Common Training Principles for Engineers

(491/PP/GRO/IMA/15/15123)

Survey Report

Vienna, 20 December 2016

European Council of Engineers Chambers (ECEC)

Secretariat, office Vienna

Karlsgasse 9/2, 1040 Wien/Vienna, Austria
Tel: +43 1 5055807-51, E-mail: office@ecec.net

This project is undertaken on behalf of the European Union, DG GROW

Project Synopsis

Project Name:	Common Training Principles for Engineers
Project ref. no:	(491/PP/GRO/IMA/15/15123)
Contracting Authority:	EC, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs, Directorate modernising the internal market, Unit Professional qualifications and skills, E.5, N105 1/55, 1049 Brussels
Name of contact person (CA):	Mr. Joaquim Nunes de Almeida / Hubert Gambs, DG GROW.E
Contractor:	European Council of Engineers Chamber (ECEC), Karlsgasse 9/2, 1040, Vienna
Name of contact person (Contractor):	Mr. Crtomir Remec, President ECEC
Project starting date:	April 2016
Project end date:	January 2016 (including prolongation phase)

Overall Project Objectives

The objective of the project was to allow actors in the field of professional qualifications (e.g. professional organisations and/or competent authorities from Member States) to present proposals for Common Training Principles for the engineering profession in view of having those further developed into a Common Training Framework or a Common Training Test. The proposals were developed on the basis of a mapping done in the Member States as well as after broad consultation with relevant stakeholders

Project Results

- Inventory of engineering education and profession in all EU Member States, Member States of the EEA and Switzerland: The mapping presents different national regulatory frameworks and their commonalities.
- Analysis of the positions of national and European professional organisations regarding Common Training Principles for Engineers: The mapping also presents the interest of stakeholders in working on a suggestion for Common Training Principles for Engineers
- Proposal of Common Training Principles for Engineers: The first draft proposal for a Common Training Framework for Civil Engineers was based on the results of the survey and the outcome of a stakeholder workshop on 30 June 2016; it was amended after a broad stakeholder consultation procedure and re-discussed in a final stakeholder workshop on 27 October 2016. As a common agreement was not reached, the project team drafted recommendations for further steps towards CTP for Engineers.

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

This Survey Report

This Draft Survey Report presents the findings and conclusions from the European-wide survey on the existing regulatory framework regarding the professional groups of Civil and Environmental Engineers, Geodetic Surveyors, Electrotechnology Engineers, Mechanical and Industrial Engineers and Mining Engineers that was undertaken in May and June 2016 in all EU Member States, Member States of the EEA and Switzerland. Validation of results has been done in three phases (June – August 2016, September – October 2016, November – December 2016). Table 3.1, (page 25-26) shows which data has been/has not been officially validated by a national competent authority.

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Table of Contents

***ECEC Secretariat,** Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

List of Tables

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

List of Figures

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

List of Abbreviations

AG:	Amtsgericht (local court)
bAIK:	Austrian Federal Chamber of Architects and Chartered Engineering Consultants
BIngK:	German Federal Chamber of Engineers
CEPLIS:	European Council of Liberal Professions
CLAIU:	Council of Association of Long Cycle Engineers of a Higher School of Engineering of the European Union
CLGE:	European Council of Geodetic Surveyors
CNI:	National Council of Italian Engineers
CPD:	Continual Professional Development
CTF:	Common Training Framework(s)
CTP:	Common Training Principles
CTT:	Common Training Test(s)
DG EMPL	Directorate-General for Employment, Social Affairs and Inclusion
EC	European Commission
ECEC	European Council of Engineers' Chambers
ECCE	European Council of Civil Engineers
ECTS	European Credit Transfer System
EEA	European Economic Area
EFCA	European Federation of Engineering Associations
EFTA	European Free Trade Association
ENAEE	European Network for Accreditation of Engineering Education
EQF	European Qualifications Framework
EU	European Union
FEANI	European Federation of National Engineering Associations
FIDIC	International Federation of Consulting Engineers
FYR	Former Yugoslav Republic
GAM	General Assembly Meeting
ILO	International Labour Organisation
Ing.	Ingenieur (Engineer)
INTERREG	European Territorial Cooperation
ISCO	International Standard Classification of Occupations
IZS	Slovenian Chamber of Engineers
MMK	Hungarian Chamber of Engineers
NACE	Nomenclature statistique des activités économiques dans la Communauté européenne (Statistical classification of economic activities in the European Community)
NQF	National Qualifications Framework
PD	Project Director
PM	Project Manager
PQD	Professional Qualifications Directive
SEFI	European Society for Engineering Education
SME	Small and medium-sized enterprise
TE	Technical Expert(s)
ZTKG	Ziviltechnikerkammergesetz (Chamber Act)

***ECEC Secretariat,** Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Abbreviations of Professions

Legend:		
		No questionnaire submitted for this professional level
		Profession not regulated in general

CIVIL AND ENVIRONMENTAL ENGINEER

Country		Different professions/professional levels (profession as indicated in the questionnaire)
AUSTRIA	P1	Ziviltechniker - Ingenieurkonsulent
	P2	Ingenieurbüros (Beratende Ingenieure)
BULGARIA	P1	Engineer in the investment design - Limited design capacity
	P2	Engineer in the investment design - Full design capacity
CROATIA	P1	Ovlašteni inženjer građevinarstva
	P2	Ovlašteni voditelj građenja građevinske struke
	P3	Ovlašteni voditelj radova građevinske struke
CYPRUS	P1	Civil Engineer
	P2	Environmental Engineer
CZECH REPUBLIC	P1	Chartered Engineer
	P2	Chartered Technician
DENMARK		
ESTONIA		Ehitusinsener
FINLAND		
FRANCE		
GERMANY	P1	Beratender Ingenieur
	P2	Ingenieur
HUNGARY	P1	BSc Engineer
	P2	MSc Engineer
REPUBLIC OF IRELAND	P1	Chartered Engineer
	P2	Associate Engineer
	P3	Engineering Technicians
ITALY	P1	Ingegnere civile e ambientale iunior

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

	P2	Ingengnere civile e ambientale
LATVIA		Būvinženieris, vides inženieris
LIECHTENSTEIN		Bauningenieur, Umweltingenieur
LITHUANIA		Civil Engineer
	P1	Ingénieur-conseil
LUXEMBOURG	P2	Ingénieur-paysagiste
MALTA		Perit
THE NETHERLANDS		
POLAND		Building Engineer
	P1	Civil Engineer, 1st cycle degree
	P2	Civil Engineer, 2nd cycles degree
	P3	Environmental Engineer, 1st cycles degree
PORTUGAL	P4	Environmental Engineer, 2nd cycles degree
ROMANIA		Engineer
SLOVAKIA		Chartered Civil Engineer
	P1	Responsible project designer
	P2	Responsible manager of work
	P3	Responsible supervisor
SLOVENIA	P4	Responsible auditor
	P1	Ingeniero de Caminos, Canales y Puertos - Civil Engineer (Master of Engineering)
SPAIN	P2	Ingeniero tecnico de obras publicas
SWEDEN		
	P1	Civil Engineer
SWITZERLAND	P2	Environmental Engineer
	P1	Chartered Engineer (Ceng - awarded by Engineering Council), Chartered Civil Engineer (Ceng MICE - awarded by ICE)
	P2	Incorporated Engineer (Ieng - awarded by Engineering Council and Ieng MICE - awarded by ICE)
	P3	Incorporated Structural Engineer (awarded by IStructE)
UNITED KINGDOM	P4	Engineering Technician (EngTech - awarded by Engineering Council and EngTech MICE - awarded by ICE), Technicial Member of the Institution of Structural Engineers (awarded by IStructE)

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

ELECTROTECHNOLOGY ENGINEER

Country		Different professions/professional levels (profession as indicated in the questionnaire)
AUSTRIA	P1	Ziviltechniker-Ingenieurkonsulent
	P2	Ingenieurbüros (Beratende Ingenieure)
CROATIA	P1	Chartered engineer (professional supervision of construction and design)
	P2	Construction manager of the electrical engineering profession
	P3	Performance manager of the electrical engineering profession
CYPRUS		Electrical Engineer
DENMARK		
ESTONIA		The manager of electrical work
FRANCE		
GERMANY	P1	Beratender Ingenieur
	P2	Ingenieur
HUNGARY	P1	BSc Electrotechnology Engineer
	P2	MSc Electrotechnology Engineer
REPUBLIC OF IRELAND		Chartered Engineer
ITALY	P1	Ingegnere industriale iunior
	P2	Ingegnere industriale
	P3	Ingegnere dell'informazione iunior
	P4	Ingegnere dell'informazione
LATVIA		Elektroinženieris, elektronikas inženieris, telekomunikāciju inženieris
LIECHTENSTEIN	P1	Elektroingenieur
	P2	Elektrotechniker
MALTA		Ing
THE NETHERLANDS		
POLAND		Installation Engineer
PORTUGAL	P1	Electrotechnical Engineer, 1st cycles degree
	P2	Electrotechnical Engineer, 2nd cycles degree
ROMANIA		Engineer
SLOVENIA	P1	Responsible project designer
	P2	Responsible manger of work
	P3	Responsible supervisor
	P4	Responsible auditor
SPAIN	P1	Industrial Engineer, level EQF 7
	P2	Ingeniero Técnico Industrial (Ingeniero Eléctrico, Mecánico, Químico, Electrónico, Textil)

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

SWEDEN		
SWITZERLAND		Electrical engineer
UNITED KINGDOM	P1	Chartered Engineer - awarded by BCS
	P2	Chartered IT Professional - awarded by BCS
	P3	Registered IT Technician - awarded by BCS
	P4	Chartered Engineer (CEng) - awarded by Engineering Council
	P5	Incorporated Engineer (IEng) - awarded by Engineering Council
	P6	Engineering Technician (EngTech) - awarded by Engineering Council
	P7	ICTTech - awarded by IET

MECHANICAL AND INDUSTRIAL ENGINEER

Country		**Different professions/professional levels** (profession as indicated in the questionnaire)
AUSTRIA	P1	Ziviltechniker - Ingenieurkonsulent
	P2	Ingenieurbüros - Beratende Ingenieure
BULGARIA	P1	Specialist or Engineer in the Investment Design
	P2	Specialist
CROATIA	P1	Ovlašteni inženjer strojarstva (Chartered Engineer- professional supervision of construction and design)
	P2	Ovlašteni voditelj građenja strojarske struke (Construction manager of the mechanical engineering profession)
	P3	Ovlašteni voditelj radova strojarske struke (Performance manager of the mechanical engineering profession)
CYPRUS		Mechanical Engineer
DENMARK		
FRANCE		
GERMANY	P1	Beratender Ingenieur
	P2	Ingenieur
HUNGARY	P1	BSc Mechanical Engineer
	P2	MSc Mechanical Engineer

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

REPUBLIC OF IRELAND		Chartered Engineer
ITALY	P1	Ingegnere industriale iunior
	P2	Ingegnere industriale
LATVIA		Mehānikas inženieris, rūpniecības un ražošanas inženieris
LIECHTENSTEIN		Konstrukteur
MALTA		Inginier
THE NETHERLANDS		
PORTUGAL	P1	Mechanical Engineer, 1st cycles degree
	P2	Mechanical Engineer, 2nd cycles degree
ROMANIA		Engineer
SLOVENIA	P1	Responsible project designer
	P2	Responsible manager of work
	P3	Responsible supervisor
	P4	Responsible auditor
SPAIN	P1	Industrial Engineer, level EQF 7
	P2	Ingeniero Técnico Industrial (Ingeniero Eléctrico, Mecánico, Químico, Electrónico, Textil)
SWEDEN		
SWITZERLAND		Mechanical Engineer/Industrial Engineer
UNITED KINGDOM	P1	Chartered Engineer
	P2	Incorporated Engineer
	P3	Engineering Technician

GEODETIC SURVEYOR

Country		**Different professions/professional levels** (profession as indicated in the questionnaire)
AUSTRIA	P1	Ziviltechniker - Ingenieurkonsulenten
	P2	Ingenieurbüros (Beratende Ingenieure)
CYPRUS		Rural and Surveying Engineer
CZECH REPUBLIC		Licensed Surveyor
DENMARK		Registered (chartered) land surveyor
ESTONIA	P1	Geodetic Surveyor - only engineering and construction surveys
	P2	Cadastral (or Land) Surveyor - cadastral surveys
FRANCE		Géomètre-éxpert
HUNGARY	P1	Geodetic surveyor in construction
	P2	Property surveyor

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

REPUBLIC OF IRELAND		
ITALY	P1	Ingegnere civile e ambientale
	P2	Ingegnere civile e ambientale iunior
LATVIA		Geodēzijas un kartogrāfijas inženieris
LIECHTENSTEIN		Geomatikingenieur
THE NETHERLANDS	P1	Ing.
	P2	Ir.
POLAND		Surveyor entitled to perform independent functions in the realm of geodesy and cartography
ROMANIA	P1	Surveyor Engineer
	P2	Surveyor Engineer/Engineer with short-term Higher Education
	P3	Geodetic Engineer/Engineer with short-term Higher Education
	P4	Surveyor/land register Engineer/Engineer with short-term Higher Education
	P5	Mining Surveyor Engineer/Engineer with short-term Higher Education
	P6	Geodetic/surveyor/artillery Officer
	P7	Geodetic/surveyor/Mining technician
SLOVAKIA	P1	Geodetic Surveyor (Master-, BSc- or technician level)
	P2	Authorised Surveyor and Cartographer
	P3	Self employer (engineer) authorized surveyor and cartographer
	P4	Engineer - Geodetic surveyor acting as self-employer
SLOVENIA	P1	Responsible surveyor
	P2	Surveyor
SPAIN		Surveyor (Topógrafo)
SWEDEN		
SWITZERLAND		Licensed Surveying Engineer
UK	P1	Chartered land surveyor
	P2	Chartered engineering surveyor

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

MINING ENGINEER

Country		Different professions/professional levels (profession as indicated in the questionnaire)
AUSTRIA	P1	Ziviltechniker - Ingenieurkonsulenten
	P2	Ingenieurbüros (Beratende Ingenieure) - engineering firms - consulting engineers
BULGARIA		Mining engineer
CROATIA		Mining engineer
CYPRUS		Mine Engineer
CZECH REPUBLIC		Miner
DENMARK		
ESTONIA	P1	Mining Engineer
	P2	Certified Mining Engineer
	P3	Accredited Mining Engineer
FRANCE		
REPUBLIC OF IRELAND		Chartered Engineer
ITALY	P1	Ingegnere civile e ambientale iunior
	P2	Ingegnere civile e ambientale
LATVIA		Ieguves rūpniecības inženieris
LIECHTENSTEIN		
THE NETHERLANDS		
PORTUGAL	P1	Mining Engineer - 1st cycles degree
	P2	Mining Engineer - 2nd cycles degree
ROMANIA		Engineer
SLOVENIA	P1	Responsible project designer
	P2	Responsible manager of work
	P3	Responsible supervisor
	P4	Responsible auditor
SWEDEN		

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

1. Executive Summary

The European Commission (Directorate-General for Internal Market, Industry; Entrepreneurship and SMEs) has contracted ECEC to look into the developments of (a) proposal(s) for Common Training Principles for Engineers covering all EEA countries and Switzerland.

The objective of the project is to allow actors in the field of professional qualifications (e.g. professional organisations and/or competent authorities from Members States for given professions) to present proposals for Common Training Principles for the engineering profession in view of having those further developed into a Common Training Framework or a Common Training Test.

The proposals are developed on the basis of a mapping done in the Member States and a broad consultation with relevant stakeholders. The focus is on the five professional groups of Civil and Environmental Engineers, Mechanical and Industrial Engineers, Electrotechnology Engineers, Mining Engineers and Geodetic Surveyors.

An inventory of engineering education and profession in all EU Member States, Member States of the EEA and Switzerland has been conducted and is presented in this draft report.

Results and Conclusions:

The results show that the rate of regulation of the profession is quite high in all professional groups thus the project team considers that all professional groups could fulfil the regulation requirements for Common Training Principles (Articles 49a 2.(b) and 49b 2.(b) of Directive 2005/36/EC on the recognition of professional qualifications), even those with a lower participation rate.

Nevertheless, the profession of Civil Engineers is clearly the one profession for which the interest in Common Training Principles is highest among competent authorities and other stakeholders. It is also the profession with the highest reply rate (28 replying countries out of 32) in the survey, with the highest rate of regulation. **The project team has therefore decided to currently focus on a CTP proposal for Civil Engineers that could in a second step be transferred – with slight amendments due to the specialities of each profession – to other engineering branches** as many basic outcomes of the survey are similar in the professional groups:

***ECEC Secretariat,** Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

- For most professions the preferred CTP approach of a majority (the height differing in the different professional groups) of stakeholders is that of a Common Training Framework. Only for the profession of Geodetic Surveyors both approaches (Common Training Framework/Common Training Test) reached the same level of preference (50:50).
- Many countries have different forms/levels of the profession within one engineering branch. As the percentage differs in the different professional groups the decision for or against a two level approach should be decided individually for each profession.
- The survey shows that the overall level of academic requirements for access to the profession is quite high throughout the professional groups. A broad majority of the countries requires at least the EQF Levels 6 and 7 for their academic education requirements. This is also reflected in the requirements of engineering training programmes. Therefore, a CTP level reflecting these high standards is necessary.
- Engineers are very often self-employed or even liberal professionals or employed with personal legal authorization (all with personal responsibility), employed engineers without personal legal authorization do not play a very important role in the picture of the different forms of exercise of the profession, therefore the title European Chartered Engineer (e.g. European Chartered Geodetic Surveyor etc.) seemed to be suitable for all professions (please note: suggestion later changed to “Licensed” instead of “Chartered” due to concerns of potential confusion with already existing titles).
- In all professional groups there is a majority – ranging from 58% to 79% - of professions for which the compensation of academic education is not possible.
- Throughout the professional groups many countries require professional experience and/or a professional exam/interview for the access to the profession/use of the professional title. The necessity of these requirements for a CTF should be decided individually for each professional group.
- Based on the survey results that show a broad variety of scopes of authorizations in all professions, the project team came to the conclusion that it will not be possible to define a common scope of authorizations for Engineers fulfilling a CTF and that these engineers should in principle be authorized to provide the same services as engineers of the same level in the host country. A special solution for regional special demands was suggested in the draft proposal of a CTF for Civil Engineers that was distributed to all stakeholders on 15 September 2016.

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

- As the survey results show that the requirements of training programmes are quite equivalent within the different professional groups throughout Europe, the project team came to the conclusion that a fully output-orientated approach with individual assessment of the host country is not only contrary to the idea of automatic recognition but also not necessary for a Common Training Framework. Nevertheless, the project team fully understands the wish of some stakeholders for the definition of requirements not only in regard to input (degree of academic education) but also in regard to output. With the *EUR-ACE Framework Standards and Guidelines (EAFSG)* established by the *European Network for Accreditation of Engineering Education* a definition of required programme outputs is already available and in use in many countries. Therefore, the project team has decided to suggest the *EAFSG* as a guideline in regard to the assessment of the question if an applicant fulfils all necessary requirements of the Common Training Framework for Civil Engineers by the home country. It regards this approach as suitable for all professional groups.

Despite the similarities within the professional groups there might be slight amendments necessary for the different professional groups. The transfer of the draft CTF proposal for Civil Engineers to the other professional groups therefore requires further clarification of the interest of the stakeholders of each of the professional groups and their enforced input.

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

2. Background

The concept of Common Training Principles was introduced by Directive 2013/55/EU amending Directive 2005/36/EC on the recognition of professional qualifications. It offers the possibility to extend the mechanism of automatic recognition to new professions on the basis of commonly agreed training principles. These can take the shape of either a Common Training Framework (Article 49a) or of a Common Training Test (Article 49b).

The objective of Common Training Principles is to allow more professionals to move across Member States by enlarging the scope of qualifications subject to automatic recognition.

A CTF sets minimum knowledge, skills and competences to fulfil in order to be able to be declared qualified in a given profession. A CTT is “a standardised aptitude test available across participating Member States and reserved to holders of a particular professional qualification.”

Conditions for developing Common Training Principles for a given profession are:

- The Common Training Principles should enable more professionals to move across Member States;
- The profession to which the Common Training Principles apply is regulated, or the education and training leading to the profession is regulated in at least one third of the Member States.
- Regarding Common Training Frameworks, an additional condition is that the profession concerned should neither be covered by another Common Training Framework nor be a profession subject to automatic recognition under Chapter III of Title III of the 2005/36/EC directive, i.e. nurses, midwives, veterinary surgeons, doctors, pharmacists, architects, dentists.
- Common Training Principles should be prepared following a transparent due process including the relevant stakeholders for Member States not regulating the profession.

Engineers are experiencing a wide range of differing regulations in Europe, be they related to their qualifications and/or to the exercise of the profession.

Defining similarities between these different regulations and requirements is a basic prerequisite for the development of Common Training Principles for Engineers.

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Thus these data were collected in a broad survey on five professional groups (Civil Engineers, Geodetic Surveyors, Electrotechnology Engineers, Mechanical and Industrial Engineers and Mining Engineers) in the EU and EEA Member States and Switzerland in May and June 2016.

Validation of results has been done in three phases (June – August 2016, September – October 2016, November – December 2016). Table 3.1 (page 25-26) shows which data has been/has not been officially validated by a national competent authority.

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

3. Survey Design

Methodology

Main areas covered by the questionnaires:

In agreement with the European Commission the expert team has defined an appropriate survey design and has developed a digital questionnaire.

Based on the research in the EC's regulated professions database (degree of regulation within the Members States) five professional target groups were defined:

Civil and Environmental Engineers
Geodetic Surveyors
Electrotechnology Engineers
Mechanical and Industrial Engineers
Mining Engineers

The competent authorities for the focus professions in the EU and EEA Member States and Switzerland – as recipients of the questionnaires - were contacted with separate but identical questionnaires for each professional group. Their contact data was gained from the regulated professions database and with the help of the ECEC member organisations. In order to secure that the competent authorities would receive the questionnaires also in cases when there are mistakes in the database (e.g. no entry in the database although a regulated profession is existing, wrong competent authority etc.) the national coordinators for the Professional Qualifications Directive were contacted as well and were informed about the recipients of the questionnaires in their country so that they could make corrections where necessary. Involving the Coordinators proved to be an important approach because many of them engaged very much in the project. As the situation in regard to competence of authorities for the focus professions in quite a number of countries has turned out to be very complicated and even unclear, without the help of the Coordinators it would not have been possible to get as much feedback as was received. Even for the coordinators this was often very difficult to solve and especially the validation period showed that often different authorities felt competent and often gave different answers. Thus, in several countries the Coordinators took over to coordinate different answers and clarify competence uncertainties.

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

The questionnaires mainly focused on aspects of professional regulation that are relevant for the development of Common Training Principles for Engineers and can be expected to show a certain degree of commonality in a significant number of Member States. This pre-assessment was mainly based on the research in the regulated professions database and on other available information:

- Job profile/scope of services and professional regulatory basis
- Regulations on access to the profession/pursuit of the profession
- Existing training programmes and their entry requirements and programme characteristics
- Positions in regard to Common Training Principles for Engineers

In order to ensure the applicability for different national regulatory situations the draft questionnaires with online test links were sent out in April 2016 to ECEC member organisations and ECEC partner organisations and their members with a request for feedback. The project team received a lot of interest and feedback and over hundred very detailed comments from the testers (mainly Austria, Germany, Hungary, Italy, United Kingdom and FEANI) on the questionnaires. As the expert team saw the optimised comprehensibility of the questionnaires as a very important factor for the comparability of the collected data, the comments were very carefully evaluated and integrated into the final version of the text.

Additionally, the expert team prepared a short questionnaire for the national and European Engineering organisations (members of the ECEC project partners that very broadly cover the survey countries – about 100 recipients) that provided an early collection of basic views on the principle of Common Training Principles for Engineers.

Both questionnaires were agreed with the European Commission before they were sent out to the recipients.

Timing:

The survey was launched on 4 May 2016. The initial deadline for answers of 22 May 2016 could not be met by a number of countries. This was partly due to the above mentioned problem of the missing of a clear situation in regard to competence for the professions.

A first overview of the draft results was presented at the stakeholder workshop on 30 June 2016, but even after that date further responses were received from several countries.

***ECEC Secretariat,** Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Quality control:

In order to present a reliable and undisputable basis for the further development of Common Training Principles, the findings and conclusions of the survey need to meet highest possible quality standards. Thus, the project was employing a quality control mechanism. This quality system consists of:

Plausibility check of information and collection of further information where needed:
Experienced academic experts were checking the validity and plausibility of the collected information prior to final documentation. In several cases of certain doubts or missing clarity consultations with national authorities and coordinators were necessary. On this basis of critically reviewed data the experts were preparing the reports and (draft) conclusions.

Presentation and discussion of reports within the ECEC resource team/ECEC members /Stakeholders of survey countries:

The ECEC resource team in an internal discussion has contributed its critical expert feedback based on the wide experience of its members with the respective situation in Europe and the participating countries. Additionally, draft results were presented and discussed in a stakeholder workshop on 30 June 2016 in Vienna

Validation of information:

After the discussion in the first stakeholder workshop all the received answers (country fact sheets) were presented to and checked with the competent bodies in each of the countries to assure highest possible accuracy of the documented information and acceptance of findings for all countries. The validation period showed a number of unclear competences. Different authorities felt competent and often gave different answers. Therefore, the expert team decided to prolong the validation period and keep the possibility for corrections open until the end of the whole CTP for Engineers project. The received data was processed in tables in the draft of this survey report and was sent out to national competent authorities for corrections/amendment together with the draft CTP proposal on 15 September 2016. Member States that sent corrections/amendments did then again individually receive the updated country factsheets and/or tables for their countries. At the beginning of November 2016, a last call for data validation was sent out to all national authorities (and in copy to all other stakeholders of the respective country) with the deadline of 20 September 2016. From November to December 2016, remaining unclarities were discussed and clarified with national competent authorities where necessary. Table 3.1 (page 25-26) shows which data has been/has not been officially validated by a national competent authority.

***ECEC Secretariat,** Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Response statistics

Answers received per country and profession

The response statistics clearly show that the highest rate of feedback refers to the profession of Civil and Environmental Engineers. This seems to be related to the fact that the degree of regulation in the survey states is highest for the profession of Civil Engineers.

The feedback rate is approximately even for the professional groups of Electrotechnology Engineers, Mechanical and Industrial Engineers and Geodetic Surveyors and also seems to show a relation to the degree of regulation of the profession in the survey states. Partly the allocation of the national professions to the focus professional groups seemed to cause some problems and thus the comparability of the professions in these groups is not as clear as the comparability between the professions of Civil Engineers in different states.

Among the states that did not participate in all or some questionnaires, the rate of those in which all/several of the focus professions are not regulated is high. This does not automatically mean that these states are not interested in CTP for Engineers, but is due to the fact that the survey investigates regulations. Nevertheless, some states in which the profession is regarded as not regulated have also answered the questionnaires: Partly they just explained how their education is regulated, partly they explained the requirements for professional titles given by a professional bodies or they explained requirements for some regulated functions within the engineering branches in focus.

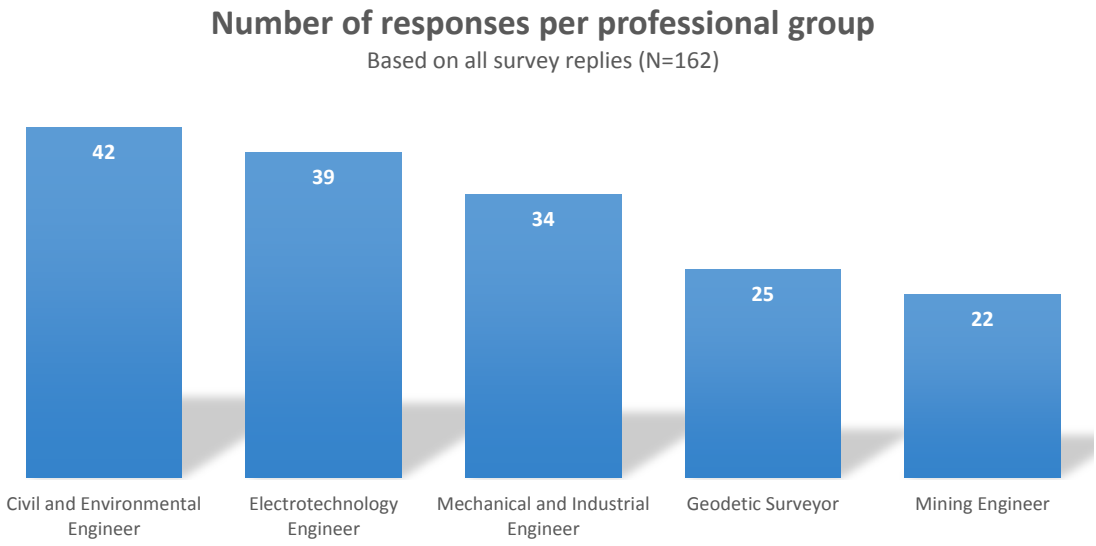


Fig. 3.1.: Number of responses per professional group

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Submission and validation of questionnaires

	Questionnaire submitted and validated
	Questionnaire submitted
	No answer received

Country	Civil and Environmental Engineer	Electrotechnology Engineer	Mechanical and Industrial Engineer	Geodetic Surveyor	Mining Engineer
AUSTRIA					
BELGIUM					
BULGARIA					
CROATIA					
CYPRUS					
CZECH REPUBLIC					
DENMARK					
ESTONIA					
FINLAND					
FRANCE					
GERMANY					
GREECE					
HUNGARY					
ICELAND					
REPUBLIC OF IRELAND					
ITALY					
LATVIA					
LIECHTENSTEIN					
LITHUANIA					
LUXEMBOURG					
MALTA					
THE NETHERLANDS					
NORWAY					
POLAND					
PORTUGAL					
ROMANIA					
SLOVAKIA					

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

SLOVENIA					
SPAIN					
SWEDEN					
SWITZERLAND					
UNITED KINGDOM					

Tab. 3.1.: Answers received per country and profession

As Fig. 3.1. shows, a total number of 162 persons have replied to the survey: 42 replies were received for the questionnaire of Civil and Environmental Engineers, 39 replies for Electrotechnology Engineers, 34 replies for Mechanical and Industrial Engineers, 25 replies for Geodetic Surveyors and 22 for Mining Engineers.

Please note: As the respondents were asked to fill in one questionnaire for each profession or professional level within the professional group in question, the number of replies is not equivalent to the number of countries that have replied to the questionnaire. Due to the fact that many countries have more than one profession/professional level within these five professional groups, the number of all replies is higher than the number of replying countries.

As in many countries, the provided answers vary based on the profession/professional level, the main unit (N) for the calculations in this report is „all replies“ and not the number of countries.

	Replying countries	**All replies**
Civil and Environmental Engineers	28	42
Geodetic Surveyors	20	25
Electrotechnology Engineers	22	39
Mechanical and Industrial Engineers	21	34
Mining Engineers	17	22

***ECEC Secretariat,** Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Interest in Common Training Principles for Engineers

From the survey results there is a clear interest to establish CTP for Engineers visible among the participating competent authorities.

Interest is highest in regard to Civil and Environmental Engineers: Although the structure of a CTP approach for Civil and Environmental Engineers was not at all clarified at the time of the survey, a majority of competent authorities has already expressed the willingness to support such an approach and only very few countries rejected it. The rest was still undecided at this early stage with no concrete proposals available yet.

Also for Geodetic Surveyors there is a clear majority of authorities prepared to support the CTP approach even without detailed information.
For the other professional groups the number of those who are willing to support a CTP is approximately equivalent to those that are still undecided. In all groups the number of clear rejections is very low.

A main reason for the differences in the different professional groups seems to be the rate of regulation within the professional group – the higher the regulation rate, the higher the interest in CTP. A reason for this might be the fact that regulation makes the profession more clearly assignably and lead to better comparability of professional structures.

As Civil and Environmental Engineers are regulated in a high number of countries, are easy to allocate in a professional group and have at least comparable structures throughout Europe, the interest in CTP for them shows a “clear edge” compared to the other professional groups.

The preferred approach for Common Training Principles for a clear majority of competent authorities in all professional groups is the Common Training Framework. Only for Geodetic Surveyors the preference for Common Training Framework and Common Training Test is almost equivalent.

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

The results in detail for:

Civil and Environmental Engineers

Geodetic Surveyors

Electrotechnology Engineers

Mechanical and Industrial Engineers

Mining Engineers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Civil and Environmental Engineers

Interest in CTP:

- ***Would you - as national competent authority (or the competent national authority in your country if you are not competent on that question) - support the development of Common Training Principles for the profession defined in this questionnaire?***

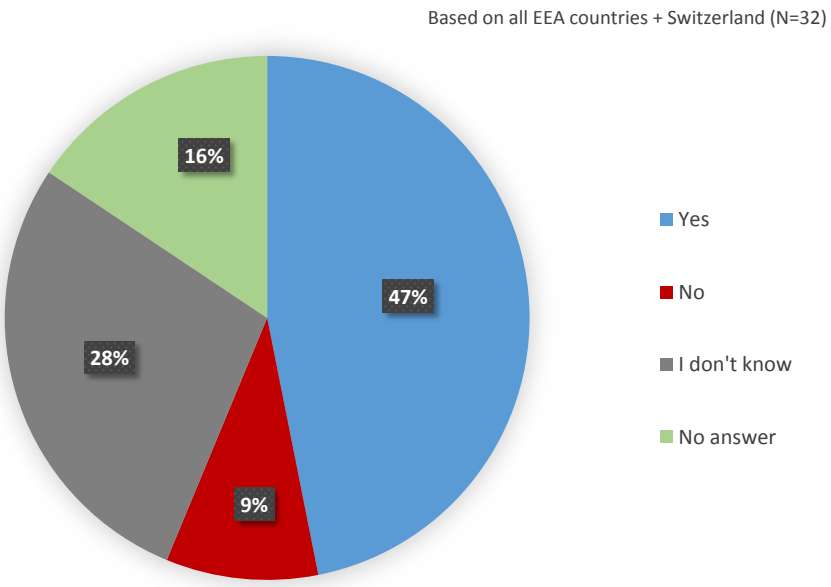


Fig. 3.2.1.: Interest in Common Training Principles of Civil and Environmental Engineers

Yes (15)	No (3)	I don't know (9)	No answer (5)
Bulgaria	Finland	Austria	Belgium
Cyprus	France	Croatia	Greece
Czech Republic	Germany	Denmark	Iceland
Estonia		Latvia	Netherlands
Hungary		Luxembourg	Norway
Ireland		Malta	
Italy		Sweden	
Liechtenstein		Switzerland	
Lithuania		United Kingdom	
Poland			
Portugal			
Romania			
Slovakia			
Slovenia			
Spain			

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

- ***Which approach would you prefer?***

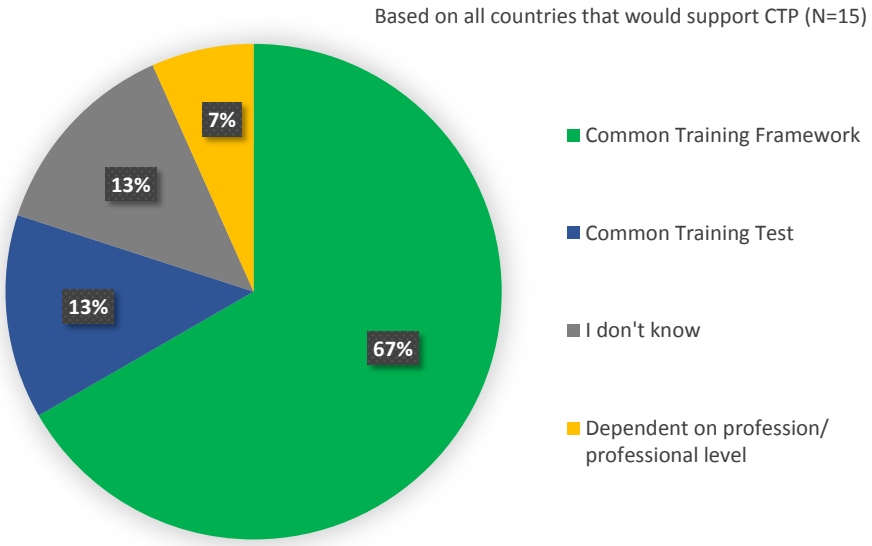


Fig.: 3.2.2.: Preferred approach of Civil and Environmental Engineers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Geodetic Surveyors

Interest in CTP:

- ***Would you - as national competent authority (or the competent national authority in your country if you are not competent on that question) - support the development of Common Training Principles for the profession defined in this questionnaire?***

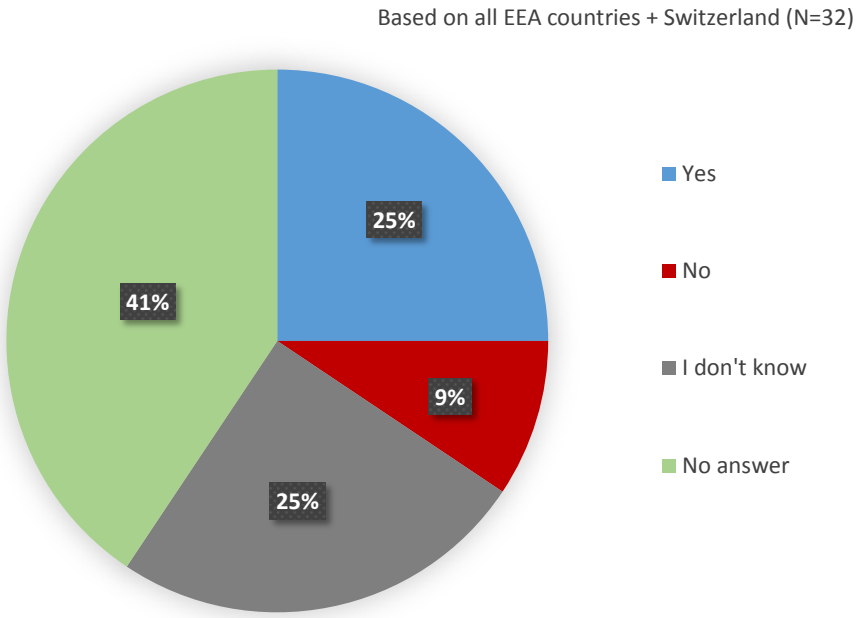


Fig.: 3.2.3.: Interest in Common Training Principles of Geodetic Surveyors

Yes (8)	No (3)	I don't know (8)	No answer (13)
Cyprus	Czech Republic	Austria	Belgium
Estonia	Denmark	France	Bulgaria
Hungary	Slovakia	Latvia	Croatia
Italy		Liechtenstein	Finland
Romania		Netherlands	Germany
Slovenia		Poland	Greece
Spain		Sweden	Iceland
United Kingdom		Switzerland	Ireland
			Lithuania
			Luxembourg
			Malta
			Norway
			Portugal

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

- ***Which approach would you prefer?***

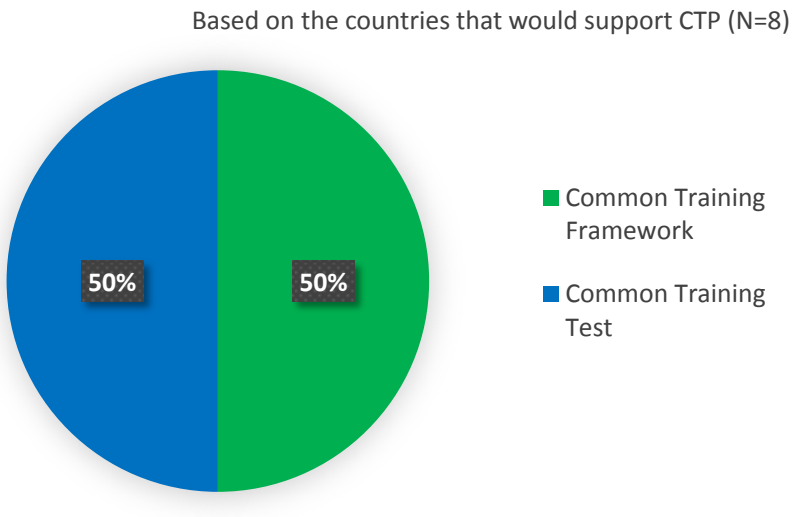


Fig. 3.2.4.: Preferred approach of Geodetic Surveyors

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Electrotechnology Engineers

Interest in CTP:

- ***Would you - as national competent authority (or the competent national authority in your country if you are not competent on that question) - support the development of Common Training Principles for the profession defined in this questionnaire?***

