EQF and ECVET
European Credit System for Vocational Education and Training
And Their Implication to Tourism

Franz Heffeter
Vienna, November 20, 2012
About Myself

Graduate of University of Vienna
PhD in Social and Economic History
Principal of International
Tourism Schools Klessheim
Former Dean of Institute of
Tourism and Hotel Management
International Projects in Tourism
ECVET Tourism expert for the
national Agency OEAD
EU Projects TourBo and eCuisine
Aims of the Presentation

ECVET, EQF, ECTS
ECVET and tourism
How ECVET works
ECVET and hospitality education examples
A European Starting Position – Especially for Tourism

Heterogenous Vocational Qualification Systems – European strategy

Not Highly Developed Transparency and Little Understanding for Accreditation – ECVET and EQF

Difficulties in Comparison – Paradigma
Change: Output orientation instead of process orientation

Mobility?
Education and Training 2020

- Bruges Communiqué 2010: Contribution of VET to support Europe 2020 strategy
- Strategic Goals 2011-2020:
  - Quality & efficiency to enhancing attractiveness and relevance
  - Making lifelong learning and mobility a reality
  - Enhancing creativity, innovation & Entrepreneurship & use of ICT
  - Promoting equity, social cohesion & active citizenship
European QF - Purposes

Report of The OECD Thematic Group on the Development and Use of Qualifications Frameworks

to create a better match of qualifications with knowledge, skills and competences and a better linking of qualifications to occupational (and broader labour market) needs, present and future.

to bring coherence to subsystems of qualifications, e.g. higher education, adult learning, school awards and in particular vocational education and training qualifications, by creating an overarching framework for them.

to support lifelong learning (by opening up access, targeting investments and recognising non-formal and informal learning).

to facilitate the involvement of political actors and stakeholders, especially in vocational education and training

(OECD 2007)
Partners, Parties and Beneficiaries in the Process of QF

- Ministry of education
- Ministry of science
- Ministry of labour
- AQA
- Policy makers
- Companies
- Professional Associations
- Sectoral committees
- Trade Unions
- Stakeholders
- Schools
- Universities
- UAS
- Employees
- Employers
- Students
- Graduates
- Teachers

A Complex Structure Needs Complex Instruments
European Instruments and Principles

Quelle: Cedefop 2011
<table>
<thead>
<tr>
<th>Level</th>
<th>Knowledge</th>
<th>Skills</th>
<th>Competences</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Basic general knowledge</td>
<td>Basic skills required to carry out simple tasks</td>
<td>Work or study under direct supervision in a structured context</td>
</tr>
<tr>
<td>2</td>
<td>Basic factual knowledge of a field of work or study</td>
<td>Basic cognitive and practical skills required to use relevant information in order to carry out tasks and to solve routine problems using simple rules and tools</td>
<td>Work or study under supervision with some autonomy</td>
</tr>
</tbody>
</table>
| 3     | Knowledge of facts, principles, processes and general concepts in field of work or study | A range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information | • take responsibility for completion of tasks in work or study  
• adapt own behaviour to circumstances in solving problems  |
| 4     | Factual and theoretical knowledge in broad contexts within a field of work or study | A range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study | • exercise self-management within the guidelines of work or study contexts that are usually predictable, but are subject to change  
• supervise routine work of others, taking some responsibility for the evaluation and improvement of work or study activities |
<table>
<thead>
<tr>
<th>Level</th>
<th>Knowledge</th>
<th>Skills</th>
<th>Competences</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Comprehensive, specialised, factual and theoretical knowledge within a field of work or study and an awareness of the boundaries of that knowledge</td>
<td>A comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems</td>
<td>• exercise management and supervision in contexts of work or study activities where there is unpredictable change</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• review and develop performance of self and others</td>
</tr>
<tr>
<td>6</td>
<td>Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles</td>
<td>Advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study</td>
<td>• manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• take responsibility for managing professional development of individuals and groups</td>
</tr>
<tr>
<td>Level</td>
<td>Knowledge</td>
<td>Skills</td>
<td>Competences</td>
</tr>
<tr>
<td>-------</td>
<td>-----------</td>
<td>--------</td>
<td>-------------</td>
</tr>
<tr>
<td>7</td>
<td>• Highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking and/or research • critical awareness of knowledge issues in a field and at the interface between different fields</td>
<td>Specialised problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields</td>
<td>• manage and transform work or study contexts that are complex, unpredictable and require strategic approaches • take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams</td>
</tr>
<tr>
<td>8</td>
<td>Knowledge at the most advanced frontier of a field of work or study and at the interface between fields</td>
<td>The most advanced and specialised skills and techniques, including synthesis and evaluation, required to solve critical problems in research and/or innovation and to extend and redefine existing knowledge or professional practice</td>
<td>Demonstrate substantial authority, innovation, autonomy, scholarly and professional integrity and sustained commitment to the development of new ideas or processes at the forefront of work or study contexts including research</td>
</tr>
</tbody>
</table>
### UNIT 1 - To coordinate the operational running of the reception department

