Deepening (Programfördjupning)	200	22	Acute Care; Psychiatric Care 1-2; Home Care; Palliative Care; Leadership, etc.
Individual Option (Individuellt val)	200	open	Any upper-secondary course the school offers
Diploma Project (Gymnasiearbete)	100	1	Diploma project

Note: For students starting in or before 2024.

Education providers allocate the courses to ensure that students have a balanced workload over the three years. During year 1, learners take foundation courses plus the credits of programme-specific subjects such as Anatomy and Physiology 1–2 and Nursing 1 (Omvårdnad 1). From years 2-3 they add 200 credits of programme-deepening courses selected by the school to reflect local labour-market demand – e.g. Acute Health Care in a regional hospital area or Psychiatric Care in a municipality with extensive mental-health services. Learners also choose 200 credits under Individuellt val, which can be further care modules or a general subject like Entrepreneurship.

Learning outcomes and an A-E grading structure for each subject are defined centrally by the Swedish National Agency for Education (Skolverket). For example, for the Nursing 1 (Omvårdnad 1) subject, the learning outcomes are to:

- observe, plan, perform and evaluate basic nursing measures
- apply hygiene, ergonomics and infection-control routines
- document and communicate care using digital systems
- act in accordance with laws, ethics and patient-safety principles
- co-operate in teams and use correct medical terminology.

In terms of grades:

- Grade A is given to a student who provides person-centred care independently and systematically, documents accurately, and critically evaluates and improves practice.
- Grade E is given to a student who provides basic care with guidance, keeps simple notes, and gives a general explanation of nursing actions and hygiene rules.

As with other VET programmes, all students must complete a Diploma Project (Gymnasiearbete) to graduate. Typical projects include designing and running a health-promotion activity for older adults and analysing its outcomes in a written report. The project is graded pass/fail and demonstrates their readiness for working life.

As with other VET programmes, over the three years students have at least 15 weeks of WBL (workplace training) in real care settings (hospital wards, nursing homes, home-care units). Typically, a student will have WBL rotations in an elderly care home (nursing home), which is fundamental since many undersköterska jobs are in eldercare; a hospital (could be a specific ward, like internal medicine or surgery, doing assistant tasks); and possibly home care services or a group home for people with disabilities. Some schools also arrange an WBL in psychiatric care or primary health centres. Students' WBL is supervised by nursing staff (often an experienced undersköterska or a nurse) who ensures they practice skills safely. The student is assessed against the same course knowledge-requirement grids that apply in the classroom. The workplace mentor and the vocational teacher jointly collect evidence and grade the course(s) concerned, and each school draws up an individual WBL plan mapping workplace tasks to those national course outcomes; this plan is local and not published centrally.

Example 3: Building and Construction Programme (Bygg- och anläggningsprogrammet – BA) – Orientation: House Building (Husbyggnad)

The Building and Construction Programme (BA) equips students for skilled trades in the construction industry. Students learn to construct, repair, and maintain buildings and infrastructure. In the second year, they pick an orientation such as *Husbyggnad* (house building), *Mark och anläggning* (groundworks and civil engineering), *Måleri* (painting and decorating), or *Plåtslageri* (sheet metal work). The *Husbyggnad* orientation is a popular choice that leads to occupations like carpenter (framing, roofing, interior finishing), concrete worker, or bricklayer. Many of these trades are governed by craft traditions and apprenticeship systems after school.

The full programme comprises 2 500-2 800 credits. Annex Table 9.A.3 shows the official course-and-credit structure.

Annex Table 9.A.3. Course and credit structure for the House Building (Husbyggnad) orientation

Block	Credits	# Courses	Courses (official Skolverket list)
Foundation Subjects (Gymnasiegemensamma ämnen)	900	12	English 5-6; History 1a1; Physical Education 1; Mathematics 1a; Science 1a1; Religious Education 1; Social Studies 1a1; Swedish/SvA 1-3
Programme-Specific Subjects (Programgemensamma ämnen)	400	2	Building & Construction 1 (Bygg och anläggning 1); Building & Construction 2
Orientation: House Building (Husbyggnad)	700	4	House Building 1-3; House-Building Process
Programme-Deepening (Programfördjupning)	300-800	74	Concrete Work; Masonry; Tiling; Sustainable Building; CAD; Roofing; etc.
Individual Option (Individuellt val)	200	open	Any upper-secondary course the school offers
Diploma Project (Gymnasiearbete)	100	1	Diploma project

Note: For students starting in or before 2024.

In year 1, BA students get a taste of various construction trades through the programme-specific subjects (400 credits). During or after this initial phase, students choose their orientation for specialisation in years 2-3. In the *Husbyggnad* orientation, the curriculum dives deeper into building construction. Students take sequential courses (totalling 600 credits) that cover different stages of building work. Beyond that, each student takes programfördjupning courses (perhaps 600-800 credits) tailored to their chosen trade. A student leaning towards carpentry might take extra courses in *Träarbete (Woodwork)* or *Inredningsmontage* (interior fittings), while one interested in concrete work might take *Betongarbeten* (concrete construction techniques). The available deepening courses often reflect local industry needs. The diploma project often ties into these specialisations (e.g. a carpentry student's project might be to construct a small structure or a complicated roof truss system as a capstone).

Learning outcomes and an A-E grading structure for each subject are defined centrally by the Swedish National Agency for Education (Skolverket). For example, for the Building & Construction 1 (Bygg och anläggning 1) subject, the learning outcomes are to:

- plan, execute and evaluate basic carpentry, concrete and formwork tasks
- select and use materials, tools and machines appropriately
- read and apply technical drawings and dimensions
- work with occupational health & safety measures and sustainable methods
- communicate using professional construction terminology/

In terms of grades:

- Grade A is given to a student who executes basic construction tasks independently, safely and with high precision; evaluates results and proposes improvements.
- Grade E is given to a student who executes simple tasks with guidance; describes fundamental safety aspects and materials in general terms.

As with other VET programmes, all students must complete a Diploma Project (Gymnasiearbete) to graduate. A House-Building learner might build a small timber frame section from drawing to finish, submit calculations and reflect on sustainability. The project is graded pass/fail.

As with other VET programmes, over the three years students have at least 15 weeks of WBL (workplace training) on construction sites. Typically, year 2 students might do a 4-5 week block with a construction company where they basically join a crew on a building site. Initially they might do simpler tasks (moving materials, basic carpentry under supervision). By year 3, many are sufficiently skilled to contribute substantively; their WBL might be longer or more frequent, effectively integrating them into a workplace team. The student's WBL is assessed against the same course knowledge-requirement grids that apply in the classroom. The workplace mentor and the vocational teacher jointly collect evidence and grade the course(s) concerned, and each school draws up an individual WBL plan mapping workplace tasks to those national course outcomes; this plan is local and not published centrally.

10 Vocational education and training in Switzerland

Upper-secondary vocational education and training (VET) is a “first choice” in Switzerland, with most students choosing this track. The curriculum of each VET programmes is governed by a national training ordinance, developed in consultation with cantons and professional organisations. About 9 in 10 upper-secondary VET students are in apprenticeships, and internships are mandatory for school-based students. Training companies, vocational schools and industry associations’ training centres all provide upper-secondary VET. The VET teaching workforce is made up of vocational school teachers, teachers of general subjects, inter-company course instructors, and in-company trainers. Governance of VET involves the Confederation (federal government), 26 Cantons and the professional organisations. Funding is also shared by these actors, with training companies contributing the largest share of funding (towards apprenticeships).