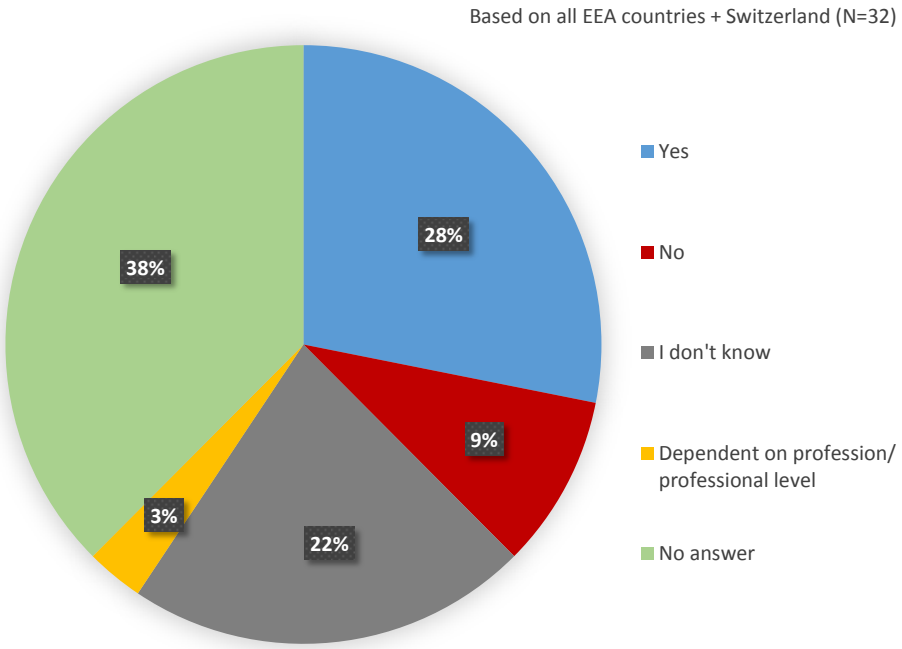


Fig.: 3.2.5.: Interest in Common Training Principles of Electrotechnology Engineers

Yes (9)	No (3)	I don't know (7)	Dependent on profession/ professional level (1)	No answer (12)
Croatia	Estonia	Austria	Spain	Belgium
Cyprus	France	Latvia		Bulgaria
Hungary	Germany	Malta		Czech Republic
Ireland		Poland		Denmark
Italy		Sweden		Finland
Liechtenstein		Switzerland		Greece
Portugal		United Kingdom		Iceland
Romania				Lithuania
Slovenia				Luxembourg
				Netherlands
				Norway
				Slovakia

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

- ***Which approach would you prefer?***

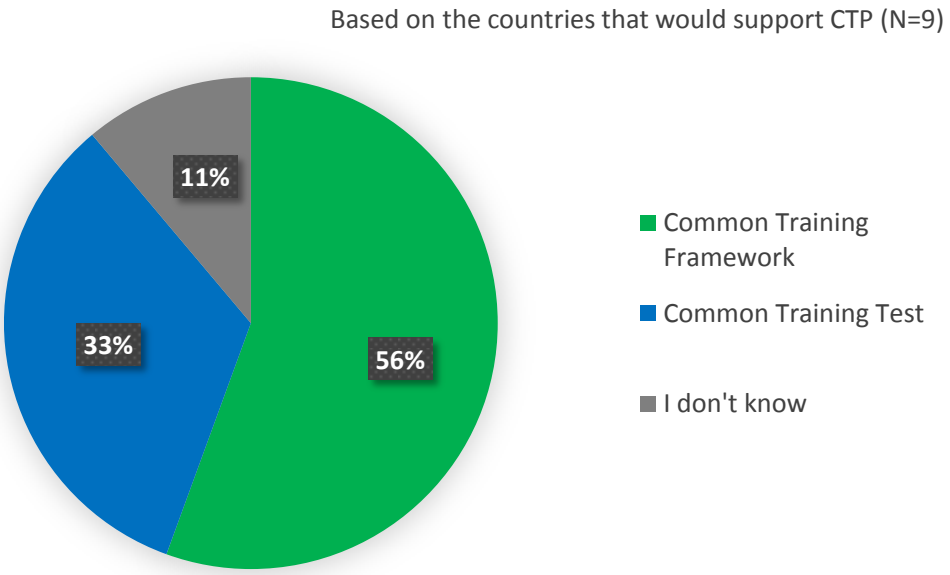


Fig.: 3.2.6.: Preferred approach of Electrotechnology Engineers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Mechanical and Industrial Engineers

Interest in CTP:

- ***Would you - as national competent authority (or the competent national authority in your country if you are not competent on that question) - support the development of Common Training Principles for the profession defined in this questionnaire?***

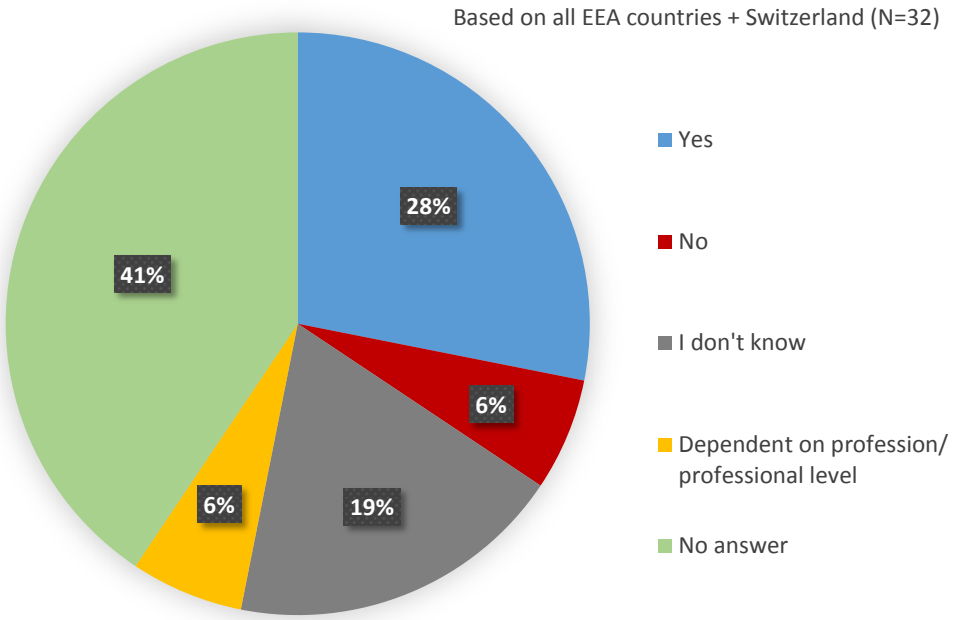


Fig.: 3.2.7.: Interest in Common Training Principles of Mechanical and Industrial Engineers

Yes (9)	No (2)	I don't know (6)	Dependent on profession/ professional level (2)	No answer (13)
Croatia	France	Austria	Bulgaria	Belgium
Cyprus	Germany	Latvia	Spain	Czech Republic
Hungary		Liechtenstein		Denmark
Ireland		Sweden		Estonia
Italy		Switzerland		Finland
Malta		United Kingdom		Greece
Portugal				Iceland
Romania				Lithuania
Slovenia				Luxembourg
				Netherlands
				Norway
				Poland
				Slovakia

ECEC Secretariat, Vienna
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

- ***Which approach would you prefer?***

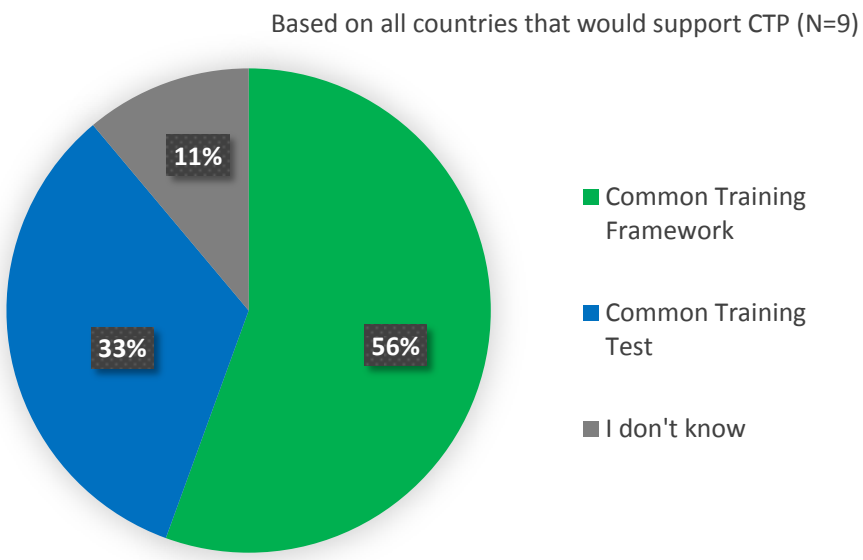


Fig.: 3.2.8.: Preferred approach of Mechanical and Industrial Engineers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Mining Engineers

Interest in CTP:

- ***Would you - as national competent authority (or the competent national authority in your country if you are not competent on that question) - support the development of Common Training Principles for the profession defined in this questionnaire?***

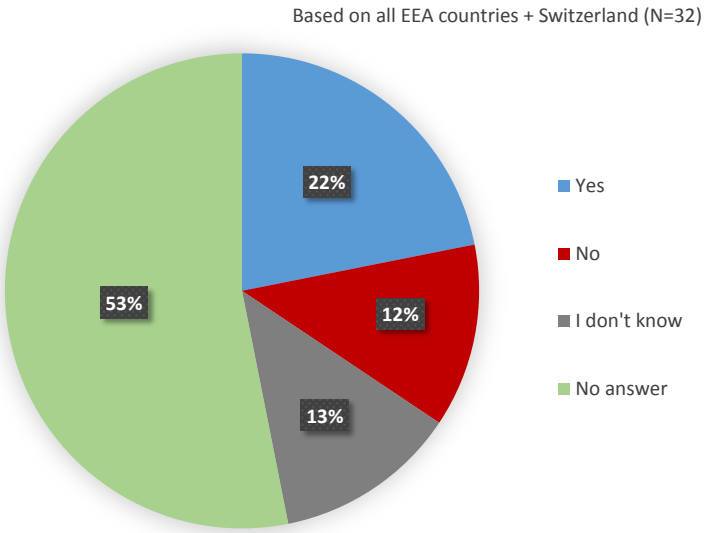


Fig.: 3.2.9.: Interest in Common Training Principles of Mining Engineers

Yes (7)	No (4)	I don't know (4)	No answer (17)
Cyprus	Croatia	Austria	Belgium
Estonia	Czech Republic	Bulgaria	Denmark
Ireland	France	Latvia	Germany
Italy	Liechtenstein	Sweden	Finland
Portugal			Greece
Romania			Hungary
Slovenia			Iceland
			Lithuania
			Luxembourg
			Malta
			Netherlands
			Norway
			Poland
			Slovakia
			Spain
			Switzerland
			United Kingdom

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

- **Which *approach* would you prefer?**

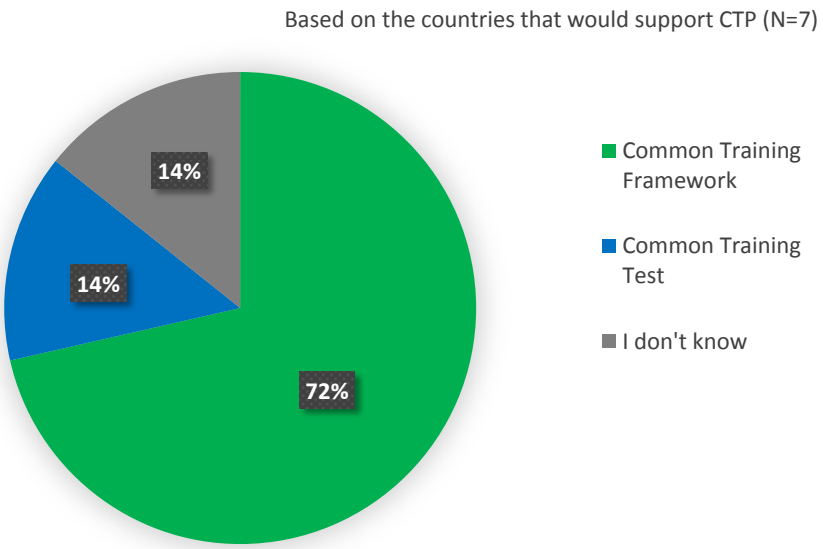


Fig.: 3.2.10.: Preferred approach of Mining Engineers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

The views of national and European Engineering Organisations:

In addition to the questionnaires on the regulatory framework of the five professional groups approximately 100 national and European Engineering Organisations were contacted with a questionnaire on their opinions in regard to Common Training Principles for Engineers. A reply was received from 41 organisations.

The results were in principle similar to those from the competent authorities: The interest for CTP for Engineers is clearly visible and the preferred approach is the Common Training Framework.

For over three quarters of the organisations the concept of CTP had already been of high or medium interest and for a majority of organisations Common Training Frameworks are the preferred approach. Over a quarter of the organisations even said that they were planning to submit a proposal for Common Training Principles for Engineers themselves.

The results for national and European engineering organisations in detail:

- **Has the concept of Common Training Principles for Engineers been of interest for your organisation yet?**

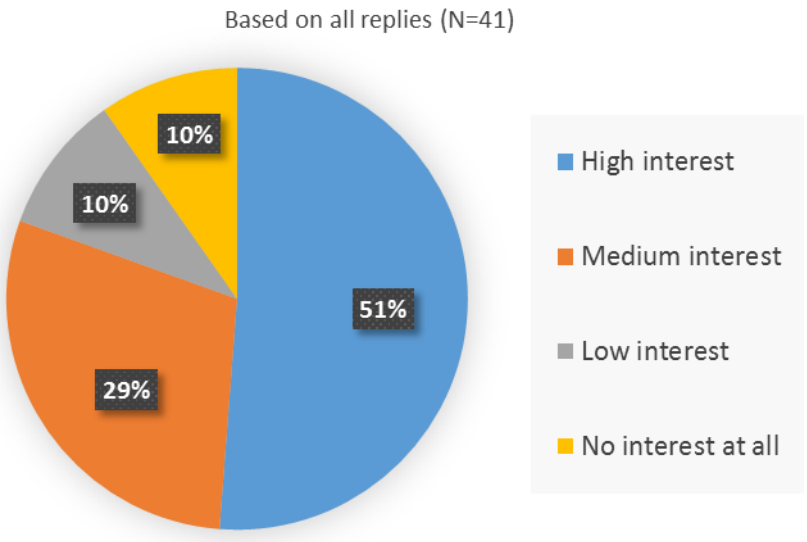


Fig. 3.3.1.: Interest of national and European engineering organisations in Common Training Principles

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

- **Which approach would you prefer?**

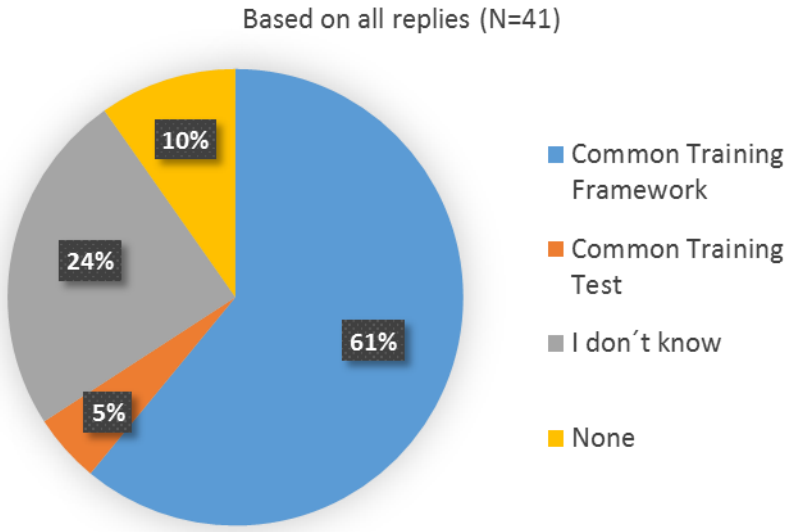


Fig. 3.3.2.: Preferred approach of national and European engineering organisations

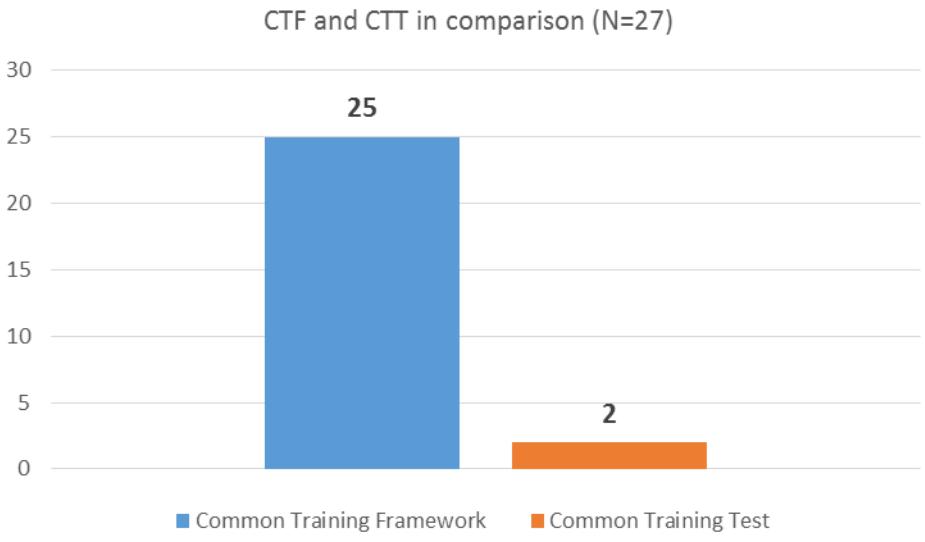


Fig. 3.3.3.: Preferred approach – CTF and CTT in comparison

ECEC Secretariat, Vienna
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

4. Main findings

Experiences

Support and feedback:

Overall the project team was positively surprised about the massive interest and feedback and the active participation of many competent authorities, national coordinators and engineering organisation in the whole survey process. It became clear throughout the project that the aim to develop Common Training Principles for Engineers is supported by many stakeholders.

National competences:

Nevertheless, the complexity of the engineering professions – that had already become very visible during the research in the regulated professions database – led to problems time and again. In some countries, it was very difficult to identify the correct competent authorities for the focus professions. Without the very active support of the National Coordinators for the Professional Qualifications Directive this would have been nearly impossible in some countries. Often they themselves had to clarify the situation, wait for feedback from authorities etc. Therefore, a number of countries were not able to meet the deadline of the survey which thus had to be postponed several times. During the validation process – when the received results of the questionnaires were sent out to the competent authorities of each participating country for validation – this problem became obvious again: Corrections and clarifications were done by different authorities in different ways, showing that the national situations are also not always regarded identically by the different national stakeholders. There were also cases where other stakeholders criticised the correctness of the answers from competent authorities. So in several countries this required further clarification by the project team that was ongoing until December 2016.

Common understanding of questionnaires:

Although the expert team has tried to ensure the applicability of the questionnaire for different national regulatory situations by a very broad pre-test, it is necessary to point out

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

that it is not fully avoidable that questions are still understood differently by different participants and thus results are not always fully comparable.
The report tries to make this visible by comments and footnotes wherever possible.

Example: The requirement of professional practice is regarded as professional entrance requirement in the questionnaires, but there are countries where it is seen as a requirement for professional conduct. Thus, the question if professional practise exists as an entrance requirement is negated. This leads to the fact, that a table comparing entrance requirements does not show the existing professional practice requirement in that country. It should be visible though in another table and/or by comments and footnotes.

Different professional levels/different forms of a profession:
As the research in the regulated profession database has already made visible, many countries have different levels or forms of professions within one engineering branch. Thus, the expert team decided to structure the questionnaires in a way that makes it possible to give different answers for each of these professional levels or forms. This was also pre-tested and accepted by a vast majority of the different national testing organisations. Although this structure proved to be necessary it is also an additional potential for misunderstandings: Some competent authorities have mentioned different levels/forms of the professions but haven't filled them all in, some competent authorities have only filled in for one level but in the further comments explained that there are different levels and in some countries different competent authorities expressed different opinions on the number and form of different professional levels existing. Also in regard to this problem the report gives explanations in comments and footnotes where possible.

Regulation of the profession:
During the process, it unexpectedly also turned out that the question, if and how a profession is regulated, is one of the most complicated issues of the questionnaire. There is no common understanding on „professional regulation". Some competent authorities have declared that the profession is not regulated in their country and that they therefore cannot answer the questionnaires at all. Others, with a similar regulatory background in their country, answered the questionnaire anyway and explained that although the profession itself is not regulated, the engineering education is regulated and/or certain functions of the professions are regulated. So even if the regulatory situation is in fact similar in some non-regulated countries, the communication of the competent authorities was different: Partly, they just explained how engineering education is regulated, partly, they explained the requirements for

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

professional titles given by professional bodies or they explained requirements for some regulated functions within the engineering branches in focus, partly, they gave no further information at all. This means that the tables might show different results for countries which have in fact very similar regulatory situations.
What became visible from further inquiries is that in countries in which the profession as such is not regulated, the regulation of certain functions within an engineering branch is quite common. Some competent authorities have communicated such regulations in the survey, others not. During the preparation of this report, it was consciously decided that the data would not be interpreted by the project team, but presented as originally indicated in the questionnaire. To provide a better understanding of the situation, these aspects are explained in comments and footnotes in the report.

For better understanding please note that many regulatory situations can be covered by the following scenarios:
Some countries regulate the profession as such (in different forms such as pursuit of the profession and/or use of the title);
Some countries do not regulate the profession as such but do have – beside the regulation of educational requirements – regulated requirements for the access to certain functions, especially in the building sectors;
Some countries do not regulate the profession by law but have authorized professional bodies awarding professional titles for the use of which the engineers have to fulfil access/pursuit requirements.

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

4.1. Civil and Environmental Engineer

Although the assignability of the profession has proved to be quite clear in comparison to other professional groups, some respondents stressed that in their countries the professions of Civil Engineer and Environmental Engineers are completely different professions with different requirements and thus, they do not want to mix these professions into one professional group in regard to CTP for Engineers. The main focus in this group is therefore the classic profession of Civil Engineering – in some countries closely related to Environmental Engineering – which seems to be comparable throughout the participating countries.

4.1.1. Regulation of the engineering profession

Regulation rate of the profession

The shown regulation rate is based on the answers received in the survey. It is thus possible that the number of regulated countries is higher due to the fact that countries that did not participate in the survey are not considered in the calculation. Additionally, the engineering education is regulated in a vast majority of the professions.

It is clearly confirmed that the profession of Civil Engineers fulfils the regulation requirements for Common Training Principles (Articles 49a 2.(b) and 49b 2.(b) of Directive 2005/36/EC on the recognition of professional qualifications).

Please note:
As the number of provided answers by the competent authority varies based on the topic (not all questions were answered by everybody), the number of the main unit (N) is not consistent within the professional group.

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Regulation rate of profession

- *Is the profession of Civil and Environmental Engineers regulated (access, title or pursuit, other)?*

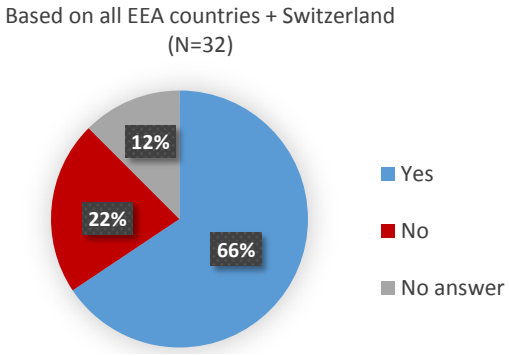


Fig.: 4.1.1.: Regulation rate of the profession of Civil and Environmental Engineers

Regulation rate of education

- *Is the engineering education for the profession considered as regulated by the national authorities of the country?*

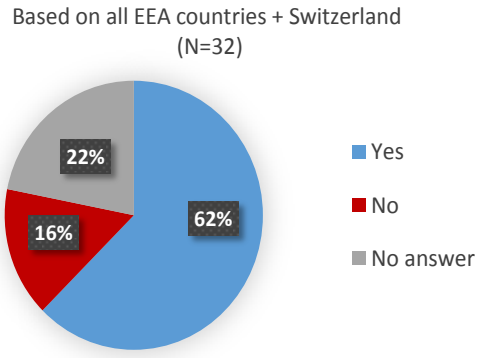


Fig. 4.1.2.: Regulation rate of education of Civil and Environmental Engineers

Prevalence of different forms of regulation (multiple answers possible)

- *Is the profession regulated?*

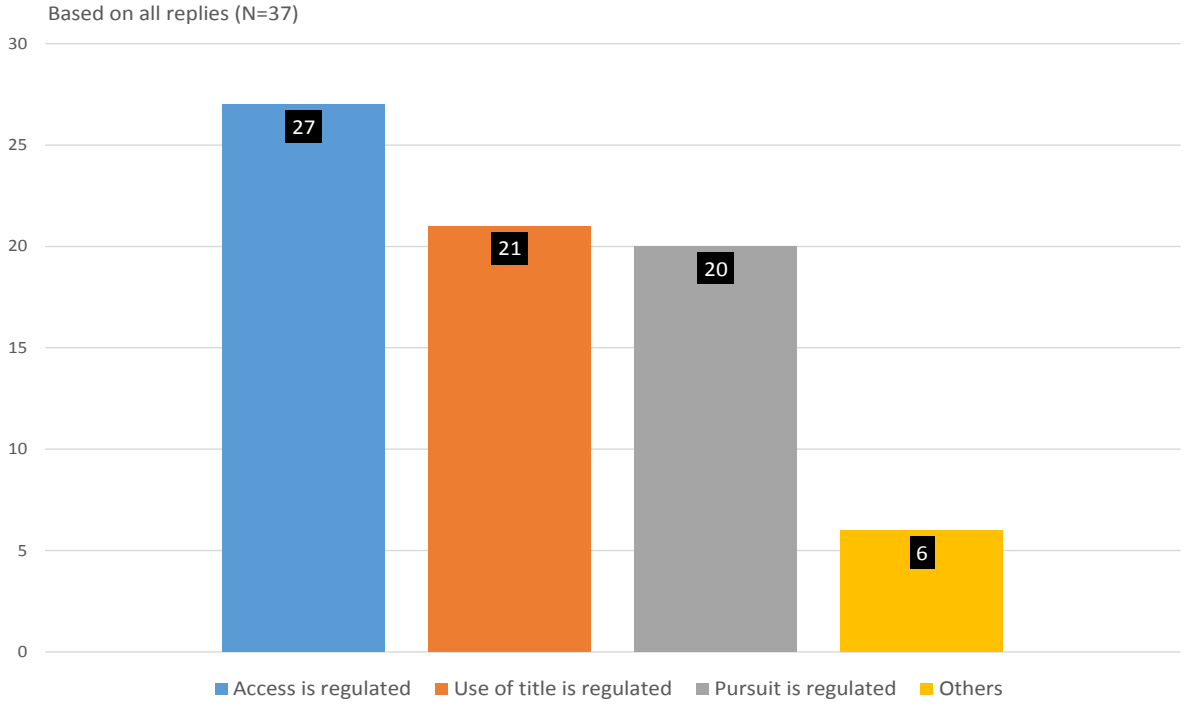


Fig.: 4.1.3.: Regulation of the profession of Civil and Environmental Engineers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Different forms of regulation in detail

- *Is the profession regulated?*

Legend:

	Profession is not regulated in general

Country		Regulated access to the profession	Regulated pursuit of the profession	Regulated use of the title of the profession	Additional comments
AUSTRIA	P1	x	x	x	
	P2	x	x		Competition law ensures engineering firm - consulting engineer may be only used with the licence for this profession.
BULGARIA	P1	x	x		
	P2	x	x		
CROATIA	P1	x	x	x	
CYPRUS	P1	x	x	x	
	P2	x	x	x	
CZECH REPUBLIC	P1	x		x	
DENMARK		x			The profession as such is not regulated. More than 99% of all Civil Engineers in Denmark perform their profession without any certification. Only Civil engineering in high risk constructions (CC3) are regulated (less than 100 civil engineers are certified structural engineers). The Danish building Regulation requires the involvement of a certified structural engineer in the structural design or in the checking process of the structural calculations when a building is categorised as high consequence class (CC3), acc. to Eurocode 3. The answers in the questionnaire refer to the professional level of "Certified Structural Engineer" - Civil Engineering in high risk constructions CC3

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

ESTONIA					The profession as such (Ehitusinsener) is not regulated, but education/training is regulated. Additionally, there is a position called "pädev isik" (specialist in charge, responsible person) for a particular area (e.g. construction) that is regulated. The answers in the questionnaire only refer to the professional of "Ehitusinsener" and have been given in reference to the qualifications system run by the Qualifications Authority. By law, only the mandatory specialist in charge / competent person is regulated. That means that company must have at least one specialist in charge. To become a specialist in charge one needs, in addition to education, to have the required work experience in order to obtain a professional certificate from the Qualifications Authority (the person is 'tested' by the appropriate body which can be a professional association).
FINLAND					The profession is not regulated.
FRANCE					The engineering profession is not regulated in France, neither in terms of access to the profession nor its exercise, including the title. But the academic title of “ingénieur diplômé”, associated with the name of the higher education institution that delivers the diploma, is regulated. It is therefore a regulation of the education/training and not of the profession.
GERMANY	P1	x		x	"Consulting Engineers" are only a very small group of the engineers working in Germany.
	P2			x	In Germany, the professional title "Ingenieur" is protected, including all word compounds, e.g. "Civil Engineer", "Electrical Engineer" etc.
HUNGARY	P1		x		
	P2		x		
REPUBLIC OF IRELAND	P1			x	Certain functions are regulated under Building Control Regulations. Profession is regulated via Professional Body (Engineers Ireland)
ITALY	P1	x	x	x	
	P2	x	x	x	
LATVIA			x		The profession as such is not regulated in general, but education/training is regulated. The answers in the questionnaire refer to the profession of "būvinženieris, vides inženieris". The pursuit of the profession is regulated in defined fields of construction (construction supervision, managing of construction works, construction designing).
LIECHTENSTEIN		x		x	Different categories of diplomas --> Different laws and obligations
LITHUANIA		x	x		There is mandatory attestation for construction activities of structures of exceptional significance.
LUXEMBOURG	P1	x	x	x	
MALTA		x	x	x	

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

THE NETHERLANDS					The profession is not regulated.
POLAND		x			
PORTUGAL	P1	x	x	x	Engineers level 1 for people with Engineering 1º cycle degrees and engineers level 2 for people with Engineering 2º cycle Degrees
	P2	x	x	x	
	P3	x	x	x	
	P4	x	x	x	
ROMANIA					The profession as such is not regulated, but regulated education/training at universities is regulated.
SLOVAKIA		x	x	x	
SLOVENIA	P1	x			
	P2	x			
	P3	x			
	P4	x			
SPAIN	P1	x	x	x	It is mandatory the registration in the "Colegio de Ingenieros de Caminos, Canales y Puertos" or Spanish Council of Civil Engineers (MEng). This registration ensures that Ingenieros de Caminos, Canales y Puertos are under a professional code of conduct and under the possibility of public disciplinary proceedings, and in if deserved, the appropriate penalty.
	P2	x	x	x	
SWEDEN					The profession as such is not regulated, but regulated education/training is regulated.
SWITZERLAND	P1	x	x		
	P2	x	x		
UNITED KINGDOM	P1			x	The engineering profession is not regulated. Chartered bodies award protected titles which are deemed to be regulated for the purpose of the PQD, but registration to use the titles is voluntary and self-regulated. The Engineering Council – based on a Royal Charter – holds the national register for four titles with cross discipline-specific boundaries. These provide a common framework bringing consistency to the regulation of the entire engineering profession. The Engineering Council licences 35 Professional Engineering Institutions to award titles. Alongside these institutions can also have their protected titles conferred by their own Royal Charter (e.g. ICE, IStructE etc.). Requirements are assessed in a similar way, normally as part of the same assessment process.
	P2			x	
	P3			x	
	P4			x	

Tab. 4.1.1.: Regulation of the profession in the field of Civil and Environmental Engineering

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Prevalence of different forms of reserved activities (multiple answers possible)

- *Which activities are reserved to the profession?*

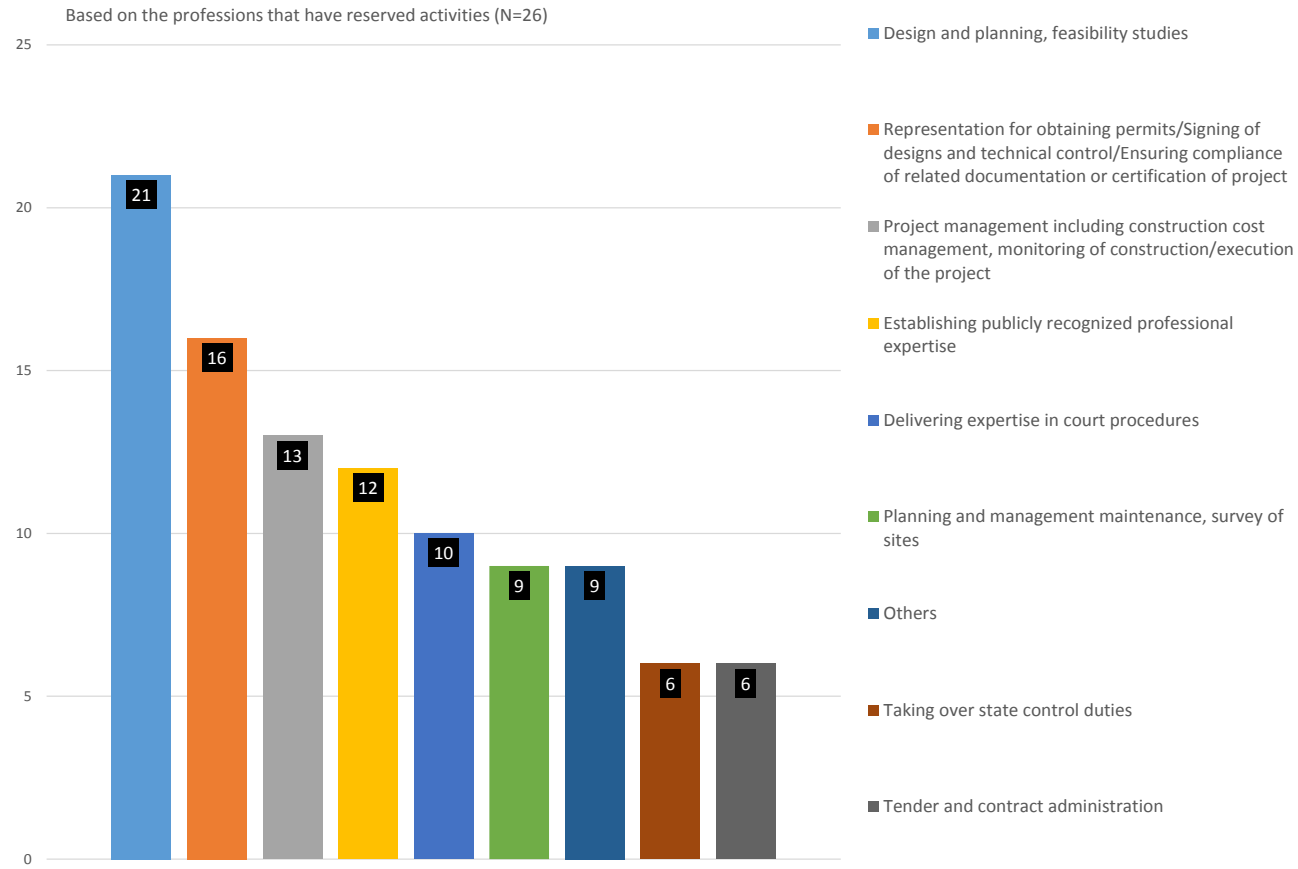


Fig.: 4.1.4.: Activities reserved to the profession of Civil and Environmental Engineers

***ECEC Secretariat,** Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Different forms and/or levels of the profession

The survey results show that a majority of countries has different levels or forms of professions within one engineering branch. This can mean different entrance requirements and/or different scopes of services and competences or specifications. The professional levels and forms are referred to as professions/professional levels and are the basis of the main unit (N=„all replies“ and not the number of countries) for the calculations in this report.

- *Are there different professions/professional levels with different requirements for access to the profession and/or pursuit of the profession and/or use of the title of the profession in your country?*

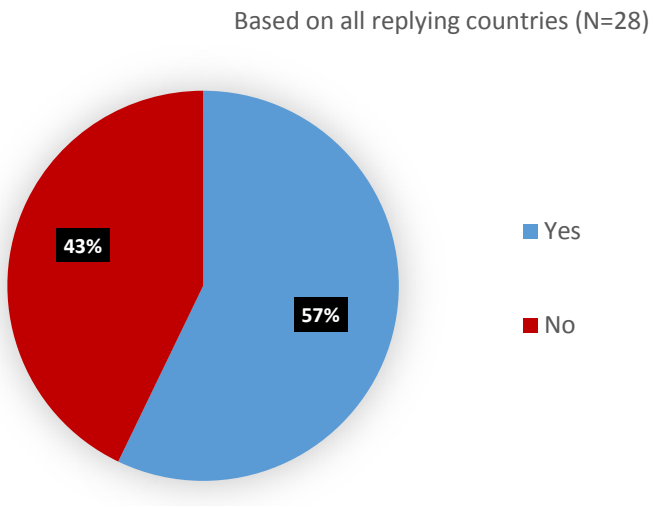


Fig.: 4.1.5.: Different professional levels per country (Civil and Environmental Engineers)

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

- *What is the minimum educational level for access to the profession and/or use of the professional title (according to the levels of European Qualifications Framework)?*
- *What is the minimum educational level required for access to the profession and/or use of the professional title according to the levels of qualifications in Article 11 of Directive 2005/36/EC on recognition of professional qualifications?*
- *What is the required number of years of academic education for access to the profession and/or use of the professional title?*

Legend:		No questionnaire submitted for this professional level
		Profession is not regulated in general

Country		Different professions/professional levels	Min. educational level (EQF)	Min. educational level (Art. 11)	Min. academic years
AUSTRIA	P1	Ziviltechniker - Ingenieurkonsulent	Higher than 7	e	4
	P2	Ingenieurbüros (Beratende Ingenieure)	Others [1]	c [2]	3 [3]
BULGARIA	P1	Engineer in the Investment Design (limited design capacity)	6	c	4
	P2	Engineer in the Investment Design (full design capacity)	7	c	5
CROATIA	P1	Ovlašteni inženjer građevinarstva	7	e	5
	P2	Ovlašteni voditelj građenja građevinske struke	-	-	-
	P3	Ovlašteni voditelj radova građevinske struke	-	-	-
CYPRUS	P1	Civil Engineer	7	e	4
	P2	Environmental Engineer	7	e	4
CZECH REPUBLIC	P1	Chartered Engineer in Construction Sector	6	e	4
	P2	Chartered Technician	-	-	-

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

DENMARK		Certified Structural Engineer - Civil Engineering in High risk constructions CC3 [4)]	6	d	3,5
ESTONIA		Ehitusinsener (Construction/Civil engineer) [5)]	5 [6)]	c	5
FINLAND					
FRANCE					
GERMANY	P1	Beratender Ingenieur	6	d -e [7)]	3-4 [8)]
	P2	Ingenieur	6	d	3 [9)]
HUNGARY	P1	BSc Civil Engineer	6	-	4
	P2	MSc Civil Engineer	7	-	5
ITALY	P1	Ingegnere civile e ambientale iunior	6	d	3
	P2	Ingegnere civile e ambientale	7	e	5
LATVIA		Būvinženieris, Vides Inženieris	6	e	4
LIECHTENSTEIN		Bauingenieur/Umweltingenieur	7	d	3
LITHUANIA		Civil Engineer	6	d	3
LUXEMBOURG	P1	Ingénieur-conseil	7	e	5
	P2	Ingénieur-paysagiste	-	-	-
MALTA		Perit inġinier ċivili [10)]	7	e	4 [11)]
THE NETHERLANDS					
POLAND		Building Engineer	7	e	5
PORTUGAL	P1	Civil Engineer, 1st cycles degree	6	d	3
	P1	Civil Engineer, 2nd cycles degree	7	e	5
	P2	Environmental Engineer, 1st cycles degree	6	d	3
	P2	Environmental Engineer, 2nd cycles degree	7	e	5
REPUBLIC OF IRELAND	P1	Chartered Engineer [12)]	7	e	4 [13)]
	P2	Associate Engineer	-	-	-
	P3	Engineering Technician	-	-	-

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

ROMANIA		Engineer	6	e	4
SLOVAKIA		Chartered Civil Engineer	6	e	5
SLOVENIA	P1	Responsible Project Designer	7	d	4
	P2	Responsible Manager of Work	6	d	3
	P3	Responsible Supervisor	7	d	4
	P4	Responsible Auditor	7	d	4
SPAIN	P1	Ingeniero de Caminos, Canales y Puertos (Master of Engineering)	7	e	5 [14)]
	P2	Ingeniero Técnico de Obras Públicas	6	d	4
SWEDEN		Profession is not regulated. Two types of regulated education:	6	d	3
			7	e	5
SWITZERLAND	P1	Civil Engineer	Others [15)]	d	3
	P2	Environmental Engineer	Others [16)]	d	3
UNITED KINGDOM	P1, P2	Chartered Engineer (CEng), Chartered Civil Engineer (CEng, MICE) and Chartered Structural Engineer - awarded by The Engineering Council, ICE and IStructE	Others [17), 18)]	e	Others [21)]
	P3	Incorporated Engineer (IEng and IEng, MICE) - awarded by the Engineering Council and ICE. Incorporated Structural Engineer awarded by IStructE	Others [19)]	d	Others [22)]
	P4	Engineering Technician (EngTech and EngTech MICE) - awarded by The Engineering Council and ICE. Technician Member of the Institution of Structural Engineers, awarded by IStructE	Others [20)]	c	Others [23)]

1)	We allocate the educational level at level 7 acc. to the ECF. The EQF/NQF mapping of vocational qualifications has not been implemented in Austria yet. The assignment to level 7 is an assessment of the competent authority.
2)	Level c is the minimum level, level d and e also lead to the profession.
3)	Minimum of 3 years academic education required; alternative education is also possible: 5 years technical secondary education (and 6 years professional experience and licensing examination), corresponding to Art. 11 level c ii) Dir. 2005/36/EG.
4)	Since more than 99% of all Civil Engineers in Denmark perform their profession without any certification, we prefer that the overall regulation situation in Denmark is described as: 'not regulated'. Only civil engineering in high risk constructions (CC3) is regulated (less than 100 civil engineers are certified structural engineers).
5)	Ehitusinsener has a number of specializations.