<table>
<thead>
<tr>
<th>Italy</th>
<th>Level</th>
<th>Portugal</th>
<th>Level</th>
<th>Slovenia</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>To superintend and manage the approach phase</td>
<td>4</td>
<td>Organize and coordinate the activities of the reception service and ensure the most complex activities</td>
<td>5</td>
<td>To accept, negotiate and manage the reservations (booking) and associated documentation</td>
<td>3</td>
</tr>
<tr>
<td>To superintend and manage the check in and check out phases</td>
<td>4</td>
<td></td>
<td></td>
<td>Accepts and advises guests, performs check in and checkout procedures, issue the bill</td>
<td>3</td>
</tr>
<tr>
<td>To superintend and manage the live in phase</td>
<td>4</td>
<td></td>
<td></td>
<td>Prepares, forwards and sells the services of hospitality establishments</td>
<td>3</td>
</tr>
</tbody>
</table>
LEARNING OUTCOMES IN TERMS OF COMPETENCE

He/she is able to:

- accept, negotiate and manage the reservations (booking) and associated documentation
- Accept and advise guests, perform check in and checkout procedures, issue the bill
- Prepare, forward and sell the services of hospitality establishments
- use modern computer and informational technology
- make accurate work estimation and plan daily activities to meet the service needs and accomplish the objectives of the sector
- make decisions on complex situations or problems within the reception service activities.
- analyze the most common complaints and propose general procedures for problem solving.
- manage, establish procedures and take decisions on specific situations, such as: no-shows, over-booking, cancellations, waiting lists, GDS management.
- establish friendly and correct relationships with customers, accepting their demands and complaints or dealing with their stay problems
- manage potentially conflicting situations with customers
Tourism and ECVET

Tourism is all about mobility
ECVET is a means of mobility
Tourism and hospitality education enhance mobility for students and workers

=> ECVET is a necessary tool especially for the mobile tourism and hospitality industry
The Aim of ECVET

- Increasing **transnational mobility** as a part of initial and continuing vocational training (VET)
- Facilitating **transnational lifelong learning**
- Facilitating **permeability and transparency** within training systems (build bridges between VET and higher education level)
- Creating a common **trans-sectoral "currency"** which is accepted by all training institutions
- Improving the recognition of learning outcomes achieved by **informal learning**
European Credit System for Vocational Education and Training

Documentation of Vocational Qualification

Enhance mobility

Accreditation for further use in education

- Formal Learning
- Nonformal Learning
- Informal Learning
ECVET and Formal Learning

1 - Learning agreement

2 - The individual achieved knowledge, skills and competence

3 - The individual's learning outcomes are assessed

4 - Credit is awarded to the individual (units with associated ECVET points) for the learning outcomes

5 - Transfer of learning outcomes

6 - Credit (units with associated ECVET points) is validated

7 - Learning outcomes are recognised and accumulated as a part of the intended qualification and corresponding ECVET points are included

Learner's Credit is registered in an individual transcript of record
ECVET and Nonformal or Informal Learning

Context A: professional and life experience (non-formal and informal learning context)

Context B: towards the qualification

5 - Learning outcomes are recognised and accumulated as a part of the intended qualification and corresponding ECVET points are included.

4 - Credit obtained (units with associated ECVET points) is validated by the competent institution empowered for this task.

