COMPETENCE PROFILES
AND
COMPETENCE PROFILE
CERTIFICATES
(including CREDIT POINTS)

What is a Competence Profile?

Competence Profiles are formed from particular parts of a Competence Matrix. They generally only cover a limited spectrum of the competences described in the Competence Matrix. With the aid of a Competence Matrix a Competence Profile can depict the stages of competence development to be achieved in a training programme (Organisational Profile) or the stages already achieved by a person at a particular time (Individual Profile).

1) Organisational Profile

An Organisational Profile reflects the range and extent of competence development offered by a specific training programme or specific qualification in a Competence Matrix's occupational field. Organisational Profiles are formed by indicating the 'relevant' competences of the specific training programme or qualification on the Competence Matrix.

Organisational Profiles are usually developed by the authorities responsible for a training programme or qualification. Those involved in this exercise should have a very good knowledge about the curriculum or training plan as well as about the core work tasks expected to be fulfilled by a graduate of the respective training programme.

2) Individual Profile

By using an Organisational Profile one can make visible the competences acquired so far by a person in training.

The training provider develops Individual Profiles. Those people should be involved who are well informed about the competence development process during the training   programme (teaching and training personnel or people with similar functions and the person in training).

Competence Profiles must reflect the specific context of a training programme. The Competence Profiles developed by using a specific Competence Matrix can only refer to the competences described in the Matrix. Relevant additional information can be included in the Competence Profile Certificate.

How to develop a Competence Profile?

Developing Competence Profiles requires an interpretation against the background of the specific training and work context. The crucial question for this exercise is how well a curriculum or training plan can be mapped on the Competence Matrix. Therefore, one should include people involved in the training process (for example, representatives from training providers, such as teaching and training personnel or people with similar functions), representatives from the working world, graduates or persons in training.

Competence Profile Certificate

A Competence Profile Certificate can be issued for a training programme (Organisational Profile) as well as for a person in training (Individual Profile).

Competence Profile Certificate - Organisational Profile
The Competence Profile Certificate for a training programme requires the development of an Organisational Profile and the allocation of credit points. It includes:
1. General information: title of the training provider/programme; duration of the training; EQF level; name of the person responsible for issuing the CPC; date it was issued.
2. Organisational Profile
3. Additional information
4. Further remarks

Competence Profile Certificate - Individual Profile
The Competence Profile Certificate for a person in training requires the development of an Organisational Profile and – based on this – an Individual Profile and the allocation of credit points. It includes:
1. General information: title of the training provider/programme; duration of the training; personal data of the person in training; name of the person responsible for issuing the CPC; date it was issued.
2. Organisational Profile and Individual Profile
3. Additional information
4. Further remarks

Credit Points – VQTS model

The VQTS model uses credit points as quantitative measurements of specific parts of a training programme or qualification. These quantitative elements are understood as additional information, but should not be viewed independently of competence descriptions! In accordance with the ECVET recommendation, within one year of typical training a maximum of 60 credit points can be achieved.

In the VQTS model, credit points reflect the duration of the competence development. They are based on the 'learner's workload' (1 credit point = 30 hours of learner's workload) required to achieve the objectives of a programme. The total amount of credit points for a training programme is divided according to the average time a person in training needs to acquire competences or to reach a step of competence development. The time necessary to reach a step of competence development (the duration of the competence acquisition) can be different within the steps of a competence area as well as between competence areas. Therefore, credit points present the individual 'value' of a certain step of competence development within the Competence Profile of a training programme or qualification.

Credit points will be awarded to the individual learner based on the competences developed or step(s) of competence development reached. As a matter of principle, the credit points allocated to the steps of competence development included in the Individual Profile is concordant with the credit points allocated to the respective steps of competence development of the Organisational Profile. This means, for example, that if 10 credit points are allocated to a step of competence development in an Organisational Profile, then 10 credit points will also be allocated to this step of competence development when included in an Individual Profile. Furthermore, the Individual Profile of 'talented learners', who might need less time to reach this step of competence development, will show the same number of credit points as defined by the Organisational Profile. Consequently, competences development from informal learning over a longer period of time, but recognised by the authorities responsible for a training programme or qualification, can be awarded only the credit points allocated to the respective step(s) of competence development included in the Organisational Profile. This principle for awarding credit points when using the VQTS model shows that the number of credit points only makes sense in the context of a specific training programme or qualification.

