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REPORT ABOUT BEST PRACTICE IN DUAL EDUCATION IN AUSTRIA

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The report elaborates the concept of “Dual Higher Education (DHE)” and the overall framework for dual education in Austria. In this respect, the report also builds upon the results of other relevant projects in this field – in particular the EU projects ApprenticeshipQ (www.apprenticeshipq.eu) and DUALSCI (www.dualsci.unze.ba). It includes results from information provided on 5 dual study programmes in higher education from Austria in different industrial sectors. The following study programmes have been analysed in the framework of this report:

Name of study programme	Implementing University
PTO – Production Technology and Organization	FH JOANNEUM, Graz
ENP – Engineering and Production Management	FH JOANNEUM, Graz
Mobile Software Development	FH JOANNEUM, Graz
HSD – Hardware-Software Design	FH OBERÖSTERREICH
Electrical Engineering Dual	FH VORARLBERG

In Austria, UASs are the main “owners” of DHE programs. Nevertheless, it is also possible and even not unusual for “classical” HEIs to assume a partner role in the development and implementation of DHE programs.

The DHE programs in Austria are standardised in terms of their format and layout. The majority of DHE programs in Austria can be found in technical disciplines and follow the regular Bologna requirements (6 semesters for Bachelor programs (180 ECTS) and 4 semesters for Master Programs (120 ECTS)). DHE graduates have the right to continue education on Master or PhD level.



The EQF Level is also unified with EQF 6 for Bachelor and EQF 7 for Master Programmes.

EQF LEVEL 8	ACADEMIC LEVEL	DOCTORATE	MAINTENANCE MANAGERS AND SUPERVISORS, VOCATIONAL TEACHERS	
EQF LEVEL 7		MASTER		
EQF LEVEL 6	POST UPPER SECONDARY LEVEL	BACHELOR		
EQF LEVEL 5		HIGHER NATIONAL DIPLOMA		MAINTENANCE TECHNICIANS
EQF LEVEL 4	UPPER SECONDARY LEVEL	HIGHER NATIONAL CERTIFICATE, UPPER SECONDARY DIPLOMA		MAINTENANCE MECHANICS
EQF LEVEL 3	SECONDARY LEVEL	SECONDARY DIPLOMA OR VOCATIONAL DIPLOMA		
EQF LEVEL 2	PRIMARY LEVEL	SECONDARY SCHOOL WITH NO DIPLOMA		
EQF LEVEL 1		PRIMARY SCHOOL		

<https://www.maintworld.com/R-D/Application-of-European-Qualification-Framework-EQF-in-Maintenance>

Features that characterize a dual study program in Austria:

- Repeated succession of theoretical and practical phases and continuous reflection
- The practical phases go beyond the usual scope of a professional internship in one University of applied sciences course, both in terms of time and in terms of Specification of the content.
- The acquisition of curricular defined competences takes place and is at both learning locations characterized by the combination of science and implementation orientation.
- The admission procedures for universities and companies are the responsibility of the respective partners and are coordinated with each other.
- The company must undertake a training obligation and be suitable for it be able to convey the intended course content.
- The organization of the theoretical and practical phases provides the framework for a tolerable total time load for students.
- The relationship between the three partners is subject to the student, university and company binding regulations for quality assurance.
- There is a continuous training partnership with appropriate remuneration for practical phases as part of an employment relationship, which is ideally continued consistently for at least two thirds of the study period

The following tables provide an overview of the main characteristics of a dual study approach in Austria:

Types of Bachelor and Master programs in Austria

Type of program characteristics	dual or coop program work-integrated	dual or coop program fulltime	(traditional) regular fulltime	work enabling part time	health sciences fulltime
EQF level Bachelor/ Master	6 / 7	6 / 7	6 / 7	6 / 7	6 / -
Type of program (HE or HVET)	HE	HVET	HE	HVET	HVET
Duration [semesters] Bachelor/ Master	6 / 4	6 / 4	6 / 4	6 / 4	6 / 4
Balance between education in university and industry	60 -70% university, different models: 3 months 1/2 week	50 % university 50 % company (4x 12 weeks a 40h)	1 internship between 4th and 6th semester	working full time, studying at weekends	short placements in the hospital
curriculum integrated work-related work-based work-integrated	work - integrated	work - integrated	curriculum - integrated	work - based	work - integrated
formal contract	employment contract (+educational part)	employment contract (+educational part)	internship contract	employment contract	placement without payment

