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# DUAL HIGHER EDUCATION IN DENMARK: LEGAL FRAMEWORK, APPLICATION AND EDUCATIONAL PATHS

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***Abstract***
*Denmark's education system is frequently characterised by its flexibility and permeability, enabling progression between vocational and academic pathways. Within this context, elements of dual learning are embedded at multiple levels, including professional higher education and selected university programmes. This article examines the legal, structural, and institutional foundations of Dual Higher Education (DHE) in Denmark. Drawing on a qualitative document analysis of national legislation, policy documents, and institutional use cases, the study analyses how dual principles are framed in law and implemented in practice. The article reviews the literature on dual education models and explores the legislative framework that shapes vocational and higher education. It also considers dual education pathways and institutional practices through selected case examples, highlighting how regulatory structures interact with institutional strategies to combine workplace-based learning and academic instruction across different educational tracks. The analysis reflects on the transferability of the Danish model and identifies key factors that influence the implementation of dual learning in higher education.*

## 1 Introduction

Denmark is a Nordic country in Northern Europe, consisting of the Jutland Peninsula and an archipelago of more than 400 islands. It is recognised for its stable welfare system, high standard of living, and long-standing democratic governance. Copenhagen, the capital city, functions as the country's political, cultural, and economic centre, hosting key government institutions, universities, and major industries.

Denmark has a constitutional monarchy combined with a parliamentary democracy. The monarch serves as the ceremonial head of state, while executive power rests with the Prime Minister and the government, which are accountable to Parliament. The Parliament is a unicameral legislative body composed of elected representatives, and it is responsible for creating laws, approving the national budget, and overseeing government policies.

The Danish education system is predominantly publicly funded and designed to ensure equal access for all citizens. It is organised into primary, secondary, and higher education levels, with each stage structured to provide both academic knowledge and practical skills. Vocational education and training (VET) constitutes an important component of this system, offering students career-focused pathways that combine classroom learning with practical workplace experience. Vocational training programmes are well established and closely connected to the labour market, often through dual

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training models in which students devide their time between school-based instruction and on-the-job training. This integration supports skill development that meets the evolving needs of Danish industries.

In this article, the term “dual higher education” is used as an analytical concept rather than as a formally established category within the Danish higher education system. Denmark does not operate a system of dual higher education characterised by parallel enrolment in higher education institutions and formal employment contracts governed by a unified national framework. Instead, Danish higher education includes a range of practice-oriented and professionally oriented programmes that incorporate elements of work-based learning.

Denmark is a member of the European Union (EU). Nonetheless, its national legal frameworks and governance of education remain autonomous, shaping the way in which EU-level policies, including dual education and vocational training frameworks, are implemented and adapted within the country.

This work is part of the EU4Dual project, a European initiative to establish a European Dual Studies University. The project aims to analyse the legal frameworks of dual learning across several European countries, including, for example, France (Merlo et al., 2023), Belgium (Dupouy et al., 2024a), and Luxembourg (Dupouy et al., 2024b).

This article provides a comprehensive understanding of dual education in Denmark, beginning with a review of relevant studies and theoretical frameworks. It then outlines the research method used to analyse the topic, followed by an examination of the legislative framework governing education and vocational training. The discussion continues with an overview of the various dual education pathways available to students and highlights institutional use cases that illustrate how universities and colleges implement these programmes. Finally, the article explores the implications of these findings and concludes with a summary of key insights and recommendations for future practice.

## 2 Literature review

Since the late 1980s, the Danish government has introduced several changes to improve vocational education and training. These changes include the 1989 VET Reform, which simplified the structure of VET programmes, the 1996 reform of Commercial VET programmes, and Reform 2000, which focused on innovation and development at vocational schools (Stenström & Lasonen, 2000). In the mid-2010s, Denmark also introduced a special education programme for VET teachers. The aim was to improve teaching methods and enhance the skills of teachers at VET colleges (Duch & Andreasen, 2015).

Despite these progressive reforms, the attractiveness of VET programmes has decreased, as evidenced by declining enrolment rates and high dropout numbers among enrolled students. Proposals include re-evaluating the role of VET within the educational framework by advocating for a mandatory 12-year schooling system (Aarkrog, 2020);

While institutions like the European Centre for the Development of Vocational Training (Cedefop) provide periodic insights into Denmark's VET landscape, a comprehensive analysis of its dual education system remains incomplete. Current literature, such as (Stenström & Lasonen, 2000), often lacks a detailed connection between legislative frameworks and students’ practical learning trajectories. Other existing reports, such as those by Christian Helms Jørgensen from 2014 (Jørgensen, 2013), provide valuable historical context but fall short of capturing recent developments. There is therefore a need for updated and detailed studies that bridge these gaps and provide insights into the evolving dynamics of Danish vocational education and training systems.