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

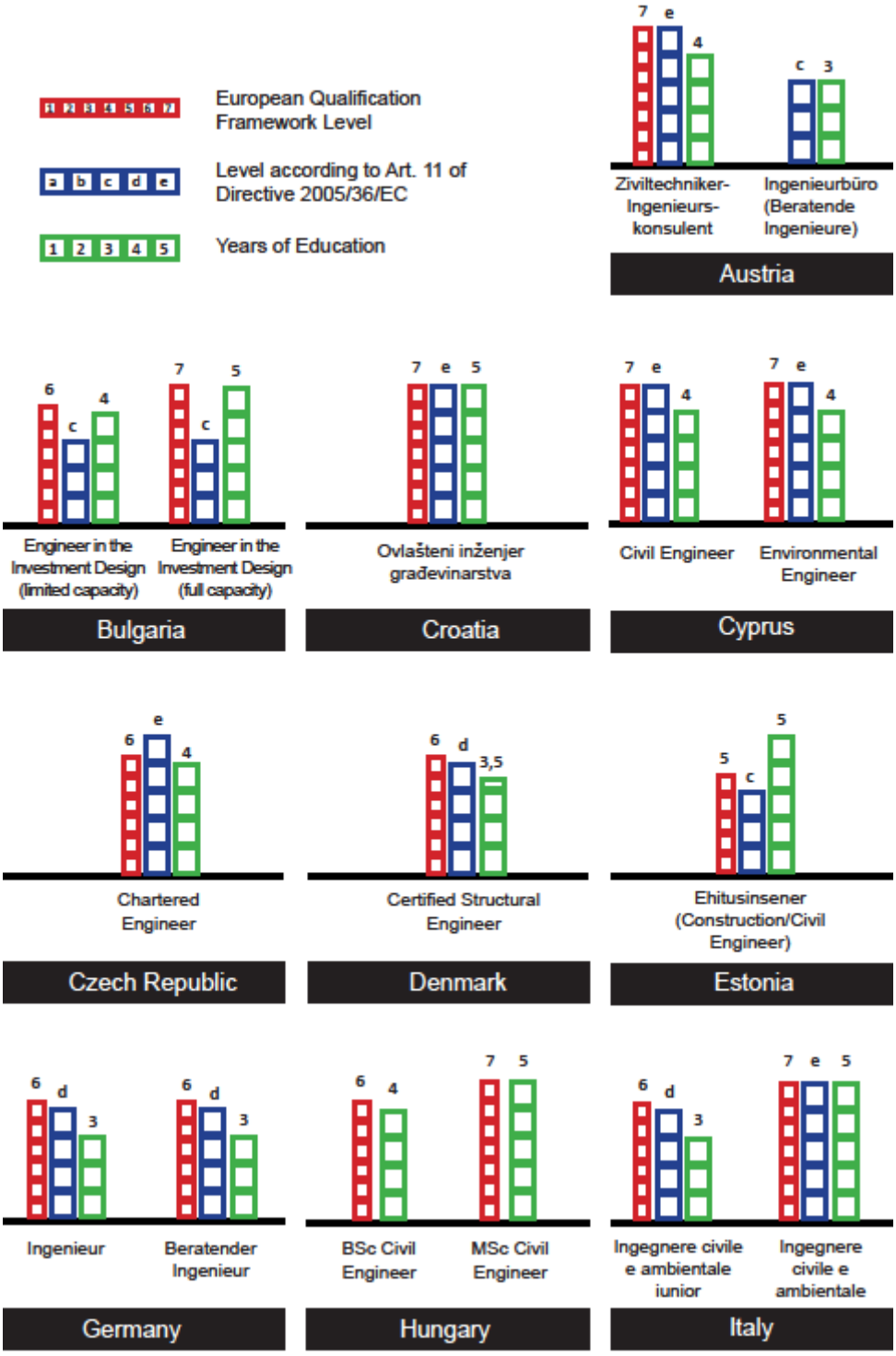
6)	The indicated minimum EQF Level is recorded as 5. This reflects the historic case when the level of education was lower. All recently trained engineers are at Level 6 or 7, and most of the earlier trained engineers have upgraded their qualifications (to 6 or 7) through the certification system run by the Estonian Qualifications Authority.
7)	Differs at Länder level
8)	Depending on the state law
9)	Bachelor
10)	Current legislation prescribes the title of "perit" for both architects and civil engineers, reflecting a tradition of close proximity between the two professions, to the extent that up to 2000, the official title was "architect and civil engineer". Envisaged amendments to the law propose the title of "perit inġinier ċivili" for civil engineers.
11)	Law envisages a minimum of 4 years academic training followed by two years professional experience, or five years academic training followed by one year professional training
12)	The profession is not regulated by law, but via membership by professional body (Engineers Ireland).
13)	Usually a second cycle degree (5 years) but we are outcomes based rather than prescriptive years
14)	5 or 6 years (4 for Graduate+2 or 1 for Master)
15)	A Bachelor is required, however there is not yet an official classification in the EQF for these educations.
16)	The requested degree is a Bachelor, but the official classification in the EQF 6 has not been officially decided.
17)	The exemplifying academic qualification is Level 7. Non-formal and informal learning is assessed to this level.
18)	The exemplifying academic qualification is at Level 7 i.e. an accredited integrated Masters degree. Candidates may satisfy the exemplifying academic base through a combination of qualifications e.g. an accredited Bachelors degree plus accredited MSc or through non-formal and informal learning is assessed to this level.
19)	The exemplifying academic qualification is Level 6. Non-formal and informal learning is assessed to this level.
20)	The exemplifying academic qualification is Level 4. Non-formal and informal learning is assessed to this level.
21)	13 years of primary/secondary schooling plus typically 4 years for an exemplifying academic qualification (integrated Masters or Bachelor + Masters). However, the duration of university education is not the defining criteria for determining access to the profession. All candidates must satisfy the Learning Outcomes required for Chartered membership irrespective of the mode or duration of study.
22)	13 years of primary/secondary schooling + typically 3 years for an exemplifying academic qualification (Bachelor). Learning outcomes are the defining criteria, not duration of study or student workload.
23)	13 years of primary/secondary schooling. Learning outcomes are the defining criteria, not duration of study or student workload.

Tab. 4.1.2.: Professions/professional levels and educational access requirements in the field of Civil and Environmental Engineering

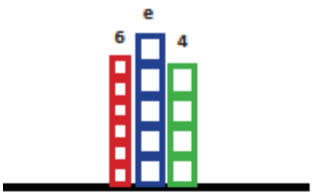
ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Overview of minimum (academic) training requirements for access to the profession

Please note: ***Only distinct levels and numbers of years were considered in this figure. When more than one level/number was entered for a profession/professional level, only the minimum level/number was considered. For further details please see Tab. 4.1.2.***

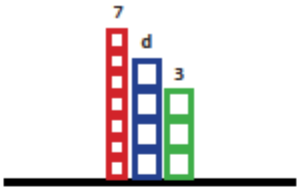


ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net



Būvinženieris,
Vides Inženieris

Latvia

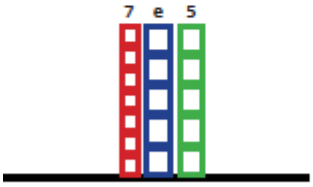


Bauingenieur /
Umweltingenieur

Liechtenstein

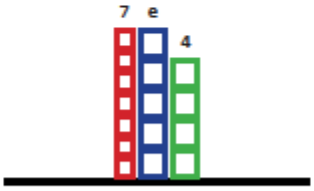
Civil Engineer

Lithuania



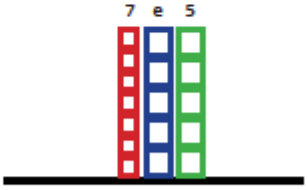
Ingénieur-conseil

Luxembourg



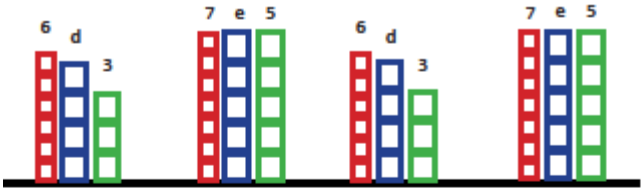
Perit Inġinier Civili

Malta



Building
Engineer

Poland



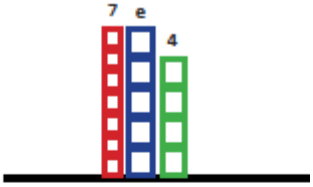
Civil Engineer,
1st cycle
degree

Civil Engineer,
2nd cycle
degree

Environmental
Engineer, 1st
cycle degree

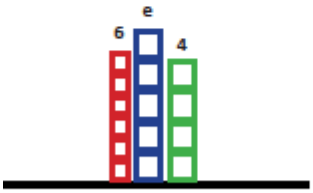
Environmental
Engineer, 2nd
cycle degree

Portugal



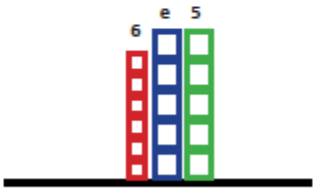
Chartered
Engineer

Republic of Ireland



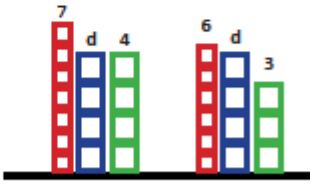
Engineer

Romania



Chartered Civil Engineer

Slovakia



Responsible
Project
Designer

Responsible
Manager of
Work

Slovenia

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

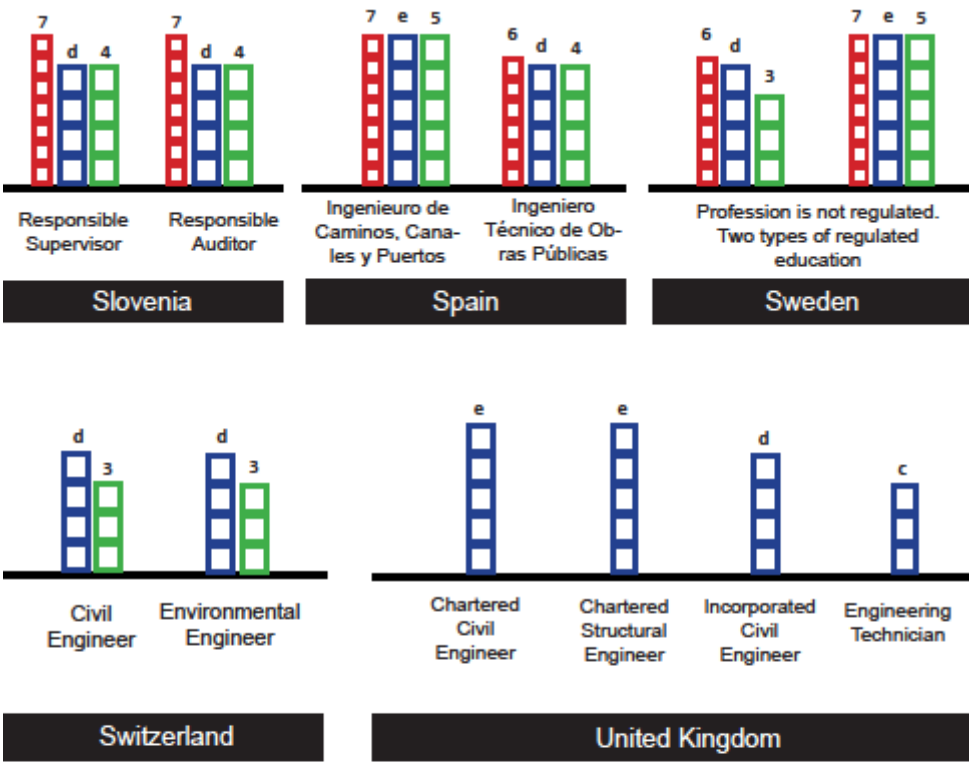


Fig. 4.1.6.: Educational access requirements of Civil and Environmental Engineers in comparison

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Rate of professions for which it is possible/not possible to compensate academic education requirements

- *Can educational requirements be fully or partly compensated (extraordinary achievements approach, competence based assessment, etc.)?*

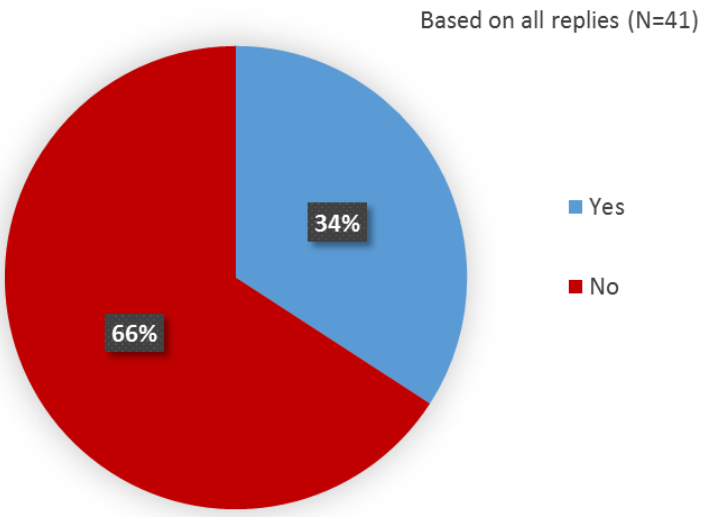


Fig. 4.1.7.: Compensation of requirements of academic education of Civil and Environmental Engineers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Overview of additional requirements for the access to the profession

- *Is there a requirement of professional experience or professional traineeship for the access to the profession and/or use of the professional title?*
- *How many years of professional experience/professional traineeship are required?*
- *When can the professional experience/professional traineeship be obtained?*
- *Is an entrance exam/entrance interview required for access to the profession and/or use of the professional title?*
- *Is a registration required for access to the profession and/or use of the professional title?*
- *How is the registration regulated?*
- *Is a personal professional indemnity insurance required for access to the profession/use of the professional title?*
- *Is liability insurance required within companies?*
- *Are there any other requirements for access to the profession?*

Legend:

	Profession is not regulated in general

Country		Professional experience/professional traineeship required	Years of professional experience/professional traineeship required	Obtainment of professional experience/ professional traineeship		Requirement of entrance exam/entrance interview	Requirement of registration	Requirement of personal professional indemnity insurance	Requirement of liability insurance within companies	Other requirements for access to the profession
				Partly before/partly after final degree	After final degree					
AT	P1	Yes	3		**x**	Yes	Mandatory	No	No	No
	P2	Yes	3 or 6 [1)]		**x** [2)]	Yes	Mandatory	No	No	No
BG	P1	Yes	0		**x**	No	Mandatory	Yes	Yes	Yes [4)]
	P2	Yes	2 or 4 [3)]		**x**	No	Mandatory	Yes	Yes	Yes [5)]
HR	P1	Yes	2		**x** [6)]	Yes	Mandatory	Yes	No	No
CY	P1	Yes	1		**x**	No	Mandatory	Yes [7)]	Yes	No
	P2	Yes	1		**x**	No	Mandatory	Yes [7)]	Yes	No
CZ	P1	Yes	3 or 5 [8)]		**x**	Yes	Mandatory	Yes	Yes	No
DK		-	5		**x**	Yes	Mandatory	No	No	No

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

EE										
FI										
FR										
DE	P1	Yes	2-5 [9)]		x	Yes	Mandatory	Yes	Yes	No
	P2	No				No [10)]		No	No	No
HU	P1	No				No		No	No	Yes [11)]
	P2	No				No		No	No	No
IT	P1	No				Yes	Mandatory	Yes	Yes [12)]	No
	P2	No				Yes	Mandatory	Yes	Yes [13)]	No
LV		Yes	3		x	No	Mandatory	Yes	No	No
LI		Yes	2		x	No		No	Yes	Yes [14)]
LT		Yes	Others [15)]		x	Yes [16)]	Mandatory [17)]	No	Yes	Yes [18)]
LU	P1	Yes	2		x	No	Mandatory	Yes	Yes	No
MT		Yes	Others [19)]		x	Yes	Mandatory	Others [20)]	Others [21)]	No
NL										
PL		Yes	2		x	Yes	Mandatory	Yes [22)]	No	No
PT	P1	Yes	6 [23)]		x	No	Mandatory	Yes	No	No
	P2	Yes	5 [23)]		x	No	Mandatory	Yes	No	No
	P3	Yes	6 [23)]		x	No	Mandatory	Yes	No	No
	P4	Yes	5 [23)]		x	No	Mandatory	Yes	No	No
IE	P1	Yes	4+ [24)]		x	Yes	Voluntary	Yes	No	Yes [25)]
RO										
SK		Yes	3		x	Yes	Mandatory	Yes	Yes	No
SI	P1	Yes	3-5		x	Yes	Mandatory	No	Yes	Yes [26)]
	P2	Yes	3-5		x	Yes	Mandatory	No	Yes	Yes [26)]
	P3	Yes	3-5		x	Yes	Mandatory	No	Yes	Yes [26)]
	P4	Yes	3-5		x	Yes	Mandatory	No	Yes	Yes [26)]
ES	P1	No				No	Mandatory	No	No	No
	P2	No				No	Mandatory	Others [27)]	Others	No
SE										

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

CH	P1	No				No	Voluntary	No	No	Yes [28)]
	P2	No				No	Mandatory	No	No	Yes [29)]
UK	P1	Yes	Others [30)]	Others [31)]		Yes	Voluntary	No	Others [32)]	[33)]
	P2	Yes	Others [34)]	Others [35)]		Yes	Voluntary	No	Others [36)]	[37)]
	P3	Yes	Others [38)]	Others [39)]		Yes	Voluntary	No	Others [40)]	[41)]
	P4	Yes	Others [42)]	Others [43)]		Yes	Voluntary	No	Others [44)]	[45)]

1)	3 or 6 years, depending on the previous education
2)	Acc. to Art. 18 Trade Act (GewO) the professional activity must suitable for conveying the experiences and knowledge necessary to independently practise the profession of consulting engineers. Generally, this means it must be obtained after a final degree.
3)	Two years - employed; Or four years - self-employed
4)	The applicant shall have knowledge on professional terminology and Bulgarian legislation concerning the investment design
5)	The applicant shall have knowledge on professional terminology, technical requirements and Bulgarian legislation concerning the investment design
6)	Combinations are possible: 2 years after obtaining final degree, or 1 year after obtaining final degree if person has worked before 3 years after obtaining previous degree, or, 10 years on administrative positions connected with construction sector
7)	Yes for legal persons not for private persons
8)	5 for Bachelor, 3 for Master
9)	2-5 years depending on state law
10)	Voluntary membership in professional body/chamber is possible
11)	For independent activity in the regulated profession an exam is required on the legal regulation of the profession
12)	Yes, but only if the engineer should be responsible for planning and/or survey activities.
13)	Yes, but only if the engineer should be responsible for planning and survey activities.
14)	Reliability of responsible Person and company
15)	3-5 for construction activities with structures of exceptional significance 2-3 years with construction activities with structures of non-exceptional significance
16)	There is mandatory exam on legal knowledge for construction activities of structures of exceptional significance.
17)	There is a mandatory requirement of registration for construction activities of structures of exceptional significance.
18)	There is mandatory attestation for construction activities of structures of exceptional significance
19)	Professional experience has to be two years of academic training, which is of four year duration, or one year of five year duration
20)	The Law currently envisages mandatory PI but the relative clause is not yet enabled.
21)	The relative liability, particularly that relating to structural integrity according to the Civil Code, is a personal one, and can only be carried by a natural person, not companies. Companies can operate, but any PI has to cover personal liability of professional carrying the relative responsibility.
22)	Yes, covered by the chamber
23)	Exemption for those who have 5-6 years of professional experience after the final degree

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

24)	Depends on the experience, usually 3-4 years minimum
25)	CPD - 5 days per year
26)	Professional exam
27)	Territorial criteria: Yes: Cataluña, País Vasco, Andalucía.
28)	Depending of the canton, some personal requirement like for example a good standing.
29)	There are requirements of good standing, a void criminal record, and a prove of having full exercise of civil rights.
30)	No specific time-served period is defined. The period must be sufficient for the engineer to develop professional competence to demonstrate ICE's CEng MICE attributes: https://www.ice.org.uk/my-ice/membership-documents/member-attributes#attributes-of-ceng These attributes meet the Engineering Council requirements as set out in UK Standard for Professional Engineering Competence for CEng registration. For someone entering a supervised professional development programme, following an accredited integrated Masters degree programme, this would typically be around 3 years, often more. The average age of registration as CEng MICE is 30.
31)	The timing of initial professional development is not prescribed. It is necessary to distinguish between initial professional development, which includes training and formation at pre-professional level, and professional experience where the engineer is practising at the professional level. Initial (pre-)professional development may start before, during or after formal study. It may be combined as part of an apprenticeship or part-time study programme. Professional experience may start during the course of initial professional development as the engineer becomes competent to work unsupervised.
32)	Not a requirement for registration/professional title, but may be required by company law/contracts or other legislation.
33)	ICE members must maintain their competence through continuing professional development throughout their membership and evidence of this is required on joining. They must pay an annual fee to maintain their professional title. If membership is not maintained there are revalidation requirements and in some cases a full reassessment. All members must commit to a code of professional conduct and to maintain their competence through continuing professional development. Applicants for qualified membership are required to have 3 sponsors to support their application who must be qualified professionals with personal knowledge of the applicant and their work.
34)	The Institution does not set minimum or maximum periods of professional experience to progress to Chartered membership. However, it is unlikely that a candidate will develop the experience and competence as set out in the Institution's Initial Professional Development regulations in less than four years. The average age of election to Chartered membership is approximately 31.
35)	Professional experience may be gained at any time during a candidate's academic and professional development. This may include experience during a part-time degree course, industrial placements and vacation experience during university. However, the majority of initial professional development, certainly at the higher levels of competence will normally be gained after the degree.
36)	This is not a requirement for registration with the Institution. However, liability insurance and professional indemnity insurance will be governed by companies and contracts.
37)	Members of the Institution must abide by the Institution's Code of Conduct which includes a requirement to maintain their competence through an annual programme of Continuing Professional Development (CPD). CPD is assessed regularly and failure to comply with the Institution's standards will lead to removal from the register.
38)	No specific time-served period is defined. The period must be sufficient for the engineer to develop professional competence to demonstrate ICE's IEng MICE attributes: https://www.ice.org.uk/my-ice/membership-documents/member-attributes#attributes-attributes meet the Engineering Council requirements as set out in UK Standard for Professional Engineering Competence for IEng registration. For someone entering a supervised professional development programme, following an accredited integrated programme, this would typically be around 3 years, often more. The average age of registration as an Incorporated Engineers is 30-35.
39)	The timing of initial professional development is not prescribed. It is necessary to distinguish between initial professional development, which includes training and formation at pre-professional level, and professional experience where the engineer is level. Initial (pre-) professional development may start before, during or after formal study. It may be combined as part of an apprenticeship or part-time study programme. Professional experience may start during the course of initial professional development as competent to work unsupervised.

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

40)	Not a requirement for registration/professional title, but may be required by company law/contracts or other legislation.
41)	ICE members must maintain their competence through continuing professional development throughout their membership and evidence of this is required on joining. They must pay an annual fee to maintain their professional title. If membership is not revalidation requirements and in some cases a full reassessment. All members must commit to a code of professional conduct and to maintain their competence through continuing professional development. Applicants for qualified membership are required support their application who must be qualified professionals with personal knowledge of the applicant and their work.
42)	No specific time-served period is defined. The period must be sufficient for the engineer to develop professional competence to the level described in the UK Standard for Professional Engineering Competence. For someone entering a supervised professional programme, following an approved qualification or Apprenticeship, this would typically be around 3 years. The average age of registration as an Engineering Technician is 30-35.
43)	The timing of initial professional development is not prescribed. It is necessary to distinguish between initial professional development, which includes training and formation at pre-professional level, and professional experience where the engineer at (pre-)professional development may start before, during or after formal study. It may be combined as part of an apprenticeship or part-time study programme. Professional experience may start during the course of initial professional development as competent to work unsupervised.
44)	Not as a specific requirement of engineering registration. Company law and contracts may require liability insurance or make it highly desirable.
45)	ICE members must maintain their competence through continuing professional development throughout their membership and evidence of this is required on joining. They must pay an annual fee to maintain their professional title. If membership is not revalidation requirements and in some cases a full reassessment. All members must commit to a code of professional conduct and to maintain their competence through continuing professional development. Applicants for qualified membership are required support their application who must be qualified professionals with personal knowledge of the applicant and their work.

Tab. 4.1.3.: Other requirements (Civil and Environmental Engineers)

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Details on different forms of entrance examinations/interviews

(only countries in which entrance exams/entrance interviews are required for access to the profession and/or the use of the professional title)

- *What are the main subjects?*
- *Who is responsible to hold the exam/interview?*

Country	Profession	Main subjects of entrance exam	Responsible institution that conducts the exam/interview
Austria	Ziviltechniker – Ingenieur-konsulent	Austrian administrative law, business administration, legal and professional regulation of the special professional field (incl. standards), regulations of the special professional field, professional law and ethics of the profession	Public authority
Austria	Ingenieurbüros (Beratende Ingenieure) - engineering firms - consulting engineers	Professional laws and ethics, relevant laws, regulations and standards with in-depth professional and technical analysis, performance of engineering services, controlling, business administration, public procurement, calculation	Chamber which fulfills the task of a public authority. The chairman of the examination commission is a public servant.
Croatia	Ovlašteni inženjer građevinarstva	The subject of the exam are construction regulations.	Public authority
Czech Republic	Chartered Engineer in Construction Sector	The examination consists of a written and an oral part; the written test is on legal and technical norms. The oral part is a public discussion. The purpose of the public discussion is to verify applicants´ ability.	Professional body/chamber
Italy	- Ingegnere civile e ambientale - Ingegnere civile e ambientale iunior	Subjects characterizing the relevant professional field; professional legislation and ethics.	Universities, on ordinance of the Ministry of Education.
Lithuania	Civil Engineer	Exam on legal knowledge for construction activities of structures of exceptional significance (Verification of knowledge of National legislation in the field of Construction)	Certification Centre of Building Products (SPSC), State Enterprise

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Malta	Civil Engineer	General familiarity with construction practice, structural integrity, public safety and professional conduct	Statutory Body - Warranting Board - with representatives of government and professional chamber
Poland	Building Engineer	Building Law, Technology and Construction in building	Professional body/chamber
Republic of Ireland	Chartered Engineer	A competence based interview lasting one hour based on five competences: Engineering Knowledge, Application of Engineering, Knowledge Leadership, Communication skills, Ethical Practice	Professional body/chamber
Slovakia	Chartered Civil Engineer	The authorization examination consists of written part and oral part; written part shall be performed as a test and oral part as a public discussion. The purpose of the test is to verify the applicant's knowledge on legal and technical norms applied to the execution of professional activities in construction. The purpose of the public discussion is the vindication of applicants own works constructed during the internship and recorded in the logbook and the verification of applicant's ability to perform individually chosen activities in construction.	Professional body/chamber - our chamber conducts the exams in cooperation with the Ministry of Transport, Construction and Regional Development of the Slovak Republic
Slovenia	- Responsible project designer - Responsible manager of works - Responsible supervisor	The main subjects of exam: 1. Regulation in the field of spatial planning and construction as well as the chamber system, 2. Protection of the environment, of human health and life, fire protection, protection against natural and other disasters, and safety at work, 3. Standardization and technical regulation, 4. Investment process, project management, economic investments, costs and calculations 5. Written part-making project	Professional body/chamber
Slovenia	Responsible auditor	The main subjects of exam: Knowledge of methods and techniques in the audit of certain types of plans and knowledge of the regulations and rules of good practice in Regulation in the field of spatial planning and construction as well as the chamber system, protection of the environment, of human health and life, fire protection, protection against natural and other disasters, and safety at work, Standardization and technical regulation	Professional body/chamber

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

United Kingdom	CEng MICE, Chartered Civil Engineer	The individual is required to demonstrate personal competence in the CEng MICE attributes (which incorporate the standards for CEng registration as set out in Engineering Council's UK SPEC). There are 9 overall attributes with further elements to be demonstrated under each: 1. Knowledge and understanding of engineering 2. Technical and practical application of engineering 3. Management and leadership 4. Independent judgement and responsibility 5. commercial ability 6. Health, safety and welfare 7. sustainable development 8. interpersonal skills and communication 9. professional commitment (see https://www.ice.org.uk/my-ice/membership-documents/member-attributes#attributes-of-ceng for detail)	Professional body/chamber
United Kingdom	Chartered Structural Engineer	Candidates must pass the Professional Review Interview based on 13 Core Objectives outlined in the document https://www.istructe.org/downloads/careers-and-development/ipd/ipd-chartered-membership-2011.pdf The Core Objectives are discipline specific based on the requirements set out in the Engineering Council document UK-SPEC. The Institution's Chartered membership examination tests candidates as follows: Section 1 (50% of total mark) covers design concept, presentation, identification of various solution forms (including stability and loading transfer aspects), a selection of the most appropriate materials and the opportunity to provide relevant comment on a particular small (but significant) design feature. Section 2 (50% of total mark) requires that the candidate provide relevant design calculations, general arrangement drawing and appropriate details together with comment on possible construction methods, choice of materials, specifications, estimates, management procedures, site control and safety and supervision of works in progress.	Professional body/chamber

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

United Kingdom	IEng MICE, Incorporated Civil Engineer	The individual is required to demonstrate personal competence in the IEng MICE attributes (which incorporate the standards for IEng registration as set out in Engineering Council's UK-SPEC). There are 9 overall attributes with further elements to be demonstrated under each: 1. Knowledge and understanding of engineering 2. Technical and practical application of engineering 3. Management and leadership 4. Independent judgement and responsibility 5.Commercial ability 6. Health, safety and welfare 7. Sustainable development 8. Interpersonal skills and communication 9. Professional commitment (see https://www.ice.org.uk/my-ice/membership-documents/member-attributes for detail)	Professional body/chamber
United Kingdom	EngTech MICE, Engineering Technician	The professional review will explore the five areas of competence and commitment set out in UK-SPEC, as applied to the discipline of registration (eg Mechanical). The five are as are: A) Use a combination of general and specialist engineering knowledge and understanding to optimise the application of existing and emerging technology. B) Apply appropriate theoretical and practical methods to the analysis and solution of engineering problems. C) Provide technical and commercial leadership. D) Demonstrate effective interpersonal skills. E) Demonstrate a personal commitment to professional standards, recognising obligations to society, the profession and the environment. These are divided into 14 sub-categories. ICE STANDARDS: Civil engineering technicians must be competent throughout their working life, by virtue of their education, training and experience, to: A) Use engineering knowledge and understanding to apply technical and practical skills. B) Contribute to the design, development, manufacture, construction, commissioning, operation or maintenance of products, equipment, processes, systems or services. C) Accept and exercise personal responsibility. D) Use effective communication and interpersonal skills. E) Make a personal commitment to an appropriate code of professional conduct, recognising obligations to society, the profession and the environment.	Professional body/chamber

Tab. 4.1.4.: Entrance exams (Civil and Environmental Engineers)

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Overview of CPD systems

- *Are there any continuous professional development requirements?*
- *How is the continuous professional development (CPD) system organised?*
- *How are the CPD requirements regulated?*
- *Is a disciplinary system in force?*

Legend:		Profession is not regulated in general

Country		Continuous professional development (CPD) requirements	Organisation of CPD requirements		Regulation of CPD requirements		Disciplinary system in force
			Obligatory without sanctions	Obligatory with sanctions	Law	Professional body	
AT	P1	Yes	**x**		**x**	**x**	Yes [1)]
	P2	No					Yes [2)]
BG	P1	Yes	not obligatory			**x**	Yes [3)]
	P2	Yes	not obligatory			**x** [4)]	Yes [5)]
HR	P1	Yes	**x**				Yes [6)]
CY	P1	No					Yes [7)]
	P2	No					Yes [7)]
CZ	P1	Yes	**x**		**x** [8)]		Yes [9)]
DK		Yes	Others [10)]			**x**	Yes [11)]
EE		No					No
FI							
FR							
DE	P1	Yes		**x** - depends on regulation at Länder level		**x**	Yes [12)]
	P2	No					No
HU	P1	Yes		**x**	**x**		Yes [13)]
	P2	Yes		**x**	**x**		Yes [14)]

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

IT	P1	Yes		x		x	Yes [15)]
	P2	Yes		x		x	Yes [15)]
LV		No					No
LI		No					No
LT		No					Yes [16)]
LU	P1	No					Yes [17)]
MT		No					Yes [18)]
NL							
PL		Yes	x	x		x	Yes [19)]
PT	P1	No					Yes [20)]
	P2	No					Yes [20)]
	P3	No					Yes [21)]
	P4	No					Yes [21)]
IE	P1	Yes		x		x	Yes [22)]
RO							No
SK		No					Yes [23)]
SI	P1	No					Yes [24)]
	P2	No					Yes [24)]
	P3	No					Yes [24)]
	P4	No					Yes [24)]
ES	P1	No					Yes
	P2	No	x	x			Yes [25)]
SE							
CH	P1	No					Yes [26)]
	P2	No					Yes [27)]
UK	P1	Yes	Others [28)]			x	[29)]
	P2	Yes		x		x	[30)]
	P3	Yes	Others [28)]			x	[29)]
	P4	Yes	Others [28)]			x	[29)]

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

1)	Code of Conduct with sanctions
2)	Binding rules for conduct established by law and sanctioned by public authorities.
3)	According to the Law on Chambers of Architects and Engineers in the Investment Design
4)	The chamber of Engineers organises the training
5)	Chamber may limit the exercise of the profession for a year
6)	The discipline bodies are part of the professional body; there are also court for misdemeanours and criminal acts
7)	Disciplinary Board
8)	And regulated by duty
9)	Profession court
10)	Evaluation one in five years
11)	Evaluation one in five years. Permission can be cancelled by professional body.
12)	Consulting Engineers have specific professional duties. Non-compliance can be sanctioned.
13)	Ethical Rules for members of the Camber of Engineers
14)	Ethical Rules of the Chamber
15)	Territorial Disciplinary Councils composed by different members than the members of the Territorial Professional Order. One Council in each Territorial Professional Order is foreseen. The Code of Conduct approved by the Territorial Professional Order (also based on the Code of Conduct approved by the National Council of Italian Engineers) is applied.
16)	It is in force via attestation system
17)	Conseil de discipline
18)	Code of Professional Conduct is part of Regulations published as Subsidiary Legislation to the main Act, administered by the Professional Body/Chamber, with a system of sanctions.
19)	By Chamber Disciplinary Commission
20)	Conduct code and juridical system in the professional body
21)	Conduct code does exist
22)	Members/registrants must abide by a Code of Ethics and complaints can be made under the Code of Ethics
23)	Architects and engineers are bound by the constitution, constitutional laws and other legally binding general regulations and - within the limits of these laws - by instructions of building investors or other person who orders professional activities in building and construction Architects, landscape architects and civil engineers performing professional activities in construction shall be obliged to assist the realization of natural person's constitutional rights for favourable living environment and protection and amelioration of cultural heritage and to observe so that created works are not harmful for human health, nature, cultural monuments and living environment over the scope established by the Act. Architects and engineers are obliged to protect the rights and justified interests of the customer, to act honestly and conscientiously, to take advantage of all technical possibilities and the latest professional knowledge they consider to be useful in the interest of the customer - to the best of their knowledge and conviction.
24)	Disciplinary system is defined by law.
25)	Statutes and Code of Conduct. Professional Association
26)	According to the cantonal legislation, a professional body or a cantonal surveillance authority may be competent for any disciplinary sanction.

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

27)	There is a cantonal surveillance authority.
28)	CPD is a duty for all members specified in our code of conduct. Submission of CPD records is required for admission to membership and members are required to maintain an annual record and a sample of members' CPD records are audited on an annual basis.
29)	ICE's professional conduct panel deals with complaints about members, which can be referred to a Disciplinary Board. Sanctions include: A) Expulsion from Membership; B) Suspension from Membership for any period; C) Imposition of a Fine of up to £2,000.
30)	The Institution has a Professional Conduct Committee and Disciplinary Board to review complaints as to members compliance with the Institution's Code of Conduct.

Tab. 4.1.5.: Requirements for pursuit of the profession of Civil and Environmental Engineers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Prevalence of different forms of the exercise of the profession (multiple answers possible)

The results clearly show that professionals are very often self-employed or even liberal professionals or employed in private firms with personal legal authorization. Employed engineers without personal legal authorization do not play a very important role in the picture of the different forms of exercise of the profession. As the EU policy for engineers focuses very much on the employment market aspect and not so much on the fact of personal responsibility this is an interesting result, also in regard to the appropriate form of Common Training Principles.

- *How is the profession exercised?*

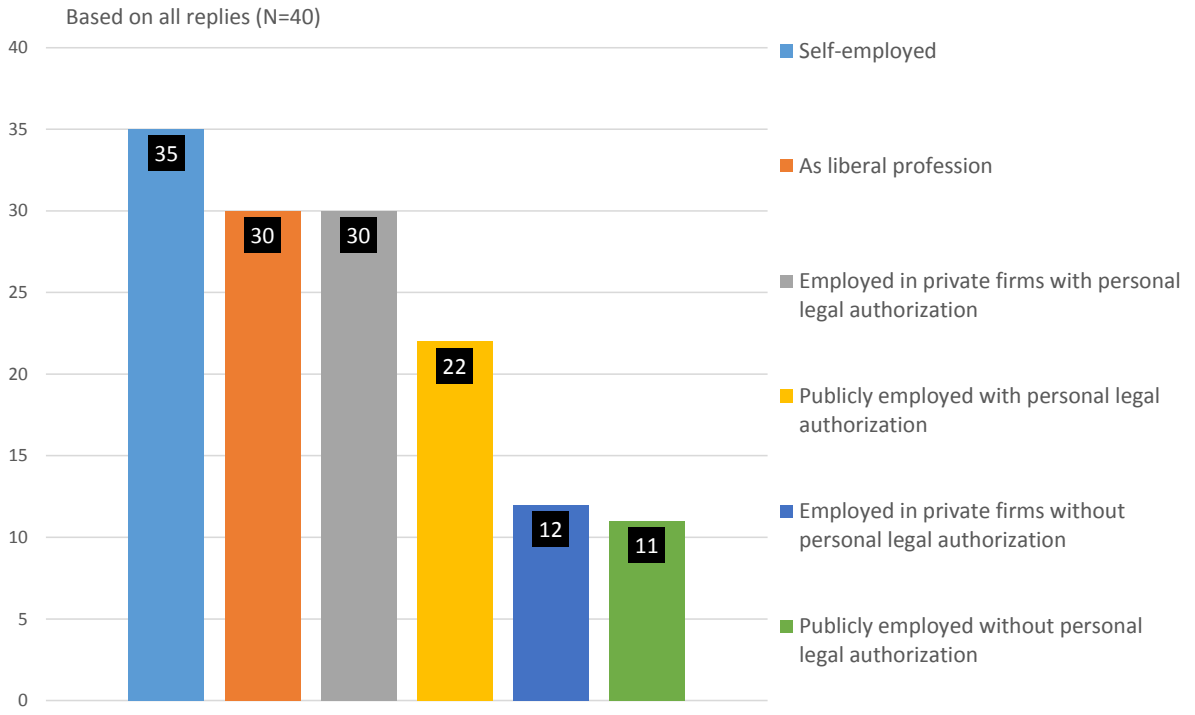


Fig. 4.1.8.: Exercise of the profession of Civil and Environmental Engineers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

4.1.2. Information on Engineering Education Programmes/Curricula

Regulation rate of engineering education

- *Is the engineering education for the profession considered as regulated by the national authorities of the country?*

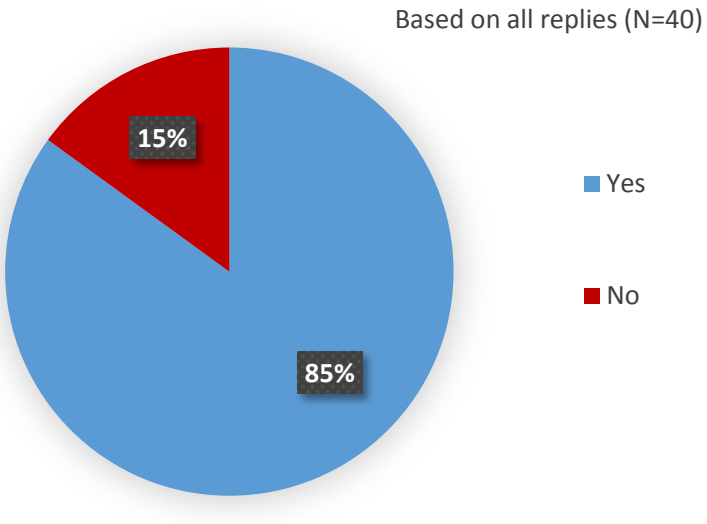


Fig. 4.1.9.: Regulation of education of Civil and Environmental Engineers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Overview of requirements of academic training programmes

- *What is the official minimum length of the (academic) educational programmes in years?*
- *What is the minimum required number of ECTS in the (academic) educational programmes?*
- *What is the minimum required percentage of technical ECTS out of the total amount of the required number of ECTS in the (academic) educational programmes?*
- *What is the level (European Qualifications Framework) of the final awarded degree of the (academic) educational programmes?*
- *What is the minimum educational level (prior duration of studying) for entry to the (academic) Master educational programmes?*
- *Is mandatory traineeship during the (academic) educational qualification programme foreseen?*

Legend:		Profession is not regulated in general

<u>Please note:</u> This table is only related to academic education programmes/curricula and NOT to requirements for professional access/use of the title.