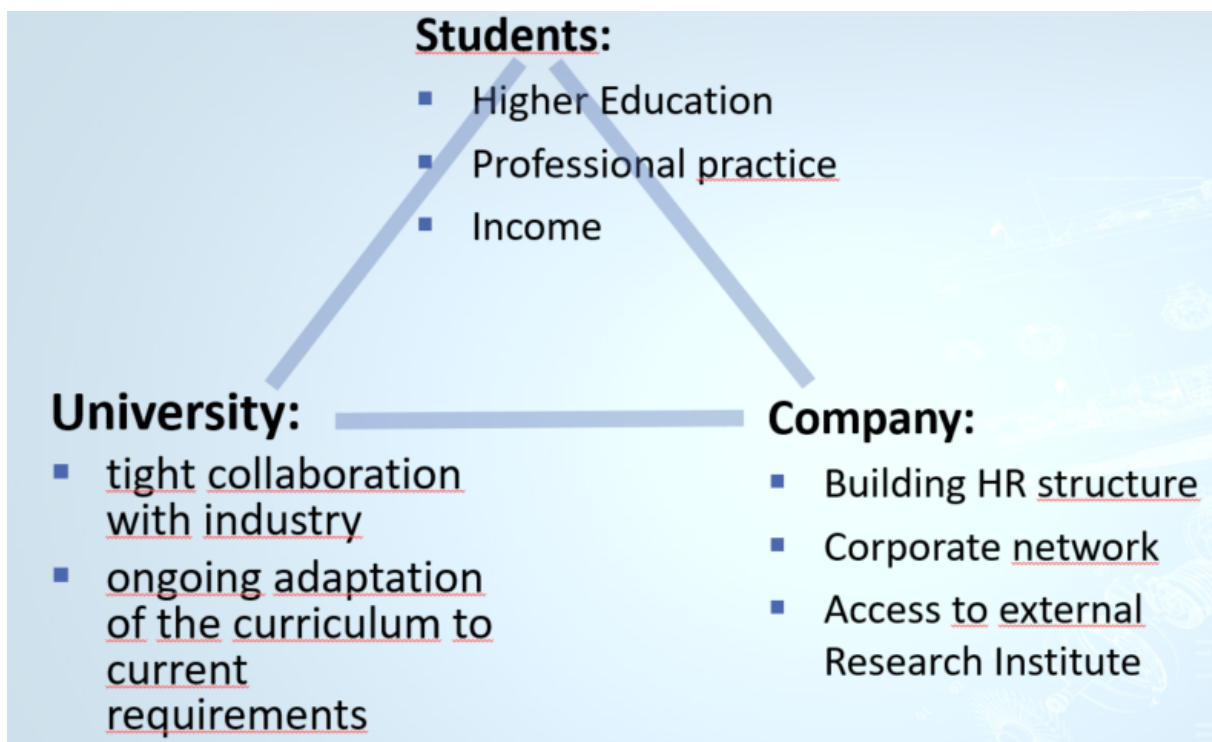
Source: H.Hochrinner, characterization of study programmes in Austria (EQF 6-7), 08.06.2020

DHE programs can also be in the format of Double or Joint Degrees.

Accreditation is regulated by law and is carried out by the National Accreditation Agency.

Curricula of DHE programmes are usually offered as “Curriculum Integrated models”¹. Both, Bachelor and Master DHE Programmes are offered by UASs.²

All programmes are developed jointly from representatives of HEIs and industry partners (IP). HEIs have the lead in the development and implementation of the programmes which is also reflected in the ratio between teachers from HEIs (60%) and IPs (40%) being involved in the educational process.



Source: Hagen Hochrinner, FH JOANNEUM, 20. 6. 2020

¹ Curriculum-integrated learning is a model of learning that describes the development of integrated lessons helping students make connections across subjects and disciplines.

² Based on the existing law, UASs are not entitled to offer PhD programs.



Besides curriculum development and revision, IPs are also involved in mentoring the final thesis (co-mentoring together with HEI mentor). HEIs have the overall responsibility for the conduction of student assessments. The involvement of the IP in the student assessments is related to the practical part of the education (work at companies) and is not unified. IP mentors are usually supporting HEI staff by issuing recommendations for student assessments, or drafting reports based on a standardised reporting form.

IPs have a direct working contract with all DHE students in line with the Austrian Labour Law. Usually Students have part time contracts (50% of the fulltime working contract).

The first two semesters are usually carried out only by HEIs. Starting from the 3rd semester, the educational process is divided between HEIs and IPs with a division of approximately 50:50 at Bachelor level. On the Master level, it is common for IPs to have even more responsibilities in the education of students (60:40%).

Teaching Staff has to have at least 3 years of relevant Industry experience and an academic degree amounting to a minimum of 300 ECTS.

The employment rate after graduation is very high ranging from 90 and 100% while drop-out rates are between 15 and 30%.³

³ For more information on dual education in Austria, see also www.dualstudieren.at.