3 - Credit is awarded to the individual (units with associated ECVET points) for the achieved and successfully assessed learning outcomes.

1 - The individual achieves knowledge, skills and competence.

2 - The individual's learning outcomes are assessed.
Learning Outcome Orientation in ECVET

Units are accumulated to define a qualification as a whole.

Qualifikation (z.B. Koch, “RCA”)

Units are accumulated to define a qualification as a whole.

Unit A

Unit B

Unit ...

Learning results form units

Unit (definition)
summarizes
• Knowledge
• Skills
• Competence

is part of a qualification
May contribute to one or more qualifications

In Diskussion: Vergabe von ECVET-Punkten für Unit oder Lernergebnisse?
Zum Vergleich: ECTS-Punkte jeweils für ganzes Modul
Assessment, Validation Recognition in the Transfer Process to Another Setting

⇒ Assessment of learning outcomes means methods and processes used to establish the extent to which a learner has in fact attained particular knowledge, skills and competence;

⇒ Validation of learning outcomes means the process of confirming that certain assessed learning outcomes achieved by a learner correspond to specific outcomes which may be required for a unit or a qualification;

⇒ Recognition of learning outcomes means the process of officially attesting achieved learning outcomes through the awarding of units or qualifications.

(N.E.T. WORK, p. 30)
ECVET-Points

**Numeric** description and measure of solved units

European Agreement on Workload definition: **60 points p.a.** in formal full time vocational education (equivalent to the academic ECTS system)
How to Get ECVET Started

Memorandum of Understanding between institutions
Learning Agreement student/apprentice and institution/organization
Documentation of learning and achieved knowledge
Validation of outcome by sending or next institution
Examples for ECVET Projects In Tourism
THE PROJECT

The ECVET-TOUR for tourism and mobility is within the life long learning program (Leonardo da Vinci) a project supported by the European Community in the field of tourism - cook and hotel and restaurant assistant - in vocational education and training.

Transparency and acceptance of competences and qualifications are very important in the field of vocational and further education. People working in tourism industry do not have the possibility to compare their qualifications so far. The project ECVET-TOUR tackles this problem. In order to reach the gained target a competence-profile model (VQTS – Vocational Qualification Transfer System) should be developed for the tourism area (cook, hotel and restaurant assistant) to describe the relevant key-competences. These key-competences should be regarded in perspective of the fields of activity and their development.

The classification of the ECVET-credit points should establish a meaningful profile of a person and its competences and qualifications. This model should be field-tested in a mobility program.
ECVET and VQTS

THE PROJECT

The ECVET-TOUR for tourism and mobility is within the life long learning program (Leonardo da Vinci) a project supported by the European Community in the field of tourism - cook and hotel and restaurant assistant - in vocational education and training.

Transparency and acceptance of competences and qualifications are very important in the field of vocational and further education. People working in tourism industry do not have the possibility to compare their qualifications so far. The project ECVET-TOUR tackles this problem. In order to reach the gained target a competence-profile model (VQTS – Vocational Qualification Transfer System) should be developed for the tourism area (cook, hotel and restaurant assistant) to describe the relevant key-competences. These key-competences should be regarded in perspective of the fields of activity and their development.

The classification of the ECVET-credit points should establish a meaningful profile of a person and its competences and qualifications. This model should be field-tested in a mobility program.
Result
Analysis of Key Competences

WORK PACKAGE 2: Analysis of key competences
The basis for the transfer model will be created through the "analysis of key competencies" in
Work package 2. This is based on empirical methods of social research (secondary analysis,
qualitative interviews and survey) and begins with the creation of questionnaires and interview
guides as a prerequisite for the subsequent surveys and their analysis. The following products
are ready for download:

International Comparison of sphere of competences
ECVET-TOUR IC final report in English
ECVET-TOUR IC final report in German

International Country Comparison - quantitative survey
ECVET-TOUR IC survey in English
Result
Definition of Competences in Professions

WORK PACKAGE 3: Model transfer
This package consists of the transfer of the VQTS model (Vocational Qualification Transfer System). It was used for designing competence matrices for the two vocations selected:
1. cook and
2. hotel- and restaurant trade commercial assistant
(as the profession is called in Austria, related professions in other countries: receptionist or hotel specialist in Germany)