In light of these gaps, this paper offers a comprehensive analysis of Denmark's dual education landscape. By examining recent legislative changes and their practical implications for student learning paths, the study provides a detailed and up-to-date assessment VET programmes in Denmark.

## 3 Method

The study aims to describe the available dual learning pathways in Denmark and to analyse how educational institutions integrate dual learning into their programmes. The first step is a literature review to establish what has already been achieved and where the gaps remain. This is followed by a document study (Figure 1).

The documents are drawn from two distinct sources: legislative bodies and educational institutions. These sources require differentiated analytical treatment. Legislative documents are characterised by technical and formalised language. In contrast, institutional documents are shaped by communicative and strategic purposes, often presented in a promotional manner.

To address the question of dual learning pathways, a comprehensive document analysis of legislative and regulatory materials was conducted across Denmark. This analysis clarifies the legal framework governing dual learning in each region, including statutory requirements, accreditation standards, and guidelines for institutional implementation. Based on these findings, dual learning pathways were mapped to illustrate how students can progress through the system from ages of 14 to 23, highlighting potential career trajectories and connections between vocational education, higher education, and the labour market.

To analyse how educational institutions integrate dual learning into their programmes, a qualitative document analysis was conducted to collect best practices from educational institutions, with three institutions selected as a case studies in Denmark. A structured analytical framework consisting of 34 guiding questions was developed to examine the available information systematically. Data were collected exclusively from publicly accessible online sources, including institutional websites, official reports, policy documents, published use cases, and promotional materials.

The analytical framework was organised into seven thematic categories, each addressing a key aspect of dual education: the definition of dual learning, institutional mission and vision, structure of educational programmes, collaboration with dual partners, programme implementation processes, faculty involvement, student experiences, and challenges encountered. Each category contained multiple questions, often requiring descriptive answers. For clarity and analytical simplicity, the responses presented in this paper have been reformulated into binary yes/no format, allowing a structured comparison across themes and facilitating interpretation of institutional practices.

Footnotes were added where necessary to clarify the rationale behind specific binary (yes/no) classifications, particularly in cases where institutional information required interpretative judgement or where nuances could not be fully captured by a dichotomous format.

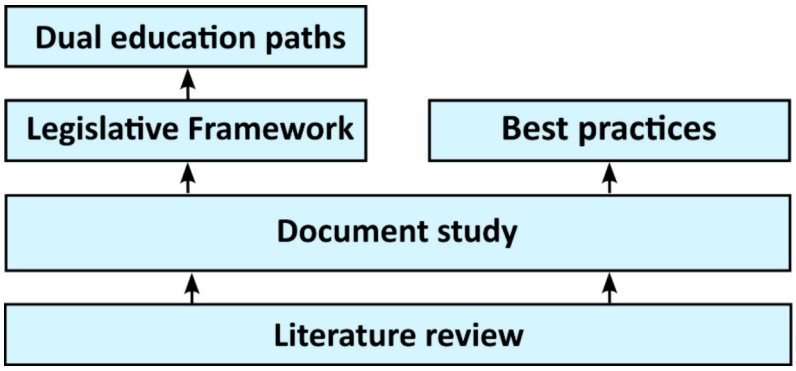


*Figure 1. Research design used in this article*

## 4 Legislative framework

Denmark's vocational education and training system has undergone significant transformation since its origins, evolving beyond the traditional apprenticeship model, which closely resembled the German dual system. The development of Denmark’s modern VET framework began with the Apprenticeship Act of 1956, which established the legal foundation for a more diversified and

structured dual education model (Andersen & Helms, 2019). Over time, this model expanded to include a variety of vocational pathways designed to meet the needs of different learner groups and sectors.