LIST OF ABBREVIATIONS

BA	Bachelor
DHE	Dual higher education
ECTS	European Credit Transfer System
EQF	European Qualification Framework
EU	European Union
FH	Fachhochschule (in English: University of Applied Sciences)
HE	Higher education
HEI	Higher Education Institution
HVET	Higher Vocational Education and Training
IP	Industry partner
PhD	Doctor of Philosophy
UAS	University of Applied Science
VET	Vocational Education and Training
WP	Work Package

MAIN SOURCES

Dual education in Austria; www.dualstudieren.at

ETF, A handbook for policy makers and social partners in ETF countries
http://ec.europa.eu/dgs/education_culture/repository/education/library/publicatioens/etf-wbl-handbook_en.pdf, 2014

EU project ApprenticeshipQ; www.apprenticeshipq.eu

EU-COOP COOPERATIVE and WORK INTEGRATED HIGHER EDUCATION, A handbook for implementing Co-op education model, CWIHE Erasmus Project, 2017



Definition Work-Based Learning

Wiki	<p>"Work-based learning (WBL) is an educational strategy that provides students with real-life work experiences where they can apply academic and technical skills and develop their employability."^[1] It is a series of educational courses which integrate the school or university curriculum with the workplace to create a different learning paradigm. "Work-based learning deliberately merges theory with practice and acknowledges the intersection of explicit and tacit forms of knowing."^[2]</p> <p>Most WBL programs are generally university accredited courses, aiming at a win-win situation where the learner's needs and the industry requirement for skilled and talented employees both are met. WBL programs are targeted to bridge the gap between the learning and the doing. "Work-based learning strategies provide career awareness, career exploration opportunities, career planning activities and help students attain competencies such as positive work attitudes and other employable skills."^[1]</p>
	<p>Work-based learning is classified in three ways based on the:</p> <ul style="list-style-type: none">• Duration of assignment: The work-based learning experience maybe of a duration of a few hours to 2/4 years• Relation to course work: Work-based learning is generally related to a specific subject taught at school or university• Stipend: WBL assignments may be paid or unpaid
	<p>Work-based learning strategies include the following:^[3]</p> <ul style="list-style-type: none">• Apprenticeship or internship or mentorship: An apprenticeship involves the student working for an employer where he or she is taught and supervised by an experienced employee of the chosen organization. The student is periodically evaluated for progress as per the skills and knowledge acquired, and maybe granted wages accordingly. At the end of the course, the student receives a certificate of service. The student learns in a realistic environment and gets the opportunity to apply his or her knowledge in real world scenarios.• Job shadowing: Job Shadowing is a short term opportunity that introduces the student to a particular job or career by pairing the student with an employee of the workplace. By following or 'shadowing' the employee, the student gets familiar with the duties and responsibilities associates with that job.• Business/industry field trip: Field trips offer the students an insight in the latest technical advancements and business strategies of an enterprise.



Students also gain awareness of the various career opportunities available and understand the driving forces of the community's economy.

- **Entrepreneurial experience:** This includes setting up of specific business, right from the planning, organizing and managing stage to the risk control and management aspects of a business.
- **Cooperative education:** In cooperative education, the work experience is planned in conjunction with the technical classroom instruction. This method is used by universities that do not have access to state-of-art equipment required to transact the technical course practically.
- **School-based enterprise:** A school-based enterprise is a simulated or actual business run by the school. It offers students a learning experience by letting them manage the various aspects of a business
- **Service learning:** This strategy combines community service with career, where students provide volunteer service to public and non-profit agencies, civic and government offices etc.

Key Persons:

- **Student:** The student is central to the WBL process. The student engages in a WBL program and completes all requirements of the program, maintains high degree of professionalism and acquires necessary competencies for which the WBL program was designed.
- **Business Mentor:** A business mentor sets realistic goals for the student to acquire, engages and supervises them to complete their tasks and is a role model for the student to emulate.
- **Teacher Coordinator:** A teacher coordinator is a certified educator who manages the WBL program and checks on the student progress and supports whenever required to ensure successful completion of the WBL program
- **School Administrator:** The school administrator is key in introducing WBL programs within the curriculum after identifying the appropriate courses that can be learnt through the program.
- **Parents:** Parental support enables successful completion of the WBL program as offer suitable guidance, support and motivation to their wards and approve the WBL program that would be most suitable for meeting their ward's learning needs and career aspirations.