10.1. Place of VET in the overall education system and pathways into and after VET

Vocational education and training (VET) plays a central role in Switzerland's upper-secondary education system. After nine years of compulsory schooling (typically at age 15-16), about two-thirds of Swiss youth pursue a VET programme, acquiring occupational skills through either a dual-track apprenticeship programme (i.e. which combine classroom instruction at a vocational school with workplace training at a host company) or a full-time vocational school programme. By contrast, roughly one-third of compulsory school graduates pursue general academic education in baccalaureate or specialised upper-secondary school programmes (Eurydice, 2024[1]). Upper-secondary VET students can choose from around 250 federally recognised occupations across diverse fields (e.g. engineering, retail, healthcare, business).

Just over 90% of all VET students train in dual (apprenticeship) programmes, whereas just under 10% pursue full-time vocational school routes (Federal Statistical Office, n.d.[2]). The prevalence of these programmes varies regionally: the French- and Italian-speaking cantons tend to rely more on school-based VET than the German-speaking part of Switzerland (Eurydice, 2023[3]).

Both pathways generally exist in parallel for the major occupations – for example, some fields like business/commerce or IT offer a choice between an apprenticeship or a specialised vocational school. They follow nationally standardised curricula (see Section 10.2) and cover similar content – learners acquire occupation-specific skills *and* basic general subjects needed for the labour. They also lead to the same federally recognised qualifications, depending on the programme, both at ISCED level 3: a Federal VET Diploma (Eidgenössisches *Fähigkeitszeugnis*, EFZ) after three or four years, or a Federal VET Certificate (Eidgenössisches *Berufsattest*, EBA) after two years (Eurydice, 2023[3]) (see Box 10.1)

Any student can apply for a VET programme - be it EBA or EFZ – conditional on completing lower-secondary education (Study in Switzerland, 2020[4]). Prospective apprentices must secure a training contract with an employer, while those aiming for a full-time vocational school typically sit an entrance exam for admission. Employers offering apprenticeships select candidates i.e. based on their school grades, application and interview, and often require an aptitude test as part of the hiring process (Eurydice, 2023[3]).

The Swiss VET system offers alternative pathways to accommodate different needs. For example, the two-year EBA programme focuses on practical skills (see Box 10.1) and is shorter than the three or four year EFZ-programme, which involves more days at vocational school. There are also provisions for adults to obtain VET qualifications through validation of prior work experience or by directly taking the final exams, without completing a formal apprenticeship programme (Swiss Education System, 2025[5]). For young people who do not immediately find a VET placement, every canton provides one-year bridge programmes (*Brückenangebote*) as interim solutions. These bridge-year courses (some purely school-based, others combining classes with internships) help students improve academic or language skills, explore careers, and address any gaps until they can enter an apprenticeship or other upper-secondary programme (Eurydice, 2023[3]).

Box 10.1. See every learner: Supporting disadvantaged learners in Switzerland's VET system

Switzerland's VET system includes several initiatives to promote inclusion and support disadvantaged learners at the upper-secondary level. Key measures and programmes include:

Two-year VET programmes (Federal VET Certificate, EBA): Introduced in 2004 to enable lower-achieving or vulnerable youth to more quickly obtain a formal credential and integrate into the labour market. Learners in two-year programmes have access to remedial courses and a statutory right to individualised mentoring support to help them meet training requirements (State Secretariat for Education, Research and Innovation SERI, n.d.[6]).

Case Management and coaching for at-risk youth: Switzerland has implemented a *VET Case Management* system for young people whose entry into vocational training or the workforce is seriously at risk. Case managers co-ordinate the activities of all relevant stakeholders (schools, career guidance, social services, employers, etc.) to provide tailored support (Eurydice, 2023[7]). This approach targets youth facing multiple challenges – for example academic difficulties, health or behavioural issues, low motivation, or minimal family support – in order to prevent them from dropping out and to guide them toward completing an initial VET qualification (Vocational education, n.d.[8]).

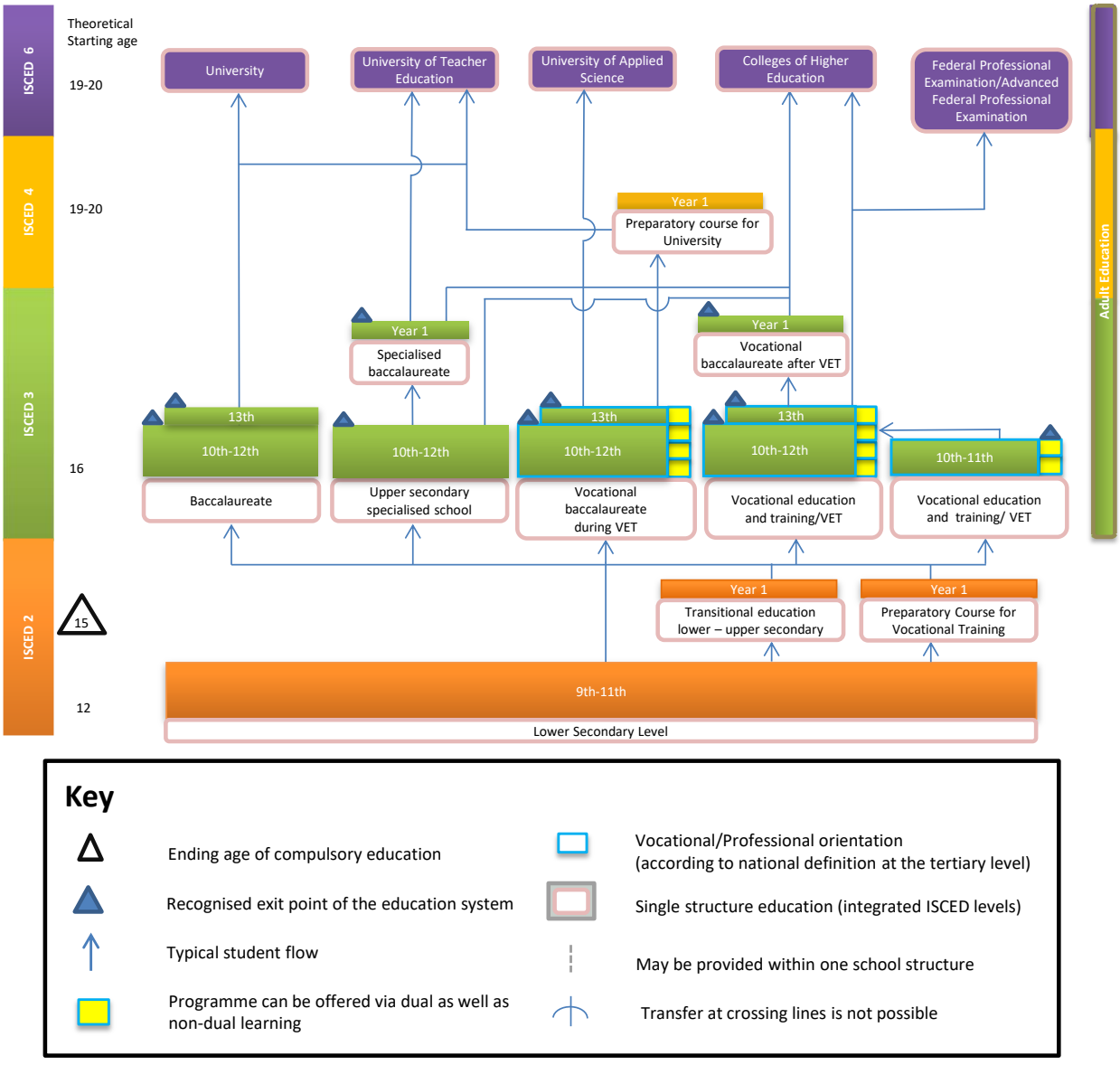
Inclusive support for learners with disabilities: Apprentices with learning difficulties or disabilities are entitled to support that can include extra time for tests, adapted materials, and other support (Vocational education, n.d.[8]). For young people with more severe special needs or disabilities, there are practical training pathways in sheltered workshops or specialised institutions provided in co-operation with INSOS (the national association of institutions for people with disabilities) (Eurydice, 2023[7]). These programmes focus on the individual abilities of the learner and efforts are made to connect them to mainstream VET over time (for instance, by transitioning from a sheltered training into a two-year federal VET certificate programme) (Federal Institute for Vocational Education and Training (BIBB), 2025[9]).