Country		Official minimum length of the (academic) educational programmes in years	Minimum required number of ECTS in (academic) educational programmes	Minimum required percentage of technical ECTS out of the total amount of ECTS	Level of final awarded degree of (academic) educational programme	Minimum educational level (prior duration of studying) for entry to (academic) Master education programmes	Mandatory traineeship during the (academic) educational qualification programme
AUSTRIA	P1	4	241-300	50-75%	7	3	In some programmes
	P2	3	180-240	50-75%	6 [1)]	3	In some programmes
BULGARIA	P1	3	241-300	Higher than 75%	Over 7	3	No
	P2	4-5 [2)]	180-320 [3)]	Higher than 75%	Over 7	3	No
CROATIA	P1	5	241-300	Don´t know	7	3	Others [4)]
CYPRUS	P1	4	241-300	Not regulated	7	4	No
	P2	4	241-300	Not regulated	7	4	No
CZECH REPUBLIC	P1	4	240 or more	Higher than 75%	6 or higher	4	No
DENMARK							

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

ESTONIA		5	Others [5)]	Don´t know	7	Others [6)]	No
FINLAND							
FRANCE		5	241-300	50-75%	7	Others [7)]	Yes
GERMANY	P1	3-4 [8)]	180-240	50-75%	6	3	No
	P2	3 [9)]	180 [9)]	Others [10)]	6	3	No
HUNGARY	P1	4	180-240	50-75%	6	4	No
	P2	5,5	241-300	Not regulated	7	4	In some programmes
ITALY	P1	3	180-240	Higher than 75%	6	3	No
	P2	5	241-300	Higher than 75%	7	Over 4	No
LATVIA		4	180-240	Not regulated	6	3	Yes
LIECHTEN-STEIN		3	180-240	Higher than 75%	6	3	No
LITHUANIA		3	180-240	50-75%	6	4	In some programmes
LUXEM-BOURG	P1	5	241-300	Not regulated	7	Over 4	Yes
MALTA		5	241-300	50-75%	Others [11)]	3	No
THE NETHERLANDS							
POLAND		4	241-300	50-75%	7	3	Yes
PORTUGAL	P1, P2	3	180-241	Higher than 75%	6 and 7	3	No
	P3, P4	3	180-241	Higher than 75%	6 and 7	3	No
REPUBLIC OF IRELAND	P1	Others [12)]	180-240	50-75%	7	4	No
ROMANIA		4	240	50-75%	6	4	Yes
SLOVAKIA		5	More than 300	Don´t know	7	3	Yes
SLOVENIA	P1	4	180-240	Higher than 75%	7	Over 4	In some programmes
	P2	3	180-240	Higher than 75%	6	4	In some programmes
	P3	4	180-240	Higher than 75%	7	Over 4	In some programmes
	P4	4	180-240	Higher than 75%	7	Over 4	In some programmes

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

SPAIN	P1	5	More than 300	Higher than 75%	7	4	No
	P2	4	240	Higher than 75%	6	Others [13)]	No
SWEDEN - two types of regulated education		3	180-300	Others [14)]	6	Others [15)]	No
		5	180-300	Others [14)]	7	Others [15)]	No
SWITZER-LAND	P1	3	180-240	Not regulated	Others [16)]	3	Others [17)]
	P2	3	180-240	Not regulated	Others [16)]	3	Others [17)]
UNITED KINGDOM	P1	Others [18)]	Others [19)]	Others [20)]	7	Others [21)]	Others [22)]
	P2	Others [18)]	Others [19)]	Others [23)]	7	Others [24)]	Others [25)]
	P3	Others [18)]	Others [19)]	Others [20)]	6	Others [21)]	Others [22)]
	P4	Others [26)]	Others [27)]	Others [28)]	Below 6	Others [29)]	Others [22)]

1)	Level 6 (Bachelor) is the minimum criteria for the academic educational programme, alternative education is also possible: 5 years technical secondary education (and 6 years professional experience and licensing examination) corresponding to Art. 11 level c ii) Dir. 2005/36/EG
2)	4 years for Bachelor Engineers; 5 years for M.D Engineers
3)	180-240 for Bachelor Engineers; 300-320 for M.D Engineers
4)	Students have the obligation to work during their studies at least one month in construction sector
5)	Master's degree level for 'ehitusinsener'
6)	Ehitusinsener: 5yr integrated Master's
7)	Integrated 5 year master level programme
8)	Depending on the state law
9)	For Bachelor, in general
10)	Depending on the state law; the majority of the states voted in a task force for "more than 50% MINT"
11)	Previous system was based on a 5-year Programme leading to Bachelor degree; system has been changed to conform to Bologna Agreement, with two-tier system comprising 3 year Bachelor and 2 year Master (Level 7)
12)	Accreditation at various levels - 2,3,4,5 year programmes
13)	Master's Thesis
14)	The Swedish legislation expresses the requirements in the terms of learning outcomes (output criteria) not a number of ECTS (input criteria).
15)	Degree of Master of Science in Engineering is a one-tier integrated study program requiring five years of study (300 ECTS). This degree is considered regulated education and training under the PQD 2005/36/EC. There are also one (60 ECTS) and two year (120 ECTS) Master programmes, so called general degrees, in the field of engineering requiring a prior academic degree with the duration of studying of three years (180 ECTS). The latter two types of degrees do not constitute regulated education and training under the PQD 2005/36/EC.
16)	The requested degree is a Bachelor, but the official classification in the EQF 6 has not been officially decided.
17)	There are strong practical qualifications during the programme, and/or a mandatory traineeship, but the schools can decide the system they want to set up.
18)	Typically Bachelor and Bachelor with Honours programmes are 3 years (4 years in Scotland). Integrated Masters (MEng) are 4 years (5 in Scotland). Masters programmes (MSc) may be one or two years. Duration may vary according to mode of study e.g. full-time, part-time, distance learning

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

19)	Accreditation of engineering programmes is based on delivered outcomes not time-served/workload volume. The Bachelor and Masters descriptors are verified as complying with the European Higher Education Area model.
20)	In order to be accredited, engineering programmes must deliver the full range of learning outcomes set out in the Engineering Council publication: Accreditation of Higher Education Programmes. This has been adopted by the Quality Assurance Agency for Higher Education as the Subject Benchmark Statement for Engineering. The learning outcomes do not prescribe the curriculum, but a programme with insufficient technical content would be unlikely to demonstrate that it can deliver the required range of learning outcomes.
21)	Integrated Masters programmes may be entered directly from secondary education. Standalone Masters programmes are typically entered following a three year Bachelor programmes.
22)	Placements are encouraged. Some programmes include a period in industry before or during the study period (sandwich courses). Vacation work is encouraged. Some universities will allow students to take time out to gain some work experience before returning to complete their studies.
23)	The Institution has defined a range of Learning Outcomes which must be satisfied in order for the programme to be accredited. The Learning Outcomes are based on the standards set out in the Engineering Council document Accreditation of Higher Education Programmes. This has been adopted by the Quality Assurance Agency for Higher Education as the Subject Benchmark Statement for Engineering. The learning outcomes will ensure that there is sufficient technical content in each programme.
24)	Candidates can access the Integrated Masters programme (MEng) from secondary school (13+ years of education). Candidates may choose to study a Bachelors degree from school and then later progress to an accredited MSc after 3 or 4 years of university study.
25)	Currently universities offer optional industrial placements in certain programmes. Degrees may also be studied on a part-time basis whilst candidates are engaged in employment. It is not currently a mandatory requirement for graduates to undertake a placement although gaining industrial experience is encouraged.
26)	There is no official minimum. The academic component of qualifications at this level may be one or two years.
27)	Accreditation and approval of engineering programmes is based on delivered outcomes not time-served/workload volume. Engineering Technician education usually combines education, skills and competences
28)	In order to be approved, engineering programmes must deliver the full range of learning outcomes set out in the publication Approval of Qualifications and Apprenticeships Handbook. The learning outcomes do not prescribe the curriculum, but a programme technical content would be unlikely to demonstrate that it can deliver the required range of learning outcomes.
29)	Integrated Masters programmes may be entered directly from secondary education. Standalone Masters programmes are typically entered following a three year Bachelor programmes.

Tab. 4.1.6.: Requirements of engineering educational programmes of Civil and Environmental Engineers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

4.1.3. Conclusions

- The profession of Civil Engineers is clearly the one profession with the highest reply rate (28 replying countries of 32) in the survey, with the highest rate of regulation and thus also the profession for which the interest in Common Training Principles is highest among competent authorities and other stakeholders. The preferred approach of all stakeholders is clearly that of a Common Training Framework. This is in compliance with the project teams' conviction that it is easier to reach an agreement for a CTF and that it is a low cost approach that can be implemented fast and easily.
- The survey shows that a majority of regulated countries has different forms/levels of the profession within the branch of Civil Engineering. Based on this, the project team has decided that a CTF proposal for Civil Engineers that is appropriate for as many countries as possible would also have to comprise more than one level of a profession.
- The survey also shows that the overall level of academic requirements for access to the profession is quite high. A broad majority of the countries requires at least the EQF Levels 6 and 7 for their academic education requirements, and 4 or 5 years of academic education. This is clearly also reflected in the high level of requirements in engineering education programmes. Thus the project team has decided that these national approaches can best be comprised with a CTF proposal based on two levels (EQF 6 and 7).
- As it turned out that Civil Engineers are very often self-employed or even liberal professionals or employed with personal legal authorization (all with personal responsibility) and that employed engineers without personal legal authorization do not play a very important role in the picture of the different forms of exercise of the profession, the project team decided to propose the titles European Chartered Civil Engineer MSc and European Chartered Civil Engineer BSc (suggestion later changed to "Licensed" instead of "Chartered" due to concerns in regard to potential confusion with existing titles).
- It turned out that academic education is very important in many countries as in 66% of the professions it is not possible to compensate academic education. As a majority of countries requires professional experience and/or a professional exam/interview for the access to the profession/use of the professional title the project team decided to include these aspects in a CTF proposal as well.

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

- Based on the survey results that show a broad variety of scopes of authorizations the project team came to the conclusion that it will not be possible to define a common scope of authorizations for Civil Engineers fulfilling a CTF and that these engineers should in principle be authorized to provide the same services as the Civil Engineers of the same level in the host country.
- As the survey results show that the requirements or training programmes are quite equivalent throughout Europe the project team came to the conclusion that a fully output-orientated approach with individual assessment of the host country is not only contrary to the idea of automatic recognition, but also not necessary for a Common Training Framework. Nevertheless, the project team fully understands the wish of some stakeholders for the definition of requirements not only in regard to input (degree of academic education) but also in regard to output. With the *EUR-ACE Framework Standards and Guidelines (EAFSG)* established by the *European Network for Accreditation of Engineering Education* a definition of required programme outputs is already available and in use in many countries. Therefore, the project team has decided to suggest the EAFSG as a guideline in regard to the assessment of the question if an applicant fulfils all necessary requirements of the Common Training Framework for Civil Engineers by the home country.

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

4.2. Geodetic Surveyors

4.2.1. Regulation of the Profession

Regulation rate of the profession

The shown regulation rate is based on the answers received in the survey. It is thus possible that the number of regulated countries is higher due to the fact that countries that did not participate in the survey are not considered in the calculation. Additionally, the engineering education is regulated in a vast majority of the professions.

It is confirmed that the profession of Geodetic Surveyors fulfils the regulation requirements for Common Training Principles (Articles 49a 2.(b) and 49b 2.(b) of Directive 2005/36/EC on the recognition of professional qualifications).

Please note:

As the number of provided answers by the competent authority varies based on the topic (not all questions were answered by everybody), the number of the main unit (N) is not consistent withtin the professional group.

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Regulation rate of profession

- *Is the profession of Geodetic Surveyors regulated (access, title, pursuit or other)?*

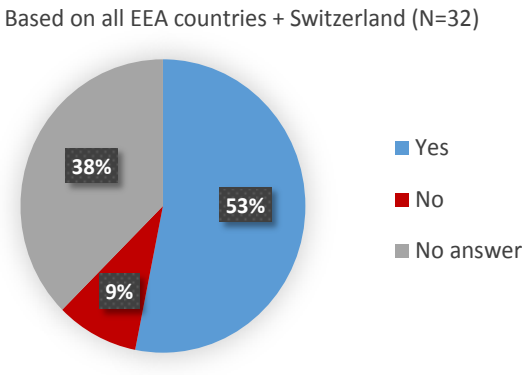


Fig. 4.2.1.: Regulation rate of the profession of Geodetic Surveyor

Regulation rate of education

- *Is the engineering education for the profession considered as regulated by the national authorities of the country?*

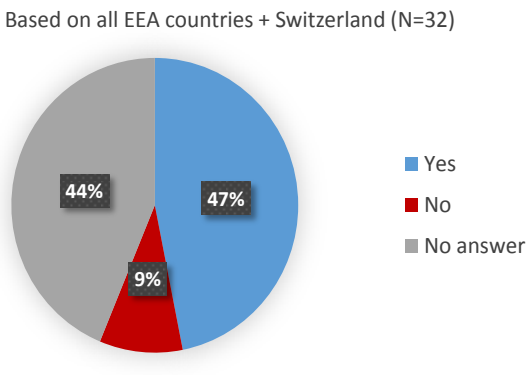


Fig. 4.2.2.: Regulation rate of the education of Geodetic Surveyor

Prevalence of different forms of regulation (multiple answers possible)

- *Is the profession regulated?*

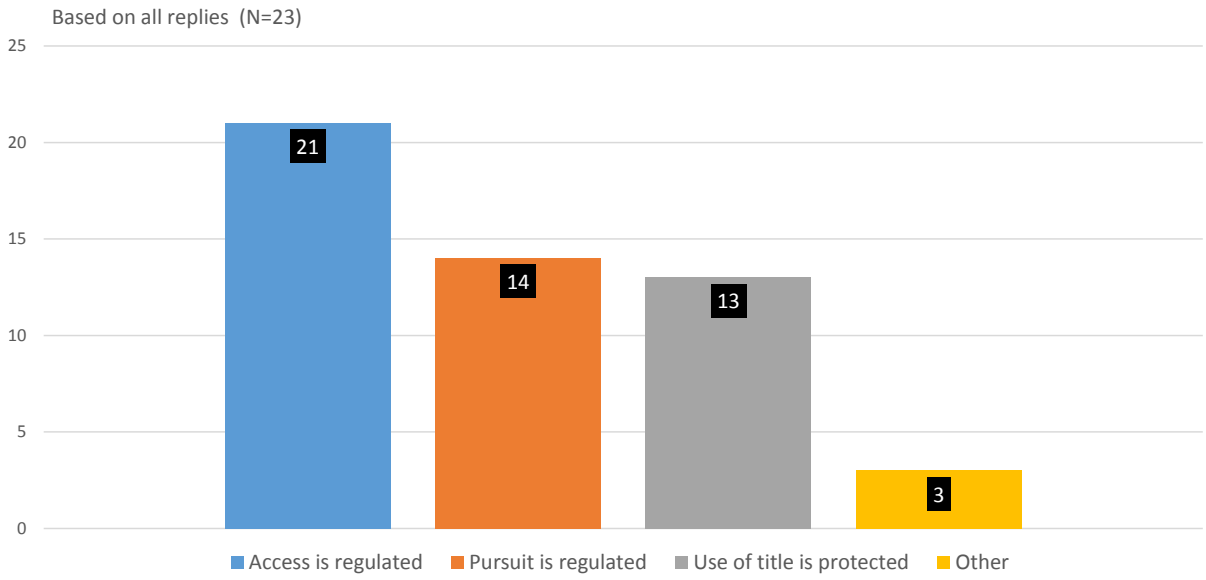


Fig. 4.2.3.: Regulation of the profession of Geodetic Surveyors

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Different forms of regulation in detail

- *Is the profession regulated?*

Legend:

	Profession not regulated in general

Country		Regulated access to the profession	Regulated pursuit of the profession	Regulated use of the title of the profession	Additional comments
AUSTRIA	P1	x	x	x	
	P2	x	x		Competition law ensures that the title engineering firm - consulting engineers may be only used by licenced professionals.
CYPRUS		x	x	x	
CZECH REPUBLIC		x			
DENMARK		x	x	x	
ESTONIA	P1	x	x		Geodetic Surveyor - only engineering and construction surveys; Cadastral (or Land) Surveyor - cadastral surveys. These two have separate professional titles and separate regulations
	P2	x	x		
FRANCE		x		x	
HUNGARY	P1		x		
	P2		x		
ITALY	P1	x	x	x	In Italy, the "Title Protected" corresponds to the professional qualification, that is who has the qualification (with a title/denomination) is the only professional who can exercise the profession.
	P2	x	x	x	

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

LATVIA					The profession as such is not regulated, but education/training is regulated. The answers in the questionnaire refer to the profession of "ģeodēzijas un kartogrāfijas inženieris". Only the part of the profession in the field of construction is regulated (geotechnical engineering exploration and geotechnical supervision).
LIECHTENSTEIN		x		x	
THE NETHERLANDS		x			
POLAND		x			
ROMANIA	P1	x	x	x	
SLOVAKIA	P1	x	x	x	
	P2	x	x	x	
	P3				
	P4	x	x	x	
SLOVENIA	P1	x			
	P2	x			
SPAIN		x	x	x	
SWEDEN					The profession as such is not regulated, but education/training is regulated.
SWITZERLAND		x			
UNITED KINGDOM		x	x	x	
		x	x	x	

Tab. 4.2.1.: Regulation of the profession in the field of Geodetic Surveying

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Prevalence of different forms of reserved activities (multiple answers possible)

- *Which activities are reserved to the profession?*

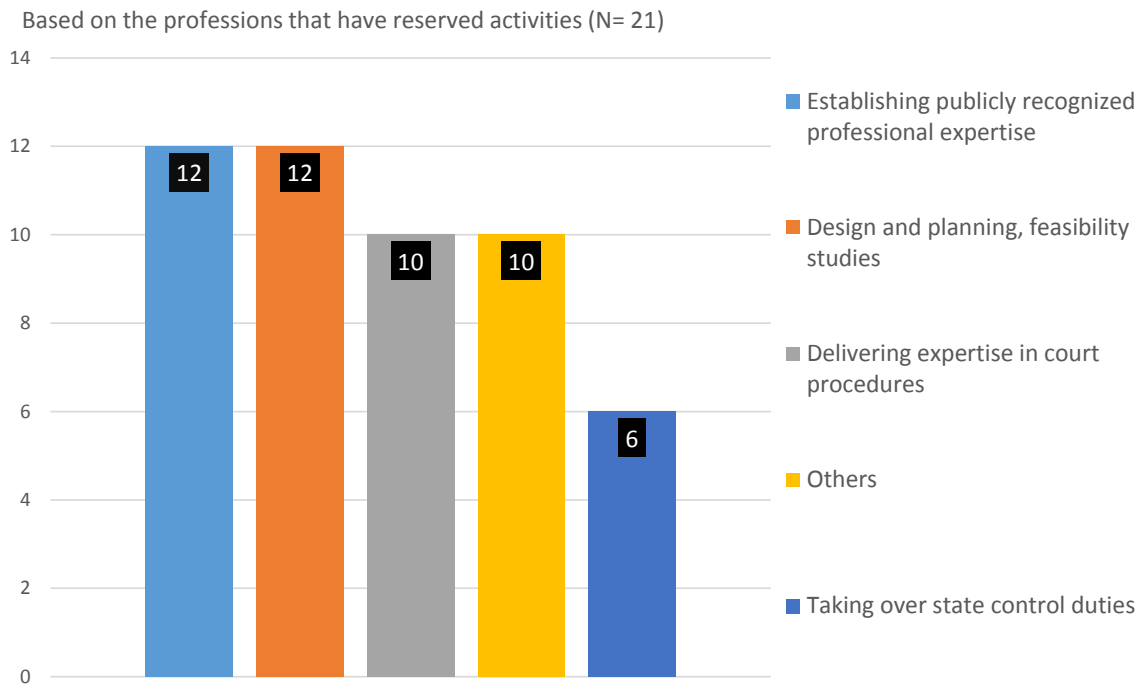


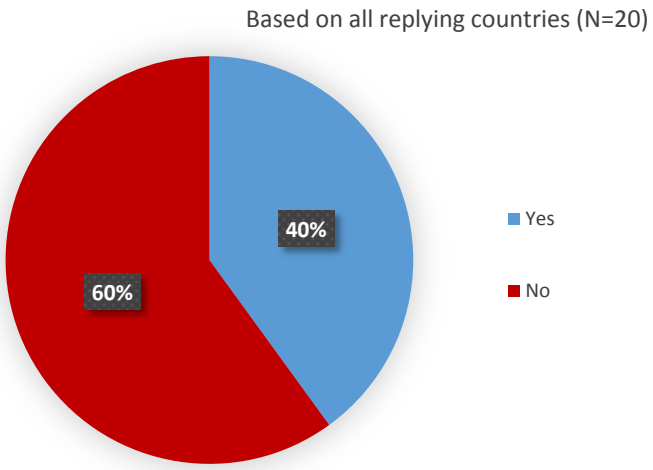
Fig. 4.2.4.: Activities reserved to the profession of Geodetic Surveyors

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Different forms and/or levels of the profession

The survey results show that a majority of countries has different levels or forms of professions within one engineering branch. This can mean different entrance requirements and/or different scopes of services and competences or specifications. The professional levels and forms are referred to as professions/professional levels and are the basis of the main unit (N =„all replies“ and not the number of countries) for the calculations in this report.

- *Are there different professions/professional levels with different requirements for access to the profession and/or pursuit of the profession and/or use of the title of the profession in your country?*



4.2.5.: Different professional levels per country (Geodetic Surveyors)

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

- *What is the minimum educational level for access to the profession and/or use of the professional title (according to the levels of European Qualifications Framework)?*
- *What is the minimum educational level required for access to the profession and/or use of the professional title according to the levels of qualifications in Article 11 of Directive 2005/36/EC on recognition of professional qualifications?*
- *What is the required number of years of academic education for access to the profession and/or use of the professional title?*

Legend:		
		Profession is not regulated in general
		No questionnaire submitted for this professional level

Country		**Different professions/professional levels**	**Min. educational level (EQF)**	**Min. educational level (Art. 11)**	**Min. academic years**
AUSTRIA	P1	Ziviltechniker - Ingenieurkonsulenten	Higher than 7	e	4
	P2	Ingenieurbüros (Beratende Ingenieure)	Others [3]	c [4]	3 [5]
CYPRUS		Rural and Surveying Engineer	6	e	4
CZECH REPUBLIC		Licensed Surveyor	6	e	5
DENMARK		Registered (chartered) land surveyor	7	e	5
ESTONIA	P1	Geodetic Surveyor/ Engineering Surveyor	5 [6]	d	2-5 [7]
	P2	Cadastral (or Land) Surveyor	5 [6]	d	[4]
FRANCE		Géomètre-éxpert	7	d	5
HUNGARY	P1	Geodetic surveyor in construction	6	-	4
	P2	Property surveyor	6	-	4
REPUBLIC OF IRELAND					
ITALY	P1	Ingegnere civile e ambientale iunior [1]	6	d	3
	P2	Ingegnere civile e ambientale [2]	7	e	5

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

LATVIA		ģeodēzijas un kartogrāfijas inženieris	6	e	4
LIECHTENSTEIN		Geomatikingenieur	7	d	3
THE NETHERLANDS		Information Advisor	5	Others [8)]	None
POLAND		Surveyor entitled to perform independent functions in the realm of geodesy and cartography	5	d	Others [9)]
ROMANIA	P1	Surveyor Engineer	6	e	4
	P2	Geodetic Engineer/Engineer with short-term Higher Education	-	-	-
	P3	Surveyor Engineer/Engineer with short-term Higher Education	-	-	-
	P4	Surveyor/Land register Engineer/Engineer with short-term Higher Education	-	-	-
	P5	Mining Surveyor Engineer/Engineer with short-term Higher Education	-	-	-
	P6	Geodetic/surveyor/artillery Officer	-	-	-
	P7	Geodetic/surveyor/Mining technician	-	-	-
SLOVAKIA	P1	Geodetic Surveyor (Master-, BSc-, or technician level)	7;6;4 [10)]	e;d;d [11)]	5;3;4 [12)]
	P2	Authorised Surveyor and Cartographer	7	e	5
	P3	Self employer (engineer) authorized Surveyor and Cartographer	7	e	5
SLOVENIA	P1	Responsible Surveyor	7	e	5
	P2	Surveyor	6	d	3
SPAIN		Surveyor (Topógrafo)	6	d	4
SWEDEN		Profession is not regulated. Two types of regulated education:	6	d	3
			7	e	5
SWITZERLAND		Licensed Surveying Engineer	Others [13)]	e	Others [14)]
UNITED KINGDOM	P1	Chartered Land Surveyor	7	d	3
	P2	Chartered Engineering Surveyor	7	d	3

1)	Ingegnere civile e ambientale iunior (the activities of Geodetic Surveyor are reserved to the profession of Civil and Environmental Engineer).
2)	Ingegnere civile e ambientale (the activities of Geodetic Surveyor are reserved to the profession of Civil and Environmental Engineer in Italy).
3)	We allocate the educational level at level 7 acc. to the ECF. The EQF/NQF mapping of vocational qualifications has not been implemented in Austria yet. The assignment to level 7 is an assessment of the competent authority.
4)	Level c is the minimum level, level d and e also lead to the profession.

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

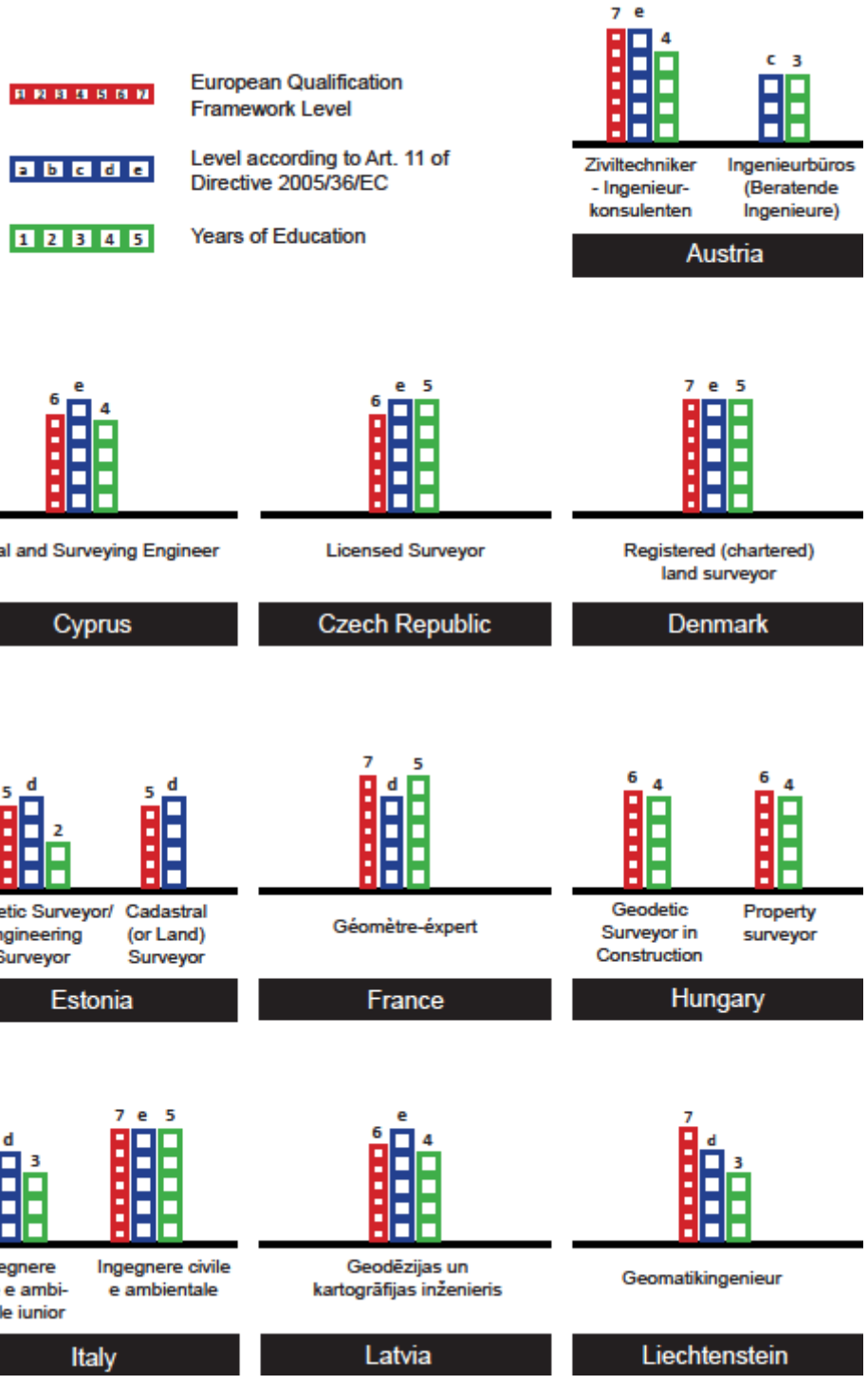
5)	Minimum of 3 years academic education required; alternative education is also possible: 5 years technical secondary education (and 6 years professional experience and licensing examination), corresponding to Art. 11 level c ii) Dir. 2005/36/EG.
6)	The indicated minimum EQF Level is recorded as 5. This reflects the historic case when the level of education was lower. All recently trained engineers are at Level 6 or 7, and most of the earlier trained engineers have upgraded their qualifications (to 6 or 7) through the certification system run by the Estonian Qualifications Authority.
7)	Depends: Engineering Survey: from 2 to 5 years, less education = more training and longer experience as assistant needed
8)	No specific requirements
9)	Vocational secondary education level - 4 years of education or vocational post-secondary education level (first cycle studies) - 3 to 4 years of education or (second cycle studies) - 1,5 to 2 years of education or (long-cycle studies) - 4,5 to 5 years of education
10)	Level 7 for Engineer, Level 6 for Bachelor of Science, Level 4 for technician with baccalaureate in geodesy and cartography
11)	Level "e" for Engineer, Level "d" for Bachelor (3 year in university), level "d" for technician (4 years in professional secondary school in branch of Geodesy and Cartography with baccalaureate diploma in G and C.
12)	Engineer - 5 years (Master Degree) Bachelor - 3 years in University Technician - 4 years in professional secondary school in G and C
13)	The official classification in the level EQF has not been stated. However the level is a Master degree (6 years) in cadastral surveying, plus 2 years of practice in a Licensed Surveyors Office, plus State examination.
14)	Master degree (6 years) in cadastral surveying, plus 2 years of practice in a Licensed Surveyors Office, plus State examination

Tab. 4.2.2.: Professions/professional levels and educational access requirements in the field of Geodetic Surveying

***ECEC Secretariat,** Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Overview of minimum (academic) training requirements for access to the profession

<u>Please note:</u> Only distinct levels and numbers of years were considered in this figure. When more than one level/number was entered for a profession/professional level, only the minimum level/number was considered. For further details please see Tab. 4.2.2.



ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

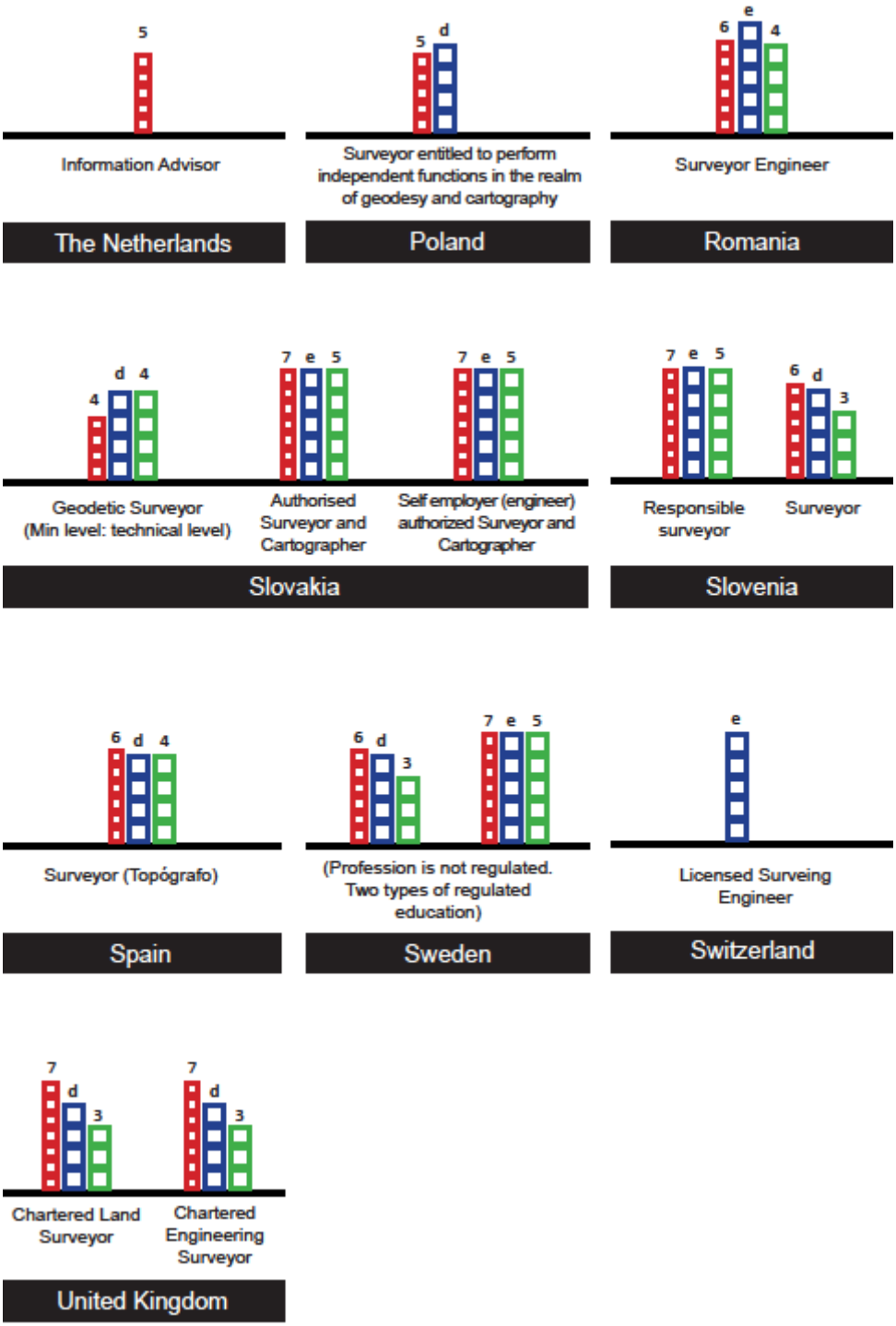


Fig. 4.2.7.: Educational access requirements of Geodetic Surveyors in comparison

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Rate of professions for which it is possible/not possible to compensate academic education requirements

- *Can educational requirements be fully or partly compensated (extraordinary achievements approach, competence based assessment, etc.)?*

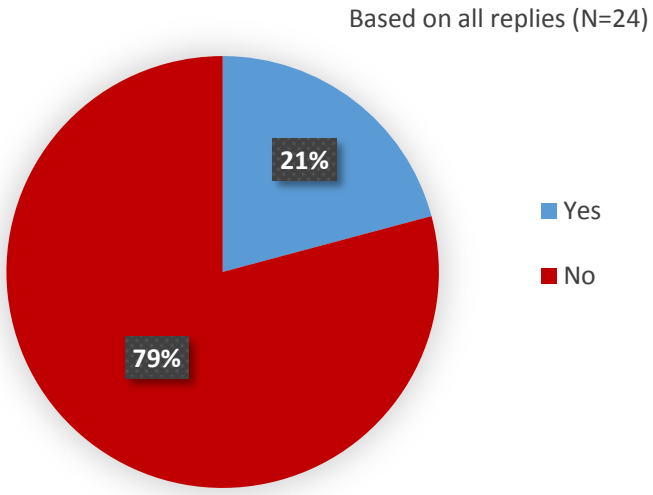


Fig. 4.2.7.: Compensation of requirements of academic education of Geodetic Surveyors

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Overview of additional requirements for the access to the profession

- *Is there a requirement of professional experience or professional traineeship for the access to the profession and/or use of the professional title?*
- *How many years of professional experience/professional traineeship are required?*
- *When can the professional experience/professional traineeship be obtained?*
- *Is an entrance exam/entrance interview required for access to the profession and/or use of the professional title?*
- *Is a registration required for access to the profession and/or use of the professional title?*
- *How is the registration regulated?*
- *Is a personal professional indemnity insurance required for access to the profession/use of the professional title?*
- *Is liability insurance required within companies?*
- *Are there any other requirements for access to the profession?*

Legend:

	The profession is not regulated in general

Country		Professional experience/professional traineeship required	Years of professional experience/professional traineeship required	Obtainment of professional experience/ professional traineeship		Requirement of entrance exam/entrance interview	Requirement of registration	Requirement of personal professional indemnity insurance	Requirement of liability insurance within companies
				Partly before/partly after final degree	After final degree				
AT	P1	Yes	3		x	Yes	Mandatory	No	No
	P2	Yes	3 or 6 [1)]		x [2)]	Yes	Mandatory	No	No
CY		No				No	Mandatory	Others [3)]	Yes
CZ		Yes	5		x	Yes	Mandatory	No	No
DK		Yes	3		x	No	-	-	-
EE	P1	Yes	Others [4)]	x		Yes	No	No	Others [5)]
	P2	Yes	Others [4)]	x		Yes	No	No	Others [5)]

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

FR		Yes	2		x	No	Mandatory	Yes	Yes
	P1	No				No		No	No
HU	P2	No				No		No	No
REPUBLIC OF IRELAND									
	P1	No				Yes	Mandatory	Yes	Others [6)]
IT	P2	No				Yes	Mandatory	Yes	Others [6)]
LV		Yes	3		x	No	No	Others [7)]	No
LI		Yes	2		x	No	No	No	Yes
NL		No				Yes	No	No	Yes
PL		Yes	Others [9)]	x [10)]	x [10)]	Yes	No	No	No
RO	P1	Yes	2	x		Yes	Mandatory	No	No
	P1	Yes	3		x	No	Mandatory	No	Voluntary
	P2	Yes	5		x	Yes	Mandatory	Yes	No
SK	P3	Yes	3		x	No	Mandatory	No	No
	P1	Yes	3		x	Yes	Mandatory	No	Yes
SI	P2	Yes	3		x	Yes	Mandatory	No	Yes
ES		No				No	Mandatory	Yes	No
SE									
CH		Yes	2		x	Yes	Mandatory	Yes	Yes
	P1	Yes	2		x	Yes	Mandatory	Yes	Yes
UK	P2	Yes	2		x	Yes	Mandatory	Yes	Yes