	<p>Terms in Dual Education:</p> <ul style="list-style-type: none"> • Curriculum-integrated learning: Is a model of learning that describes the development of integrated lessons helping students make connections across subjects and disciplines. • Work-related learning: Planned activity that uses the context of work to develop knowledge, skills and behaviours useful in the workplace, including learning through the experience of work, learning about work and working practices, and learning the skills for work. • Work-based learning: Is an educational strategy that provides students with real-life work experiences where they can apply academic and technical skills and develop their employability skills. • Work-integrated learning: Are forms of experiential learning where the site of learning either occurs in the workplace or where the learning is strongly associated with a workplace. • Work enabling (more or less same as part time) program A part-time course is usually a study program in which the student is employed or has an independent professional activity besides his/her study efforts. The study program is not necessarily in the context of his/her job. The lessons/courses take place mostly at evening or Friday/Saturday. The courses in the program may be offered in presence and/or distance/online teaching. • Cooperative education: A term that is commonly used in North America to refer to programmes in which learners spend time in several different workplaces (companies) and receive academic credit for the work experience, but in which there may be little connection between what the student does in the workplace and the curriculum of the university (school or college). • Dual education: In Europe mostly the term “Dual Education” is used. It is related to the system of apprenticeship in Germany, Austria and Switzerland. This system requires two learning venues (university and company). There is a coordination of the curricular content and the internship of the student in the company. There is a continuous training partnership with appropriate remuneration for practical term as part of an employment relationship, ideally this employment relationship lasts consistently for at least two thirds of the study period.
Cedefop	<p>Acquisition of knowledge and skills through carrying out – and reflecting on – tasks in a vocational context, either at the workplace (such as alterance training) or in a VET institution.</p> <p>Cedefop. Glossary- Quality in Education and Training. CEDEFOP Luxembourg: Publications Office of the European Union, 2011</p>



<p>NCVER</p>	<p>programs for both secondary and post-secondary students which provide opportunities to achieve employment-related competencies in the workplace. Work-based learning is often undertaken in conjunction with classroom or related learning and may take the form of work placements, work experience, workplace mentoring, instruction in general workplace competencies and broad instruction in all aspects of industry.</p> <p>Naidu, R. VET Glossary, NCVER, 2008 (Rev 2011)</p>
<p>Center for Apprenticeship & work-based learning</p>	<p>Work-based learning is defined by activities and experiences when a student or worker:</p> <ul style="list-style-type: none"> • Goes to a workplace or works with an employer • Does meaningful job tasks that (a) develop his or her skills, knowledge, and readiness for work and (b) support entry or advancement in a particular career field. <p>Work-based learning can benefit in-school youth, opportunity youth, adult jobseekers, or incumbent workers (employees already working at a company who seek to advance their careers), by which we mean existing employees at a company seeking to advance their careers.</p> <p>Work-based learning encompasses a wide array of learning experiences, from exposing high school students to careers through activities like job shadowing, to providing incumbent workers with specialized training. Work-based learning extends into the workplace through on-the-job training, mentoring, and other supports in a continuum of lifelong learning and skill development.</p> <p>The goals of work-based learning may include helping participants:</p> <ul style="list-style-type: none"> • Be ready for work and careers • Enter an education or training program • Complete a career-related program of study • Earn an academic degree or industry-recognized credential attainment • Get a job • Advance in a career • Attain self-sufficiency
	<p>https://center4apprenticeship.jff.org/work-based-learning/what-work-based-learning/</p>
	<p style="text-align: center;">Work-Based Learning Continuum</p> <p>Pre-K 13+</p> <p>Career Awareness Learning ABOUT work. Build awareness of the variety of careers available and the role of postsecondary education; broaden student options.</p> <p>Career Exploration Learning ABOUT work. Explore career options and post-secondary for the purpose of motivating students and to inform their decision making in high school and postsecondary education.</p> <p>Career Preparation: Practicum and Internships Learning THROUGH work. Apply learning through practical experience that develops knowledge and skills necessary for success in careers and postsecondary education.</p> <p>Career Training Learning FOR work. Train for employment and/or postsecondary education in a specific range of occupations.</p>



Work-Based Learning Continuum Definitions

Career Awareness	Students build awareness of the variety of careers available and begin identifying areas of interest.
Career Exploration	Students explore career options to provide motivation and inform decision-making.
Career Preparation	Students apply learning through practical experience and interaction with professionals from industry and the community in order to extend and deepen classroom work and support the development of college- and career-readiness knowledge and skills (higher-order thinking, academic skills, technical skills, and applied workplace skills).
Career Training	Students train for employment in a specific field and range of occupations.

NOTE: The term “work-based” does not mean the experience must occur at a workplace or during the standard “work day.” Work-based learning always involves interaction with industry or community professionals who are not employed by the school and often takes place at a workplace. Work-based learning can also take place in the community or at school; be supported virtually via technology; or take place across a combination of all these settings. Experiences may occur during the school day, outside the school day, or at times school is not in session. Work-based learning experiences may also build upon jobs or activities that students have already arranged for themselves when students, educators, and partners adapt those experiences to achieve the outcomes and to meet the quality criteria for work-based learning.