Source: Cedefop, ibw Austria (2019[10]), Vocational education and training in Europe: Austria, www.cedefop.europa.eu/en/tools/vet-in-europe/systems/austria-u2; Federal Ministry of Labour. of Austria (BMA) (2020[11]), Youth and Work in Austria, https://portal.ibobb.at/fileadmin/Berufsorientierung_und_Bildung/Final_Youth_and_Work_in_Austria__2019_2020_barr_.pdf; Cedefop (2023[12]), Research & Development in VET, Vocational education and training in Europe – Austria, www.cedefop.europa.eu/en/tools/vet-in-europe/systems/austria-u3.

Upon finishing an ISCED 3 VET programme, graduates who obtain the Federal VET Certificate or the Federal VET Diploma are qualified to enter skilled employment directly, or pursue various options for further education. Many pursue the Federal Vocational Baccalaureate (*Berufsmaturität*, BM, ISCED 4) – an optional in-depth academic certificate either taken alongside the apprenticeship or in a subsequent one-year full-time programme or in a two-year part-time programme – which gives access to Universities of Applied Sciences (Eurydice, 2023[3]). With an additional one-year "*Passerelle*" exam (ISCED 4), vocational baccalaureate holders can enrol in academic universities, including federal institutes of technology (Eurydice, 2024[1]; Eurydice, 2023[13]). Alternatively, VET graduates may directly continue in professional education at tertiary level (above ISCED 3; ISCED 5-8), such as preparing for federal professional examinations (e.g. master craftsperson diplomas) or attending professional colleges. These colleges offer specialised programmes typically lasting two to three years, leading to advanced professional qualifications (e.g. diplomas in business administration, engineering, healthcare, or hospitality) at ISCED level 6.

Figure 10.1 shows educational pathways into and after ISCED 3 VET in Switzerland.

Figure 10.1. The place of ISCED 3 VET in Switzerland's education system



Note: The reference year is 2023 (school year 2022/2023 in the northern hemisphere). Theoretical starting ages refer to the ages as established by law and regulation for the entry to a programme; actual starting ages may vary depending on the programme.
Source: Adapted from OECD (2023[14]), "Diagram of the education system: Switzerland", *OECD Education GPS*, https://gpseducation.oecd.org/Content/MapOfEducationSystem/CHE/CHE_2011_EN.pdf.

10.2. Curriculum structure and assessment procedures

Curricula in Swiss upper-secondary VET are nationally standardised and competency-based**.** The content and requirements of each VET programme are governed by a training ordinance (*Bildungsverordnung*) issued by the State Secretariat for Education, Research and Innovation (SERI) in consultation with cantons and professional organisations. Each ordinance corresponds to a specific recognised occupation – there are currently around 250 such ordinances. The same ordinance applies regardless of whether the training is delivered through an apprenticeship or a full-time school-based route. Ordinances set out the official occupational title, duration of training, expected competencies (learning outcomes), structure of the

programme across learning venues, and the structure of the final qualification procedure – such as whether it includes a practical task, written exam, oral examination, or portfolio, and how each component is weighted (Eurydice, 2023[3]).

Each ordinance is accompanied by a detailed *education plan* (curriculum; *Bildungsplan*). The education plan for both school-based VET and apprenticeships integrates three learning environments: the training company, the vocational school, and inter-company courses – short training blocks organised by professional organisations to complement work-based learning with standardised instruction in key occupational competencies. The plan specifies the knowledge and skills to be acquired in both school and workplace, the allocation of lessons for vocational school subjects, and the schedule and content of inter-company courses (*überbetriebliche Kurse, üK*) (Swiss Education System, 2025[5]; Eurydice, 2023[3]). The general education component and minimum requirements for subjects like language, civics, economics, mathematics, are also built into all VET curricula, typically comprising 20-30% of total instruction time (Swiss Education System, n.d.[15]).

Employers' and workers' associations (the **"**professional organisations", or *Organisationen der Arbeitswelt*) are deeply involved in the development of ordinances and education plans (Eurydice, 2023[3]). Ordinances and corresponding education plans are regularly updated (generally every five years) to reflect technological and economic changes (OBS Sfuvet (Swiss Observatory for Vocational Education and Training), n.d.[16]).

For apprenticeships (the dominant format), learners spend about 3-4 days per week in the workplace and 1-2 days per week in a vocational school classroom (Swiss Education System, 2025[5]). The ordinance and education plan allocate which skills are taught where: practical skills are developed on the job, while theoretical and general knowledge is covered at school, and certain foundational practical skills are reinforced in inter-company courses. For example, the ordinance for an electronics technician might stipulate that circuit assembly techniques are learned in-company, electrical theory and mathematics at school, and soldering basics in a compulsory 5-day inter-company course.

In school-based VET programmes, internships or simulated practice modules are included (see Section 10.3), following curricula that mimic the dual model.

Assessment in VET in both apprenticeship and school-based VET programmes continuous and culminates in a final examination**.** In apprenticeship-based VET (dual track), progress is monitored jointly by the employer and vocational school. In the company, the apprentice's certified workplace trainer conducts formal evaluations each semester using a standard training report (*Lerndokumentation*), assessing the development of occupational, social, and personal competencies against the objectives in the education plan. These reports are based in part on the apprentice's documented learning portfolio. At the vocational school, teachers grade students each semester in every subject using the national 6-point scale (6 = excellent, 4 = pass). If a student's school performance is unsatisfactory (e.g. below 4 in key subjects), the school alerts the employer so that remedial measures can be taken; in severe cases an apprentice may have to repeat a year or, if both parties agree, terminate the apprenticeship (Eurydice, 2023[13]).