1)	Depending on the previous education
2)	Acc. to Art. 18 Trade Act (GewO) the professional activity must suitable for conveying the experiences and knowledge necessary to independently practise the profession of consulting engineers. Generally, this means it must be obtained after a final degree.
3)	Yes for legal persons not for private persons
4)	From 3 to 10 years depending on education: Higher level of education = less experience/professional traineeship needed.
5)	It's not required, but strongly recommended. Access to insurance services could be difficult for smaller companies
6)	Yes, but only if the engineer should be responsible for planning and/or survey activities
7)	For those working in regulated field of construction
8)	Reliability

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

9)	Depends on the level of education: vocational post-secondary education level (second or long-cycle studies) - 1 year of professional traineeship, vocational post-secondary education level (first cycle studies) - 2 years of professional traineeship, vocational secondary education level - 6 years of professional traineeship.
10)	Partly before/partly after the final degree - vocational post-secondary education level (first, second or long-cycle studies); after the final degree - vocational secondary education level
11)	Professional exam
12)	Inscription in the Federal Register of Surveyors
13)	Ethics, CPD

Tab. 4.2.3.: Other requirements (Geodetic Surveyors)

Details on different forms of entrance examinations/interviews

(only countries in which entrance exams/entrance interviews are required for access to the profession and/or the use of the professional title)

- *What are the main subjects?*
- *Who is responsible to hold the exam/interview?*

Country	Profession	Main subjects of entrance exam	Responsible institution that conducts the exam/interview
Austria	Ziviltechniker - Ingenieurkonsultenten	Austrian administrative law, business administration, legal and professional regulation of the special professional field (incl. standards), regulations of the special professional field, professional law and ethics of the profession	Public authority
Austria	Ingenieurbüros (Beratende Ingenieure) - engineering firms - consulting engineers	Professional laws and ethics, relevant laws, regulations and standards with in-depth professional and technical analysis, performance of engineering services, controlling, business administration, public procurement, calculation	Chamber which fulfills the task of a public authority. The chairman of the examination commission is a public servant.
Czech Republic	Licensed Surveyor	Cadastre, Mapping, Law, Surveying	Professional body/chamber

Estonia	Geodetic Surveyor - only engineering and construction surveys Cadastral (or Land) Surveyor - cadastral surveys These two have separate professional titles and separate regulations	Language skills, computer skills, legislation, experience in different Surveying fields	Professional body/chamber + For the Cadastral Surveying: Estonian Land Board
Italy	- Ingegnere civile e ambientale (the activities of Geodetic Surveyor are reserved to the profession of Civil and Environmental Engineer in Italy). - Ingegnere civile e ambientale iunior (the activities of Geodetic Surveyor are reserved to the profession of Civil and Environmental Engineer).	Subjects characterizing the relevant professional field; professional legislation and ethics.	Universities, on ordinance of the Ministry of Education
Netherlands	Information advisor	On being a geodetic engineer: - mathematics - cartography - least square adjustment techniques (Delft School) - photogrammetry - law (public and private)	Professional body/chamber
Poland	Surveyor entitled to perform independent functions in the realm of geodesy and cartography	The law in the field of geodesy and cartography	Qualifying Commission appointed by The General Surveyor of Poland
Romania	Surveyor Geographer	Theoretical subjects about cadastral, surveying and legislation Practical subjects	Public authority
Slovakia	Authorised Surveyor and Cartographer	Partly technic but mainly legal and technical regulation in Geodesy and Cartography and in Building construction laws and other regulation	Professional body/chamber + Public authority + Professional body/chamber for other geodetic service, mainly in construction and infrastructure + Public Authority (Geodesy Cartography and Cadastre Authority in Slovak Republic) for cadastral service

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Slovenia	- Responsible surveyor - Surveyor	The main subjects of exam: - Basics of regulations governing the organization of state administration and local government - Geoinformation database of geodetic records and spatial planning - Measurement techniques and procedures for obtaining information about the area and the delimitation of object	Professional body/chamber
Switzerland	Licensed Surveing Engineer	Official cadastral surveying, geomatics, land management planning, business management.	Public authority
United Kingdom	Chartered land & engineering surveyor	Professional surveying, geospatial skills, geodesy, mapping, measurement, legal requirements, land management	Professional body/chamber

Tab. 4.2.4.: Entrance exams (Geodetic Surveyors)

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Overview of CPD systems

- *Are there any continuous professional development requirements?*
- *How is the continuous professional development (CPD) system organised?*
- *How are the CPD requirements regulated?*
- *Is a disciplinary system in force?*

Legend:		The profession is not regulated in general

Country		Continuous professional development (CPD) requirements	Organisation of CPD requirements		Regulation of CPD requirements			Disciplinary system in force
			Obligatory without sanctions	Obligatory with sanctions	Law	Professional body	Standard	
AT	P1	Yes	x		x	x		Yes [1)]
	P2	No						Yes [2)]
CY		No						Yes [3)]
CZ		No						Yes [4)]
DK		No						Yes [5)]
EE		Yes	x			x	x	Others [6)]
FR		Yes	x			x		Yes [7)]
HU	P1	Yes		x	x			Yes [8)]
	P2	Yes		x	x			Yes [8)]
IE								
IT	P1	Yes		x		x		Yes [9)]
	P2	Yes		x		x		Yes [9)]
LV								
LI		No						No
NL		No						No
PL		No						Yes [10)]

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

RO	P1	Yes	x	x	11)			No
SK	P1	Yes, voluntary	12)					No
	P2	Yes		x [13)]	x	x [14)]		Yes [15)]
	P3	No						No
SI	P1	No						Yes [16)]
	P2	Yes		x				No
ES		No						Yes [17)]
SE								
CH		No						Yes [18)]
NL	P1	No						No
UK	P1	Yes		x		x	x	Yes [19)]
	P2	Yes		x		x	x	Yes [19)]

1)	Code of Conduct with sanctions
2)	Binding rules for conduct established by law and sanctioned by public authorities.
3)	Disciplinary Board
4)	Penalty, loss of license
5)	Chartered surveying committee: claim that a practising licensed surveyor has disregarded the obligations or his position in the performance of his work, may be brought to the chartered surveying committee.
6)	It's hard to stop or take out existing certificates. As Certificate is valid for 5 years, disciplinary system works by applying the new certificate
7)	Contrôle régulier des cabinets de géomètres-experts par les conseils régionaux de l'ordre. Formations disciplinaires des conseils régionaux de l'Ordre
8)	Ethical Rules of the Chamber of Engineers
9)	Territorial Disciplinary Councils composed by different members than the members of the Territorial Professional Order. One Council in each Territorial Professional Order is foreseen. The Code of Conduct approved by the Territorial Professional Order (also based on the Code of Conduct approved by the National Council of Italian Engineers) is applied.
10)	Disciplinary Committee
11)	Regulated by the competent authority
12)	CPD is voluntary organised by Chamber, other professional associations or by public authority
13)	System of credits for CPD training (seminars, conferences, etc.)
14)	Regulated and checked by professional body (law about Chamber and internal documents of Chamber)
15)	Disciplinary Body of Chamber of Surveyors and Cartographers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

16)	Disciplinary system is defined by law.
17)	There is an ethics and disciplinary committee
18)	Through the Federal Commission
19)	multiple levels - with expulsion

Tab. 4.2.5.: Requirements for pursuit of the profession of Geodetic Surveyors

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Prevalence of different forms of the exercise of the profession (multiple answers possible)

The results show that professionals are very often self-employed or even liberal professionals or employed in private firms with personal legal authorization. Employed Geodetic Surveyors without personal legal authorization do not play a very important role in the picture of the different forms of exercise of the profession. As the EU policy for engineers focuses very much on the employment market aspect but not so much on the fact of personal responsibility, this is an interesting result, also in regard to the appropriate form of Common Training Principles.

- *How is the profession exercised?*

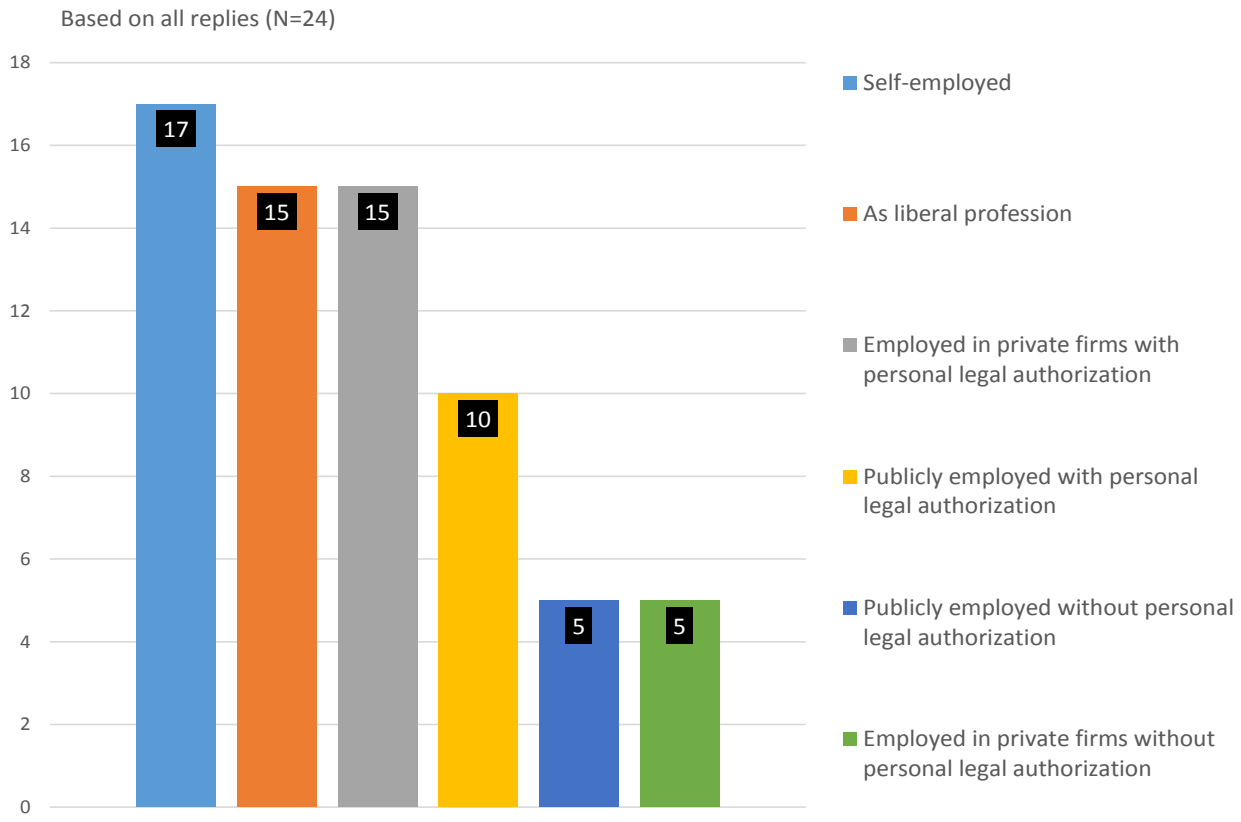


Fig. 4.2.8.: Exercise of the profession of Geodetic Surveyors

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

4.2.2. Information on Engineering Education Programmes/Curricula

Regulation rate of engineering education

- *Is the engineering education for the profession considered as regulated by the national authorities of the country?*

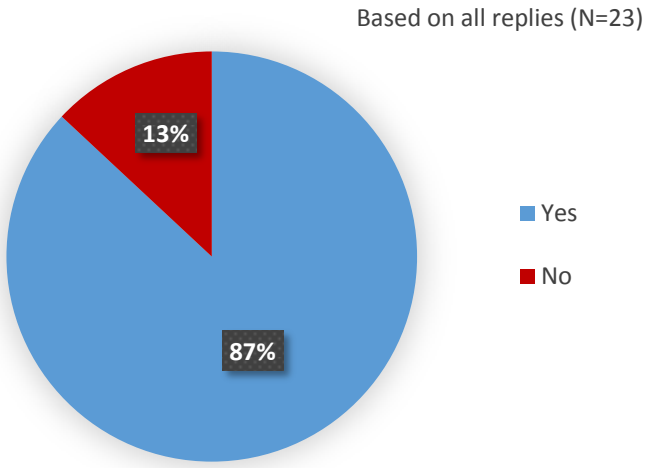


Fig. 4.2.9.: Regulation of engineering education of Geodetic Surveyors

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Overview of requirements of academic training programmes

- *What is the official minimum length of the (academic) educational programmes in years?*
- *What is the minimum required number of ECTS in the (academic) educational programmes?*
- *What is the minimum required percentage of technical ECTS out of the total amount of the required number of ECTS in the (academic) educational programmes?*
- *What is the level (European Qualifications Framework) of the final awarded degree of the (academic) educational programmes?*
- *What is the minimum educational level (prior duration of studying) for entry to the (academic) Master educational programmes?*
- *Is mandatory traineeship during the (academic) educational qualification programme foreseen?*

Legend:

	The Profession is not regulated general

Please note: This table is only related to academic education programmes/curricula and NOT to requirements for professional access/use of the title.

Country		Official minimum length of the (academic) educational programmes in years	Minimum required number of ECTS in (academic) educational programmes	Minimum required percentage of technical ECTS out of the total amount of ECTS	Level of final awarded degree of (academic) educational programme	Minimum educational level (prior duration of studying) for entry to (academic) Master education programmes	Mandatory traineeship during the (academic) educational qualification programme
AUSTRIA	P1	4	241-300	50 - 75%	7	3	In some programmes
	P2	3	180-240	50 - 75%	6 [1)]	3	In some programmes
CYPRUS		4	241-300	not regulated	7	4	No
CZECH REPUBLIC		5	Don´t know	Don´t know	7	3	No
DENMARK		-	-	-	-	-	-
ESTONIA		3	180-240	Others [2)]	7	3	Yes
FRANCE		3	180-240	Higher than 75%	7	2 [3)]	Yes
HUNGARY	P1	4	180-240	not regulated	6	4	In some programmes
	P2	4	180-240	not regulated	6	4	In some programmes

ECEC Secretariat, Vienna
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

REPUBLIC OF IRELAND							
ITALY	P1	3	180-240	Higher than 75%	6	3	No
	P2	5	241-300	Higher than 75%	7	Over 4	No
LATVIA		4	180-240	not regulated	6	4	Yes
LIECHTENSTEIN		3	180-240	Higher than 75%	6	3	No
THE NETHERLANDS		4	Others	not regulated	Don´t know	Over 4	Don´t know
POLAND		3	180-240	50 - 75%	7	3	Yes
ROMANIA	P1	4	240	50 - 75%	6	4	yes
SLOVAKIA	P1	3 or 5 [4)]	More than 300 [5)]	50 - 75%	6;7 [6)]	Others [7)]	No
	P2	5 [8)]	More than 300	50 - 75%	7	Others [7)]	No
	P3	5	More than 300	50 - 75%	7	Others [7)]	No
SLOVENIA	P1	5	180-240	Higher than 75%	7	Over 4	In some programmes
	P2	3	180-240	Higher than 75%	6	4	In some programmes
SPAIN		4	180-240	Higher than 75%	6	4	Yes
SWEDEN - two types of regulated education		3	180	Others [9)]	6	Others [10)]	No
		5	300	Others [9)]	7	Others [10)]	No
SWITZERLAND		6	More than 300	not regulated	Others [11)]	3	Others [12)]
UNITED KINGDOM	P1	3	241-300	Higher than 75%	6	2	Yes
	P2	3	241-300	Higher than 75%	6	2	Yes

1)	Level 6 (Bachelor) is the minimum criteria for the academic educational programme, alternative education is also possible: 5 years technical secondary education (and 6 years professional experience and licensing examination) corresponding to Art. 11 level c ii) Dir. 2005/36/EG
2)	Regulated in different way for different professions as Geodesy, Engineering Surveying, Cadastral Surveying
3)	It is specified that 2 years indicated correspond to two years of preparation which are usually attended to prepare the access to schools' competition.
4)	3 years for Bachelors in Science, 5 years for Engineers (MSc level)
5)	For Engineers
6)	Level 6 for Bachelor, Level 7 for Master
7)	9 years of primary school + 4 years of secondary education

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

8)	5 years for Engineers (MSc level)
9)	The Swedish legislation expresses the requirements in the terms of learning outcomes (output criteria) not a number of ECTS (input criteria).
10)	Degree of Master of Science in Engineering is a one-tier integrated study program requiring five years of study (300 ECTS). This degree is considered regulated education and training under the PQD 2005/36/EC. There are also one (60 ECTS) and two year (120 ECTS) Master programmes, so called general degrees, in the field of engineering requiring a prior academic degree with the duration of studying of three years (180 ECTS). The latter two types of of degrees do not constitute regulated education and training under the PQD 2005/36/EC.
11)	The official classification in the level EQF has not been stated.
12)	There are strong practical qualifications during the programme, and/or a mandatory traineeship, but the schools can decide the system they want to set up.

Tab. 4.2.6.: Requirements of engineering educational programmes of Geodetic Surveyors

4.2.3. Conclusions

- The reply rate in regard to the profession of Geodetic Surveyor is lower than that for Civil Engineers (20 replying countries of 32) but the rate of participating countries that have regulated the profession is second highest after the profession of Civil Engineers. The interest in Common Training Principles among competent authorities and other stakeholders is not as high as for Civil Engineers but there definitely is an interest. In regard to the approach for CTP Geodetic Surveyors are the only profession for which the preference for a Common Training Framework is the same as that for a Common Training Test (50:50). For all other professions there is a majority for a CTF.
- The survey shows that 8 out of 20 replying countries – not a majority as in the Civil Engineering branch – have different forms/levels of the profession within the branch of Geodetic Surveyors. In regard to a CTF approach this currently leaves both options open (level approach or not).
- The survey also shows that the overall level of academic requirements for access to the profession is quite high. A broad majority of the countries requires at least the EQF Levels 6 and 7. This is also reflected in the level of requirements in engineering education programmes.
- Geodetic Surveyors are often self-employed or even liberal professionals employed in private firms with personal legal authorization (all with personal responsibility) and employed engineers without personal legal authorization do not play a very important role in the picture of the different forms of exercise of the profession
- It turned out that academic education is extremely important in many countries as in 79% of the professions it is not possible to compensate academic education.
- A majority of countries requires professional experience and/or a professional exam/interview for the access to the profession/use of the professional title.

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

- The variety of scopes of authorizations on national level seems to be smaller than for Civil Engineers. Nevertheless there is a considerable variety existing.
- In regard to the definition of a CTP proposal for Geodetic Surveyors, the project team decided that further input of the stakeholders in regard to their interest would be necessary.

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

4.3. Electrotechnology Engineer

4.3.1. Regulation of the Profession

Regulation rate of the profession

The shown regulation rate is based on the answers received in the survey. It is thus possible that the number of regulated countries is higher due to the fact that countries that did not participate in the survey are not considered in the calculation. Additionally, the engineering education is regulated in a vast majority of the professions.

It is clearly confirmed that the profession of Electrotechnology Engineers fulfils the regulation requirements for Common Training Principles (Articles 49a 2.(b) and 49b 2.(b) of Directive 2005/36/EC on the recognition of professional qualifications).

Please note:
As the number of provided answers by the competent authority varies based on the topic (not all questions were answered by everybody), the number of the main unit (N) is not consistent within the professional group.

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Regulation rate of profession

- *Is the profession of Electrotechnology Engineers regulated (access, title, pursuit, other)?*

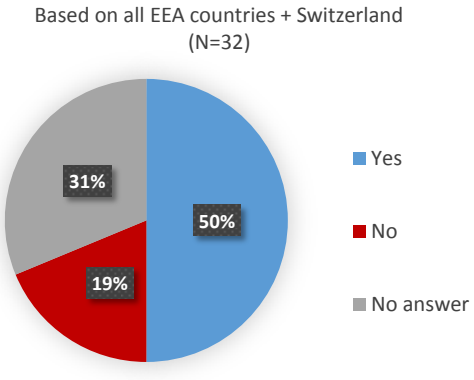


Fig. 4.3.1.: Regulation rate of the profession of Electrotechnology Engineers

Regulation rate of education

- *Is the engineering education for the profession considered as regulated by the national authorities of the country?*

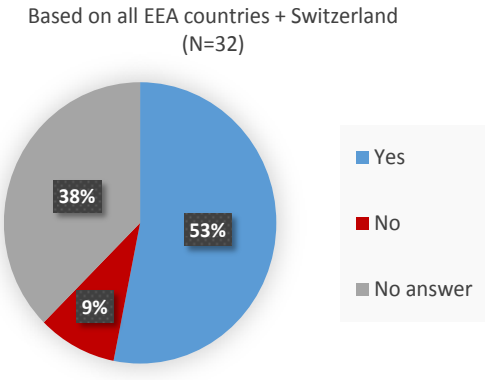


Fig. 4.3.2.: Regulation rate of the education of Electrotechnology Engineers

Prevalence of different forms of regulation (multiple answers possible)

- *Is the profession regulated?*

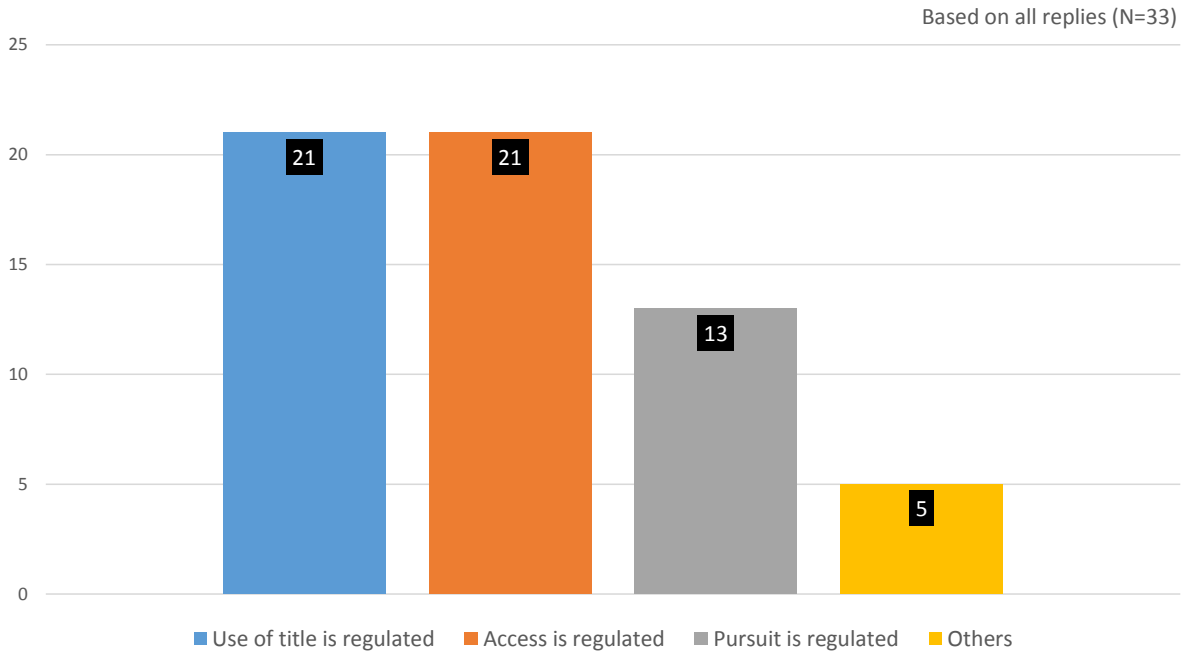


Fig. 4.3.3.: Regulation of the profession of Electrotechnology Engineers

ECEC Secretariat, Vienna
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Different forms of regulation in detail

- *Is the profession regulated?*

Legend:		Profession is not regulated in general

Country		Regulated access to the profession	Regulated pursuit of the profession	Regulated use of the title of the profession	Additional comments
AUSTRIA	P1	x	x	x	
	P2	x	x		Competition law ensures that the title engineering firm - consulting engineers may be only used by licenced professionals
CROATIA	P1	x		x	
CYPRUS		x	x	x	
DENMARK					The profession is not regulated.
ESTONIA		x			
FRANCE					The engineering profession is not regulated in France, neither in terms of access to the profession nor its exercise, including the title. But the academic title of “ingénieur diplômé”, associated with the name of the higher education institution that delivers the diploma, is regulated. It is therefore a regulation of the education/training and not of the profession.
GERMANY	P1	x		x	"Consulting Engineers" are only a very small group of the engineers working in Germany.
	P2			x	In Germany, the professional title "Ingenieur" is protected, including all word compounds, e.g. "Civil Engineer", "Electrical Engineer" etc.
HUNGARY	P1		x		
	P2		x		

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

ITALY	P1	x	x	x	
	P2	x	x	x	
	P3	x	x	x	
	P4	x	x	x	
LATVIA					The profession as such is not regulated in general, but education/training is regulated. The answers in the questionnaire refer to the profession of "elektroinženieris, elektronikas inženieris, telekomunikāciju inženieris". The pursuit of certain functions (construction, construction design (projects), supervision of construction works, management of construction works for electrical installation) is regulated.
LIECHTENSTEIN	P1	x		x	
	P2	x		x	
MALTA		x	x	x	
THE NETHERLANS					The profession is not regulated.
POLAND		x		x	
PORTUGAL	P1	x	x	x	Engineers level 1 for people with Engineering 1º cycle degrees and engineers level 2 for people with Engineering 2º cycle Degrees
	P2	x	x	x	
ROMANIA					The profession as such is not regulated, but education/training at universities is regulated.
REPUBLIC OF IRELAND					The profession is not regulated by law, but via membership in professional body (Engineers Ireland).
SLOVENIA	P1	x			
	P2	x			
	P3	x			
	P4	x			
SPAIN	P1	x	x		
	P2	x	x		
SWEDEN					The profession as such is not regulated, but education/training is regulated.
SWITZERLAND		x	x		The profession is not regulated in general. It is only regulated in one canton (the Italian-speaking canton of Ticino). The answers in the questionnaire refer to the regulations in this canton.
UNITED KINGDOM	P1			x	The engineering profession is not regulated. Chartered bodies award protected titles which are deemed to be regulated for the

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

	P2			x	purpose if the PQD, but registration to use the titles is voluntary and self-regulated. The Engineering Council – based on a Royal Charter - holds the national register for four titles with cross discipline-specific boundaries. These provide a common framework bringing consistency to the regulation of the entire engineering profession. The Engineering Council licences 35 Professional Engineering Institutions to award titles. Alongside these institutions can also have their protected titles conferred by their own Royal Charter (e.g. ICE, IStructE etc.). Requirements are assessed in a similar way, normally as part of the same assessment process.
	P3			x	
	P4			x	
	P5			x	
	P6			x	
	P7			x	

Tab. 4.3.1.: Regulation of the profession in the field of Electrotechnology Engineering

Prevalence of different forms of reserved activities (multiple answers possible)

- *Which activities are reserved to the profession?*

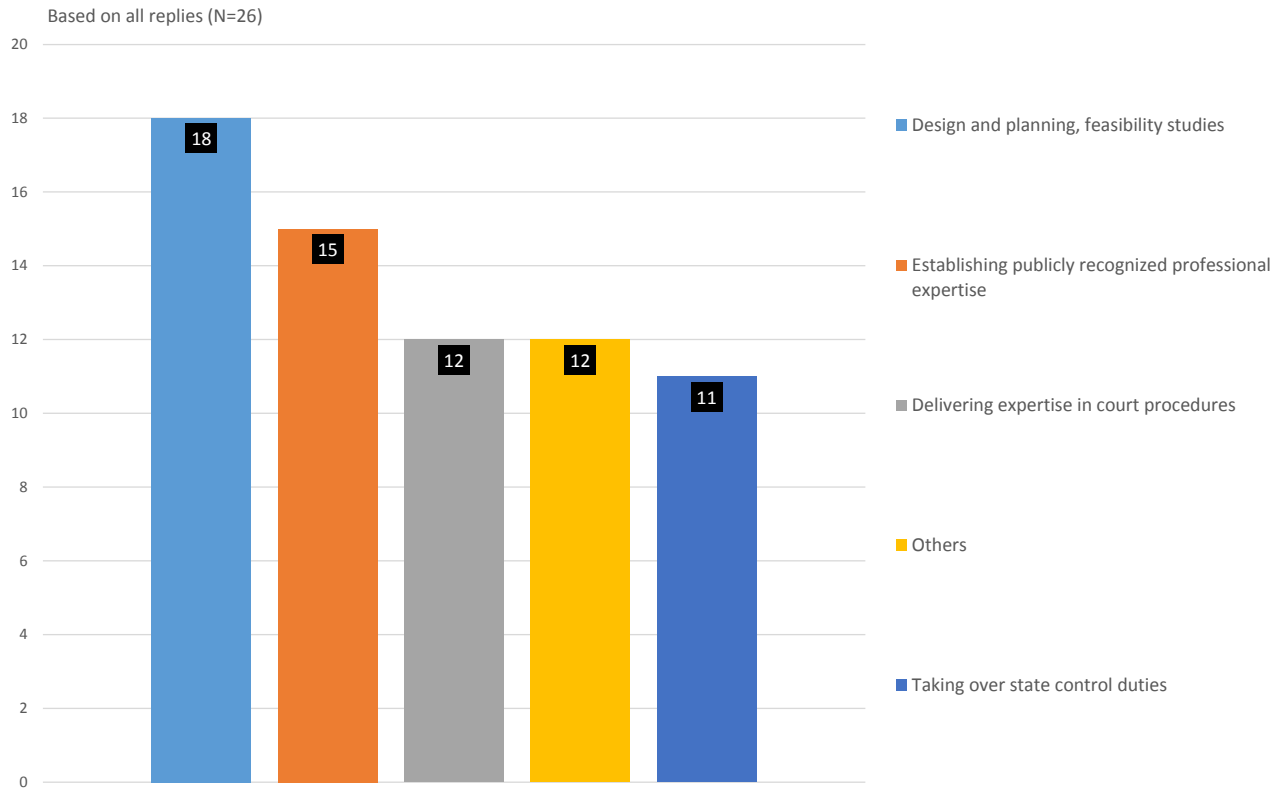


Fig. 4.3.4.: Activities reserved to the profession of Electrotechnology Engineers

ECEC Secretariat, Vienna
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Different forms and/or levels of the profession

The survey results show that half of the countries (11 out of 22) have different levels or forms of professions within one engineering branch. This can mean different entrance requirements and/or different scopes of services and competences or specifications. The professional levels and forms are referred to as professions/professional levels and are the basis of the main unit (N=„all replies“ and not the number of countries) for the calculations in this report.

- *Are there different professions/professional levels with different requirements for access to the profession and/or pursuit of the profession and/or use of the title of the profession in your country?*

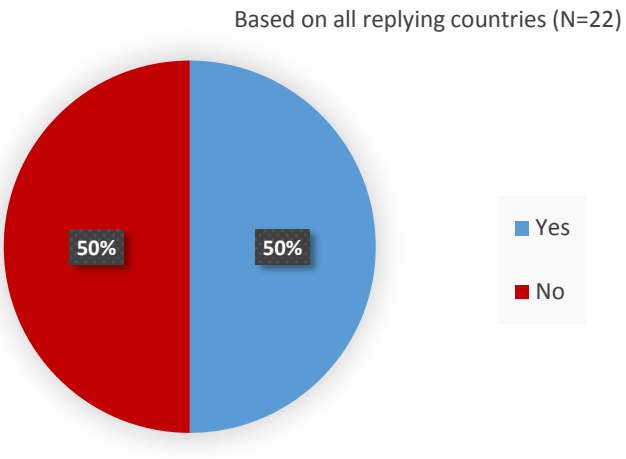


Fig. 4.3.5.: Different professional levels per country (Electrotechnology Engineers)

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

- *What is the minimum educational level for access to the profession and/or use of the professional title (according to the levels of European Qualifications Framework)?*
- *What is the minimum educational level required for access to the profession and/or use of the professional title according to the levels of qualifications in Article 11 of Directive 2005/36/EC on recognition of professional qualifications?*
- *What is the required number of years of academic education for access to the profession and/or use of the professional title?*

Legend:		
		Profession is not regulated in general
		No questionnaire submitted for this professional level

Country		Different professions/professional levels	Min. educational level (EQF)	Min. educational level (Art. 11)	Min. academic years
AUSTRIA	P1	Ziviltechniker - Ingenieurkonsulent	Higher than 7	e	4
	P2	Ingenieurbüros (Beratende Ingenieure)	Others [1)]	c [2)]	3 [3)]
CROATIA	P1	Chartered engineer (professional supervision of construction and design)	7	e	4
	P2	Construction manager of the electrical engineering profession	-	-	-
	P3	Performance manager of the electrical engineering profession	-	-	-
CYPRUS		Electrical Engineer	6	e	4
DENMARK					
ESTONIA		Manager of electrical work	5 [4)]	a	3
FRANCE					
GERMANY	P1	Beratender Ingenieur	6	d -e [5)]	3-4 [6)]
	P2	Ingenieur	6	d	3 [7)]
HUNGARY	P1	BSc Electrotechnology Engineer	6	-	3
	P2	MSc Electrotechnology Engineer	7	-	5

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

ITALY	P1	Ingegnere industriale iunior [8)]	6	d	3
	P2	Ingegnere industriale [8)]	7	e	5
	P3	Ingegnere dell'informazione iunior [8)]	6	d	3
	P4	Ingegnere dell'informazione [8)]	7	e	5
LATVIA		Elektroinženieris, Elektronikas inženieris, Telekomunikāciju inženieris	6	e	4
LIECHTENSTEIN	P1	Elektrotechniker	6	c	1
	P2	Elektroingenieur	7	d	3
MALTA		Ing	6	d	4
THE NETHERLANDS					
POLAND		Installation Engineer	6	d	4
PORTUGAL	P1	Electrotechnical Engineer, 1st cycles degree	6	d	3
	P2	Electrotechnical Engineer, 2nd cycles degree	7	e	5
REPUBLIC OF IRELAND		Chartered engineer	7	e	5 [9)]
ROMANIA		Engineer	-	-	4
SLOVENIA	P1	Responsible Project Designer	7	d	4
	P2	Responsible Manager of Work	6	d	3
	P3	Responsible Supervisor	7	d	4
	P4	Responsible Auditor	7	d	4
SPAIN	P1	Industrial Engineer	7	e	5 [10)]
	P2	Ingeniero Técnico Industrial (Ingeniero Eléctrico, Mecánico, Químico, Electrónico, Textil)	6	e	4
SWEDEN		Profession is not regulated. Two Types of regulated education:	6	d	3
			7	e	5
SWITZERLAND		Electrical Engineer	Others [11)]	d	3
UNITED KINGDOM	P1	Chartered Engineer - awarded by BCS	Others [12)]	Others [13)]	Others [14)]
	P2	Chartered IT Professional - awarded by BCS	Others [15)]	Others [16)]	Others [17)]
	P3	Registered IT Technician - awarded by BCS	Others [18)]	Others [19)]	Others [20)]
	P4	Chartered Engineer (CEng) - awarded by The Engineering Council	7	e	Others [21)]

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

	P5	Incorporated Engineer (IEng) - awarded by the Engineering Council	6	d	Others [21)]
	P6	Engineering Technician (EngTech) - awarded by The Engineering Council	Lower than 5	c	Others [22)]
	P7	ICT Technician (ICTTech) - awarded by IET	Lower than 5	c	Others [23)]

1)	We allocate the educational level at level 7 acc. to the ECF. The EQF/NQF mapping of vocational qualifications has not been implemented in Austria yet. The assignment to level 7 is an assessment of the competent authority.
2)	Level c is the minimum level, level d and e also lead to the profession.
3)	Minimum of 3 years academic education required; alternative education is also possible: 5 years technical secondary education (and 6 years professional experience and licensing examination), corresponding to Art. 11 level c ii) Dir. 2005/36/EG.
4)	The indicated minimum EQF Level is recorded as 5. This reflects the historic case when the level of education was lower. All recently trained engineers are at Level 6 or 7, and most of the earlier trained engineers have upgraded their qualifications (to 6 or 7) through the certification system run by the Estonian Qualifications Authority.
5)	Differs at Länder level
6)	Depending from the state law
7)	Bachelor
8)	Activities of Electrotechnology Engineer are reserved to the profession of Industrial and Information Engineer.
9)	Usually a second cycle degree (5 years) but we are outcomes based rather than prescriptive years
10)	Depends on the university, minimum 5 years, maximum 6 years
11)	A Bachelor degree of a University of applied sciences or of a Federal Institute of Technology (EQF level not yet known).
12)	There are a number of routes to award. Holding some educational qualifications at EQF level 6 can facilitate the assessment which requires demonstration of practical competence
13)	Evidence of educational qualifications is not a pre-requisite to entry to the profession. All entrants must demonstrate experience and responsibility and competence in their discipline.
14)	Entrants following the accredited degree route to entry will have competed a degree over a minimum of 4 years.
15)	Award is based on demonstration of practical competence. Academic qualifications are not mandated.
16)	Award is based on demonstration of practical competence. Academic qualifications are not mandated.
17)	Most entrants will have completed a minimum of 3 years academic education post leaving school but award of professional status does not rely on holding any academic qualifications.
18)	Educational qualifications are not mandated. Qualifications at levels 6 and below may be held.
19)	Academic qualifications are not mandated
20)	Where academic qualifications are held they will normally have been completed over a minimum period of 2 years

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

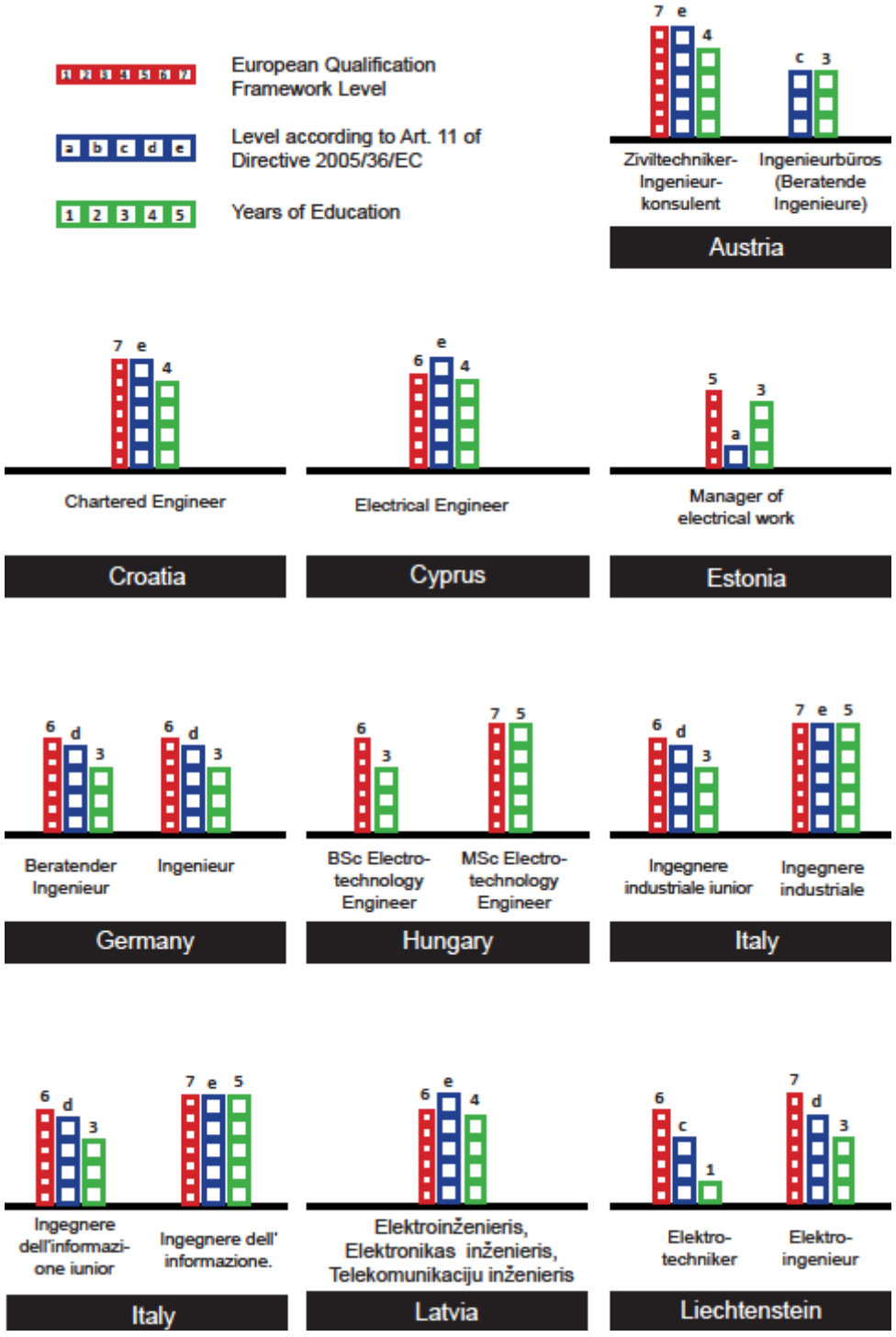
21)	Varies depending on a candidate's qualification/s and experience. Candidates with 'exemplifying' qualifications can meet the requirement in as little as four years. However, experience can be taken into consideration towards the 'educational requirements' as experiential/work based learning.
22)	Varies depending on a candidate's qualifications and experience.
23)	Candidates don't need formal qualifications to become professionally registered. Experiential learning can be assessed in conjunction with any vendor qualifications held, but candidates have to demonstrate they are applying technician level ICT practitioner skills at around EQF Level 4.