Competence matrix cook
ECVET-TOUR Competence matrix cook in English
ECVET-TOUR Competence matrix cook in German

Competence matrix HGA
### ECVET-TOUR HGA Competence Grid

<table>
<thead>
<tr>
<th>FIELDS OF COMPETENCE</th>
<th>STEPS OF COMPETENCE DEVELOPMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check-in/Check-out</td>
<td>He/she welcomes the guests in a friendly way, provides essential information concerning the room or the offers of the establishment without being asked, is able to fill in the respective forms, to make out an invoice, and to say goodbye to the guests in a friendly way. He/she is able to correspond in written form, to connect telephone calls and to deal with reservations.</td>
</tr>
<tr>
<td></td>
<td>He/she is able to up-date the data base of guests with the help of the electronic data processing systems and to put invoices into the accounting settlement system. He/she communicates with colleagues and with other departments of the establishment and forwards the respective relevant information. He/she knows about and can deal with cultural differences and their specific requirements. He/she is able to discern them, deal with them and he/she is also able to communicate in a foreign language.</td>
</tr>
<tr>
<td></td>
<td>He/she is able to survey the state of reservations and room occupation by using the reservation system, and can manage short-term changes of guests, and therefore is able to plan efficiently in advance. He/she checks on staff and controls whether the electronic report and data bank systems are properly maintained.</td>
</tr>
<tr>
<td>Room Sales and Marketing</td>
<td>He/she knows the rules of fixing a price and is able to sell a room under given preconditions. He/she knows the different offers of the establishment, is able to evaluate the different</td>
</tr>
<tr>
<td></td>
<td>He/she knows how to implement the instruments of market observation, knows the trade competitors on the market and the location factors, knows the offers and demands and is able to estimate the position of</td>
</tr>
<tr>
<td></td>
<td>He/she is able to use the marketing mix in order to develop specific marketing measures and to evaluate the results. He/she is able to analyse the gained data and to deduct the consequences.</td>
</tr>
<tr>
<td></td>
<td>He/she is cooperating with the marketing department and, together with them, designs a marketing plan and fixes the sales targets (selection of target groups, creation of new products, new sales channels).</td>
</tr>
</tbody>
</table>
The TourBo Project

New Professional Profile The Recreational Assistant

New approach to qualification and training in internships
The Recreation Assistant (RCA) - a new professional training

7 Modules:
1. Framework Conditions
2. Service
3. Social Psychological Principles
4. Target Groups
5. Regional Studies
6. Creating a Program
7. Self-Management

- Accreditation of credit points by some international studies of the tourism and hospitality sector
- Informal and non-formal learning outcomes and professional experience are being recognized
- Emphasis on direct guest contact

The Recreation Assistant (RCA) is being developed in a lifelong-learning project with the goal of europewide recognition.

Contact and information:
Volkshochschule Poppenburg gGmbH
Ms. Birte Jaacks
Phone: +49 4961 / 922343 (Germany)
birte.jaacks@vhs-poppenburg.de
www.tourbo.eu

This project has been funded with support from the European Commission.
The contentions within the visual only of the author(s), and the Commission cannot be held responsible for any use which may be made of the information contained therein.
The Framework of Qualifications
RCA and Tourist Guide

TourBo © IFRA 2011

Target Groups and Content

Target Groups are
- People working already in tourism but lacking a formal qualification
- People with formal qualifications in another field looking to change their professional work field
- People with qualifications in tourism looking for higher education (e.g., University of Applied Sciences)

Intended NQF:
- Germany: 4
- Hungary / Slovenia: 6
Internships and Qualification Development Due to ECVET or EQF/NQF Levels

Project Issue
- Better integration of internships into vocational education
- Qualification check due to EQF frames
- Integration of internships into ECVET system
- Development of instrumentaria to display knowledge/skills/competence of students according to the educational level

Benefit for students / schools
- Effective contribution of internships to students' personal and vocational development
- ECVET accreditation of internship results
- Better integration in learning process