In full-time school-based VET programmes, progress is assessed through regular classroom evaluations. Students receive semester grades in both vocational and general subjects, and may also be assessed on practical competencies through simulated workplace exercises or structured internships. Where relevant (e.g. in commercial programmes with a fourth-year internship), employers or internship supervisors contribute to the final assessment based on predefined criteria aligned with the education plan.

Each VET programme concludes with a standardised qualification procedure (final exam) to certify that the graduate meets national occupational standards. The format and content of this examination are defined in the ordinance for that occupation (Eurydice, 2023[3]). The final exam for the three- or four-year Federal VET Diploma programmes usually includes: (1) an individual practical project or task (completed over several days or weeks) where the candidate must produce something or solve a real-work problem,

(2) a written and/or oral exam on vocational knowledge (trade theory and practice), and (3) an exam in general subjects (Polymechaniker-in, 2025[17]). While all components are based on nationally defined learning objectives, only the general education exams are often fully standardised at national level; the vocational and practical exams are developed and administered regionally, under cantonal oversight, to reflect local training contexts. Continuous performance (graded coursework) may also count toward the final result, as specified by the ordinance. All exam parts are overseen by cantonal authorities and industry experts (see Section 10.6). Candidates who fail any part of the qualification procedure can retake those parts up to two times (Eurydice, 2023[13]). Upon passing, graduates receive a federal credential that is recognised nationwide.

10.3. Work-based learning (WBL) in school-based programmes

While the majority of Swiss VET students pursue dual-track apprenticeship programmes, many full-time school-based programmes also include work-based learning (WBL) components as an integral part of the curriculum. However, there are large differences across programmes in how they are implemented, as they are typically governed and organised at the cantonal level (see Section 10.6). During the internship year, students work full-time in a company (for example, in a bank, hospital administration, or insurance office) taking on junior-level tasks and applying the business knowledge and soft skills learned at school. In other models, shorter internships are embedded at intervals.

Performance during internships or simulated work placements is typically evaluated and contributes to the final qualification result. Students may be required to submit a reflective report, complete a practical task in the workplace, or undergo evaluation by a supervisor as part of their final mark – particularly for the EFZ qualification.

Geneva's full-time school-based VET programmes typically include internships in companies or simulated work environments. In commerce programmes, for example students spend one semester in the first year and five weeks in the second year in an "*Espace Entreprise*" – a simulated company environment or a training office separate from the school – where they perform realistic commercial work assignments as a form of in-house internship (berufsberatung.ch, 2024[18]). Likewise, full-time vocational programmes in fields like healthcare often include clinical placements, and those in hospitality or tourism include seasonal industry placements. Through these internships, school-based VET students acquire workplace competencies and social skills similar to apprentices, albeit in a more condensed form.

Even within the classroom, school-based VET emphasises practical learning approaches. Vocational schools frequently use project-based and experiential teaching methods to simulate workplace problem-solving (berufsberatung.ch, 2024[18]). Additionally, most school programmes require participation in inter-company courses (branch-organised practical courses) just like apprentices do (Eurydice, 2023[3]). For instance, a full-time retail sales student will attend the same ten days of off-site industry courses on product display and sales techniques that dual apprentices in retail attend, ensuring exposure to current industry practices (Bildung Detailhandel Schweiz, n.d.[19]).

The Federal VET ordinances stipulate practical training elements to be completed. If a student in a full-time programme cannot find an external internship, it is the responsibility of the vocational school to arrange practical training opportunities (through training workshops or partnerships with local employers) to fulfil this requirement (Fedlex, 2003[20]).

10.4. Provider types

Multiple types of institutions co-operate to deliver ISCED 3 VET in Switzerland, under a nationally cohesive system. The three main provider categories are: training companies, vocational schools, and industry associations' training centres.

Private sector employers are the cornerstone of the apprenticeship system, with over 58 000 Swiss companies training apprentices in 2020. These firms employ apprentices and provide the in-company training according to the national training plan. A host company must be officially licensed by the canton, which entails having qualified trainers and the necessary work scope and equipment to cover the occupational profile. Companies take on apprentices usually under a 2-, 3- or 4-year apprenticeship contract, paying them a modest training salary, typically determined by sectoral and cantonal guidelines, often through collective labour agreements (see Section 10.7). Apprentices are mentored through practical tasks, and work alongside experienced employees. For example, an apprentice polymechanic in a machine factory will be operating milling machines, assembling parts, or programming CNC equipment under supervision. In predominantly school-based VET programmes, companies still contribute by offering internship placements or hosting practice rotations, but they are not the primary training venue.

Small companies that cannot provide the full range of required training content for apprenticeships often join together in training consortia (*Lehrbetriebsverbünde*), formal co-operatives in which two or more firms share responsibility for jointly training an apprentice. In such arrangements, the apprentice rotates between partner companies, each covering different aspects of the occupational profile, while one designated lead company or external co-ordination office manages the administrative and contractual obligations (Eurydice, 2023[3]).

Public vocational schools (*Berufsfachschulen*) are state-run (cantonal) schools that deliver the classroom-based component of VET. These are the main type of vocational school in Switzerland, and are attended by almost all VET learners. There are over 350 vocational schools across the country (Federal Statistical Office, n.d.[21]),usually specialising in certain fields or trades (e.g. technical colleges, commercial schools, health training schools). These schools typically deliver programmes at ISCED level 3, though some also offer ISCED 4 vocational baccalaureate programmes or post-secondary professional education. Each vocational school has approximately 620 students.

Both dual-track apprentices and students in full-time school-based VET programmes are enrolled in these schools, meaning that a single *Berufsfachschule* often provides the classroom instruction for both routes. In some cases, purely school-based programmes may be delivered as tracks within gymnasial schools or larger multi-purpose cantonal education centres, rather than in vocational schools. For example, in some cantons (especially French-speaking ones), commercial VET programmes (e.g. école de commerce) are part of general upper-secondary schools (*Gymnasien*) with a vocational stream.

A few private institutions offer vocational programmes (for example, private hospitality schools or IT academies) – these must be accredited by SERI and follow the federal curricula so that their graduates earn the same qualifications. Such schools often receive public subsidies and charge only minimal fees, to maintain accessibility.

Apprentices attend a vocational school one or two days per week for theory instruction and general education (Swiss Education System, n.d.[15]). The school teaches according to the curriculum established for each occupation, which covers vocational and general knowledge (berufsberatung.ch, 2024[22]). For example, a hairdressing apprentice will attend a vocational school that offers courses in anatomy of hair and skin, chemistry of colour treatments, salon management basics, as well as general subjects like French and social studies. Classes are taught by professional teachers (see Section 10.5) and often include hands-on exercises. In purely school-based VET programmes, these vocational schools (or tracks within general schools) provide full-time instruction.

To complement company-specific training, Swiss VET features branch training centres run by industry associations or collective foundations. These centres host the mandatory inter-company courses (see Section 10.2) that each apprentice (and in some cases also students from full-time school-based VET programmes) attends for a few days to a few weeks per year (Eurydice, 2023[3]). Such courses teach fundamental practical skills or new techniques that some companies (or schools) alone might not cover. For example, in the three-year dual-track programme for commerce (*Kaufmann/Kauffrau*), apprentices complete ten inter-company modules – covering practical tasks like product display, retail systems, and customer interaction – distributed across their training (CIFC Suisse, n.d.[23]).