Competence Matrix „Electronics/Electrical Engineering"

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Competence areas (core work tasks)	Steps of competence development			
1. Preparing, planning, mounting and installing electrical and/or electronic systems for buildings and industrial applications	He/She can prepare and carry out simple electrical and/or electronic installations (e.g., cables, electrical outlets, connection and distribution systems, modular electronic components, computer components) as well as carry out and check the necessary wirings and mountings.	He/She can plan, prepare and connect electrical and modular electronic installations (e.g., energy supply in private and business premises, incl. lighting; alternating and three-phase current; electronic systems as units, wireless LAN, multimedia systems). He/She can advice the costumer and select the best implementation according to customer specifications.	He/She can plan complex electrical and/or electronically networked installations (e.g., systems of energy distribution, building management systems / KNX, regulation and monitoring systems, building access systems, RFID-systems) and fully wire them. He/She can configure, service and diagnose the functionality of the installation according to customer requirements and for this purpose can use computer-assisted tools.	
2. Inspecting, maintaining and servicing electrical and/or electronic systems and machinery	He/She can carry out basic and scheduled maintenance tasks, inspections and checks at electrical and/or electronic equipment according to maintenance schedules and predefined instructions (e.g., checking voltage tolerances, changing wearing parts in industrial plants, switching and control systems, electrical machinery, computer systems). He/She can use the measuring and testing tools necessary for it.	He/She can carry out and document preventative maintenance and alignment tasks at electrical and/or electronic industrial appliances and systems according to established quality assurance methods (e.g., continuous monitoring of a CNC machine tool).	He/She can analyse and determine availability and condition of electrical and/or electronic systems. He/She can analyse influencing factors on reliability and performance of electrical and/or electronic systems and find causes of malfunctions (e.g., leakage current analysis, power factor correction, EMC analysis).	He/She can develop and document maintenance and inspection methods for electrical/electronic systems based on production and service process analysis as well as on quality management and customer requirements. He/She is able to develop related maintenance, inspection and quality assurance plans (e.g., optimizing MTBF of a production line, planning reserve power supply).
3. Setting up, putting into operation and adjusting electrical and/or electronic systems	He/She can set up, adjust and put into operation electrical and/or electronic systems (e.g., allocating frequency channels for a TV set, basic settings of a frequency converter or a thermo relay for a motor) following customer requirements and instructions from the technical documentation.	He/She can obtain and set system test parameters for setting up and operating electrical and/or electronic systems and select and carry out test procedures for installation and adjustment (e.g., adjusting interfaces in multimedia system, sensitivity setting of alarm equipment, elevator control unit).	He/She can select, set up and adjust electrical and/or electronic systems and their control including accompanying sensors and actuators according to requirement analysis (e.g., energy supply systems, drive systems, electrical machinery, radio relay systems).	
4. Designing, modifying and adapting wirings and circuit boards for electrical and/or electronic systems including their interfaces	He/She can modify, plan and build up simple electrical and/or electronic circuits according to standards and guidelines (e.g., wiring for rooms, connection diagram of basic motor circuits, simple operational amplifier applications, small programmable control units).	He/She can modify, plan and build up standard electrical and/or electronic appliances according to customer requirements and official regulations (e.g., fire-warning devices, layouts for electrical/electronic wirings with the help of CAD programmes, energy supply in private and business premises).	He/She can design, build up and improve electrical and/or electronic applications and its interfaces together with experts working in interdisciplinary teams according to EMC standards and confirming tests (e.g., electronic control circuits and equipment, micro-controller applications, PLC and related software).	He/She can design, build up and configure devices, facilities and units for process control systems including related programming and considering complex system requirements (e.g., controlled drive systems, process monitoring, automated production line, real time microcontroller applications for car control, GSM data transmission for monitoring and remote control).
5. Developing custom designed electrical and/or electronic projects	He/She can develop and propose solutions for simple electrical and/or electronic system based on customer requirements (e.g., lighting installations, power supply unit, basic automation and control systems).	He/She can design electrical and/or electronic systems (e.g., PLC program for industrial applications, microcontroller application, ensuring expansion capability) and provide the necessary documentation (operational, maintenance, safety instructions, function, integration and acceptance tests).	He/She can develop technical solutions for electrical and/or electronic systems and applications (e.g., microcontroller board for heating and air condition, RFID access system, new production line) and provide appropriate documentation and customer training.	
6. Supervising and supporting work and business processes including quality management	He/She can check process steps in the production with suitable process tools (e.g., PPS, ERP, MRP) and carry out quality controls.	He/She can evaluate results of the process monitoring with software tools and determine quality assurance actions (work, production and time schedules).	He/She can develop controlling methods in the production (e.g. PPS, MRP, ERP) and process planning/control and supervision (e.g. CAP) and implement these with the help of software supported systems.	
7. Installing, configuring modifying and testing of application software for setting up and operating electrical and/or electronic systems	He/She can install programmes for hardware and software environments and carry out simple configuration tasks as well as updates (e.g., starter software, graphical programming for measurement and automation).	He/She can select hardware and software for production systems following the business requirements and test programmes.	He/She can integrate hardware and software into existing system environments and use simulation and diagnostic programs (e.g. implement and adapt a driver for a CAD/CAM interface).	He/She can combine hardware and software to networked system environments and carry out network specific checks of all signals and adapt by means of software (e.g., OPC-Server, process control system).
8. Diagnosing and repairing of electrical/electronic systems and equipment	He/She can carry out standardized test procedures and diagnostic methods using wiring diagrams and test tools and carry out simple repairs at electrical and/or electronic systems (e.g., power measurement, level measurement).	He/She can use testing and diagnostic tools as well as expert systems for the fault diagnosis at electrical and/or electronic systems up to the component level and carry out the necessary repairs (e.g., software control test, spectrum analyzer).	He/She can select and use diagnostic methods for complex electrical and/or electronic systems and carry out preventative measures for the avoidance of disturbances and malfunctions in arrangement with customers (e.g., detection of bit error rate, over-voltage protection analyse).	He/She can carry out system analyses (e.g., FMEA, FTA) of electrical and/or./electronic systems, determine error types and develop suitable diagnosis and repair methods including preventative measures.