Upon completion of compulsory education (typically after the 9th grade), students transition to the upper secondary level (European Qualifications Framework (EQF) levels 3-4), where they choose between general and vocational education pathways (Jørgensen, 2013). The vocational track offers three main options:

- Vocational Education and Training (Danish: Erhvervsuddannelse, abbreviated: EUD): This programme prepares students for employment in specific sectors such as agriculture, commerce, technical trades, and healthcare. EUD combines theoretical instruction in vocational schools with extensive workplace-based training, typically lasting between three and four years. Theoretical components are delivered at certified training institutions (Executive order on vocational education and training, 2021).
- Vocational Education and Training including General Upper Secondary Exam (Danish: Erhvervsuddannelse med gymnasial eksamen, abbreviated: EUX): Introduced in 2012, the EUX pathway integrates vocational education with general academic education. Approximately 50% of the programme involves work-based learning, and students graduate with both a journeyman's certificate and a general upper secondary diploma. This dual qualification enables access to higher education and supports the needs of academically motivated students. The EUX programme generally spans 4 to 5 years and is available in commercial and technical fields (Act on the vocational upper secondary education (EUX), 2022).
- Vocational Education and Training for Adults (Danish: Erhvervsuddannelse for voksne, abbreviated: EUV): Designed for learners aged 25 and above, EUV parallels the EUD structure but adapts content and duration according to the individual's prior work experience. Programme length typically ranges from three to four years (Andersen & Helms, 2019).

Table 1 provides an overview of the main Danish secondary and vocational education pathways, highlighting their target groups, age ranges and duration.

*Table 1. Comparison of Key Danish Secondary and Vocational Education Pathways (EUD, EUX, and EUV)*

| *Vocational track* | *Target group* | *Age range* | *Duration* |
|---|---|---|---|
| EUD | Youth entering vocational education | 16–20 | 3–5 years |
| EUX | Youth combining vocational training with academic studies | 16–20 | 4–5 years |
| EUV | Adults returning to education | 18+ | Flexible |

In addition to vocational tracks, Denmark offers five general and technical upper secondary programmes (Andersen & Helms, 2019):

- General Upper Secondary Examination (Danish: Studentereksamen, abbreviated: STX): A three-year academically oriented programme.
- Higher Commercial Examination Programme (Danish: Højere Handelseksamen, abbreviated: HHX): A three-year course combining theoretical studies with practical projects and internships.
- Higher Technical Examination Programme (Danish: Højere Teknisk Eksamen, abbreviated: HTX): A three-year programme emphasizing science and technology within a general education framework.

- Higher Preparatory Examination (Danish, Højere Forberedelseseksamen, Højere Forberedelseseksamen: HF): A two-year programme focused on academic preparation for higher education.
- International Upper Secondary Programmes: These programmes serve international students and follow globally recognised curricula.

While STX and HF serve general education purposes, HHX and HTX are often classified as vocationally oriented due to their applied components (Andersen & Helms, 2019).

Table 2 summarizes the main Danish general upper secondary education programmes, detailing their target groups, age ranges, duration.

*Table 2. Overview of Danish General Upper Secondary Education Pathways (STX, HHX, HTX, and HF)*

| *Vocational track* | *Target group* | *Age range* | *Duration* |
|---|---|---|---|
| STX | Youth aiming for general academic education | 16-19 | 3 years |
| HHX | Youth interested in business and economics | 16-19 | 3 years |
| HTX | Youth interested in science, technology, and engineering | 16-19 | 3 years |
| HF | Youth seeking a shorter, flexible academic program | 17-19 | 2 years |

In addition, the Preparatory Basic Education and Training programme (Danish: Forberedende Grunduddannelse, abbriviated: FGU) programme supports individuals under the age of 25 who have not completed upper secondary education. FGU offers three flexible modules:

- General Basic Education (Danish: Almen Grunduddannelse for Voksne, abbreviated: AGU): This programme is primarily designed for adult learners who need to strengthen their general academic skills. The curriculum is composed of approximately two-thirds theoretical instruction, covering subjects such as Danish, mathematics, English, and social studies, and one-third practical training to support personal development and prepare learners for further education or entry into the labour market.
- Basic Production Education (Danish: Produktionsskolernes Grunduddannelse, abbreviated: PGU): This programme that emphasises hands-on experience in production and vocational environments. It is tailored for adults who require practical skills and workplace orientation before entering formal vocational education programmes. PGU combines practical training with supportive academic instruction as needed, focusing on work readiness and skill development.
- Basic Vocational Education (Danish: ErhvervsGrundUddannelse, abbreviated: EGU): Targeted primarily at young people at risk of leaving traditional education, EGU provides skills training combined with school-based instruction. The programme is flexible and individualised, integrating practical workplace experience with academic support to develop both vocational competencies and basic educational skills, enabling students to progress to formal vocational programmes (EUD/EUX) or directly enter the labour market.