10.5. VET teachers and trainers' qualifications and professional development

There are distinct categories of personnel involved in teaching in Switzerland's VET system: vocational schoolteachers, teachers of general subjects, inter-company course instructors, and in-company trainers.

Teachers at vocational schools must complete specialised initial teacher education tailored to their role. The Swiss Federal University for Vocational Education and Training (SFUVET) – a Confederation-run institution – is the main provider of pedagogy training for upper-secondary VET teachers. The federal Vocational and Professional Education and Training Ordinance (VPETO) sets national standards for these programmes, including minimum content, duration, and admission criteria. While the Confederation defines the qualification framework, individual cantons and schools handle recruitment, hiring candidates who hold the required federally-recognised teaching diploma (Eurydice, 2023[24]).

General Education Teachers in VET Schools teach general subjects (e.g. language, civics, economics) to VET students. They typically hold a teaching degree for academic schools or a relevant university degree. When they take on roles in vocational schools, they are required to complete an additional, VET-specific pedagogical training course, designed to adapt their existing teaching expertise to the vocational education context. The scope of the additional training depends on the teacher's prior qualifications, ranging from a short 10 ECTS bridging course to a more comprehensive 30-60 ECTS part-time programme if they come from lower-secondary or non-teaching backgrounds. This training is typically completed in parallel with teaching duties (Eurydice, 2023[24]).

Vocational Subject Teachers impart trade-specific theoretical knowledge (and sometimes practical classroom instruction) related to the students' occupation. They are generally recruited from industry experts who hold a tertiary-level professional qualification or academic degree in the field they will teach, along with significant work experience. To transition into teaching, they complete a vocational teacher diploma. Like the general track, this training is done part-time while teaching and covers vocational pedagogy and teaching methods rather than technical content (Eurydice, 2023[24]).

For the worked-based component of VET, each approved training firm must designate workplace trainers (*Berufsbildnerinnen und Berufsbildner*) who mentor and supervise apprentices on the job. According to national VET regulations, a company trainer must typically possess at minimum a Federal VET diploma or certificate in the occupation they train (or an equivalent qualification), around two years of work experience in that field, and a trainer education credential. The pedagogical training for in-company trainers is much shorter and more practice-oriented than for school teachers: the standard route is a 40-hour instructor course yielding a course certificate, which is valid for life and recognised across all cantons. This short course covers essentials of vocational pedagogy, apprentice guidance, and legal responsibilities. For those who want a more advanced qualification, there is a 100-hour training programme as an alternative (Education.ch, n.d.[25]). Both qualifications (40-hour certificate and 100-hour diploma) are considered equivalent. In practice, cantonal VET offices ensure that any company taking on apprentices has at least one qualified trainer on staff. For internships in the context of a school-based programme, VET schools are responsible for overseeing the internships and ensuring quality, with trainers not necessarily subject to the same requirements (Swiss Federal Council, 2003[26]).

Once in the profession, VET school teachers are expected to engage in continuous professional development (CPD). The cantons mandate regular CPD for all teachers (often specified as a minimum percentage of working time – about 5% per year in some cantons). The Federal Ordinance (VPETO) encourages vocational schools to provide continuing education for all teachers as part of their quality improvement efforts. CPD obligations are usually set in the teachers' employment conditions, and some training activities may be compulsory. Typically, professional development is carried out outside of lesson hours and is funded by the cantons. The Swiss Conference of Cantonal Ministers of Education (EDK) has issued guidelines framing CPD as part of a teacher's professional duties and career development (Eurydice, 2023[27]).

Universities of Teacher Education and SFUVET offer a wide array of continuing education programmes for teachers. Opportunities range from short workshops and seminars (just a few hours) to longer part-time courses spanning several semesters that can lead to advanced qualifications like Certificate/Diploma/Master of Advanced Studies (CAS/DAS/MAS). Topics are varied – examples include bilingual pedagogy, special needs and inclusive education strategies, and use of educational technology (Eurydice, 2023[27]).

In-company trainers in Switzerland are not subject to formal CPD requirements, but they can voluntarily access a range of training opportunities – such as advanced courses, workshops, and sector-specific seminars – offered by SFUVET, cantonal authorities, and professional associations. Participation varies and depends largely on individual initiative and employer support rather than regulation.

10.6. Governance

Responsibilities for ISCED 3 VET in Switzerland are shared among the Confederation (federal government), the 26 Cantons, and the professional organisations (industry bodies), as established in the Federal Vocational and Professional Education and Training Act (Eurydice, 2023[3]; Fedlex, 2004[28]).

The Confederation, represented by the State Secretariat for Education, Research and Innovation (SERI) within the Federal Department of Economic Affairs, Education and Research (EAER), is responsible for the strategic leadership and development of the VET system SERI enacts the legal framework – notably VPETA and the corresponding ordinance (VPETO) – and issues the national training ordinances for each occupation This includes approving new occupations or revising existing ones, in collaboration with the professional organisations. SERI also oversees quality assurance mechanisms and innovation in VET (Eurydice, 2023[3]). It recognises the training programmes of VET personnel (teachers and trainers), and funds research and pilot projects.

The Confederation ensures overall coherence of the system and represents Swiss VET internationally (e.g. comparability through the NQF and EQF) (Eurydice, 2023[13]). Although Switzerland has no central education ministry for schools (education is largely cantonal), VET is a joint duty per the Constitution, giving the Confederation a strong co-ordinating role (Eurydice, 2024[1]).

The cantonal authorities are in charge of implementing and supervising VET on the ground. Each canton has an office for vocational education and training (often called *Amt für Berufsbildung* in German, or *Office de la formation professionnelle* in French) that administers apprenticeships and vocational schools. Cantons are responsible for running the public vocational schools and ensuring there are enough training opportunities for all youths. They register apprenticeship contracts and monitor their quality by approving apprenticeship contracts, making sure the training company meets the requirements, and assign an apprenticeship inspector to periodically visit companies and check on training conditions. Cantons also organise the final exams in their territory (often in collaboration with industry exam committees) and issue the certificates, under federal guidelines. Notably, cantons also provide career guidance and placement

services (Eurydice, 2023[3]). While the federal law provides uniform standards, cantons have latitude in operational aspects (such as how they structure part-time school schedules or support weaker learners).

Through the Swiss Conference of Cantonal VET Directors (*SBBK/CSFP*), the cantons co-ordinate policy among themselves and with the Confederation (Eurydice, 2023[3]). This body ensures harmonisation across cantons on matters like school curricula implementation and inter-cantonal mobility of apprentices.

Industry plays a pivotal governance role through these professional organisations, which include sectoral associations of employers, professional federations, and trade unions in some cases. These bodies are responsible for defining the occupational standards: they develop and update the training ordinances and curricula in co-operation with SERI and the cantons. By law, no new VET qualification can be created without an appropriate professional organisation taking ownership. Professional organisations also help to organise the qualification procedures – they nominate members for examination boards, contribute experts to draft and mark final exams, and ensure exams reflect real-world competencies. Furthermore, they run or co-ordinate the inter-company courses for apprentices in their sector (often managing training centres or mandating regional chambers to do so) (Eurydice, 2023[3]). Their engagement extends to promoting VET in their industry and supporting training companies (providing model training plans, trainer courses, etc.). Many sectors have created training funds to which companies contribute, to finance collective training tasks.