Benefit for enterprises
- Knowledge on qualification level of trainees
- Effective placement of students during their internship time
- Better co-operation for high quality vocational education
Accreditation of Internships in Vocational Education

BBS Wittmund and TSS Klessheim

Checking and comparing of existing curricula under the aspect of formal and non-formals competences
Exchange of students and teachers to evaluate the matching of theory and outcome of teaching and learning

Development of parameters for the measurement of the relation of internships and school education
Description of self guided aims of students in the planning process of the respective internship
Integration of the results into the further teaching/learning process
A New Approach to Internship

Pre internship: Students and mentoring teachers develop targets for the internship
Issues shall be SMART (Specific – Mesurable – adequate – realistic – timely)
Enterprises get information on the knowledge-skills level of the student (NQR!)
After internship: integration of internship outcome into the individual and group learning process
Accreditation of the knowledge gained through internships in ECVET credits
Ferrialpraktikum im Betrieb
Ausbildungsstand, Zielvereinbarung und Lernfortschritt

| Zeitpunkt: | nach dem 2. Semester |
| Klasse: | Kolleg - Hotelmanagement |
| Leitgegenstände: | Küchenorganisation, Ernährung |

Allgemeine Beschreibung der Deskriptoren

<table>
<thead>
<tr>
<th>Qualifikationsniveau (NQR)</th>
<th>Kenntnisse (knowledge)</th>
<th>Fertigkeiten (skills)</th>
<th>Kompetenz (competences)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>sind das Ergebnis der Verarbeitung von Information durch Lernen, bezeichnen die Gesamtheit der Fächer, Grundsätze, Theorien und Praxis in einem Arbeits- oder Lernbereich. Im EQR werden Kenntnisse als Theorie- und/oder Fächerwissen beschrieben.</td>
<td>stellen die Fähigkeit dar, Kenntnisse anzuwenden und Know-how einzusetzen, um Aufgaben auszuführen und Probleme zu lösen. Im EQR werden Fertigkeiten als kognitive Fertigkeiten (logisches, intuitives und kreatives Denken) und praktische Fertigkeiten (Geschicklichkeit und Verwendung von Methoden, Werkzeugen und Instrumenten) beschrieben.</td>
<td>meint die nachgewiesene Fähigkeit, Kenntnisse, Fertigkeiten sowie persönliche, soziale und methodische Fertigkeiten in Arbeits- oder Lernsituationen und für die berufliche und/oder persönliche Entwicklung zu nutzen. Im EQR wird Kompetenz im Sinne der Übernahme von Verantwortung und Seltbstständigkeit beschrieben.</td>
</tr>
</tbody>
</table>

Lehrplan, Inhalte, Kompetenzen, Selbst einschätzung des/der Studierenden und Fremdeinschätzung durch die betreuende Lehrkraft

<table>
<thead>
<tr>
<th>Ausbildungsinhalte lt. ECVET</th>
<th>Kenntnisse (knowledge)</th>
<th>Selbsteinschätzung (Lehrkraft)</th>
<th>Fertigkeiten (skills)</th>
<th>Selbsteinschätzung (Lehrkraft)</th>
<th>Kompetenz (Lehrkraft)</th>
<th>Selbst einschätzung (Lehrkraft)</th>
<th>Lehrkraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empörung und Gesundheit</td>
<td>kennen im Überblick Vorkommen, Aufbau, Aufgaben und die wichtigsten Eigenschaften von Kohlenhydraten, Fetten, Eiweiß, Wasser, Mineralstoffen, Spurenelementen und Vitaminen</td>
<td>können grundlegende enzymatische Verdauungs- und Stickstoffvorgänge erklären</td>
<td>verstehen grundlegende Zusammenhänge zwischen Ernährung und Gesundheit, überprüfen ihr eigenes Ernährungsverhalten und sind bereits kritisch zu reflektieren, erkennen Fehler und deren Gefahren</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Internship Documentation Sheet II