Table 3 presents the main preparatory and alternative vocational education pathways in Denmark, highlighting target groups, age ranges and duration.

*Table 3. Overview of Danish Preparatory and Alternative Vocational Pathways (AGU, PGU, and EGU)*

| *Vocational track* | *Target group* | *Age range* | *Duration* |
|---|---|---|---|
| AGU | Adults needing basic education | +18 | Flexible |
| PGU | Adults needing vocational preparation | +18 | Flexible |
| EGU | Youth at risk of dropping out of standard education | 15-25 | 1-3 years |

The foundation of Denmark's Vocational education and training system lies in the structured combination of academic and work-based learning. Programmes such as EUD typically last 3.5 years, with students alternating between school and company-based training in a 2:1 ratio. The EUX programme introduced a key innovation by combining upper secondary academic qualifications with vocational certification, creating new pathways to tertiary education (Cedefop, 2020).

Since the enactment of the 1989 law (Lov Om Erhvervsuddannelser, 1989), Denmark's vocational education and training programmes have been clearly regulated through national legislation. This law, together with its subsequent amendments, including the 2024 revision, defines VET as dual programmes that alternate between theoretical learning in schools and practical training in companies. According to the legal framework, each VET programme consists of a basic course and a main course, with an optional additional preparatory course for further studies (Act on vocational education and training, 2024).

The basic course is split into two phases: Phase 1 lasts approximately 20 weeks, offering general and vocational orientation. Phase 2 lasts up to additional 20 weeks, focusing on practical preparation for the main course (Cedefop, 2020).

In some cases, the basic course can be replaced entirely or partially by workplace training under a company agreement, a structure known as the New Apprenticeship. Additionally, the Main Course Plus (Danish: Grundforløb Plus, abbrivated GF+) offers a 10-week extension for students who need more time to select a specialisation.

Although the term "Dual Higher Education" is not formally used in Danish legislation, several higher education programmes incorporate both theoretical and practical elements consistent with the principles of dual education. Danish higher education spans ISCED levels 5 to 7 and includes both academic and professionally oriented pathways.

Professional bachelor's programmes, established under legislation since 2008, (Act on academy profession programmes and professional bachelor's programmes, 2008). last between 3 and 4 years. These programmes combine academic learning with mandatory internships of at least six months, equivalent to 30 ECTS credits (Act on academy profession programmes, 2024). Fields include healthcare, pedagogy, business, IT, media, social sciences, technology, and design.

Another key component is Academy Profession (AP) programmes. These full-time programmes last between 1.5 and 2.5 years and include at least three months of compulsory internship. In some disciplines, AP graduates may progress to top-up Professional bachelor's programmes, thereby completing a full bachelor's qualification. These programmes are designed to blend academic knowledge with real-world application, aligning with dual education principles (Act on academy profession programmes, 2024).

Following a Professional Bachelor's degree, students can pursue master's programmes (ISCED level 7), typically two years in duration. These are primarily research-based and focus on advanced theoretical knowledge and practical applications. While internships are not mandatory at master's level, some programmes offer them depending on the discipline. Part-time master's programmes also exist for working professionals who wish to continue their education while employed. (Executive order on part-time professional master's programmes, 2017)

In general, academic bachelor's programmes, students may engage in business projects or select a fully academic curriculum, depending on program design. This flexibility underscores Denmark's broader commitment to integrating theoretical and applied learning across all levels of education.

## 5 Dual education paths

A 16-year-old student in Denmark is presented with a structured and diversified set of educational pathways upon completion of lower secondary education, reflecting the country's integrated approach to general, vocational, and technical education within the framework of the EQF. The programmes presented are as follows:

- EUD programme: An option of vocational education and training pathway with a duration of approximately three to four years, corresponding to EQF levels 3 to 5. The EUD program is strongly occupation-oriented and is designed to prepare students for direct entry into the labour market within specific economic sectors, including agriculture, commerce, technical trades, and social or health care services. The programme combines school-based instruction with extensive work-based learning and apprenticeships, ensuring that students acquire sector-specific skills aligned with labour market needs.
- EUX programme: This programme also lasts three to four years and corresponds to EQF levels 4 to 5. The EUX program is distinctive in that it integrates general upper secondary education with vocational training in a single, coherent curriculum. Approximately 50% of the programme consists of work-based learning, while the remaining component focuses on general and theoretical subjects. EUX programmes are available primarily in commercial and technical fields and are designed to broaden students' educational opportunities by enabling access to both employment and higher education upon completion.
- HTX program: a three-year upper secondary technical education corresponding to EQF level 4. HTX combines general education with a strong emphasis on technological, scientific, and engineering-related subjects. The curriculum is designed to develop analytical, problem-solving, and innovation-oriented competencies, preparing students primarily for further studies in higher education, particularly within technical and scientific disciplines.
- HHX Program: a three-year programme at EQF level 4. HHX focuses on business, economics, and social sciences, while integrating theoretical instruction with practical elements such as project work, case studies, and internships. This combination aims to equip students with both academic knowledge and practical insight into commercial and organisational contexts.

At the same level of upper secondary and vocational pathways described above, the Danish education system also offers other non-dual upper secondary programes with a duration of two to three years, corresponding to EQF level 4. These programmes are primarily school-based and do not include structured work-based learning or apprenticeship components. Their main objective is to provide students with a general and academic foundation while maintaining permeability within the classical education system. However, graduates of these non-dual programmes are eligible to continue into vocational education and training pathways, as well as to access higher education routes such as Academy Profession programmes, professional bachelor's programmes, and university bachelor's programmes, subject to specific admission requirements.

Upon completion of upper secondary education, typically at the age of 19–20, students may transition to higher education through several pathways. Students holding a general upper secondary qualification, including graduates from general, technical, or equivalent programmes, are eligible to enter a university bachelor's program, which has a standard duration of three years and corresponds to EQF level 6 (The University Act, 2019). University bachelor's programmes are predominantly academic and research-based, with a strong emphasis on theoretical foundations and scientific methodologies. While these programmes are not vocational in nature and do not formally incorporate dual learning models, many include project-based coursework or optional internships that introduce applied and practice-oriented components within an otherwise theoretical framework.

An alternative higher education pathway is the professional bachelor's program, which lasts between three and four years and also corresponds to EQF level 6. Professional bachelor's programmes are explicitly designed to bridge theory and practice by combining academic studies

with mandatory practical training periods of at least six months. These programmes target professions with clearly defined occupational profiles, such as teaching, nursing, engineering, and social work. Students holding a general or technical upper secondary diploma are eligible for admission, and EUX graduates are also qualified because they have completed both vocational training and general education components.

A third higher education option available to students around the age of 19 is the vocational academy programme. These programmes typically last between 1.5 and 2.5 years and correspond to EQF level 5. Academy Profession programmes are professionally oriented and combine theoretical instruction with applied learning, including a compulsory internship of at least three months. Admission is open to students with either a general upper secondary qualification or an EUD vocational qualification. Furthermore, an Academy Profession degree may serve as a progression route into a related professional bachelor's program (Executive Order on Admission, 2025).

Graduates of the EUD program have direct access to Academy Profession programmes. However, in order to qualify for admission to a professional bachelor's program, EUD graduates are required to complete supplementary upper secondary courses (GS) to ensure that they meet the necessary academic prerequisites (Act on General Upper Secondary Education, 2024). The supplementary secondary courses may last up to four months.

At postgraduate level, students who complete a university bachelor's program (EQF level 6) may continue their studies by enrolling in a master's degree program at EQF level 7. Master's programmes generally have a duration of two years and emphasise advanced scientific and theoretical knowledge, as well as the ability to apply this knowledge in complex, real-world contexts. Although practical components are not legally mandated, some master's programmes include internships, applied projects, or collaboration with industry, depending on the disciplinary field. In addition, part-time master's programmes are available, enabling employed graduates to pursue further qualifications alongside professional activities. Graduates from professional bachelor's programmes may also gain access to master's programmes, subject to the specific admission requirements defined by each institution and field of study.