Acronyms

CAD: Computer Aided Design
CAP: Computer Aided Planning
CAM: Computer Aided Manufacturing
CNC: Computer Numeric Control
EMC: Electro Magnetic Compatibility
ERP: Enterprise Resource Planning
FMEA: Failure Mode and Effect Analysis
FTA: Failure Tree Analysis
GSM: Global System for Mobile Communications
MRP: Machine Resource Planning

MTBF: Mean Time Between Failures
OPC: Object Linking Embedding for Process Control
KNX: Konnex is the most established standard for home and building electronic systems. The Konnex technology is based on the well-tried EIB-System (European Installation bus - EIB)
LAN: Local Area Network
PLC: Programmable Logic Control
PPS: Production Planning System
RFID: Radio Frequency Identification

Competence Profile Certificate (CPC)

Training Provider:

Training Programme:

Duration of the training:

EQF level:

Responsible person for issuing the CPC:

Person in training:

Date:

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Competence Areas (core work tasks)	Steps of competence development Credit Points				Credit Points Org. Profile	Credit Points Individ. Profile
1. Preparing, planning, mounting and installing …	5	5	10		20	10
2. Inspecting, maintaining and servicing…	5	5	5		15	10
3. Setting up, putting into operation…	10	10			20	10
4. Designing, modifying and adapting…	5	5	10	10	30	10
5. Developing custom designed…	10	10	15		35	20
6. Supervising and supporting work…	5	10	10		25	15
7. Installing, configuring, modifying…	10	15	25		50	25
8. Diagnosing and repairing…	5	10	10		25	15
Credit points for the vocational profile					220	115
Additional competences:					20	5
Total credit points					240	120
Further remarks:						