Tab. 4.3.2.: Professions/professional levels and educational access requirements in the field of Electrotechnology Engineering

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Overview of minimum (academic) training requirements for access to the profession

***Please note:** Only distinct levels and numbers of years were considered in this figure. When more than one level/number was entered for a profession/professional level, only the minimum level/number was considered. For further details please see Tab. 4.3.2.*



ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

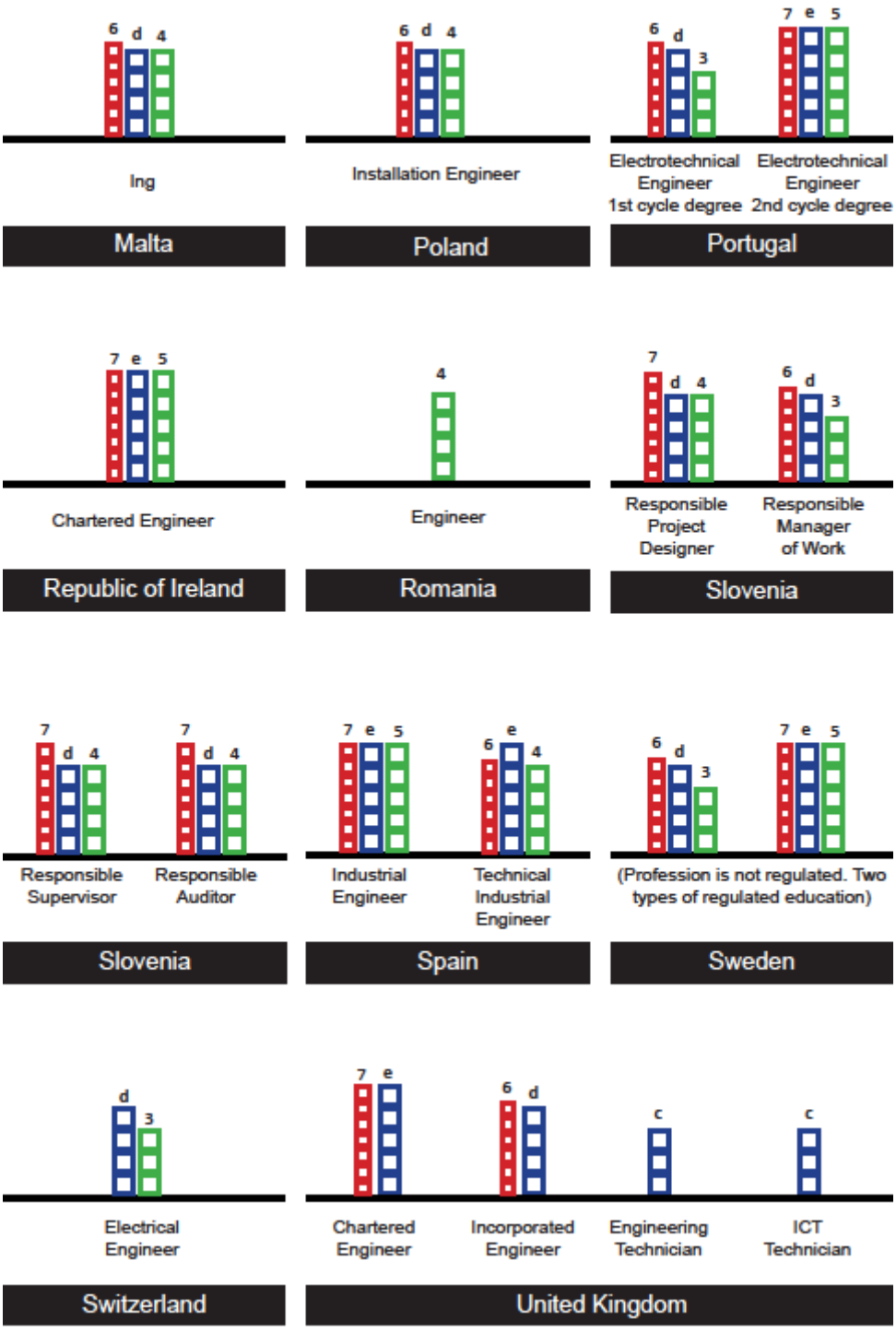


Fig. 4.3.7. Educational access requirements of Electrotechnology Engineers in comparison

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Rate of professions for which it is possible to compensate academic education requirements

- *Can educational requirements be fully or partly compensated (extraordinary achievements approach, competence based assessment, etc.)?*

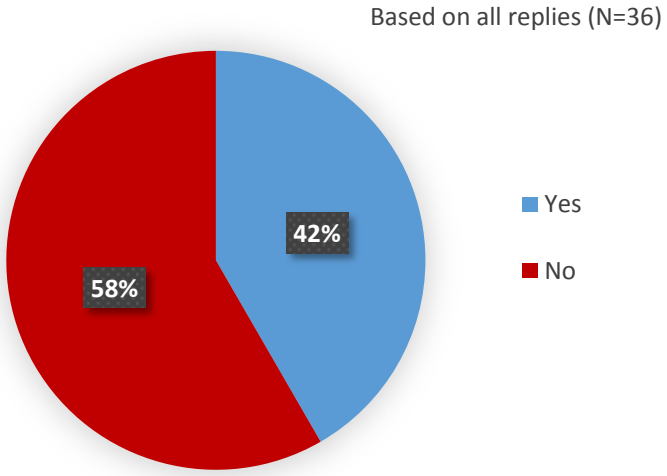


Fig. 4.3.7.: Compensation of requirements of academic education of Electrotechnology Engineers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Overview on additional requirements for the access to the profession

- *Is there a requirement of professional experience or professional traineeship for the access to the profession and/or use of the professional title?*
- *How many years of professional experience/professional traineeship are required?*
- *When can the professional experience/professional traineeship be obtained?*
- *Is an entrance exam/entrance interview required for access to the profession and/or use of the professional title?*
- *Is a registration required for access to the profession and/or use of the professional title?*
- *How is the registration regulated?*
- *Is a personal professional indemnity insurance required for access to the profession/use of the professional title?*
- *Is liability insurance required within companies?*
- *Are there any other requirements for access to the profession?*

Legend:		Profession is not regulated in general

Country		Professional experience/professional traineeship required	Years of professional experience/professional traineeship required	Obtainment of professional experience/ professional traineeship		Requirement of entrance exam/entrance interview	Requirement of registration and its regulation	Requirement of personal professional indemnity insurance	Requirement of liability insurance within companies	Other requirements for access to the profession
				Partly before/partly after final degree	After final degree					
AT	P1	Yes	3		**x**	Yes	Mandatory	No	No	No
	P2	Yes	3 or 6 [1)]		**x** [2)]	Yes	Mandatory	No	No	No
HR	P1	Yes	2	**x**		No	Mandatory	Yes	Yes	No
CY		No				No	Mandatory	Others [3)]	Yes	No
DK										
EE		Yes	Others [4)]	**x**		Yes	No	No	No	No
FR										
DE	P1	Yes	2-5 [5)]		**x**	Yes	Mandatory	Yes	Yes	No
	P2	No				No [6)]		No	No	No

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

HU	P1	No				No	No	No	No	Yes [7)]
	P2	No				No	No	No	No	No
IT	P1	No				Yes	Mandatory	Yes	Others [8)]	No
	P2	No				Yes	Mandatory	Yes	Others [8)]	No
	P3	No				Yes	Mandatory	Yes	Others [8)]	No
	P4	No				Yes	Mandatory	Yes	Others [8)]	No
LV		Yes	3		x	No	No	No	No	No
LI	P1	No				No	No	No	Yes	Yes [9)]
	P2	Yes	2		x	No	Voluntary	No	Yes	No
MT		Yes	3	x		Yes		Yes	Others [10)]	No
NL										
PL		Yes	2-4 [12)]	x		Yes	Mandatory	Yes	Yes	No
PT	P1	Yes	6 [13)]		x	No	Mandatory	Yes	No	No
	P2	Yes	5 [13)]		x	No	Mandatory	Yes	No	No
IE		Yes	Others [14)]		x	Yes	Voluntary	Yes	No	Yes [15)]
RO										
SI	P1	Yes	3-5		x	Yes	Mandatory	No	Yes	Yes [16)]
	P2	Yes	3-5		x	Yes	Mandatory	No	Yes	Yes [16)]
	P3	Yes	3-5		x	Yes	Mandatory	No	Yes	Yes [16)]
	P4	Yes	3-5		x	Yes	Mandatory	No	Yes	Yes [16)]
ES	P1	No				No	Mandatory	Others [17)]	Others [18)]	No
	P2	No				No	Mandatory	Yes	Yes	Yes [19)]
SE										
CH		No				No	Mandatory	No	No	Yes [20)]
UK	P1	Yes	Others [21)]	Others [27)]		Yes	Voluntary	No	No	[32)]
	P2	Yes	Others [22)]	Others [28)]		Yes	Voluntary	No	No	No
	P3	Yes	Others [23)]	Others [28)]		Yes	Voluntary	No	No	[33)]
	P4	Yes	Others [24)]		x	Yes	Mandatory	No	Yes	No
	P5	Yes	Others [24)]		x	Yes	Mandatory	No	Others [31)]	[34)]

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

	P6	Yes	Others [25)]	Others [29)]	No	Mandatory	No	Others [31)]	[34)]
	P7	Yes	Others [26)]	Others [30)]	No	Mandatory	No	Others [31)]	[35)]

[1)]	depending previous education
[2)]	Acc. to Art. 18 Trade Act (GewO) the professional activity must suitable for conveying the experiences and knowledge necessary to independently practise the profession of consulting engineers. Generally, this means it must be obtained after a final degree.
[3)]	Yes for legal persons not for private persons
[4)]	1, 2 or 4 years depending of level of education.
[5)]	2-5 years depending on state law
[6)]	Voluntary membership in professional body/chamber is possible
[7)]	For the right of independent work: exam at the chamber on the legal regulation of the profession
[8)]	Yes, but only if the engineer should be responsible for planning and/or survey activities.
[9)]	Reliability
[10)]	Warranted members have to be insured
[12)]	Depends on the scope of the Licence (from 2 to 4 years)
[13)]	Exemption for those who have 5-6 years of professional experience after the final degree
[14)]	Depends on the experience usually 3-4 years minimum
[15)]	CPD - five days per year
[16)]	Professional exam
[17)]	In certain jobs it is
[18)]	In certain cases
[19)]	Compulsory membership with a professional body (Colegio professional)
[20)]	Different personal requirements, such as a certificate of good standing, an extract of criminal record, and a prove of having the full exercise of civil rights
[21)]	To be able to demonstrate competence to the level required a minimum of 5 years will be expected
[22)]	A minimum of 3 years at a senior level is expected and a minimum of 8 - 10 years working in IT roles to arrive at this point.
[23)]	It is necessary to demonstrate practical experience at a certain level to achieve certification. A minimum period of one year is expected but usually longer.
[24)]	When a candidate has gained sufficient experience to meet the competence/commitment requirements, as defined in UKSPEC.
[25)]	When a candidate has gained sufficient experience to satisfy the EngTech requirements, as detailed in the Engineering Council's UK SPEC.
[26)]	Varies, depending on when a candidate has met the competence/commitment requirements as detailed in the ICTTech standard.
[27)]	Experience will normally gained after award of an accredited degree when following this route to award.
[28)]	At any time
[29)]	Degree level qualification not required.
[30)]	Varies, depending on when a candidate has met the competence/commitment requirements as detailed in the ICTTech standard.

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

31)	A form of liability insurance, such as 'Employer's liability insurance', is required to be held by all employers under UK law.
32)	Registration as a Chartered Engineer mandates membership of a professional body licenced by the Engineering Council to award CEng status. Membership must require adherence to a code of conduct and a commitment to undertake Continuous Professional Development
33)	Registration requires membership of a professional body licenced to award RITTech status. Membership must require adherence to a code of conduct subject to disciplinary sanctions and mandate Continuous Professional Development
34)	The competence and commitment requirements, as detailed in the Engineering Council's UK SPEC
35)	The competence/commitment requirements as detailed in the ICTTech standard.

Tab. 4.3.3.: Other requirements (Electrotechnology Engineers)

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Details on different forms of entrance examinations/interviews

(only countries in which entrance exams/entrance interviews are required for access to the profession and/or the use of the professional title)

- *What are the main subjects?*
- *Who is responsible to hold the exam/interview?*

Country	Profession	Main subjects of entrance exam	Responsible institution that conducts the exam/interview
Austria	Ziviltechniker-Ingenieurkonsulent	Austrian administrative law, business administration, legal and professional regulation of the special professional field (incl. standards), regulations of the special professional field, professional law and ethics of the profession	Public authority
Austria	Ingenieurbüros (Beratende Ingenieure) - engineering firms - consulting engineers	Professional laws and ethics, relevant laws, regulations and standards with in-depth professional and technical analysis, performance of engineering services, controlling, business administration, public procurement, calculation	Chamber which fulfills the task of a public authority. The chairman of the examination commission is a public servant.
Estonia	The manager of electrical work	-	Professional body/chamber
Italy	- Ingegnere industriale - Ingegnere dell'informazione. - Ingegnere industriale iunior - Ingegnere dell'informazione iunior	Subjects characterizing the relevant professional field; professional legislation and ethics.	Universities, on ordinance of the Ministry of Education
Malta	Engineer	An interview with the Engineering Board.	Engineering Board
Poland	Installation Engineer	-	Professional body/chamber
Republic of Ireland	Chartered Engineer	A competence based interview lasting one hour based on five competences: Engineering Knowledge Application of Engineering Knowledge Leadership Communication skills Ethical Practice	Professional body/chamber

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Slovenia	- Responsible project designer - Responsible manager of work - Responsible supervisor	The main subjects of exam: 1. Regulation in the field of spatial planning and construction as well as the chamber system, 2. Protection of the environment, of human health and life, fire protection, protection against natural and other disasters, and safety at work, 3. Standardization and technical regulation, 4. Investment process, project management, economic investments, costs and calculations 5. Written part-making project	Professional body/chamber
Slovenia	Responsible auditor	Knowledge of methods and techniques in the audit of certain types of plans and knowledge of the regulations and rules of good practice in Regulation in the field of spatial planning and construction as well as the chamber system, protection of the environment, of human health and life, fire protection, protection against natural and other disasters, and safety at work, Standardization and technical regulation	Professional body/chamber
United Kingdom	Chartered Engineer	All applicants attend a peer review interview to determine whether they meet the level of competence required in their chosen discipline	Professional body/chamber
United Kingdom	Chartered IT Professional	Interview by peer review in an area of specialism in the IT profession. The breadth of the IT profession is defined as the skills and competences included in the Skills Framework for the Information Age (SFIA)	Professional body/chamber
United Kingdom	Registered IT Technician	All applicants must submit evidence that they can meet the level of competence set out in the standard in an area of specialism in the IT profession - an area of skill included in the Skills Framework for the Information Age (SFIA)	Professional body/chamber
United Kingdom	Chartered Engineer (CEng)	Review of experience against all of the individual competences/commitments in the UKSPEC framework.	Professional body/chamber
United Kingdom	Incorporated Engineer (IEng)	Competence and commitment requirements as defined in UK SPEC.	Professional body/chamber

Tab. 4.3.4.: Entrance exams (Electrotechnology Engineers)

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Overview of CPD systems

- *Are there any continuous professional development requirements?*
- *How is the continuous professional development (CPD) system organised?*
- *How are the CPD requirements regulated?*
- *Is a disciplinary system in force?*

Legend:

	The profession is not regulated in general

Country		Continuous professional development (CPD) requirements	Organisation of CPD requirements		Regulation of CPD requirements			Disciplinary system in force
			Obligatory without sanctions	Obligatory with sanctions	Law	Professional body	Standard	
AT	P1	Yes	x		x	x		Yes [1)]
	P2	No						Yes [2)]
HR	P1	No						Yes [3)]
CY		No						Yes [4)]
DK								
EE		Yes	x [5)]	x [5)]	x	x	x	No
FR								
DE	P1	Yes		x depends on regulation at Länder level		x		Yes [6)]
	P2	No	No	No	No	No		No
HU	P1	Yes		x	x			Yes [7)]
	P2	Yes		x	x	x		Yes [7)]
IT	P1	Yes		x		x		Yes [8)]
	P2	Yes		x		x		Yes [8)]
	P3	Yes		x		x		Yes [8)]
	P4	Yes		x		x		Yes [8)]

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

LV								
LI	P1	No						No
	P2	No						No
MT		No						Yes [9)]
NL								
PL		Yes	x			x		Yes [10)]
PT	P1	No						Yes [11)]
	P2	No						Yes [11)]
IE		Yes		x		x		Yes [12)]
RO								
SI	P1	No						Yes [13)]
	P2	No						Yes [13)]
	P3	No						Yes [13)]
	P4	No						Yes [13)]
ES	P1	No						Yes [15)]
	P2	Yes	Others [14)]					Yes [16)]
SE								
CH		No						Yes [17)]
UK	P1	Yes	x			x	x	Yes [19)]
	P2	Yes		x		x	x	Yes [19)]
	P3	Yes		x		x	x	Yes [20)]
	P4	Yes	Others [18)]			x		Yes [21)]
	P5	Yes	Others [18)]			x		Yes [21)]
	P6	Yes	Others [18)]			x		Yes [21)]
	P7	Yes	Others [18)]			x		Yes [21)]

1)	Code of conduct with sanctions
2)	Binding rules for conduct established by law and sanctioned by public authorities.
3)	Temporary or permanent interdiction
4)	Disciplinary Board
5)	Optional
6)	Consulting Engineers have specific professional duties. Non-compliance can be sanctioned.
7)	Ethical Rules of the Hungarian Chamber of Engineers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

8)	Territorial Disciplinary Councils composed by different members than the members of the Territorial Professional Order. One Council in each Territorial Professional Order is foreseen. The Code of Conduct approved by the Territorial Professional Order (also based on the Code of Conduct approved by the National Council of Italian Engineers) is applied.
9)	Engineering board has a disciplinary function
10)	by Chamber Disciplinary Commission
11)	Code of conduct and a juridical system in the professional body
12)	Members/registrants must abide by a Code of Ethics and complaints can be made under the Code of Ethics
13)	Disciplinary system is defined by law.
14)	Voluntary. The CPD Accreditation System for Engineers www.acreditacioncogitidpc.es. is an accreditation tool for continuing professional development (CPD) of Spanish engineers on four levels, which offers a documented accreditation of training and experience throughout the professional career of the engineers. It corresponds to a registration as a Chartered Engineer.
15)	The professional body should provide a system for complains and claims to costumers and solve it
16)	Under the rules of the code of Ethics and performance of Technical Industrial Engineering. (Approved in Ordinary Assembly of COGITI on 04/07/2009)
17)	There is a cantonal surveillance authority.
18)	The CPD system is obligatory and embodied within the rules of conduct of the institution and the CPD Code for Registrants.
19)	Each awarding body is obliged to have a disciplinary process in place to deal with any registrants who break the code of conduct. In serious cases registration will be removed.
20)	All registrants are required to abide by their institutions code of conduct. IF the code is broken penalties will be decided through a disciplinary process.
21)	A disciplinary system does exist but, tends to be used only for the most serious infringements.

Tab. 4.3.5.: Requirements for pursuit of the profession of Electrotechnology Engineers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Prevalence of different forms of the exercise of the profession (multiple answers possible)

The results show that professionals are often self-employed. Employed engineers without personal legal authorization play a less important role in the picture of the different forms of exercise of the profession.

- *How is the profession exercised?*

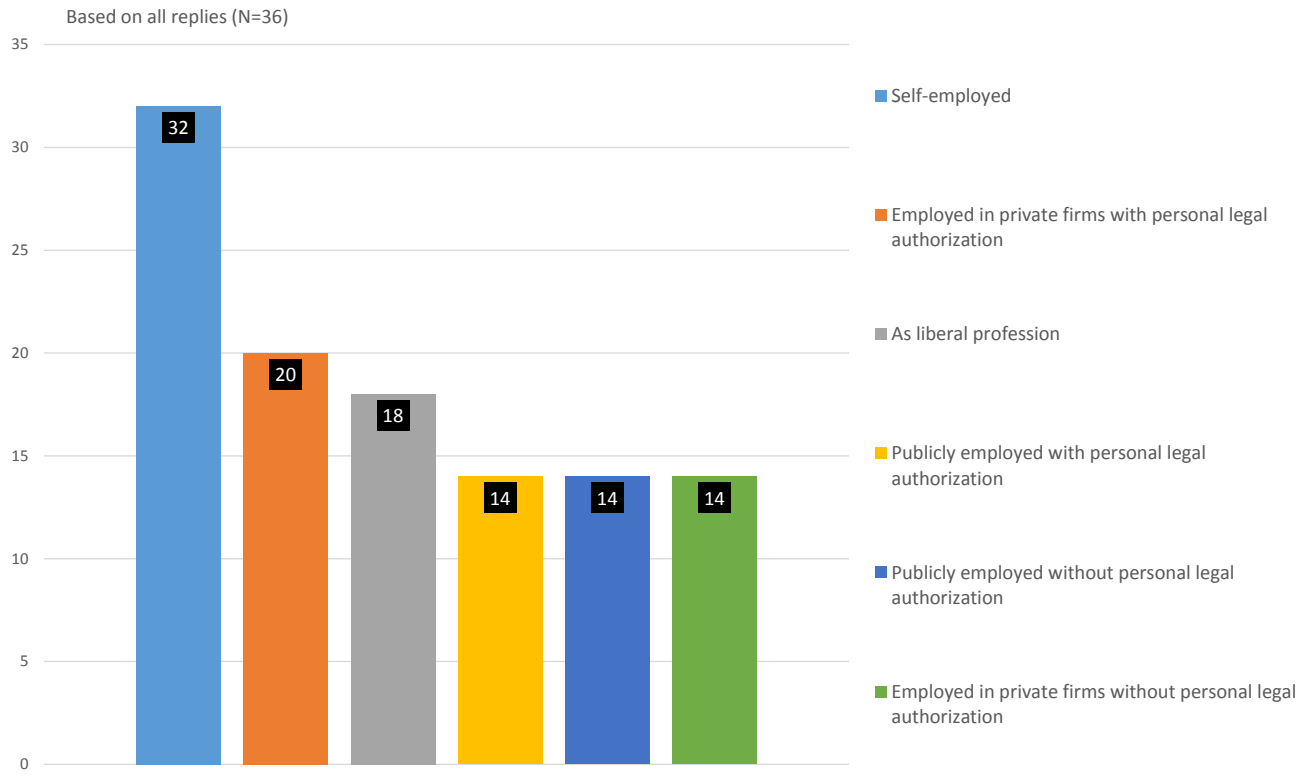


Fig. 4.3.8.: Exercise of the profession of Electrotechnology Engineers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

4.3.2. Information on Engineering Education Programmes/Curricula

Regulation rate of engineering education

- *Is the engineering education for the profession considered as regulated by the national authorities of the country?*

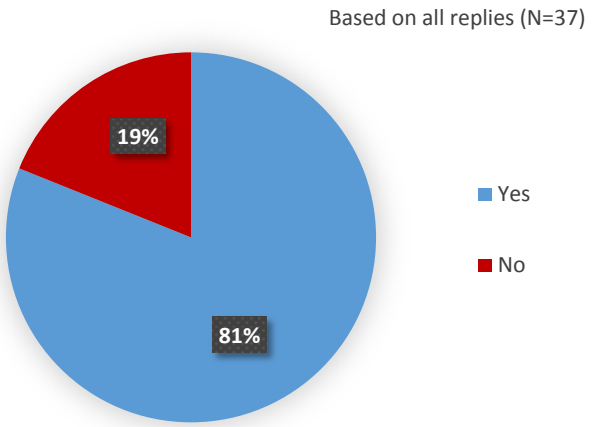


Fig. 4.3.9.: Regulation of engineering education of Electrotechnology Engineers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Overview of requirements of academic training programmes

Legend:		The profession is not regulated in general

***Please note:** This table is only related to academic education programmes/ curricula and NOT to requirements for professional access/use of the title.*

Country		Official minimum length of the (academic) educational programmes in years	Minimum required number of ECTS in (academic) educational programmes	Minimum required percentage of technical ECTS out of the total amount of ECTS	Level of final awarded degree of (academic) educational programme	Minimum educational level (prior duration of studying) for entry to (academic) Master education programmes	Mandatory traineeship during the (academic) educational qualification programme
AUSTRIA	P1	4	241-300	50 - 75%	7	3	In some programmes
	P2	3	180-240	50 - 75%	6 [1)]	3	In some programmes
CROATIA	P1	4	More than 300	Higher than 75%	7	4	No
CYPRUS		4	241-300	not regulated	7	4	No
DENMARK							
ESTONIA		3	180-240	Don´t know	6	Don´t know	Yes
FRANCE		5	241-300	50 - 75%	7	Others [2)]	Yes
GERMANY	P1	3-4 [3)]	180-240	50 - 70%	6	3	No
	P2	3 [4)]	180	Others [5)]	6	3	No
HUNGARY	P1	3	180-240	50 - 75%	6	3	No
	P2	5	241-300	50 - 75%	7	3	No
ITALY	P1	5	241-300	Higher than 75%	7	Over 4	No
	P2	5	241-300	Higher than 75%	7	Over 4	No
	P3	3	180-240	Higher than 75%	6	3	No
	P4	3	180-240	Higher than 75%	6	3	No

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

LATVIA		4	180-240	not regulated	6	3	Yes
LIECHTEN-STEIN	P1	1	Others	Others	Below 6	Others	No
	P2	3	180-240	Higher than 75%	6	3	No
MALTA		4	240	-	6	3	No
THE NETHERLANDS							
POLAND		4	180-240	50-75%	7	3	Yes
PORTUGAL	P1	3	180-240	Higher than 75%	6 and 7	3	No
	P2	3	180-240	Higher than 75%	6 and 7	3	No
REPUBLIC OF IRELAND		Others [6)]	180-240	50 - 75%	7	4	No
ROMANIA		4	240	50 - 75%	6	4	Yes
SLOVENIA	P1	4	180-240	Higher than 75%	7	4	In some programmes
	P2	3	180-240	Higher than 75%	6	4	In some programmes
	P3	4	180-240	Higher than 75%	7	4	In some programmes
	P4	4	180-240	Higher than 75%	7	4	In some programmes
SPAIN	P1	5	More than 300	50-75%	7	4	In some programmes
	P2	4	240	Higher than 75%	6	4	In some programmes
SWEDEN - two types of regulated education:		3	180-300	Others [7)]	6	Others [8)]	No
		5	180-300	Others [7)]	7	Others [8)]	No
SWITZER-LAND		3	180-240	not regulated	6	Others [9)]	Others [10)]
UNITED KINGDOM	P1	4	180-240	50-75%	7	4	No
	P2	3	180-240	50-75%	6	3	No
	P3	Others [11)]	Less than 180	Lower than 50%	Others [12)]	Others [13)]	No
	P4	4	241-300	not regulated	7	3	In some programmes
	P5	3	180-240	not regulated	6	3	In some programmes

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

	P6	Others [14)]	Less than 180	not regulated	Below 6	3	In some programmes
	P7	Others [15)]	Less than 180	not regulated	Below 6	3	In some programmes

[1)]	Level 6 (Bachelor) is the minimum criteria for the academic educational programme, but most professionals have a higher level of their academic educational programme. After the academic education additional professional education is required.
[2)]	Integrated 5 year master level programme
[3)]	Depending on the state law
[4)]	3 years for bachelor in general
[5)]	Depending on the state law; the majority of the states voted in a task force for "more than 50% MINT"
[6)]	Accreditation at various levels - 2,3,4,5 year programmes
[7)]	The Swedish legislation expresses the requirements in the terms of learning outcomes (output criteria) not a number of ECTS (input criteria).
[8)]	Degree of Master of Science in Engineering is a one-tier integrated study program requiring five years of study (300 ECTS). This degree is considered regulated education and training under the PQD 2005/36/EC. There are also one (60 ECTS) and two year (120 ECTS) Master programmes, so called general degrees, in the field of engineering requiring a prior academic degree with the duration of studying of three years (180 ECTS). The latter two types of of degrees do not constitute regulated education and training under the PQD 2005/36/EC.
[9)]	1. Universities of applied sciences: 9 years of compulsory school+ a first vocational education of 3or 4 years plus a professional baccalaureate, or a general baccalaureate plus one year of professional experience; 2. Higher Institute of Technology: 9 years of compulsory school plus a general baccalaureate.
[10)]	There is no legal requirement of formal traineeship, but a traineeship or strong practical qualifications are provided by the schools themselves.
[11)]	Academic qualifications are not mandated. Where programmes of study are undertaken these will usually be in conjunction with work based training.
[12)]	Where academic programmes are taken they will usually be at level 6 or below
[13)]	Where academic programmes are followed they will usually be three years or less
[14)]	Level 3 qualifications typically have a duration of in between 18 to 24 months.
[15]	Can vary depending on the candidate's background but, candidates must demonstrate knowledge up to EQF lv4

Tab. 4.3.6.: Requirements of engineering educational programmes of Electrotechnology Engineers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

4.3.3. Conclusions

- The reply rate in regard to the profession of Electrotechnology Engineers is lower than that for Civil Engineers (22 replying countries out of 32). The interest in Common Training Principles among competent authorities and other stakeholders is not as high as for Civil Engineers but there definitely is an interest. The preferred approach of all stakeholders is that of a Common Training Framework but with a smaller majority (59%) compared to the profession of Civil Engineers.
- The survey shows that half of the replying countries (11 out of 22) have different forms/levels of the profession within the branch of Electrotechnology Engineers. In regard to a CTF approach this currently leaves both options open (level approach or not).
- The survey also shows that the overall level of academic requirements for access to the profession is quite high. A broad majority of the countries requires at least the EQF Levels 6 and 7. This is also reflected in the level of requirements in engineering education programmes.
- Electrotechnology Engineers are often self-employed, but employed engineers without personal legal authorization play a more important role in the picture of the different forms of exercise of the profession than in the other professions.
- In 58% of the professions it is not possible to compensate academic education.
- A majority of professions requires professional experience and/or a professional exam/interview for the access to the profession/use of the professional title.
- The variety of scopes of authorizations is quite broad.
- In regard to the definition of a CTP proposal for Electrotechnology Engineers the project team decided that further input of the stakeholders in regard to their interest would be necessary. The project team is convinced that in principle the structure of the draft CTF proposal for Civil Engineers could be taken over, if seen as necessary by the stakeholders with slight specific amendments for the profession (e.g. question of level approach).

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

4.4. Mechanical and Industrial Engineer

4.4.1. Regulation of the Profession

Regulation rate of the profession

The shown regulation rate is based on the answers received in the survey. It is thus possible that the number of regulated countries is higher due to the fact that countries that did not participate in the survey are not considered in the calculation. Additionally, the engineering education is regulated in a vast majority of the professions.

Although not in the same high degree as Civil Engineers and Geodetic Surveyors the profession of Mechanical and Industrial Engineers fulfils the regulation requirements for Common Training Principles (Articles 49a 2.(b) and 49b 2.(b) of Directive 2005/36/EC on the recognition of professional qualifications).

Please note:
As the number of provided answers by the competent authority varies based on the topic (not all questions were answered by everybody), the number of the main unit (N) is not consistent within the professional group.

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Regulation rate of profession

- *Is the profession of Mechanical and Industrial Engineers regulated (access, title, pursuit, other)?*

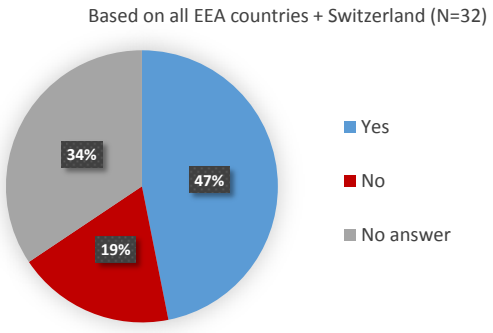


Fig. 4.4.1.: Regulation rate of the profession of Mechanical and Industrial Engineers

Regulation rate of education

- *Is the engineering education for the profession considered as regulated by the national authorities in the country?*

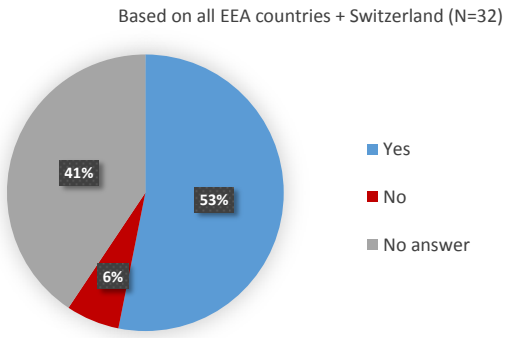


Fig. 4.4.2.: Regulation rate of the education of Mechanical and Industrial Engineers

Prevalence of different forms of regulation (multiple answers possible)

- *Is the profession regulated?*

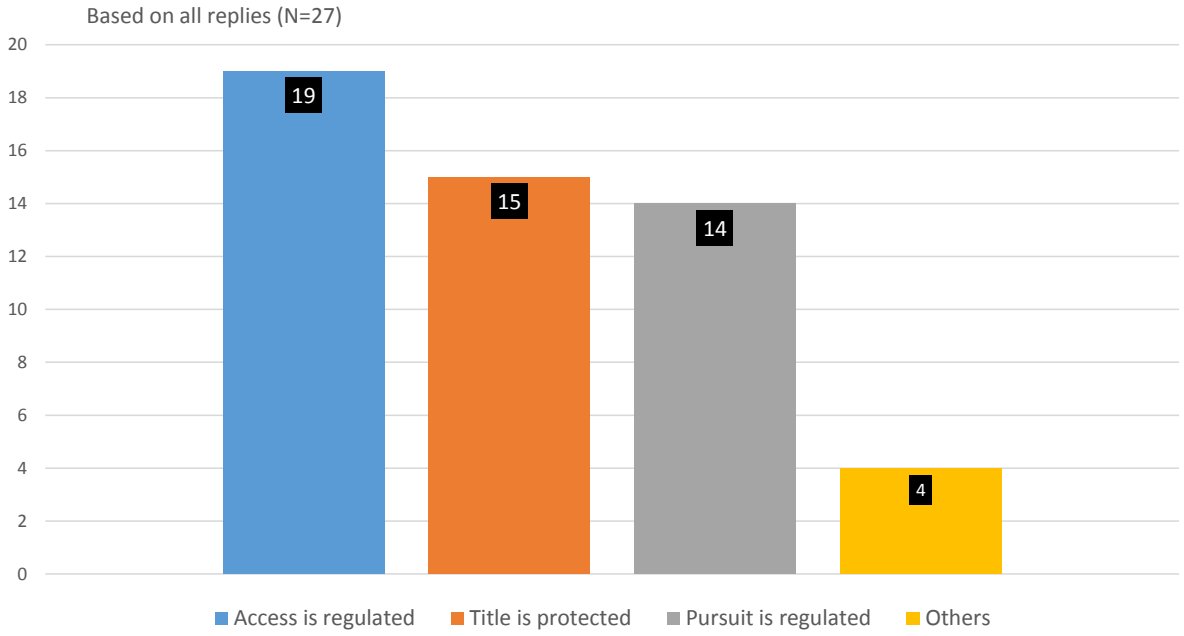


Fig. 4.4.3.: Regulation of the profession of Mechanical and Industrial Engineers

ECEC Secretariat, Vienna
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Different forms of regulation in detail

- *Is the profession regulated?*

Legend:		Profession is not regulated in general

Country		Regulated access to the profession	Regulated pursuit of the profession	Regulated use of the title of the profession	Additional comments
AUSTRIA	P1	x	x	x	
	P2	x	x		Competition law ensures that the title engineering firm - consulting engineers may be only used by licenced professionals.
BULGARIA	P1	x			
	P2		x		
CROATIA	P1	x	x	x	
	P2	x	x	x	
	P3	x	x	x	
CYPRUS		x	x	x	
DENMARK					The profession is not regulated.
FRANCE					The engineering profession is not regulated in France, neither in terms of access to the profession nor its exercise, including the title. But the academic title of "ingénieur diplômé", associated with the name of the higher education institution that delivers the diploma, is regulated. It is therefore a regulation of the education/training and not of the profession.
GERMANY	P1	x		x	Beratende Ingenieure (Consulting Engineers) are only a very small group of the engineers working in Germany

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

	P2			x	In Germany, the professional title "Ingenieur" is protected, including all word compounds, e.g. "Civil Engineer", "Electrical Engineer" etc.
HUNGARY	P1		x		
	P2		x		
ITALY	P1	x	x	x	
	P2	x	x	x	
LATVIA					The profession as such is not regulated in general, but education/training is regulated. The answers in the questionnaire refer to the profession of "Mehānikas inženieris, rūpniecības un ražošanas inženieris". Only certain functions are regulated.
LIECHTENSTEIN		x			
MALTA		x	x	x	
THE NETHERLANDS					The profession is not regulated.
PORTUGAL	P1	x	x	x	Engineers level 1 for people with Engineering 1º cycle degrees and engineers level 2 for people with Engineering 2º cycle Degrees
	P2	x	x	x	
REPUBLIC OF IRELAND					The profession is not regulated by law, but via membership by professional body (Engineers Ireland).
ROMANIA					The profession as such is not regulated, but education/training at universities is regulated.
SLOVENIA	P1	x			
	P2	x			
	P3	x			
	P4	x			
SPAIN	P1	x	x		
	P2	x	x		
SWITZERLAND		x			
SWEDEN					The profession as such is not regulated, but education/training is regulated.
UNITED KINGDOM	P1			x	The engineering profession is not regulated. Chartered bodies award protected titles which are deemed to be regulated for the purpose if the PQD, but registration to use the titles is voluntary and self-regulated. The Engineering Council – based on a Royal Charter - holds the national register for four titles

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

	P2			x	with cross discipline-specific boundaries. These provide a common framework bringing consistency to the regulation of the entire engineering profession. The Engineering Council licences 35 Professional Engineering Institutions to award titles. Alongside these institutions can also have their protected titles conferred by their own Royal Charter (e.g. ICE, IStructE etc.). Requirements are assessed in a similar way, normally as part of the same assessment process.
	P3			x	

Tab. 4.4.1.: Regulation of the profession in the field of Mechanical and Industrial Engineering

Prevalence of different forms of reserved activities (multiple answers possible)

- *Which activities are reserved to the profession?*

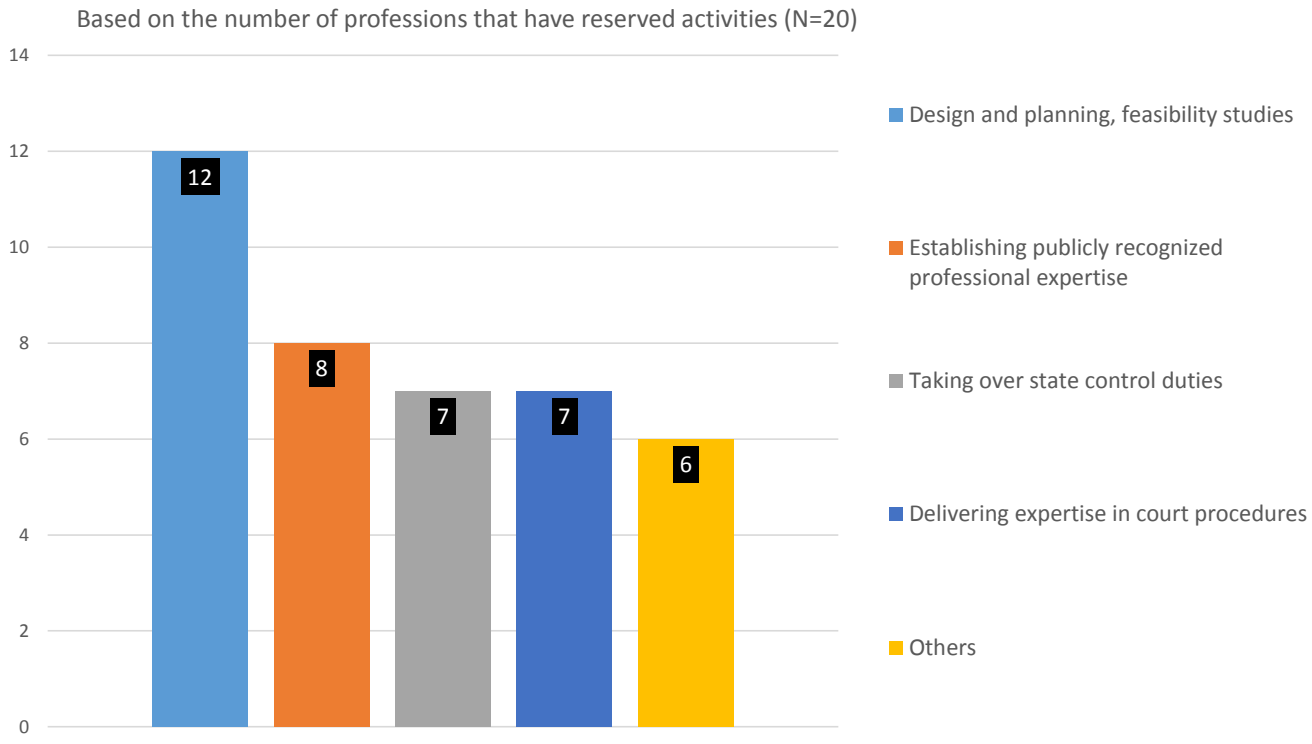


Fig. 4.4.4.: Activities reserved to the profession of Mechanical and Industrial Engineers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Different forms and/or levels of the profession

The survey results show that a number of countries have different levels or forms of professions within one engineering branch. This can mean different entrance requirements and/or different scopes of services and competences or specifications. The professional levels and forms are referred to as professions/professional levels and are the basis of the main unit (N=„all replies“ and not the number of countries) for the calculations in this report.