<table>
<thead>
<tr>
<th>Angaben zum Praktikumsbetrieb</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name:</strong></td>
</tr>
<tr>
<td><strong>Ort:</strong></td>
</tr>
<tr>
<td><strong>PLZ:</strong></td>
</tr>
<tr>
<td><strong>Straße:</strong></td>
</tr>
<tr>
<td><strong>Telefon:</strong></td>
</tr>
<tr>
<td><strong>e-mail:</strong></td>
</tr>
<tr>
<td><strong>Zeitraum des Praktikums:</strong></td>
</tr>
<tr>
<td>von</td>
</tr>
<tr>
<td>bis</td>
</tr>
<tr>
<td><strong>Abteilung:</strong></td>
</tr>
<tr>
<td><strong>Position/en während des Praktikums:</strong></td>
</tr>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3. Ziel:</strong></td>
</tr>
<tr>
<td><strong>Fertigkeiten:</strong></td>
</tr>
<tr>
<td><strong>Kompetenz:</strong></td>
</tr>
<tr>
<td><strong>Ergebnis des Praktikums/Kompetenzgewinn - Selbsteinschätzung als Basis zur Auswertung im Unterricht:</strong></td>
</tr>
<tr>
<td>nicht mehr als 5 Ziele, jeweils 1 Bereich</td>
</tr>
<tr>
<td><strong>Kennisse:</strong></td>
</tr>
<tr>
<td><strong>Fertigkeiten:</strong></td>
</tr>
<tr>
<td><strong>Kompetenz:</strong></td>
</tr>
<tr>
<td><strong>Ergebnis:</strong></td>
</tr>
<tr>
<td><strong>1. Ziel:</strong></td>
</tr>
<tr>
<td><strong>Fertigkeiten:</strong></td>
</tr>
<tr>
<td><strong>Kompetenz:</strong></td>
</tr>
<tr>
<td><strong>Ergebnis:</strong></td>
</tr>
<tr>
<td><strong>2. Ziel:</strong></td>
</tr>
<tr>
<td><strong>Fertigkeiten:</strong></td>
</tr>
<tr>
<td><strong>Kompetenz:</strong></td>
</tr>
<tr>
<td><strong>Ergebnis:</strong></td>
</tr>
<tr>
<td><strong>3. Ziel:</strong></td>
</tr>
<tr>
<td><strong>Fertigkeiten:</strong></td>
</tr>
<tr>
<td><strong>Kompetenz:</strong></td>
</tr>
<tr>
<td><strong>Ergebnis:</strong></td>
</tr>
</tbody>
</table>

verbaler Bericht - Praktikumstagebuch über jede Praktikumswoche

Verwertung im Unterricht nach Gespräch mit der Lehrkraft zu Beginn des 3. Semesters

z.B. Präsentation spezifischer Kenntnisse im Unterricht, Übernahme von leitenden Funktionen, Anwendung von Kenntnissen, die im Praktikum erworben wurden, für die ganze

### Example for the Description of Units

**VQTS Competency Matrix „Electronics/Electric Engineering“**

<table>
<thead>
<tr>
<th>Kompetenzbereiche (Kernarbeitsaufgaben)</th>
<th>Stufen der Kompetenzentwicklung (Kompetenzentwicklungsschritte)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Er/Sie kann elektrische und modulare elektronische Installationen planen, vorbereiten und anschließen (z.B. Energieversorgung in Privat- und Geschäftsräumen inkl. Beleuchtung; Wechsel- und Drehstrom; elektronische Systeme als Verbauneheiten, drahtloses LAN, Multimediasysteme). Er/Sie kann den Kunden beraten und die geeignetste Realisierungsvariante entsprechend Kundenspezifikationen auswählen.</td>
<td></td>
</tr>
<tr>
<td>Er/Sie kann komplexe elektrische und/oder elektronisch vernetzte Installationen planen (z.B. Systeme der Energieverteilung, Gebäudemansysteme / KNX, Regelungs- und Überwachungssysteme, Gebäudezugangssysteme, RFID Systeme) und anschliessend durchführen. Nach Kundenanforderungen kann er/sie die Funktionalität der Installation mit computergestützten Werkzeugen konfigurieren, warten und diagnostizieren.</td>
<td></td>
</tr>
</tbody>
</table>