Formal mechanisms exist for co-ordinating efforts across these actors. At the operational level, every new curriculum or reform involves working groups with representatives from SERI, cantons, and professional associations. This governance approach has built-in checks and balances: the Confederation can veto an ordinance that doesn't meet educational standards, cantons can highlight implementation issues, and industry can insist on practicality. Additionally, the Confederation and cantons jointly monitor the system through instruments like the Swiss Education Report (produced every four years) and specific VET surveys (Eurydice, 2024[1]). The Swiss VPET Congress is held regularly, bringing together stakeholders from all sides to discuss system developments. Another important body is the Tripartite Vocational Training Conference. This body provides a forum for the federal government, the cantons and social partners to discuss vocational training issues and keep each other informed about current affairs. There are also ad-hoc initiatives – for example, tackling apprenticeship supply shortages in certain regions by joint task forces.

10.7. Funding

Funding for upper-secondary VET in Switzerland is shared across the confederation, cantons, and companies. In 2022, total annual expenditure on VET was estimated at around CHF 8.6 billion (Federal Department of Economic Affairs, Education and Research EAER. State Secretariat for Education, Research and Innovation SERI, 2024[29]) amounting to about 0.55% of Switzerland's GDP (Cedefop, 2017[30]). About 60% of this expenditure was borne by training companies, while the public sector covered the remaining 40%. Public VET expenditure accounted for roughly 10% of total public education spending that year (Trading Economics, 2025[31]).

The cantonal governments carry the largest public share, as they are responsible for running vocational schools and related services. In 2022, cantons spent roughly CHF 2.65 billion on upper-secondary VET – roughly 30% of total system costs (Federal Department of Economic Affairs, Education and Research EAER. State Secretariat for Education, Research and Innovation SERI, 2024[29]). This covers teachers' salaries, school facilities, equipment, curriculum development, career guidance centres, and the organisation of qualification exams. Cantons also may subsidise inter-company courses or specific programmes.

The Confederation contributes around 25% of public VET expenditures, equal to CHF 0.95 billion in 2022 (Federal Department of Economic Affairs, Education and Research EAER. State Secretariat for Education, Research and Innovation SERI, 2024[29]). Federal funds, managed by SERI, are used to co-finance cantonal VET activities (a block grant to each canton, proportional to its VET student numbers and other factors) and to directly finance certain items: notably, up to 10% of the federal VET budget is earmarked for development and innovation projects in VET (State Secretariat for Education, Research and Innovation SERI, 2023[32]). For example, the Confederation might fund the creation of new training modules in emerging fields or support pilot projects to improve apprenticeship marketing. Federal funds also fully finance SFUVET (the teacher training institute) and national VET promotional campaigns. Municipalities have a minor role in VET financing compared to general education – in some cantons they contribute to school infrastructure or apprentice counselling, but the bulk is at canton and federal level.

Public funds ensure that vocational schools are free of charge. Students in upper-secondary VET (whether apprentices or full-time students) pay no tuition. They are also sometimes provided with free or subsidised textbooks and learning materials in most cantons, and their transport to school is often reimbursed or discounted. There are need-based stipends available (from cantonal scholarships offices) to support apprentices or VET students with living costs.

Employers invest heavily by training apprentices at the workplace. This includes paying apprentice wages, supervisors' time, equipment and materials used in training, and other costs like insurance. Apprentice wages are modest training allowances negotiated by sector (often via collective agreements). They vary by occupation and year of apprenticeship – for example, an apprentice in retail might earn around CHF 800 per month in the first year and CHF 1 000 in the second year (Lausanne, Salon des metiers et de la formation (Lausanne, Career and Education Fair), n.d.[33]) while a fourth-year engineering apprentice might earn CHF 1,400. These wages are typically 20–30% of a qualified worker's wage in the first year, rising to perhaps 50–60% in the final year as apprentices become more productive. Across the 70,000+ apprentices in training each year, companies' gross expenditure is substantial – estimated at CHF 5 billion per year in 2022 (Federal Department of Economic Affairs, Education and Research EAER. State Secretariat for Education, Research and Innovation SERI, 2024[29]). However, Swiss studies consistently show that many companies achieve a net benefit by the end of the apprenticeship (SFUVET, 2025[34]).

The government provides targeted subsidies or supports to employers in certain cases rather than general training subsidies. Unlike some countries, Switzerland does not pay companies per apprentice; instead, the norm is that companies bear costs and reap benefits directly. However, there are support measures: for example, the cantons and federal government financially supports the inter-company courses so that companies do not pay full price. Additionally, there exist sectoral training funds (parafiscal funds) in some industries (like construction) which collect levies from all companies to redistribute and support those that train apprentices. Cantons may also incentivise training of disadvantaged learners – for instance, offering a bonus to firms training an apprentice with a disability or providing additional coaching.

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Annex 10.A. Examples of curriculum structure and assessment procedures for three ISCED 3 VET qualifications

To illustrate how the above elements come together in practice, this annex presents three examples of upper-secondary VET programmes in Switzerland:

- Example 1: Four-year Apprenticeship in Polymechanic (EFZ) – a technical dual VET programme.
- Example 2: Full-time Commercial School (Handelsmittelschule) "3+1" programme – leading to EFZ in Commerce with Vocational Baccalaureate.
- Example 3: Two-year Apprenticeship in Retail Sales (EBA) – a VET programme for a less academically demanding occupation.

Each example outlines the programme's structure (subjects, credits, practical training) and key assessment features, as well as pathways after completion.

Example 1: Apprenticeship in Polymechanic EFZ (Manufacturing Mechanic) – ISCED 3 Dual VET

Note: The ordinance for Polymechanic EFZ (Manufacturing Mechanic) has been completely revised and the new one will come into force on 1 January 2026. This example refers to the pre-2026 ordinance and programme.

The Polymechanic EFZ is a four-year apprenticeship (ISCED 354, EQF level 4) preparing youth for a career as precision mechanics in the machine/metal industry. It is a widely offered technical programme (around 2 000 apprentices nationwide) governed by a federal ordinance issued by SERI in co-operation with the Swiss mechanical and electrical engineering association (Swissmem) and Swissmechanic. Prior to revisions coming into force in 2026, the ordinance defined detailed *training objectives* across five competency domains: production technology, assembly, maintenance, planning, and quality control. The emphasis is on machining skills (operating lathes, milling machines, CNC programming), mechanical assembly, and manufacturing processes. The curriculum is highly prescribed in terms of content and time allocation, ensuring national consistency: the education plan lists the specific skills ("learning outcomes") to be mastered and assigns them to either the company training plan, vocational school syllabus, or inter-company courses (Swiss Education System, n.d.[15]; Eurydice, 2023[3]; berufsberatung.ch, 2024[22]).