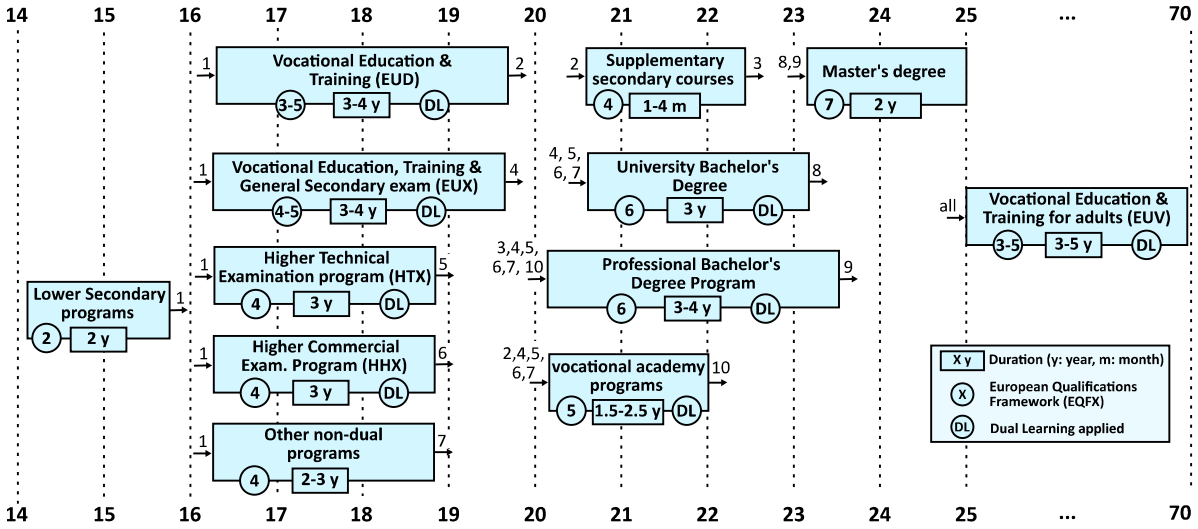


*Figure 2. Dual education paths in Denmark's educational system*

## 6 Institutional use cases

The following three institutions were selected as representative use cases because of their active and well-established involvement in dual learning and practice-oriented higher education in Denmark, as well as their institutional diversity within the Danish tertiary education landscape.

Use case 1: Roskilde University (RUC) is a public Danish university founded in 1972 and is internationally recognised for its innovative and student-centred pedagogical model. The university is particularly known for its problem- and project-based learning (PBL) approach, which emphasises

interdisciplinary collaboration, critical thinking, and the application of theoretical knowledge to real-world societal and industrial challenges. RUC hosts approximately 7,000 students enrolled in a broad range of bachelor's and master's programmes across the social sciences, humanities, natural sciences, and technology. Although RUC is not a vocational institution in the strict sense, its strong emphasis on project work, external collaboration, and applied research creates structured opportunities for dual and practice-oriented learning. Students frequently engage in projects developed in cooperation with public institutions, private companies, and non-governmental organisations, thereby strengthening the link between academic education and professional practice.

Use case 2: The University College of Northern Denmark (UCN), established in 2007, is a professionally oriented higher education institution that plays a central role in delivering vocationally relevant tertiary education. UCN offers both Academy Profession programmes and professional bachelor's programmes in key societal and economic fields, including business, social education, health, and technology. The institution is characterised by a strong integration of theoretical instruction with mandatory practical training periods, internships, and close collaboration with regional employers. Dual learning is a core element of UCN's educational model, as curricula are designed in close alignment with labour market needs and professional standards. Through systematic cooperation with industry and public-sector partners, UCN ensures that students acquire occupation-specific competencies and practical experience that enhance employability and facilitate a smooth transition from education to work.

Use case 3: Copenhagen Business Academy (CPH Business) is the largest business academy in Denmark and was founded in 2009 as part of a national reform of short- and medium-cycle higher education. The academy specialises in business-oriented education and offers a wide range of Academy Profession programmes and professional bachelor's programmes within areas such as management, finance, marketing, international trade, and entrepreneurship. CPH Business has a strong focus on applied learning, innovation, and close engagement with the business community. Dual learning is embedded through compulsory internships, company-based projects, and collaboration with both small and medium-sized enterprises and larger organisations. This applied orientation ensures that students develop practical skills alongside theoretical knowledge, while also fostering responsiveness to evolving labour market demands and economic developments.

The three institutional cases illustrate a shared commitment to strengthening the relationship between higher education and professional practice, but they differ significantly in how this integration is structured and institutionalised. Roskilde University represents an academically oriented model, in which engagement with external partners is primarily embedded in project-based and problem-based learning activities. By contrast, the University College of Northern Denmark reflects a highly structured and profession-oriented approach, where internships and workplace learning are mandatory. Copenhagen Business Academy occupies an intermediate position, combining compulsory internships with a strong emphasis on collaboration with industry.