- *Are there different professions/professional levels with different requirements for access to the profession and/or pursuit of the profession and/or use of the title of the profession in your country?*

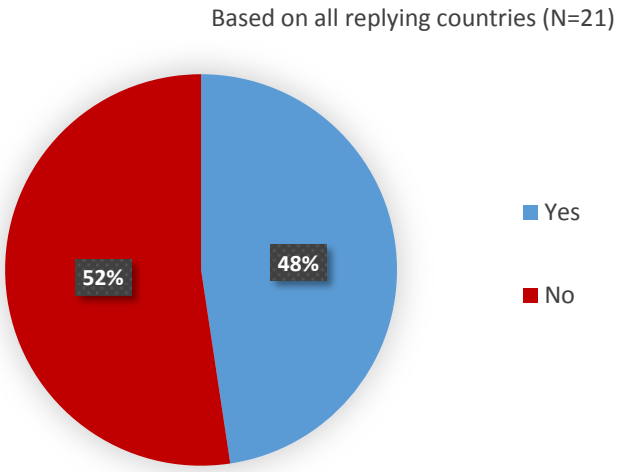


Fig. 4.4.5.: Different professional levels per country (Mechanical and Industrial Engineer)

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

- *What is the minimum educational level for access to the profession and/or use of the professional title (according to the levels of European Qualifications Framework)?*
- *What is the minimum educational level required for access to the profession and/or use of the professional title according to the levels of qualifications in Article 11 of Directive 2005/36/EC on recognition of professional qualifications?*
- *What is the required number of years of academic education for access to the profession and/or use of the professional title?*

Legend: | | The profession is not regulated in general

Country		Different professions/professional levels	Min. educational level (EQF)	Min. educational level (Art. 11)	Min. academic years
AUSTRIA	P1	Ziviltechniker - Ingenieurkonsulent	Higher than 7	e	4
	P2	Ingenieurbüros (Beratende Ingenieure)	Others [1)]	c [2)]	3 [3)]
BULGARIA	P1	Specialist	7	a	3
	P2	Specialist or Engineer in the Investment Design	7	a and c	4 [4)]
CROATIA	P1	Ovlašteni inženjer strojarstva (Chartered Engineer- professional supervision of construction and design)	7	e	5
	P2	Ovlašteni voditelj građenja strojarske struke (Construction manager of the mechanical engineering profession)	6	d	3
	P3	Ovlašteni voditelj radova strojarske struke (Performance manager of the mechanical engineering profession)	6	d	3
CYPRUS		Mechanical Engineer	6	e	4
DENMARK					
FRANCE					
GERMANY	P1	Beratender Ingenieur	6	d -e [5)]	3-4 [6)]
	P2	Ingenieur	6	d	3 [7)]
HUNGARY	P1	BSc Mechanical Engineer	6	-	3
	P2	MSc Mechanical Engineer	7	-	5

ECEC Secretariat, Vienna
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

ITALY	P1	Ingegnere industriale iunior	6	d	3
	P2	Ingegnere industriale	7	e	5
LATVIA		Mehānikas inženieris, rūpniecības un ražošanas inženieris [8)]	6	e	4
LIECHTENSTEIN		Konstrukteur	6	c	1
MALTA		Ing	6	d	4
THE NETHERLANDS					
PORTUGAL	P1	Mechanical Engineer, 1st cycles degree	6	d	3
	P2	Mechanical Engineer, 2nd cycles degree	7	e	5
REPUBLIC OF IRELAND		Chartered Engineer	7	e	4+ [9)]
ROMANIA		Engineer	6	e	4
SLOVENIA	P1	Responsible Project Designer	7	d	4
	P2	Responsible Manager of Work	6	d	3
	P3	Responsible Supervisor	7	d	4
	P4	Responsible Auditor	7	d	4
SPAIN	P1	Industrial engineer, Level EQF 7	7	e	5 or 6 [10)]
	P2	Ingeniero Técnico Industrial (Ingeniero Eléctrico, Mecánico, Químico, Electrónico, Textil) Ingeniero	6	e	4
SWEDEN		Profession is not regulated. Two types of regulated education:	6	d	3
			7	e	5
SWITZERLAND		Mechanical engineer/Industrial engineer	Others [11)]	d	3
UNITED KINGDOM	P1	Chartered Engineer (CEng) - awarded by Engineering Council	Others [12)]	e	Others [13)]
	P2	Incorporated Engineer (IEng) - awarded by Engineering Council	Others [14)]	d	Others [15)]
	P3	Engineering Technician (EngTech) - awarded by Engineering Council	Others [16)]	c	Others [17)]

1)	We allocate the educational level at level 7 acc. to the ECF. The EQF/NQF mapping of vocational qualifications has not been implemented in Austria yet. The assignment to level 7 is an assessment of the competent authority.
2)	Level c is the minimum level, level d and e also lead to the profession.
3)	Minimum of 3 years academic education required; alternative education is also possible: 5 years technical secondary education (and 6 years professional experience and licensing examination), corresponding to Art. 11 level c ii) Dir. 2005/36/EG.

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

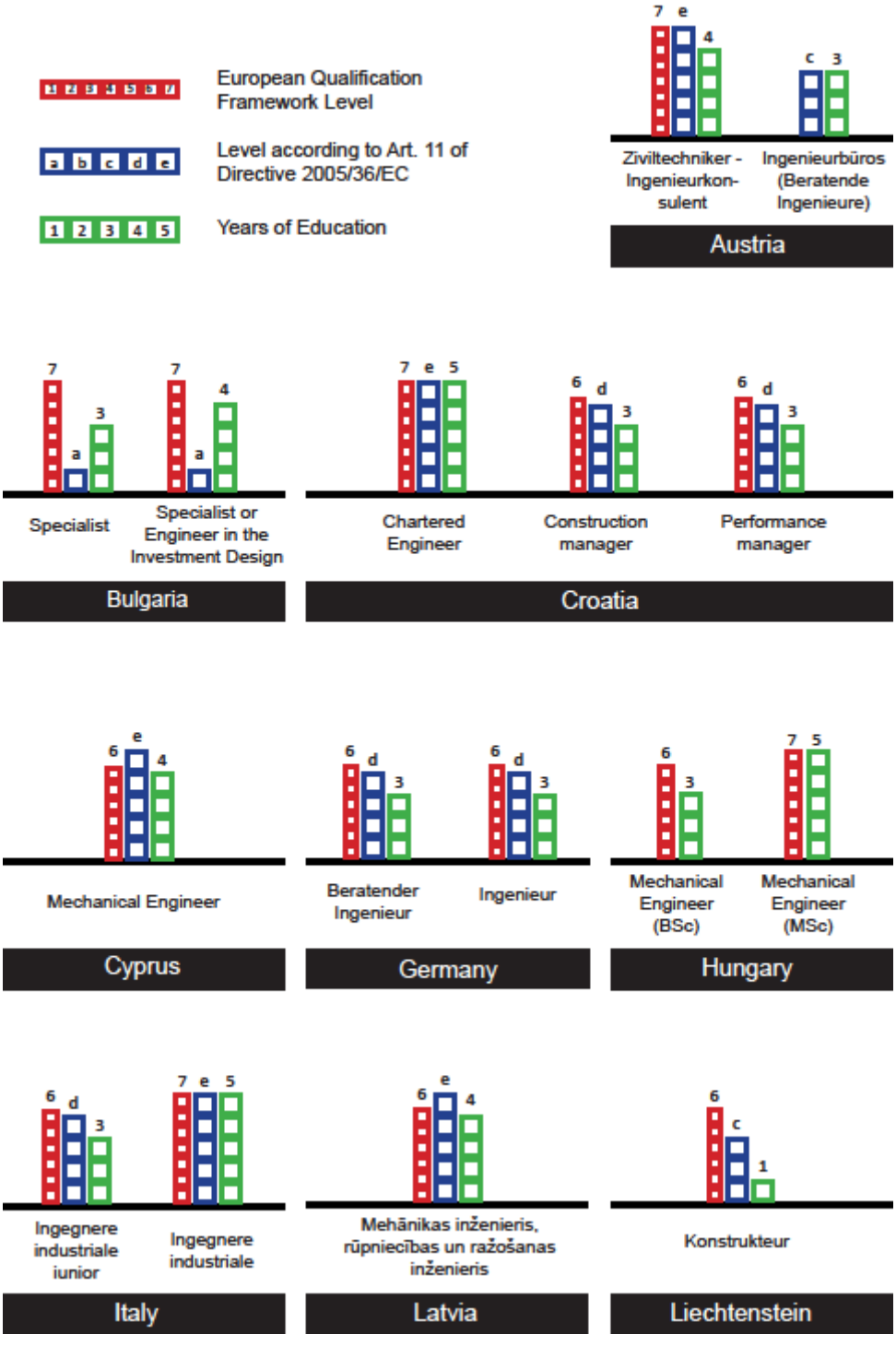
4)	4 years for bachelor and 5 for MD
5)	Differs at Länder level
6)	Depending on the state law
7)	Bachelor
8)	Regulated are only certain functions of the profession, such as education
9)	Usually a second cycle degree (5 years) but we are outcomes based rather than prescriptive years
10)	Depends on the University, minimum of 5 maximum 6
11)	The requested degree is a Bachelor, but the official classification in the EQF 6 has not been officially decided.
12)	The exemplifying academic qualification is Level 7. Non-formal and informal learning is assessed to this level.
13)	13 years of primary/secondary schooling + typically 4 years for an exemplifying academic qualification (integrated Masters or Bachelor + Masters). Learning outcomes are the defining criteria, not duration of study or student workload.
14)	The exemplifying academic qualification is Level 6. Non-formal and informal learning is assessed to this level.
15)	13 years of primary/secondary schooling + typically 3 years for an exemplifying academic qualification (Bachelor). Learning outcomes are the defining criteria, not duration of study or student workload.
16)	The exemplifying academic qualification is Level 3 or higher. Non-formal and informal learning is assessed to this level.
17)	13 years of primary/secondary schooling. Learning outcomes are the defining criteria, not duration of study or student workload.

Tab. 4.4.2.: Professions/professional levels and educational access requirements in the field of Mechanical and Industrial Engineering

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Overview of minimum (academic) training requirements for access to the profession

***Please note:** Only distinct levels and numbers of years were considered in this figure. When more than one level/number was entered for a profession/professional level, only the minimum level/number was considered. For further details please see Tab. 4.4.2.*



***ECEC Secretariat,** Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

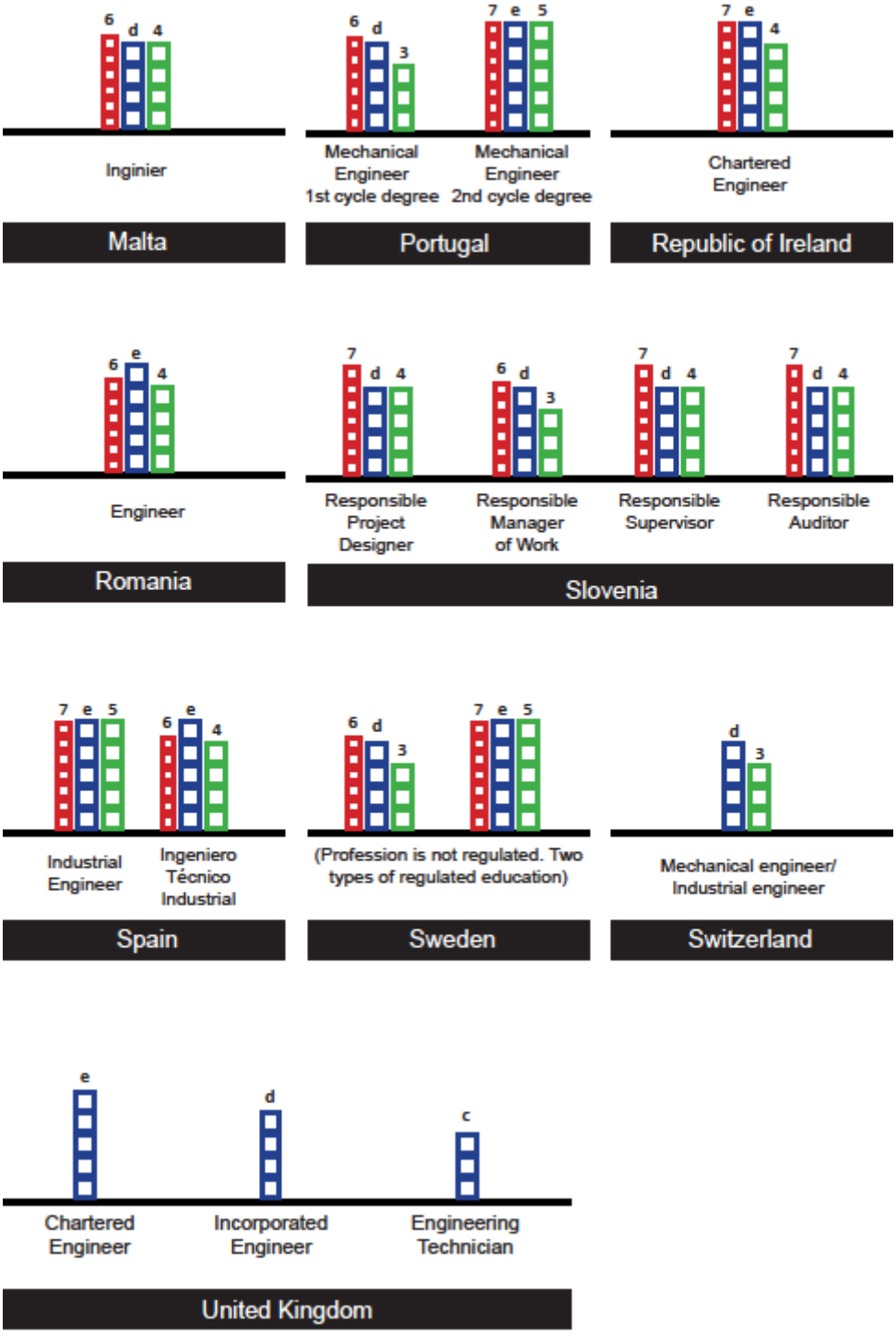


Fig. 4.4.7.: Educational Access requirements of Mechanical and Industrial Engineers in comparison

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Rate of professions for which it is possible/not possible to compensate academic education requirements

- *Can educational requirements be fully or partly compensated (extraordinary achievements approach, competence based assessment, etc.)?*

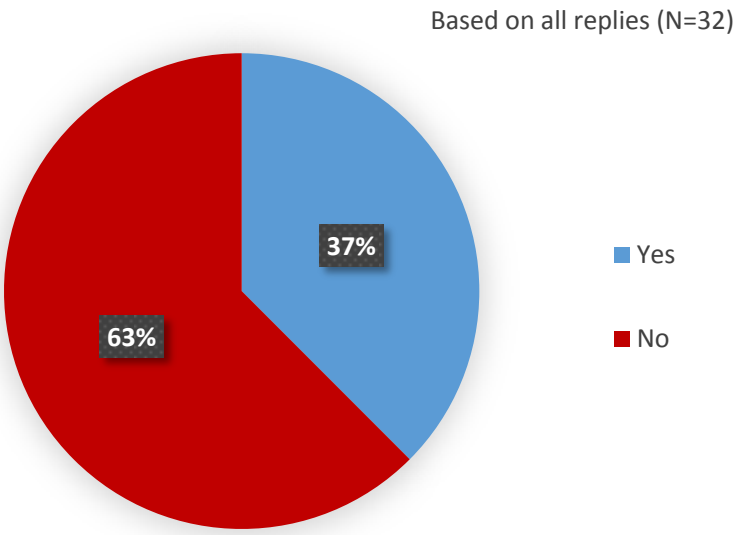


Fig. 4.4.7.: Compensation of requirements of academic education of Mechanical and Industrial Engineers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Overview of additional requirements for access to the profession

- *Is there a requirement of professional experience or professional traineeship for the access to the profession and/or use of the professional title?*
- *How many years of professional experience/professional traineeship are required?*
- *When can the professional experience/professional traineeship be obtained?*
- *Is an entrance exam/entrance interview required for access to the profession and/or use of the professional title?*
- *Is a registration required for access to the profession and/or use of the professional title?*
- *How is the registration regulated?*
- *Is a personal professional indemnity insurance required for access to the profession/use of the professional title?*
- *Is liability insurance required within companies?*
- *Are there any other requirements for access to the profession?*

Legend:

	Profession is not regulated in general

Country		Professional experience/professional traineeship required	Years of professional experience/professional traineeship required	Obtainment of professional experience/ professional traineeship		Requirement of entrance exam/ entrance interview	Requirement of registration	Requirement of personal professional indemnity insurance	Requirement of liability insurance within companies	Other requirements for access to the profession
				Partly before/partly after final degree	After final degree					
AT	P1	Yes	3		**x**	Yes	Mandatory	No	No	No
	P2	Yes	3 or 6 [1)]		**x** [2)]	Yes	Mandatory	No	No	No
BG	P1	Yes	1	**x** [3)]		Yes	No	No	No	No
	P2	Yes	2	**x** [3)]		Yes	No	No	No	No
HR	P1	Yes	2 or 4 [1)]		**x**	No	Mandatory	Yes	No	No
	P2	Yes	3 or 5 [1)]		**x**	No	Mandatory	Yes	No	No
	P3	Yes	2 or 4 [1)]		**x**	No	Mandatory	Yes	No	No

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

CY		No				No	Mandatory	Others [4)]	Yes	No
DK										
FR										
DE	P1	Yes	2-5 [5)]		**x**	Yes	Mandatory	Yes	Yes	No
	P2	No				No [6)]		No	No	No
HU	P1	No				No		No	No	Yes [7)]
	P2	No				No		No	No	No
IT	P1	No				Yes	Mandatory	Yes	Others [8)]	No
	P2	No				Yes	Mandatory	Yes	Others [8)]	No
LV										
LI		Yes	1		**x**	No	Mandatory	No	No	Yes [9)]
MT		Yes	3	**x**		Yes	-	Yes	Others [24)]	No
NL										
PT	P1	Yes	6 [10)]		**x**	No	Mandatory	Yes	No	No
	P2	Yes	5 [10)]		**x**	No	Mandatory	Yes	No	No
IE		Yes	3-4 [11)]		**x**	Yes	Voluntary	Yes	No	Yes [12)]
RO										
SI	P1	Yes	3-5		**x**	Yes	Mandatory	No	Yes	Yes [13)]
	P2	Yes	3-5		**x**	Yes	Mandatory	No	Yes	Yes [13)]
	P3	Yes	3-5		**x**	Yes	Mandatory	No	Yes	Yes [13)]
	P4	Yes	3-5		**x**	Yes	Mandatory	No	Yes	Yes [13)]
ES	P1	No				No	Mandatory	Others [14)]	Others [15)]	No
	P2	No				No	Mandatory	Yes	Yes	Yes [16)]

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

SE										
CH		No				No	Mandatory	No	No	Yes [17]
	P1	Yes	Others [18]	Others [19]		Yes	Voluntary	No	Others [20]	[21]
	P2	Yes	Others [22]	Others [19]		Yes	Voluntary	No	Others [20]	[21]
UK	P3	Yes	Others [23]	Others [19]		Yes	Voluntary	No	Others [20]	[21]

[1]	Depending on the previous education
[2]	Acc. to Art. 18 Trade Act (GewO) the professional activity must suitable for conveying the experiences and knowledge necessary to independently practise the profession of consulting engineers. Generally, this means it must be obtained after a final degree.
[3]	Before the final degree
[4]	Yes for legal persons, not for private persons
[5]	2-5 years depending on state law
[6]	Voluntary membership in professional body/chamber is possible
[7]	For right of independent work: exam at the chamber on the legal regulation of the profession
[8]	Yes, but only if the engineer should be responsible for planning and/or survey activities.
[9]	Reliability
[10]	Exemption for those who have 5-6 years of professional experience after the final degree
[11]	Depends on the experience usually 3-4 years minimum
[12]	CPD - 5 days per year
[13]	Professional exam
[14]	For certain jobs it is
[15]	In certain cases
[16]	Compulsory membership with a professional body (Colegio professional)
[17]	There are requirement of good standing, a void criminal record, and a prove of having full exercise of civil rights.
[18]	No specific time-served period is defined. The period must be sufficient for the engineer to develop professional competence to the level described in the UK Standard for Professional Engineering Competence. For someone entering a supervised professional development programme, following an accredited integrated Masters degree programme, this would typically be 4-5 years.
[19]	The timing of initial professional development is not prescribed. It is necessary to distinguish between initial professional development, which includes training and formation at pre-professional level, and professional experience where the engineer at the professional level. Initial (pre-)professional development may start before, during or after formal study. It may be combined as part of an apprenticeship or part-time study programme. Professional experience may start during the course of initial professional development as the engineer becomes competent to work unsupervised.
[20]	Not as a specific requirement of engineering registration. Company law and contracts may require liability insurance or make it highly desirable.
[21]	An important responsibility of registrants is commitment to a code of professional conduct and to maintain their competence through continuing professional development. These are assessed through the professional review and re-affirmed through annual renewal of membership/registration.

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

22)	No specific time-served period is defined. The period must be sufficient for the engineer to develop professional competence to the level described in the UK Standard for Professional Engineering Competence. For someone entering a supervised professional development programme, following an accredited Bachelors degree programme, this would typically be around 3 years, often more. The average age of registration as an Incorporated Engineers is 30-35.
23)	No specific time-served period is defined. The period must be sufficient for the engineer to develop professional competence to the level described in the UK Standard for Professional Engineering Competence. For someone entering a supervised professional development programme, following an approved qualification or Apprenticeship, this would typically be around 3 years. The average age of registration as an Engineering Technician is 30-35.
24)	Warranted members have to be insured.

Tab. 4.4.3.: Other requirements (Mechanical and Industrial Engineers)

Details on different forms of entrance examinations/interviews

(only countries in which entrance exams/entrance interviews are required for access to the profession and/or the use of the professional title)

- *What are the main subjects?*
- *Who is responsible to hold the exam/interview?*

Country	Profession	Main subjects of entrance exam	Responsible institution that conducts the exam/interview
Austria	Ziviltechniker - Ingenieurkonsulent	Austrian administrative law, business administration, legal and professional regulation of the special professional field (incl. standards), regulations of the special professional field, professional law and ethics of the profession	Public authority
Austria	Ingenieurbüro (Beratende Ingenieure) - engineering firms - consulting engineers	Professional laws and ethics, relevant laws, regulations and standards with in-depth professional and technical analysis, performance of engineering services, controlling, business administration, public procurement, calculation	Chamber which fulfills the task of a public authority. The chairman of the examination commission is a public servant.
Bulgaria	Specialist	-	Professional body/chamber
Italy	- Ingegnere industriale - Ingegnere industriale iunior	Subjects characterizing the relevant professional field; professional legislation and ethics.	Universities, on ordinance of the Ministry of Education
Malta	Inginier	An interview with the Engineering Board	Public authority
Republic of Ireland	Chartered Engineer	A competence based interview lasting one hour based on five competences: Engineering Knowledge Application of Engineering Knowledge Leadership Communication skills Ethical Practice	Professional body/chamber

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Slovenia	- Responsible project designer - Responsible manager of work - Responsible supervisor	The main subjects of exam: 1. Regulation in the field of spatial planning and construction as well as the chamber system, 2. Protection of the environment, of human health and life, fire protection, protection against natural and other disasters, and safety at work, 3. Standardization and technical regulation, 4. Investment process, project management, economic investments, costs and calculations 5. Written part-making project	Professional body/chamber
Slovenia	Responsible Auditor	The main subjects of exam: Knowledge of methods and techniques in the audit of certain types of plans and knowledge of the regulations and rules of good practice in Regulation in the field of spatial planning and construction as well as the chamber system, protection of the environment, of human health and life, fire protection, protection against natural and other disasters, and safety at work, Standardization and technical regulation	Professional body/chamber
United Kingdom	Chartered Engineer	The professional review interview will explore the five areas of competence and commitment set out in UK-SPEC, as applied to the discipline of registration (eg Mechanical). The five areas are A Use a combination of general and specialist engineering knowledge and understanding to optimise the application of existing and emerging technology. B Apply appropriate theoretical and practical methods to the analysis and solution of engineering problems. C Provide technical and commercial leadership. D Demonstrate effective interpersonal skills. E Demonstrate a personal commitment to professional standards, recognising obligations to society, the profession and the environment. These are divided into 18 sub-categories.	Professional body/chamber
United Kingdom	Incorporated Engineer	The professional review interview will explore the five areas of competence and commitment set out in UK-SPEC, as applied to the discipline of registration (eg Mechanical). The five areas are A Use a combination of general and specialist engineering knowledge and understanding to optimise the application of existing and emerging technology. B Apply appropriate theoretical and practical methods to the analysis and solution of engineering problems. C Provide technical and commercial leadership. D Demonstrate effective interpersonal skills. E Demonstrate a personal commitment to professional standards, recognising obligations to society, the profession and the environment. These are divided into 17 sub-categories.	Professional body/chamber

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

United Kingdom	Engineering Technician	The professional review will explore the five areas of competence and commitment set out in UK-SPEC, as applied to the discipline of registration (eg Mechanical). The five areas are A Use a combination of general and specialist engineering knowledge and understanding to optimise the application of existing and emerging technology. B Apply appropriate theoretical and practical methods to the analysis and solution of engineering problems. C Provide technical and commercial leadership. D Demonstrate effective interpersonal skills. E Demonstrate a personal commitment to professional standards, recognising obligations to society, the profession and the environment. These are divided into 14 sub-categories.	Professional body/chamber

Tab. 4.4.4.: Entrance exams (Mechanical and Industrial Engineers)

Overview of CPD systems

- *Are there any continuous professional development requirements?*
- *How is the continuous professional development (CPD) system organised?*
- *How are the CPD requirements regulated?*
- *Is a disciplinary system in force?*

Legend:	
	Profession is not regulated in general

Country		Continuous professional development (CPD) requirements	Organisation of CPD requirements		Regulation of CPD requirements		Disciplinary system in force
			Obligatory without sanctions	Obligatory with sanctions	Law	Professional body	
AT	P1	Yes		**x**	**x**	**x**	Yes [1)]
	P2	No					Yes [2)]
BG	P1	Yes	**x** [3)]	**x** [3)]		**x**	

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

	P2	Yes	x [3]	x [3]	Others [4]		No
HR	P1	Yes	x		x		No
	P2	Yes	x		x		No
	P3	Yes	x		x		No
CY		No					Yes [5]
DK							
FR							
DE	P1	Yes		x - depends on regulation at Länder level		x	Yes [6]
	P2	No					No
HU	P1	Yes		x	x		Yes [7]
	P2	Yes		x	x	x	Yes [7]
IT	P1	Yes		x		x	Yes [8]
	P2	Yes		x		x	Yes [8]
LV							
LI		No					No
MT		No					Yes [9]
NL							
PT	P1	No					Yes [10]
	P2	No					Yes [10]
IE		Yes		x		x	Yes [11]
RO							
SI	P1	No					Yes [12]
	P2	No					Yes [12]
	P3	No					Yes [12]
	P4	No					Yes [12]
ES	P1	No					Yes [13]
	P2	Yes	Others [14]			x	Yes [15]
SE							
CH		No					Yes [16]

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

UK	P1	Yes	Others [17]		x	[18]
	P2	Yes	Others [17]		x	[18]
	P3	Yes	Others [17]		x	[18]

[1]	Code of Conduct with sanctions
[2]	Binding rules for conduct established by law and sanctioned by public authorities.
[3]	Optional
[4]	Regulated by professional organisations
[5]	Disciplinary Board
[6]	Consulting Engineer have specific professional duties. Non-compliance can be sanctioned.
[7]	Ethical Rules of the Hungarian Chamber of Engineers
[8]	Territorial Disciplinary Councils composed by different members than the members of the Territorial Professional Order. One Council in each Territorial Professional Order is foreseen. The Code of Conduct approved by the Territorial Professional Order (also based on the Code of Conduct approved by the National Council of Italian Engineers) is applied.
[9]	The Engineering Board is responsible has a disciplinary function.
[10]	Conduct code and a juridical system in the professional body
[11]	Members/registrants must abide by a Code of Ethics and complaints can be made under the Code of Ethics
[12]	Disciplinary system is defined by law.
[13]	The professional body should provide a system for complaints and claims to customers and users of the services of its members, and solve them. The transposition of the Directive 123/2006 established it that way
[14]	The CPD Accreditation System for Engineers www.acreditacioncogitidpc.es. is an accreditation tool for continuing professional development (CPD) of Spanish engineers on four levels, which offers a documented accreditation of training and experience throughout the professional career of the engineers. It corresponds to a registration as a Chartered Engineer.
[15]	Under the rules of the code of Ethics and performance of Technical Industrial Engineering. (Approved in Ordinary Assembly of COGITI on 04/07/2009)
[16]	A cantonal disciplinary commission is competent to sanction any misconduct in the pursuing of the profession.
[17]	CPD is an obligation for all registrants. Policy on sanctions is a matter for the registering institution.
[18]	Regulated in the sense that professional engineering institutions are required to have code of professional conduct, investigation and disciplinary procedures as part of the conditions of their licence. Complaints against members/registrants must be investigated and sanctions may be imposed, including removal from the register.

Tab. 4.4.5.: Requirements for pursuit of the profession of Mechanical and Industrial Engineers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Prevalence of different forms of the exercise of the profession (multiple answers possible)

The results clearly show that professionals are often self-employed or even liberal professionals. Employed engineers without personal legal authorization play a less important role in the picture of the different forms of exercise of the profession.

- *How is the profession exercised?*

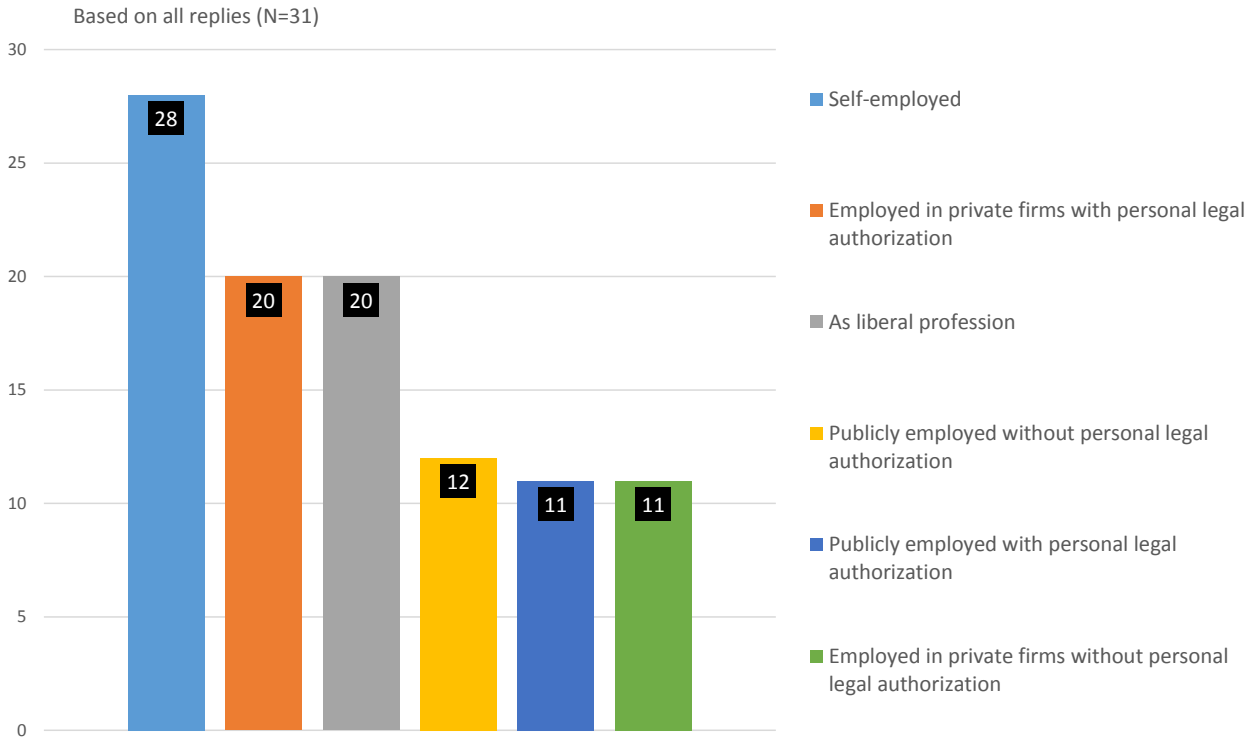


Fig. 4.4.8.: Exercise of the profession of Mechanical and Industrial Engineers

ECEC Secretariat, Vienna
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

4.4.2. Information on Engineering Education Programmes / Curricula

Regulation rate of engineering education

- *Is the engineering education for the profession considered as regulated by the national authorities of the country?*

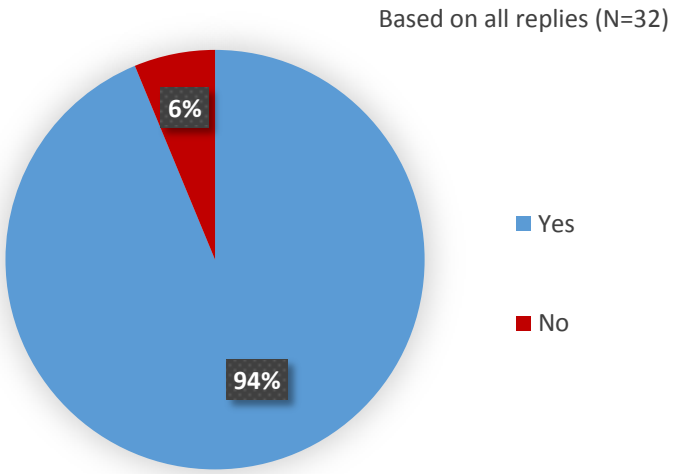


Fig. 4.4.9.: Regulation of engineering education of Mechanical and Industrial Engineers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Overview of requirements of academic training programmes

- *What is the official minimum length of the (academic) educational programmes in years?*
- *What is the minimum required number of ECTS in the (academic) educational programmes?*
- *What is the minimum required percentage of technical ECTS out of the total amount of the required number of ECTS in the (academic) educational programmes?*
- *What is the level (European Qualifications Framework) of the final awarded degree of the (academic) educational programmes?*
- *What is the minimum educational level (prior duration of studying) for entry to the (academic) Master educational programmes?*
- *Is mandatory traineeship during the (academic) educational qualification programme foreseen?*

Legend:		Profession is not regulated in general

<u>Please note:</u> This table is only related to academic education programmes/curricula and NOT to requirements for professional access/use of the title.

Country		Official minimum length of the (academic) educational programmes in years	Minimum required number of ECTS in (academic) educational programmes	Minimum required percentage of technical ECTS out of the total amount of ECTS	Level of final awarded degree of (academic) educational programme	Minimum educational level (prior duration of studying) for entry to (academic) Master education programmes	Mandatory traineeship during the (academic) educational qualification programme
AUSTRIA	P1	4	241-300	50 - 75%	7	3	In some programmes
	P2	3	180-240	50 - 75%	6 [1)]	3	In some programmes
BULGARIA	P1	4	180-240	50 - 75%	6 and 7	4	Yes
	P2	4	180-240	50 - 75%	6 and 7	4	Yes
CROATIA	P1	3	180-240	not regulated	7	Over 4	In some programmes
	P2	3	180-240	not regulated	7	Over 4	In some programmes
	P3	3	180-240	not regulated	7	Over 4	In some programmes
CYPRUS		4	241-300	not regulated	7	4	No
DENMARK							
FRANCE		5	241-300	50 - 75%	7	Others [2)]	Yes

***ECEC Secretariat,** Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

GERMANY	P1	3-4 [3)]	180-240	50 - 70%	6	3	No
	P2	3 [4)]	180 [5)]	Others [6)]	6	3	No
HUNGARY	P1	3	180-240	50 - 75%	6	3	No
	P2	5	241-300	50 - 75%	7	3	No
ITALY	P1	3	180-240	Higher than 75%	6	3	No
	P2	5	241-300	Higher than 75%	7	Over 4	No
LATVIA		4	180-240	not regulated	6	3	In some programmes
LIECHTENSTEIN		1	Less than 180	not regulated	Below 6	Lower than 2	No
MALTA		4	240	-	6	4	No
THE NETHERLANDS							
PORTUGAL	P1	3	180-240	Higher than 75%	6 and 7	3	No
	P2	3	180-240	Higher than 75%	6 and 7	3	No
REPUBLIC OF IRELAND		Others [7)]	180-240	50 - 75%	7	4	No
ROMANIA		4	240	50 - 75%	6	4	Yes
SLOVENIA	P1	4	180-240	Higher than 75%	7	Over 4	In some programmes
	P2	3	180-240	Higher than 75%	6	4	In some programmes
	P3	4	180-240	Higher than 75%	7	Over 4	In some programmes
	P4	4	180-240	Higher than 75%	7	Over 4	In some programmes
SPAIN	P1	5	More than 300	50 - 75%	7	4	In some programmes
	P2	4	240	Higher than 75%	6	4	In some programmes
SWEDEN - two types of regulated education		3	180-240	Others [18)]	6	Others [19)]	No
		5	241-300	Others [18)]	7	Others [19)]	No
SWITZERLAND		3	180-240	Others [8)]	Others [9)]	3	In some programmes
UNITED KINGDOM	P1	Others [10)]	Others [11)]	Others [12)]	7	Others [13)]	Others [14)]
	P2	Others [10)]	Others [11)]	Others [12)]	7	Others [13)]	Others [14)]
	P3	Others [15)]	Others [16)]	Others [17)]	Below 6	Others [13)]	Others [14)]

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

1)	Level 6 (Bachelor) is the minimum criteria for the academic educational programme, alternative education is also possible: 5 years technical secondary education (and 6 years professional experience and licensing examination) corresponding to Art. 11 level c ii) Dir. 2005/36/EG
2)	Integrated 5 year master level programme
3)	Depending on the state law
4)	3 years in general for Bachelor
5)	In general 180 ECTS for Bachelor
6)	Depending on the state law; the majority of the states voted in a task force for "more than 50% MINT"
7)	Accreditation at various levels - 2,3,4,5 year programmes
8)	There are strong practical qualifications during the programme, and/or a mandatory traineeship, but the schools can decide the system they want to set up.
9)	The minimal degree is a Bachelor, however the official classification in the level EQF 6 has not been stated.
10)	Typically Bachelor and Bachelor with Honours programmes are 3 years (4 years in Scotland). Integrated Masters (MEng) are 4 years (5 in Scotland). Masters programmes may be one or two years.
11)	Accreditation of engineering programmes is based on delivered outcomes not time-served/workload volume. The Bachelor and Masters descriptors are verified as complying with the European Higher Education Area model.
12)	In order to be accredited, engineering programmes must deliver the full range of learning outcomes set out in the publication Accreditation of Higher Education Programmes. This has been adopted by the Quality Assurance Agency for Higher Education as the Subject Benchmark Statement for Engineering. The learning outcomes do not prescribe the curriculum, but a programme with insufficient technical content would be unlikely to demonstrate that it can deliver the required range of learning outcomes.
13)	Integrated Masters programmes may be entered directly from secondary education. Standalone Masters programmes are typically entered following a three year Bachelor programmes.
14)	Placements are encouraged. Some programmes include a period in industry before or during the study period. Vacation work is encouraged. Some universities will allow students to take time out to gain some work experience before returning to complete their studies.
15)	There is no official minimum. The academic component of qualifications at this level may be one or two years.
16)	Accreditation and approval of engineering programmes is based on delivered outcomes not time-served/workload volume. Engineering Technician education usually combines education, skills and competences.
17)	In order to be approved, engineering programmes must deliver the full range of learning outcomes set out in the publication Approval of Qualifications and Apprenticeships Handbook. The learning outcomes do not prescribe the curriculum, but a programme with insufficient technical content would be unlikely to demonstrate that it can deliver the required range of learning outcomes.
18)	The Swedish legislation expresses the requirements in the terms of learning outcomes (output criteria) not a number of ECTS (input criteria).
19)	Degree of Master of Science in Engineering is a one-tier integrated study program requiring five years of study (300 ECTS). This degree is considered regulated education and training under the PQD 2005/36/EC. There are also one (60 ECTS) and two year (120 ECTS) Master programmes, so called general degrees, in the field of engineering requiring a prior academic degree with the duration of studying of three years (180 ECTS). The latter two types of of degrees do not constitute regulated education and training under the PQD 2005/36/EC.