**Quelle:** [http://www.vocationalqualification.net](http://www.vocationalqualification.net)

## Units and ECVET Points Accreditation

### Unit 4: Engine Emission in Petrol and Diesel Engines

<table>
<thead>
<tr>
<th>KNOWLEDGE</th>
<th>SKILLS</th>
<th>COMPETENCE</th>
</tr>
</thead>
</table>
| **K1: Exhaust Gases**  
K1.1: Composition  
K1.2: Air – fuel ratio  
K1.3: European anti-pollution standards | **S1**: Perform diagnostic test to enable the assessment of exhaust gas values with diagnostic information.  
**S2**: Use OBD diagnostic for the evaluation of engine faults.  
**S3**: Carry out On Board Diagnosis (OBD)  
**S4**: Read stored diagnostic trouble codes and diagnose the causes of emissions or driveability problems.  
**S5**: Carry out emissions inspections on diesel and petrol engines (Certificates of Emissions Control) | **C1**: Diagnose and repair malfunctions of engine emission systems in petrol and diesel engines  
C1.1: Identify with precision the symptoms of the fault  
C1.2: Select the hypotheses of the fault depending on the symptoms  
C1.3: Test the system  
C1.4: Validate the malfunction and choose the appropriate action to be done  
C1.5: Respect the methods and schedule  
**C2**: Organise the work respecting health and safety rules |
| **K2: Pollution Control**  
K2.1: Catalytic converter  
K2.2: Exhaust gas recycling  
K2.3: Particle filter  
K2.4: On Board Diagnosis (OBD)  
K2.5: Diagnostic, maintenance and servicing | | |

### CREDIT POINTS

<table>
<thead>
<tr>
<th>FINLAND</th>
<th>FRANCE</th>
<th>HUNGARY</th>
<th>ROMANIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3</td>
<td>7</td>
<td>2</td>
</tr>
</tbody>
</table>

**Quelle:** [http://www.assetecvet.eu](http://www.assetecvet.eu)
Einheiten von LE u. ECVET Punkte – Beisp.

**VQTS**
Kompetenzprofilzertifikat (inkl. ECVET-Punkte) – basierend auf der Kompetenzmatrix „Elektronik/Elektrotechnik“

Quelle: [http://www.vocationalqualification.net](http://www.vocationalqualification.net)

---

<table>
<thead>
<tr>
<th>Kompetenzbereiche (Veranstaltungsübersicht)</th>
<th>Stufen der Kompetenzentwicklung</th>
<th>Kreditpunkte (Org. prof.)</th>
<th>Kreditpunkte (Indr. prof.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Vorbereiten, Planen, Monitoren und Installieren ...</td>
<td>5</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>2. Kontrollieren, Werten und Instandhalten</td>
<td>5</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>3. Aufstellen, Inbetriebnehmen und Justieren ...</td>
<td>10</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>4. Entwerfen, Anpassen und Medizieren ...</td>
<td>5</td>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td>5. Entwickeln, kundenspezifischer ...</td>
<td>10</td>
<td>35</td>
<td>20</td>
</tr>
<tr>
<td>6. Überwachen und Unterstützen ...</td>
<td>5</td>
<td>25</td>
<td>15</td>
</tr>
<tr>
<td>7. Installieren, Konfigurieren, Modifizieren ...</td>
<td>10</td>
<td>50</td>
<td>25</td>
</tr>
<tr>
<td>8. Diagnostizieren und Instandsetzen ...</td>
<td>5</td>
<td>25</td>
<td>15</td>
</tr>
</tbody>
</table>

**Kreditpunkte für das berufliche Profil:**

- Gesamtsumme der Kreditpunkte: 240 | 120

**Zusätzliche Kompetenzen (bzw. Fachbereiche, die im Rahmen des Ausbildungsprogramms erworbene werden, aber nicht Teil des beruflichen Profils sind):**

- Gesamtsumme der Kreditpunkte: 20 | 5
Other Informations to ECVET – European Level

ECVET Team: http://www.ecvet-team.eu/
ECVET pilot projects: http://www.ecvet-projects.eu/
NetECVET: http://netecvet.com/
ADAM: http://www.adam-europe.eu/adam/thematicgroup/ECVET
ECVET

A European Approach to Vocational Learning

A Glimpse Over the Fence

Abb.: Wissen Plus 1/12