Apprentices spend 4 days a week on average at a training company and 1-2 days per week at the vocational school (berufsberatung.ch, 2024[22]). Over the 4-year duration they also attend a total of 54 days of inter-company courses (üK), mainly during the first two years (berufsberatung.ch, 2024[22]). In-company training follows a structured company training plan provided by Swissmem and Swissmechanic. In the first year, apprentices rotate through basic manual machining tasks (filing, drilling, basic machine operation) under close supervision. In later years, they advance to CNC programming, assembly of complex machines, and project-based work, gradually increasing autonomy. The ordinance mandates that certain foundation skills (like basic welding or advanced milling techniques) are to be taught in the inter-company courses to ensure every apprentice, regardless of company, learns them. These courses take place at regional industry training centres and simulate work conditions.

At the vocational school, the curriculum for the Polymechanic EFZ is divided into three areas: vocational instruction (Berufskenntnisse), general education (Allgemeinbildung), and physical education (Sport). The vocational instruction includes subjects such as technical mathematics and physics, materials and production technology, technical drawing, machine technology, electrical and control systems, and information technology (berufsberatung.ch, 2024[22]). General education covers language and communication, civics and society, and personal development. The curriculum also includes interdisciplinary project work.

The total volume of classroom instruction is defined by profile: learners in Profile G (basic requirements) complete 1 800 lessons, and those in Profile E (extended requirements) complete 2 160 lessons over four years (Das Staatssekretariat für Bildung, 2009[35]). Weekly lesson counts for each subject and year are precisely specified in the education plan, allowing for national consistency while leaving some flexibility in how schools deliver content. Teachers may adapt pedagogy, and many schools implement project-based learning approaches. For example, students might collaborate on an applied assignment to design and produce a tool, integrating skills from CAD, materials science, and control systems. Additionally, apprentices complete several inter-company courses (überbetriebliche Kurse), focusing on developing fundamental practical skills and ensuring consistency in workplace training.

For company training, while the learning outcomes are fixed nationally, with prescriptiveness about what must be learned and approximately when, methods may vary across companies. One company may train CNC by having the apprentice manufacture actual product parts, another may assign a practice project. The ordinance also stipulates minimum exposure: e.g. apprentices must spend at least X weeks doing assembly work, at least Y weeks in machining, etc., over the apprenticeship (Eurydice, 2023[3]).

Continuous and final assessments are integrated. Throughout the apprenticeship, the apprentice compiles a skills portfolio (learning journal) documenting tasks and projects – this is mandated and checked by trainers and teachers. The company trainer completes a semesterly training report grading the apprentice's skill progression and work attitude (Eurydice, 2025[36]). These reports form part of an "experience grade" that contributes to the final certification (Eurydice, 2023[13]) (Polymechaniker-in, n.d.[37]). In vocational school, regular tests and semester grades in each subject are given; poor performance triggers support measures (and could result in repeating a year) (Swiss Education System, 2025[5]).

At the end of Year 2, there is an intermediate exam (*Teilprüfung*) that is nationally standardised: for polymechanics, this is a 12-hour practical test of basic machining skills. The result counts towards the final qualification (commonly weighted about 25%). At the end of Year 4, the final exam (Qualifikationsverfahren) has several parts:

1. An Individual Practical Assignment (IPA) which spans about 2-3 weeks (e.g. 40-80 hours). Each apprentice must independently produce a complex workpiece or carry out a project (like manufacturing a device from drawings, then testing and documenting it). The task is usually provided or approved by the industry exam commission and often carried out at the apprentice's company under observation. Two expert examiners (experienced mechanics) assess the finished piece and the apprentice's process and presentation.
2. A theoretical knowledge exam (*Berufskenntnisse*) of ~4 hours, often in an online or written format, covering technical theory (materials, calculations, engineering science).
3. A General Education exam (*ABU – Allgemeinbildung*): a 3-hour exam which includes applied problems or essay questions in civics, society, or language. Additionally, the "experience grades" – composed of school grades and on-the-job performance evaluations – contribute a significant portion (Eurydice, 2023[13]; Polymechaniker-in, 2025[17]).

The final overall score aggregates practical, theory, and general components with weights set in the ordinance: Practical incl. IPA ~50%, Vocational theory ~30%, General ~20% (Polymechaniker-in, n.d.[37]). To pass, candidates must achieve at least a 4.0 average and not fall too far below in any part.

With an EFZ in hand, graduates are qualified for jobs as mechanical technicians, machinists, CNC operators, etc., and many proceed later to higher VET (such as a Federal PET diploma in mechanical engineering) or to a full-time engineering degree at a University of Applied Sciences, especially if they also obtained the vocational baccalaureate during training (berufsberatung.ch, 2024[22]).

Example 2: Full-time Commercial School ("Handelsmittelschule") – 3+1 Programme for the Federal VET Diploma in Commerce (EFZ) with Vocational Baccalaureate

This programme is a full-time school-based VET route in the field of business and administration, common in many cantons (particularly in the French- and Italian-speaking regions). It leads to the Federal VET Diploma in Commerce (*Kaufmann/Kauffrau EFZ*) and simultaneously to the Federal Vocational Baccalaureate (economics/services profile) over four years (SDBB - CSFO, n.d.[38]). It is often referred to as *école de commerce modèle 3+1* in French or *Handelsmittelschule 3+1* in German. Students typically enter at age 15–16 after compulsory school, often those with strong academic performance. The EFZ component of the programme corresponds to ISCED level 3, while the Vocational Baccalaureate component is classified as ISCED level 4, preparing learners for access to tertiary education.

The programme is governed by the same federal ordinance as the regular 3-year commercial apprenticeship (Das Staatssekretariat für Bildung, 2023[39]; Das Staatssekretariat für Bildung, 2021[40]) with adaptations made by Cantons to account for the extended curriculum and integrated baccalaureate. The commercial EFZ ordinance and education plan defines a set of operational competencies – broad abilities like "Interacting in a connected work environment", "Managing customer relationships", "Executing administrative processes", and "Using digital tools effectively". These competencies are broken down into learning objectives that the student must achieve. A framework curriculum based on the federal ordinance dictates the number of lessons per subject and year and the topics to be covered, and encourages methods like problem-based learning (EOP: *enseignement orienté vers les problèmes*). The cantonal school develops a detailed study plan (Berufsberatung, 2024[41]).

For the first three years, students attend a commercial school (a section of a cantonal gymnasium or a standalone commercial college) on a full-time basis, roughly 32-35 hours per week of classes. Teaching covers the five federal competence areas (commercial processes; information & communication; languages; economics & law; mathematics/sciences) defined in the 2021 EFZ ordinance (Fedlex, 2003[20]). At the same time, the school delivers the compulsory subjects for the Vocational Baccalaureate orientation "*Wirtschaft und Dienstleistungen*": first national language, second national language, a third language, mathematics, economics & law, history & politics, and an interdisciplinary project (Fedlex, 2016[42]). The curriculum also includes a unit called *Travail interdisciplinaire par projet (TIP)*, an interdisciplinary project in which students integrate knowledge from various subjects to solve a practical problem or create a business-related project (Berufsberatung, 2024[41]). For example, a TIP might involve developing a small business plan or organising a school event, requiring budgeting, marketing, and evaluation. By the end of year 3, students have covered the full content of both the EFZ curriculum for commerce and the academic content for the vocational matura.