The analysis of the selected use cases was conducted using a questionnaire comprising 34 questions developed to guide the interviews. These questions were grouped into seven analytical criteria, each comprising several indicators that can be assessed using binary yes/no responses. In cases where a question could not be adequately addressed through a binary response, a detailed explanatory footnote was used to capture contextual nuances, institutional specificities, or partial implementations that required further clarification.

The criteria are:

- **Definition:** This criterion it clarifies the conceptual boundaries of dual learning by examining whether it genuinely integrates company-based and school-based learning and whether the resulting qualification represents an educational level beyond upper secondary education.
- **Institutional mission and vision:** This criterion evaluates the strategic commitment of the institution to dual learning, focusing on whether its mission explicitly promotes, coordinates, and sustains dual learning pathways, including the development of dedicated dual bachelor's programmes and the institution's role as a direct operator.

- **Programme structure:** This criterion examines the formal organisation of dual programmes, with particular attention to the balance between theoretical instruction and practical training, the equivalence of certification with traditional academic models, and alignment with European standards such as the allocation of 180 ECTS credits for bachelor's degrees and the distribution of credits between academic and work-based components.
- **Cooperation with dual partners:** This criterion assesses the depth and quality of collaboration between educational institutions, companies, and public authorities, including the existence of strategic partnerships, continuous communication mechanisms, and the involvement of employers in student selection processes.
- **Admission criteria:** A criterion that focuses on transparency and rigour in entry requirements, specifically whether admission is contingent upon completion of upper secondary education and the formalisation of an apprenticeship or employment contract.
- **Faculty involvement:** This criterion examines the extent to which both internal academic staff and external professionals from industry contribute to teaching and supervision, as well as the academic and professional qualifications of instructors.
- **Student experience:** This criterion it captures the learner-centred dimension of dual learning by evaluating the availability of academic and workplace support structures, the contractual status and remuneration of students, the balance between time spent in the institution and the company, and the presence of systematic feedback and quality assurance mechanisms to support learning outcomes.

Table 4 shows the results obtained when the criteria are applied to RUC, UCN and CPH.

*Table 4: Results obtain from the survey send to the three Danish institutions: RUC, UCN and CPH.*

| | | *Criteria* | *RUC* | *UCN* | *CPH* |
|---|---|---|---|---|---|
| *Category* | *Definition of dual learning* | Is dual learning a combination between company-based and school-based learning? | n/a | Y | Y |
| | | Is the certificate at the end of DHE higher than the high school diploma? | n/a | Y | Y |
| | *Institutional mission and vision* | Does the mission focus on promoting and coordinating the organization of the courses for the dual learning? | N | Y | Y |
| | | Is the institution developing teaching and training programs? | N | Y | N |
| | | Does the institution develop dual bachelor's program? | Not directly* | Y | Y |
| | | Is the institution a direct operator? | Y | Y | Y |
| | *Program structure* | Is there a combination between practical time in the company and theoretical time in the classroom? | Y | Y | Y |
| | | Is there a certificate similar to the traditional model? | n/a | Y | Y |
| | | Is the total number of ECTS for the bachelor's degree 180? | Y | Y | Y |

* bachelor's students have the option to complete a project in collaboration with a company, contributing to the integration of theoretical and practical learning.

| | *Criteria* | *RUC* | *UCN* | *CPH* |
|---|---|---|---|---|
| | Per year, are credits allocated: 40 for the theoretical part and 20 for the practical part? | N* | n/a | n/a |
| *Cooperation with dual partner* | Is there daily contact between the institution and the company? | n/a | n/a | n/a |
| | Is there a strategic partnership? | Y | Y | Y |
| | Does the dual partner participate indirectly in student selection? | N | Y | Y |
| | Is there a contact between the institution and the government? | Y | Y | Y |
| *Criteria of admission* | Does the criteria include a certification of higher secondary education? | Y | Y | Y |
| | Does the criteria include signing an apprenticeship or working contract? | N | n/a | n/a |
| *Faculty Involvement* | Are internal and external teachers involved in dual learning process? | Y | n/a | Y |
| | Do teachers hold bachelor's or master's degree? | Y | Y | Y |
| | Are external teachers coming from companies? | n/a | n/a | Y |
| *Student' s experience* | Is there a support service (supervisors and the reference person in the company)? | n/a | Y | Y |
| | Is the institution program based on a training/apprenticeship/working contract? | N | Y | Y |
| | Does the student receive a remuneration? | It depends † | Y | N |
| | Does the student reside at least 2 days out of a week in the school? | N | Yes but‡ | Yes but§ |
| | Is there a feedback mechanism? | n/a | Y | Y |