In the fourth year, they undertake a year-long practical internship, replacing the day-release model used in apprenticeships. They work as trainees in roles such as administration clerk, accounting assistant, or customer service assistant in a company or government office. The internship must meet requirements set by the ordinance. In Geneva's model, instead of one long external internship, much of the practical training occurs in-house at the school's *"Espace Entreprise"* – a simulated company environment separate from the classroom where students rotate through different departments and complete real-world-inspired tasks as if in a company. This happens concurrently with years 1-3, and then possibly a shorter external stage (Berufsberatung, 2024[41]).

Students in this programme undergo two parallel assessments – one for the VET diploma and one for the vocational baccalaureate, often integrated. During the three school years, they receive grades in all subjects as in any school (with 6-point scale). For the EFZ portion, there is typically an end-of-year 3 school qualifying exam that mimics the final apprenticeship exam in vocational subjects. Additionally, their performance in the "practice enterprise" or internships is evaluated, contributing to their EFZ experience grade. The formal qualification procedure for the EFZ occurs at the end of the 4th year: it usually consists of a practical exam and written/oral exams similar to the apprenticeship track. The practical exam can be the evaluation of their year-long internship: submit an internship portfolio or complete a practical project during the internship which is assessed by a commission. In addition, they often must do a "integrative professional project" (IP), counted towards the EFZ final assessment. They also sit written exams in vocational knowledge and in languages, as per the commercial EFZ national exam standards. The school programme typically stipulates that obtaining the EFZ is conditional on passing both the school part and the internship part independently (Berufsberatung, 2024[41]).

For the Vocational Baccalaureate (Berufsmaturität), students take separate, advanced-level exams in general education subjects, which are nationally standardised and regulated by the SERI. Students need ideally sufficient grades in each of the BM exam subjects. The Federal Vocational Baccalaureate is considered to have been passed if the overall grade is at least 4, if the total difference between the "insufficient" grades and grade 4 does not exceed two grade points, and if not more than two grades below 4 have been awarded) (Eurydice, 2023[13]).

Graduates are awarded the *Eidgenössisches Fähigkeitszeugnis Kaufmann/Kauffrau* and recognised as fully qualified commercial employees. Additionally, they receive the *Berufsmaturität* certificate which grants direct access to Universities of Applied Sciences in business fields (Berufsberatung, 2024[41]). With an extra Passerelle exam, they can attend universities. Those struggling academically might drop the BM portion and still obtain the EFZ.

Example 3: Apprenticeship in Retail Sales, 2-year Federal VET Certificate (Detailhandelsassistent/in EBA) – ISCED 3C Dual VET

The Retail Sales Assistant EBA is a two-year apprenticeship leading to a Federal VET Certificate, targeted at occupations in the retail sector that have less complex skill requirements than the full retail EFZ. It is designed for students who may prefer a more practical, basic training.

The training ordinance for retail EBA is issued by SERI in collaboration with the Swiss retail industry association. It defines the occupational profile and expected competencies for retail assistants, focusing on basic operational tasks such as advising customers on standard queries, handling simple sales transactions, stocking shelves and supporting the store team. it lists the activities learners must be able to perform (e.g. "Present merchandise in a customer-oriented manner", "Establish initial contact with customer in retail"). The content is a simplified subset of the EFZ curriculum, derived from the same occupational analysis but limited to foundational tasks (Das Staatssekretariat für Bildung, 2021[43]). The ordinance also includes the training plan which focuses on core skills in year 1, then broadens slightly in year 2, and avoids overload in theoretical topics. All retail EBA learners – whether in a small boutique or a large supermarket – follow the same competency framework. Sector associations support training provision by supplying structured materials, such as workbooks tailored to the tasks. The school part follows a national teaching plan for retail EBA that describes learning fields and work situations in connection with the core skills rather than strict academic syllabus. In addition, inter-company courses are organised by the retail sector – around ten days in total over the apprenticeship (Bildung Detailhandel Schweiz (Retail Education Switzerland), n.d.[44]).

The apprentice signs a contract with a retail company (e.g. a supermarket, boutique, or department store) and works there typically four days a week (Kaufmännische Berufsschule Langenthal (Langenthal

Commercial Vocational School), n.d.[45]). At the workplace, EBA apprentices learn by performing real store tasks. In the first year, they mainly work behind the scenes – receiving deliveries, restocking shelves, and preparing displays. In the second year, they gradually take on customer-facing duties, such as operating the cash register, handling basic sales, and answering simple questions (Das Staatssekretariat für Bildung, 2021[43]). A designated company trainer, often the store manager or senior staff, supports the apprentice using a logbook of required skills. Many companies rotate apprentices across departments to ensure broad exposure within the limited two-year duration.

At vocational school, attended one day a week, retail EBA apprentices follow a focus on essential workplace skills. Subjects include product knowledge, basic sales techniques, applied retail calculations, workplace communication in the local language, and simple social studies (e.g. employee rights, basic trade economics) (orientation.ch, 2025[46]). General education is limited and embedded in the vocational context – for example, maths is taught through pricing and discount exercises, and language through writing business emails. Teaching is highly practical, often using mock store setups to simulate customer interactions and merchandising. In addition, apprentices can take part in inter-company courses organised by the retail trade association (Bildung Detailhandel Schweiz, n.d.[19]).

Assessment in the EBA programme combines workplace evaluations, school-based assessments, and a final qualification procedure. Company trainers regularly assess apprentices using standardised forms that rate key competencies such as reliability, communication, and handling transactions. At school, assessment includes: 1) a written test covering core vocational knowledge and 2) written or oral cases studies. A passing average of 4.0 in the final qualification procedure is required, with two retakes permitted.

The Retail EBA is positioned at NQF level 3 (Eurydice, 2023[13]). It certifies that the holder can carry out routine tasks under supervision in retail. With the EBA certificate, graduates are employable as sales assistants, shelf stockers, or cashiers. Many will remain in that role or gradually progress informally; however, the system encourages upward mobility: a successful EBA graduate can enter a shortened (usually two-year) programme to upgrade to the full Retail EFZ (Swiss Education System, 2025[5]). For example, an assistant in a supermarket who shows potential can enter the second apprenticeship year, focusing on advanced competences (like ordering stock, handling complex customer inquiries) and then take the EFZ exam.

OECD Reviews of Vocational Education and Training

Vocational Education and Training Systems in Nine Countries

Upper-secondary vocational education and training (VET) represents the largest share of VET in most countries. It comprises programmes that are predominantly school-based, as well as programmes with a substantial element of work-based learning. Upper-secondary VET offers students the opportunity to develop labour market relevant skills, alongside more general and transversal competencies. It also typically enables learners to access higher levels of education and training.

Countries implement upper-secondary VET in diverse ways. This report describes upper-secondary VET systems across seven dimensions in nine countries, providing an up-to-date and detailed evidence base on similarities and differences between upper-secondary VET systems around the world. The dimensions analysed are: 1) VET's place in the education system and pathways into and after VET; 2) curriculum and assessment; 3) work-based learning in school-based programmes; 4) provider types; 5) VET teachers and trainers' qualifications and professional development; 6) governance; and 7) funding. One chapter is dedicated to each of the nine countries: Austria, Denmark, Finland, Germany, the Netherlands, Norway, Singapore, Sweden and Switzerland.

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