## 7 Results

The comparison of the three institutions shows that UCN and CPH have clearer structure for dual learning. Both define dual learning as a combination of school-based and company-based training and provide a certificate higher than the high school diploma. By contrast, RUC does not

* The bachelor project is worth 15 to 20 ECTS, and students may complete two in one year, amounting to a total of 30 to 40 ECTS. For the master's programme, the project is worth 10, 15, or 20 ECTS, and a student can apply for a project-based internship.

† For the project-based internship in the Master's programme, the student received a salary that must not exceed 3,375 DKK per month.

‡ The practical part takes the form of an internship during 5 months for the professional bachelor.

§ The practical part takes the form of an internship during 10 at 12 weeks of full-time work for the Academy Profession programmes and for the Professional Bachelor it includes a minimum of 20 weeks of full-time work.

provide sufficient information on this aspect, which makes its dual learning approach less clear. In terms of their missions, UCN and CPH include dual learning as part of their goals. UCN also develops teaching and training programmes, while CPH and RUC do not. All three institutions operate dual learning programmes, but RUC offers dual bachelor's programmes only indirectly, through project-based learning.

All institutions share a similar programme structure, including a balance between practical and theoretical learning and the award of 180 ECTS credits for a bachelor's degree. UCN and CPH offer a certificate similar to the traditional model, while this is not confirmed for RUC because of a lack of available information. When it comes to cooperation with companies, all three have strategic partnerships and maintain contact with the government. However, only UCN and CPH involve companies in the student selection process. This indicates that UCN and CPH have stronger cooperation with the dual learning partners, while RUC has less involvement from external stakeholders.

In terms of admission, all three institutions require a higher secondary education diploma. RUC is the only one that clearly states it does not require a working or apprenticeship contract. UCN and CPH do not provide information on this point. Regarding faculty, all institutions confirm that their teachers hold at least a bachelor's or master's degree. RUC and CPH involve both internal and external teachers, but only CPH clearly involves teachers from companies, indicating a stronger link to industry.

Student experience is more structured at UCN and CPH. Both provide support services, feedback mechanisms, and programmes based on training or work contracts. Students at UCN receive payment, while CPH does not provide remuneration. RUC offers payment only in specific cases during master's internships. RUC also does not require students to stay at school for part of the week, unlike UCN and CPH. This suggests that UCN and CPH offer a more complete and more supportive environment for students in dual learning programmes.

## 8 Conclusion

Denmark's approach to Dual Higher Education appears to be grounded in a strong legal and institutional framework. Since the Apprenticeship Act of 1956, the Danish Vocational education and training system has expanded from a traditional apprenticeship model to a diversified structure offering multiple vocational and academic pathways. These developments are formally defined and regulated through national legislation, particularly the VET law of 1989 and its later amendments, including the most recent amendment in 2024. This legal framework defines VET as a dual model combining school-based learning with company-based training. While the term "Dual Higher Education" is not explicitly used in law, several higher education programmes follow the dual model in practice.

The structure of the Danish education system offers multiple learning paths that allow students to move between vocational and academic tracks. From the age of 16, students can choose from vocational or general upper secondary programmes, with options such as EUD, EUX, HTX, and HHX, each leading to distinct but interconnected higher education routes. The system allows progression from vocational training to higher vocational education, such as Academy Profession or professional bachelor's programmes, and even to university-level education. This layered and open structure facilitates the integration of dual learning at multiple stages in response to students' interests and labour market demands.

Based on the analysis, several potentially transferable practices can be identified. First, integrating dual learning into a university's mission and strategic planning may help align resources and objectives. Building strong partnerships with companies appears to be important, not only for providing practical placements but also for involving industry in curriculum design and student selection, which strengthens the relevance of education to labour market needs. In addition, offering structured student support, including training contracts, regular school attendance, and access to mentors, may improve learning outcomes and satisfaction.

Finally, it should be noted that the findings of this study are based on the analysis of policy documents and a limited number of institutional cases. As such, they do not provide a

comprehensive representation of the Danish higher education system, but rather illustrate selected and emerging approaches to integrating elements of dual higher education.

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