Tab. 4.4.6.: Requirements of engineering educational programmes of Mechanical and Industrial Engineers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

4.4.3. Conclusions

- The reply rate in regard to the profession of Mechanical and Industrial Engineers is lower than that for Civil Engineers (21 replying countries of 32). The interest in Common Training Principles among competent authorities and other stakeholders is not as high as for Civil Engineers, but there definitely is an interest. The preferred approach of all stakeholders is that of a Common Training Framework but with a smaller majority (56%) compared to the profession of Civil Engineers.
- The survey shows less than half of the replying countries have different forms/levels of the profession within the branch of Mechanical and Industrial Engineers. In regard to a CTF approach this currently leaves both options open (level approach or not).
- The survey also shows that the overall level of academic requirements for access to the profession is quite high. A broad majority of the countries requires at least the EQF Levels 6 and 7. This is also reflected in the level of requirements in engineering education programmes.
- Mechanical and Industrial Engineers are often self-employed or even liberal professionals or employed in private firms with personal legal authorization (all with personal responsibility) and employed engineers without personal legal authorization play a less important role in the picture of the different forms of exercise of the profession.
- Academic education can't be compensated in 63% of the professions, which is less than in the cases of Civil and Environmental Engineer, Geodetic Surveyors and Mining Engineers but more than in the case of Electrotechnology Engineers.
- About half of the professions require professional experience and/or a professional exam/interview for the access to the profession/use of the professional title
- The variety of scopes of authorizations is quite broad.
- In regard to the definition of a CTP proposal for Mechanical and Industrial Engineers the project team decided that further input of the stakeholders in regard to their interest would be necessary.

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

4.5. Mining Engineer

4.5.1. Regulation of the Profession

Regulation rate of the profession

The shown regulation rate is based on the answers received in the survey. It is thus possible that the number of regulated countries is higher due to the fact that countries that did not participate in the survey are not considered in the calculation. Additionally, the engineering education is regulated in a vast majority of the professions.

The regulation rate based on the survey results is the lowest compared to the other professions.

Please note:
As the number of provided answers by the competent authority varies based on the topic (not all questions were answered by everybody), the number of the main unit (N) is not consistent within the professional group.

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Regulation rate of profession

- *Is the profession of Mining Engineers regulated (access, title, pursuit, other)?*

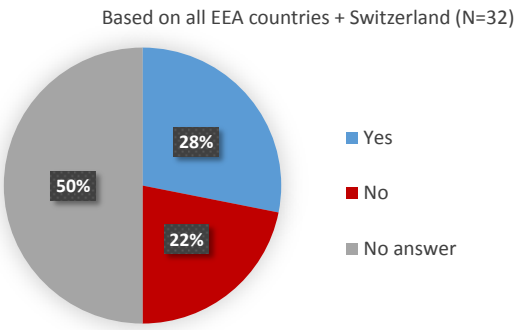


Fig. 4.5.1.: Regulation rate of the profession of Mining Engineers

Regulation rate of education

- *Is the engineering education for the profession considered as regulated by the national authorities of the country?*

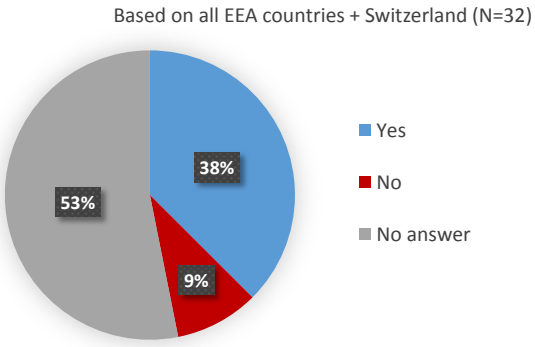


Fig. 4.5.2.: Regulation rate of the education of Mining Engineers

Prevalence of different forms of regulation (multiple answers possible)

- *Is the profession regulated?*

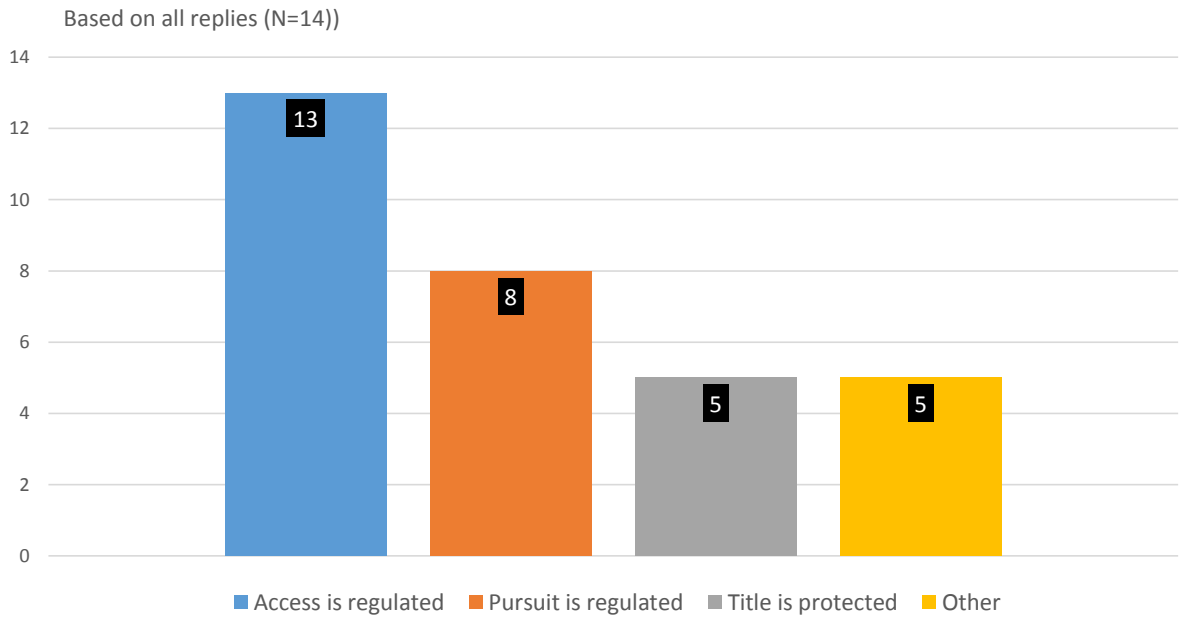


Fig. 4.5.3.: Regulation of the profession of Mining Engineers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Different forms of regulation in detail

- *Is the profession regulated?*

Legend:

	Profession is not regulated in general

Country		Regulated access to the profession	Regulated pursuit of the profession	Regulated use of the title of the profession	Additional comments
AUSTRIA	P1	x	x	x	
	P2	x	x		Competition law ensures that the title engineering firm - consulting engineers may be only used by licenced professionals.
BULGARIA		x	x		
CROATIA		x			
CYPRUS		x	x	x	
CZECH REPUBLIC			x		
DENMARK					The profession is not regulated.
ESTONIA	P1	x			The profession as such (Mining Engineer) is not regulated, but access to the profession and education/training is regulated. Additionally, there is a position of a mandatory "specialist in charge" (of mining activities), that is regulated. The answers in the questionnaire only refer to the professional level of "Mining Engineer" and have been given in reference to the qualifications system run by the Qualifications Authority. By law, only the "specialist in charge" (of mining activities) is regulated. That means that a mining company must have at least one specialist in charge. To become a specialist in charge one needs, in addition to education, to have the required work experience in order to obtain a professional certificate from the Qualifications Authority (the person is "tested" by the appropriate body which can be a professional association).

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

FRANCE					The profession is not regulated.
REPUBLIC OF IRELAND					The profession is not regulated by law, but via membership in professional body (Engineers Ireland).
ITALY	P1	x	x	x	In Italy, the "Title Protected" corresponds to the professional qualification, that is who has the qualification (with a title/denomination) is the only professional who can exercise the profession.
	P2	x	x	x	
LATVIA					The profession as such is not regulated, but education/training is regulated. The answers in the questionnaire refer to the profession of "ieguves rūpniecības inženieris".Only certain functions are regulated.
LIECHTENSTEIN					The profession is not regulated.
THE NETHERLANDS					The profession is not regulated.
PORTUGAL	P1	x	x	x	Engineers level 1 for people with Engineering 1º cycle degrees and engineers level 2 for people with Engineering 2º cycle Degrees
	P2	x	x	x	
ROMANIA					The profession as such is not regulated, but education/training at universities is regulated.
SLOVENIA	P1	x			
	P2	x			
	P3	x			
	P4	x			
SWEDEN					The profession as such is not regulated, but education/training is regulated.

Tab. 4.5.1.: Regulation of the profession in the field of Mining Engineering

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Prevalence of different forms of reserved activities (multiple answers possible)

- *Which activities are reserved to the profession?*

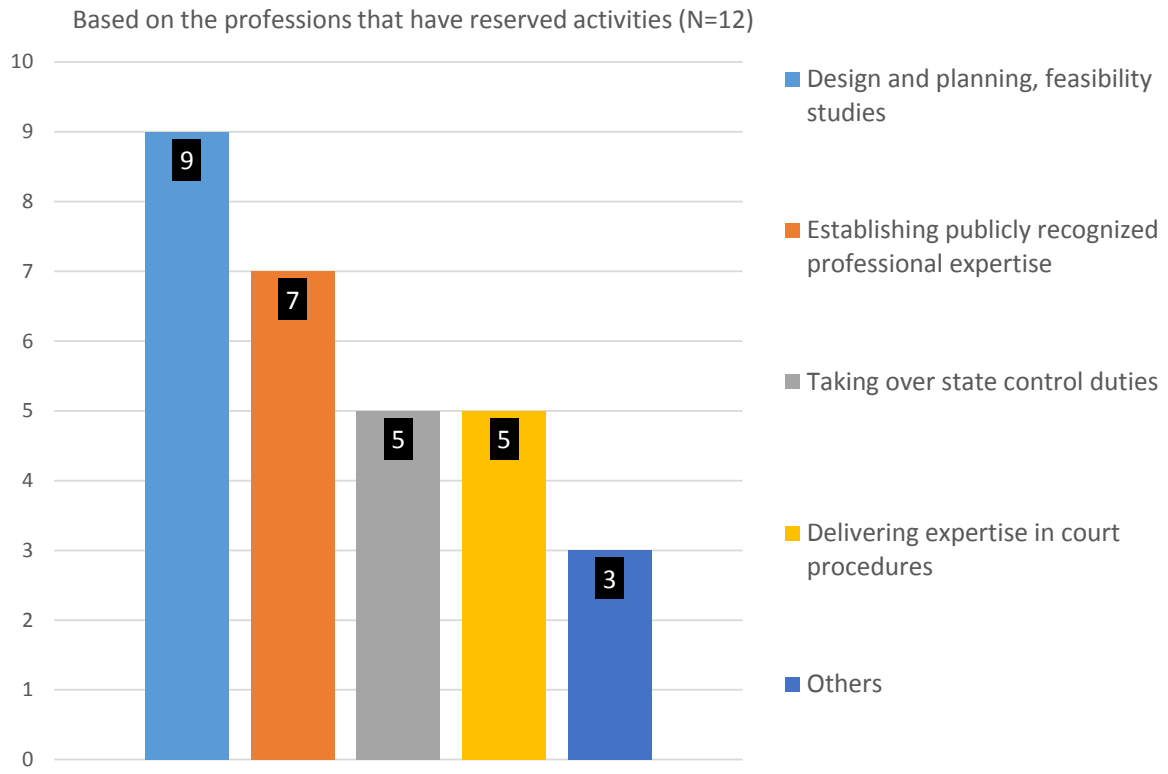


Fig. 4.5.4.: Activities reserved to the profession of Mining Engineers

***ECEC Secretariat,** Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Different forms and/or levels of the profession

The survey results show that a majority of countries has different levels or forms of professions within one engineering branch. This can mean different entrance requirements and/or different scopes of services and competences or specifications. The professional levels and forms are referred to as professions/professional levels and are the basis of the main unit (N=„all replies“ and not the number of countries) for the calculations in this report.

- *Are there different professions/professional levels with different requirements for access to the profession and/or pursuit of the profession and/or use of the title of the profession in your country?*

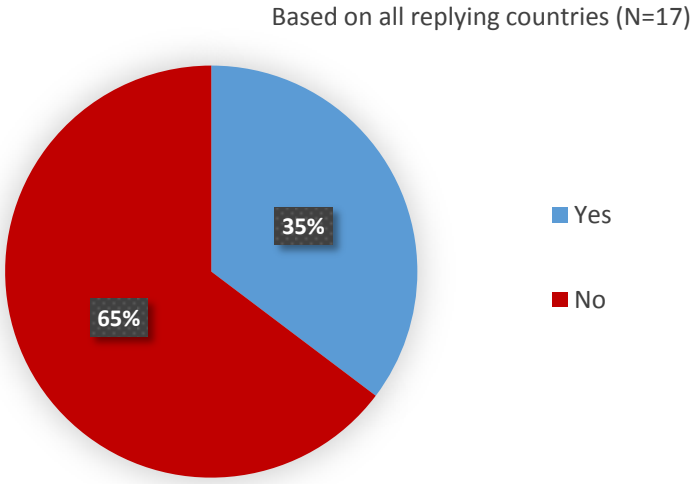


Fig. 4.5.5.: Different professional levels per country (Mining Engineers)

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

- *What is the minimum educational level for access to the profession and/or use of the professional title (according to the levels of European Qualifications Framework)?*
- *What is the minimum educational level required for access to the profession and/or use of the professional title according to the levels of qualifications in Article 11 of Directive 2005/36/EC on recognition of professional qualifications?*
- *What is the required number of years of academic education for access to the profession and/or use of the professional title?*

Legend:	
	The profession is not regulated in general
	No questionnaire submitted for this professional level

Country		Different professions/professional levels	Min. educational level (EQF)	Min. educational level (Art. 11)	Min. academic years
AUSTRIA	P1	Ziviltechniker - Ingenieurkonsulenten	Higher than 7	e	4
	P2	Ingenieurbüros (Beratende Ingenieure)	Others [1)]	c [2)]	3 [3)]
BULGARIA		Mining engineer	5	c	4
CROATIA		Mining engineer	7	e	4
CYPRUS		Mine Engineer	6	e	4
CZECH REPUBLIC		Miner	Higher than 7	e	5
DENMARK					
ESTONIA	P1	Mining Engineer	5 [4)]	d	3
	P2	Certified Mining Engineer	-	-	-
	P3	Accredited Mining Engineer	-	-	-
FRANCE					
REPUBLIC OF IRELAND		Chartered Engineer	7	e	5 [5)]
ITALY	P1	Ingegnere civile e ambientale iunior	6	d	3
	P2	Ingegnere civile e ambientale [6)]	7	e	5

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

LATVIA		Ieguves rūpniecības inženieris [7)]	6	e	4
LIECHTENSTEIN					
THE NETHERLANDS					
PORTUGAL	P1	Mining Engineer 1st cycles degree	6	d	3
	P2	Mining Engineer 2nd cycles degree	7	e	5
ROMANIA		Engineer	6	e	4
SLOVENIA	P1	Responsible Project Designer	7	d	4
	P2	Responsible Manager of Work	6	d	3
	P3	Responsible Supervisor	7	d	4
	P4	Responsible Auditor	7	d	4
SWEDEN		Profession is not regulated. Two types of regulated education:	6	d	3
			7	e	5

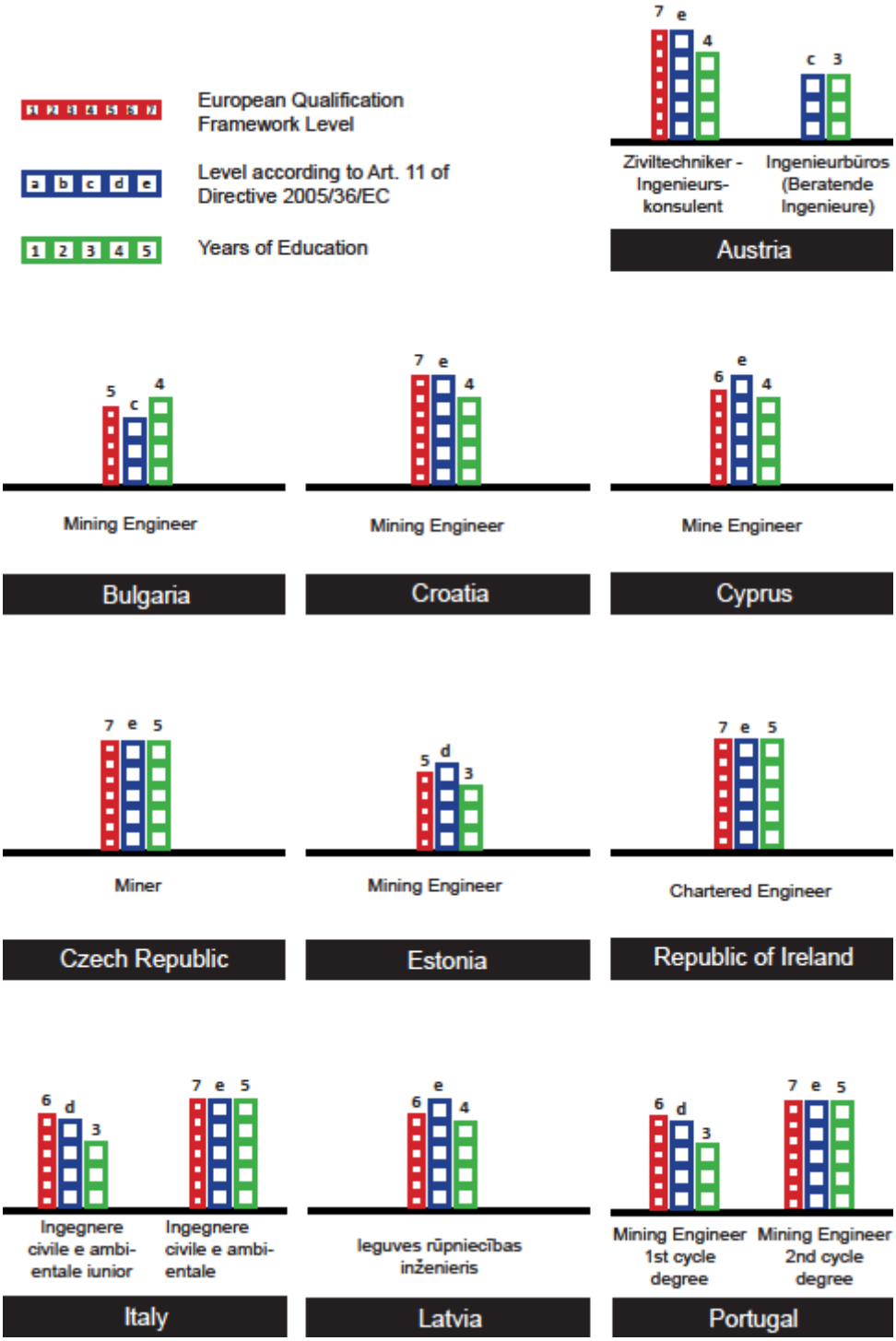
1)	We allocate the educational level at level 7 acc. to the ECF. The EQF/NQF mapping of vocational qualifications has not been implemented in Austria yet. The assignment to level 7 is an assessment of the competent authority.
2)	Level c is the minimum level, level d and e also lead to the profession.
3)	Minimum of 3 years academic education required; alternative education is also possible: 5 years technical secondary education (and 6 years professional experience and licensing examination), corresponding to Art. 11 level c ii) Dir. 2005/36/EG.
4)	The indicated infimum EQF Level is recorded as 5. This reflects the historic case when the level of education was lower. All recently trained engineers are at Level 6 or 7, and most of the earlier trained engineers have upgraded their qualifications (to 6 or 7) through the certification system run by the Estonian Qualifications Authority.
5)	Usually a second cycle degree (5 years) but we are outcomes based rather than prescriptive years
6)	The activities of Mining Engineer are reserved to the profession of Civil and Environmental Engineer
7)	The profession is not regulated, but the education is indeed regulated.

Tab. 4.5.2.: Professions/professional levels and educational access requirements in the field of Mining Engineering

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Overview of minimum (academic) training requirements for access to the profession

***Please note:** Only distinct levels and numbers of years were considered in this figure. When more than one level/number was entered for a profession/professional level, only the minimum level/number was considered. For further details please see Tab. 4.5.2.*



***ECEC Secretariat,** Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

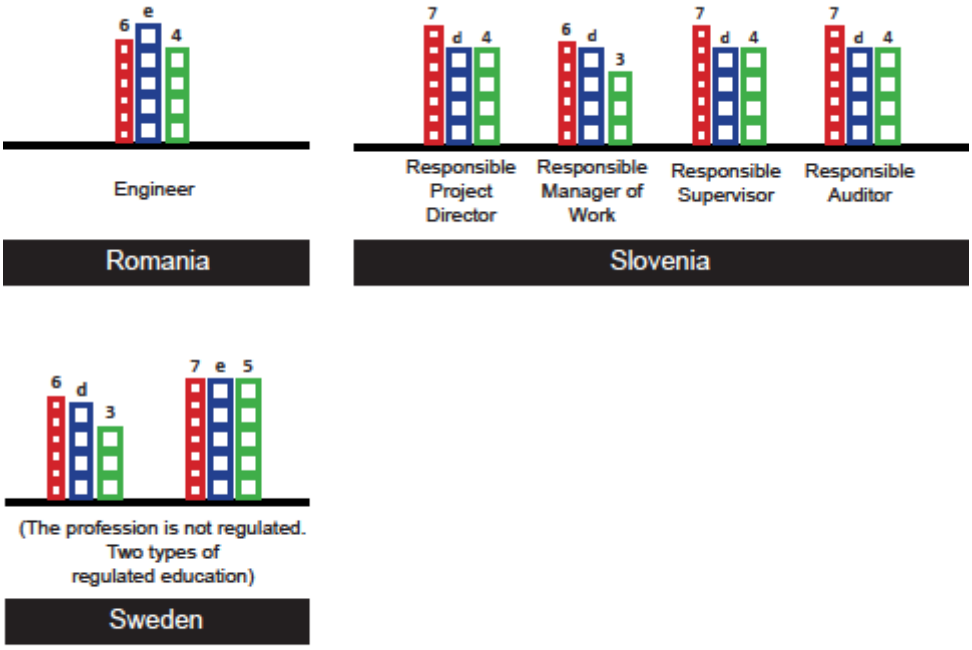


Fig. 4.5.7.: Educational Access requirements of Mining Engineers in comparison

Rate of professions for which it is possible/not possible to compensate academic education

- *Can educational requirements be fully or partly compensated (extraordinary achievements approach, competence based assessment, etc.)?*

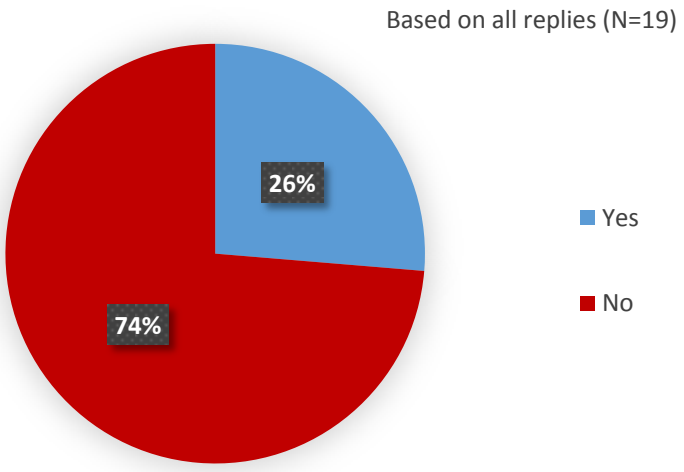


Fig. 4.5.7.: Compensation of requirements of academic education of Mining Engineers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Overview of additional requirements for the access to the profession

- *Is there a requirement of professional experience or professional traineeship for the access to the profession and/or use of the professional title?*
- *How many years of professional experience/professional traineeship are required?*
- *When can the professional experience/professional traineeship be obtained?*
- *Is an entrance exam/entrance interview required for access to the profession and/or use of the professional title?*
- *Is a registration required for access to the profession and/or use of the professional title?*
- *How is the registration regulated?*
- *Is a personal professional indemnity insurance required for access to the profession/use of the professional title?*
- *Is liability insurance required within companies?*
- *Are there any other requirements for access to the profession?*

Legend:		The profession is not regulated in general

Country		Professional experience/professional traineeship required	Years of professional experience/professional traineeship required	Obtainment of professional experience/ professional traineeship		Requirement of entrance exam/entrance interview	Requirement of registration	Requirement of personal professional indemnity insurance	Requirement of liability insurance within companies	Other requirements for access to the profession
				Partly before/partly after final degree	After final degree					
AT	P1	Yes	3		**x**	Yes	Mandatory	No	No	No
	P2	Yes	3 or 6 [1)]		**x** [2)]	Yes	Mandatory	No	No	No
BG		Yes	Less than 1	**x** [3)]		Yes	No	No	No	No
HR		Yes	2		**x**	Yes	No	No	No	No
CY		No				No	Mandatory	Others [4)]	Yes	No
CZ		Yes	2	**x**		No	No	No	No	No
DK										
EE	P1	Yes	2		**x**	No	No	No	No	No

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

FR		No				No	No	No	No	No
IE		Yes	Others [5)]		**x**	Yes	Voluntary	Yes	No	Yes [6)]
IT	P1	No				Yes	Mandatory	Yes	Others [7)]	No
	P2	No				Yes	Mandatory	Yes	Others [7)]	No
LV		No				No		No	No	No
LI										
NL										
PT	P1	Yes	6 [8)]		**x**	No	Mandatory	Yes	No	No
	P2	Yes	5 [8)]		**x**	No	Mandatory	Yes	No	No
RO		Yes				Yes		No	No	No
SI	P1	Yes	3-5		**x**	Yes	Mandatory	No	Yes	Yes [9)]
	P2	Yes	3-5		**x**	Yes	Mandatory	No	Yes	Yes [9)]
	P3	Yes	3-5		**x**	Yes	Mandatory	No	Yes	Yes [9)]
	P4	Yes	3-5		**x**	Yes	Mandatory	No	Yes	Yes [9)]
SE										

1)	3 or 6 years, depending on the previous education
2)	Acc. to Art. 18 Trade Act (GewO) the professional activity must suitable for conveying the experiences and knowledge necessary to independently practise the profession of consulting engineers. Generally, this means it must be obtained after a final degree.
3)	Before the final degree
4)	Yes for legal persons not for private persons
5)	Depends on the experience usually 3-4 years minimum
6)	CPD - 5 days per year
7)	Yes, but only if the engineer should be responsible for planning and/or survey activities.
8)	Exemption for those who have 5-6 years of professional experience after the final degree
9)	Professional exam

Tab. 4.5.3.: Other requirements (Mining Engineers)

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Details on different forms of entrance examinations/interviews

(only countries in which entrance exams/entrance interviews are required for access to the profession and/or the use of the professional title)

- *What are the main subjects?*
- *Who is responsible to hold the exam/interview?*

Country	Profession	Main subjects of entrance exam	Responsible institution that conducts the exam/interview
Austria	Ziviltechniker - Ingenieurkonsulenten	Austrian administrative law, business administration, legal and professional regulation of the special professional field (incl. standards), regulations of the special professional field, professional law and ethics of the profession	Public authority
Austria	Ingenieurbüros (Beratende Ingenieure) - engineering firms - consulting engineers	Professional laws and ethics, relevant laws, regulations and standards with in-depth professional and technical analysis, performance of engineering services, controlling, business administration, public procurement, calculation	Chamber which fulfills the task of a public authority. The chairman of the examination commission is a public servant.
Bulgaria	Mining engineer	Mining, mineral processing, mine survey, ecology, safety, exploration etc.	Professional body/chamber
Croatia	Mining engineer	The professional exam in the Ministry of Economy.	Professional body/chamber + Public authority
Italy	- Ingegnere civile e ambientale (the activities of Mining Engineer are reserved to the profession of Civil and Environmental Engineer) - Ingegnere civile e ambientale iunior	Subjects characterizing the relevant professional field; professional legislation and ethics.	Universities, on ordinance of the Ministry of Education
Republic of Ireland	Chartered Engineer	A competence based interview lasting one hour based on five competences: Engineering Knowledge Application of Engineering Knowledge Leadership Communication skills Ethical Practice	Professional body/chamber
Romania	Engineer	-	

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Slovenia	- Responsible project designer - Responsible manager of work - Responsible supervisor	The main subjects of exam: 1. Regulation in the field of spatial planning and construction as well as the chamber system, 2. Protection of the environment, of human health and life, fire protection, protection against natural and other disasters, and safety at work, 3. Standardization and technical regulation, 4. Investment process, project management, economic investments, costs and calculations 5. Written part-making project	Professional body/chamber
Slovenia	Responsible auditor	The main subjects of exam: Knowledge of methods and techniques in the audit of certain types of plans and knowledge of the regulations and rules of good practice in Regulation in the field of spatial planning and construction as well as the chamber system, protection of the environment, of human health and life, fire protection, protection against natural and other disasters, and safety at work, Standardization and technical regulation	Professional body/chamber

Tab. 4.5.4.: Entrance exams (Mining Engineers)

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Overview of CPD systems

- *Are there any continuous professional development requirements?*
- *How is the continuous professional development (CPD) system organised?*
- *How are the CPD requirements regulated?*
- *Is a disciplinary system in force?*

Legend:		Profession is not regulated in general

Country		Continuous professional development (CPD) requirements	Organisation of CPD requirements		Regulation of CPD requirements			Disciplinary system in force
			Obligatory without sanctions	Obligatory with sanctions	Law	Professional body	Standard	
AT	P1	Yes	x		x	x		Yes [1]
	P2	No						Yes [2]
BG		Yes	x	x		x		No
HR		No						No
CY		No						Yes [3]
CZ		No						No
DK								
EE	P1	Yes	Others [4]				x	No
FR								
IE		Yes		x		x		Yes [5]
IT	P1	Yes		x		x		Yes [6]
	P2	Yes		x		x		Yes [6]
LV		No						No
LI								
NL								
PT	P1	No						Yes [7]
	P2	No						Yes [7]

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

RO		No						No
SI	P1	No						Yes [8)]
	P2	No						Yes [8)]
	P3	No						Yes [8)]
	P4	No						Yes [8)]
SE								

1)	Code of Conduct with sanctions
2)	Binding rules for conduct established by law and sanctioned by public authorities.
3)	Disciplinary board
4)	Certification must be re-certified after every 5 years
5)	Members/registrants must abide by a Code of Ethics and complaints can be made under the Code of Ethics
6)	Territorial Disciplinary Councils composed by different members than the members of the Territorial Professional Order. One Council in each Territorial Professional Order is foreseen. The Code of Conduct approved by the Territorial Professional Order (also based on the Code of Conduct approved by the National Council of Italian Engineers) is applied.
7)	Conduct code and juridical system in the professional body
8)	Disciplinary system is defined by law.

Tab. 4.5.5.: Requirements for pursuit of the profession of Mining Engineers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Prevalence of different forms of the exercise of the profession (multiple answers possible)

The results clearly show that professionals are very often self-employed or even liberal professionals or employed in private firms with personal legal authorization. Employed engineers without personal legal authorization do not play a very important role in the picture of the different forms of exercise of the profession. As the EU policy for engineers focuses very much on the employment market aspect and not so much on the fact of personal responsibility this is an interesting result, also in regard to the appropriate form of Common Training Principles.

- *How is the profession exercised?*

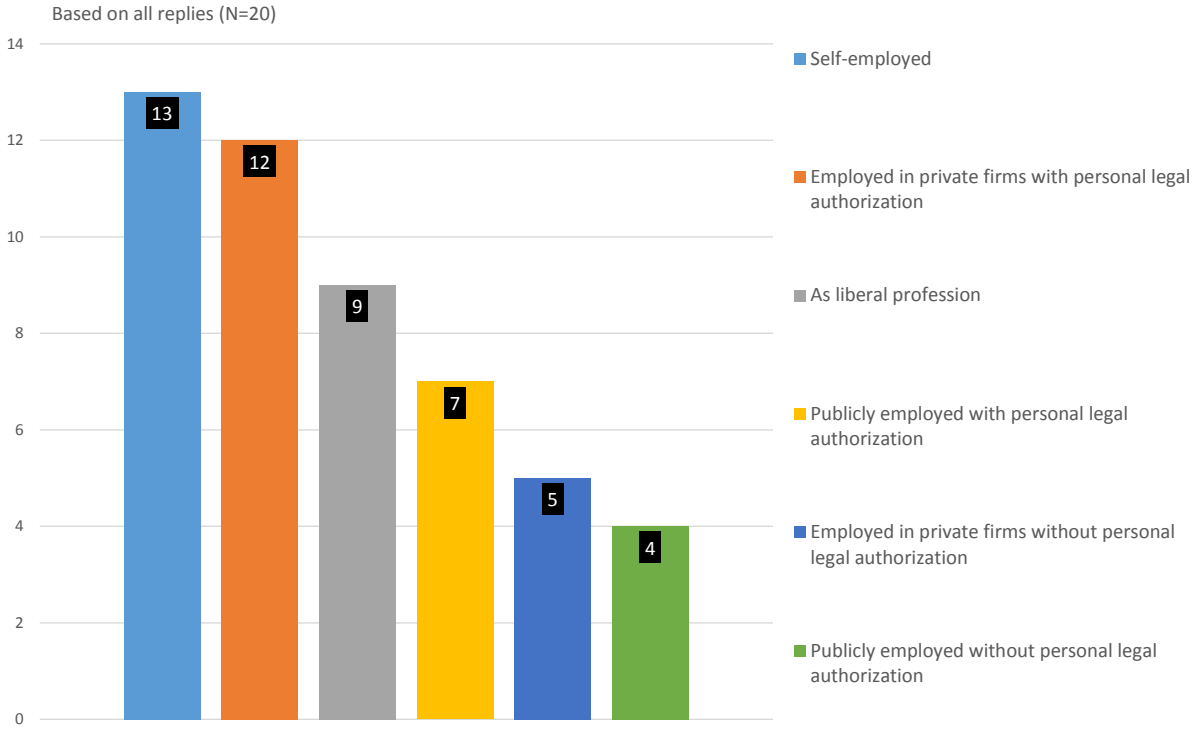


Fig. 4.5.8.: Exercise of the profession of Mining Engineers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

4.5.2. Information on Engineering Education Programmes / Curricula

Regulation rate of engineering education

- *Is the engineering education for the profession considered as regulated by the national authorities of the country?*

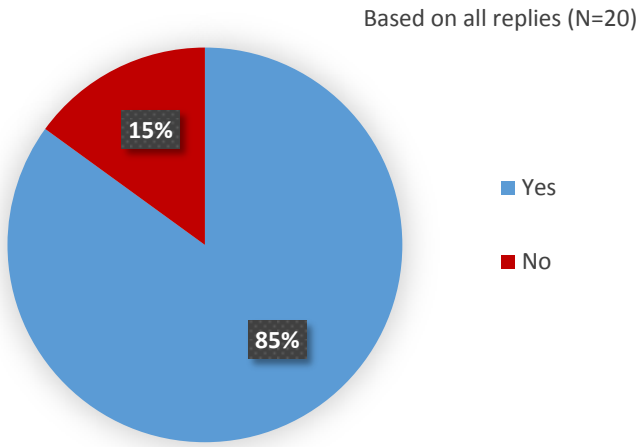


Fig. 4.5.9.: Regulation of engineering education of Mining Engineers

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Overview of requirements of academic programmes

- *What is the official minimum length of the (academic) educational programmes in years?*
- *What is the minimum required number of ECTS in the (academic) educational programmes?*
- *What is the minimum required percentage of technical ECTS out of the total amount of the required number of ECTS in the (academic) educational programmes?*
- *What is the level (European Qualifications Framework) of the final awarded degree of the (academic) educational programmes?*
- *What is the minimum educational level (prior duration of studying) for entry to the (academic) Master educational programmes?*
- *Is mandatory traineeship during the (academic) educational qualification programme foreseen?*

Legend:		Profession is not regulated in general

***Please note:* This table is only related to academic education programmes/curricula and NOT to requirements for professional access/use of the title.**

Country		Official minimum length of the (academic) educational programmes in years	Minimum required number of ECTS in (academic) educational programmes	Minimum required percentage of technical ECTS out of the total amount of ECTS	Level of final awarded degree of (academic) educational programme	Minimum educational level (prior duration of studying) for entry to (academic) Master education programmes	Mandatory traineeship during the (academic) educational qualification programme
AUSTRIA	P1	4	241-300	50 - 75%	7	3	In some programmes
	P2	3	180-240	50 - 75%	6 [1)]	3	In some programmes
BULGARIA		4	More than 300	50 - 75%	6	2	In some programmes
CROATIA		4	241-300	not regulated	7	3	In some programmes
CYPRUS		4	241-300	not regulated	7	4	No
CZECH REPUBLIC		5	Less than 180	50 - 75%	7	Over 4	Yes
DENMARK							
ESTONIA	P1	3	180-240	not regulated	7	Over 4	Yes

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

FRANCE		5	241-300	50-75%	7	Others [2)]	Yes
REPUBLIC OF IRELAND		Others [3)]	180-240	50 - 75%	7	4	No
ITALY	P1	3	180-240	Higher than 75%	6	3	No
	P2	5	241-300	Higher than 75%	7	Over 4	No
LATVIA		4	180-240	not regulated	6	3	Yes
LIECHTENSTEIN							
THE NETHERLANDS							
PORTUGAL	P1	3	180-240	Higher than 75%	6 and 7	3	No
	P2	3	180-240	Higher than 75%	6 and 7	3	No
ROMANIA		4	240	50 - 75%	6	3	Yes
SLOVENIA	P1	4	180-240	Higher than 75%	7	Over 4	In some programmes
	P2	3	180-240	Higher than 75%	6	4	In some programmes
	P3	4	180-240	Higher than 75%	7	Over 4	In some programmes
	P4	4	180-240	Higher than 75%	7	Over 4	In some programmes
SWEDEN - two types of regulated education:		3	180	Others [5)]	6	Others [6)]	No
		5	300	Others [5)]	7	Others [6)]	No

[1)]	Level 6 (Bachelor) is the minimum criteria for the academic educational programme, alternative education is also possible: 5 years technical secondary education (and 6 years professional experience and licensing examination) corresponding to Art. 11 level c ii) Dir. 2005/36/EG
[2)]	Integrated 5 year master level programme
[3)]	Accreditation at various levels - 2,3,4,5 year programmes
[4)]	Two types of regulated education
[5)]	The Swedish legislation expresses the requirements in the terms of learning outcomes (output criteria) not a number of ECTS (input criteria).
[6)]	Degree of Master of Science in Engineering is a one-tier integrated study program requiring five years of study (300 ECTS). This degree is considered regulated education and training under the PQD 2005/36/EC. There are also one (60 ECTS) and two year (120 ECTS) Master programmes, so called general degrees, in the field of engineering requiring a prior academic degree with the duration of studying of three years (180 ECTS). The latter two types of degrees do not constitute regulated education and training under the PQD 2005/36/EC.

Tab. 4.5.6.: Requirements of engineering educational programmes of Mining Engineers

***ECEC Secretariat,** Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

4.5.3. Conclusions

- The reply rate in regard to the profession of Mining Engineers is lowest compared to the other professional groups (17 replying countries out of 32). The interest in Common Training Principles among competent authorities and other stakeholders is also lowest with the highest number of rejections. The preferred approach of all stakeholders is that of a Common Training Framework with a majority of 60%.
- The survey shows that less than half of the replying countries have different forms/ levels of the profession within the branch of Mining Engineers. In regard to a CTF approach this currently leaves both options open (level approach or not).
- The survey also shows that the overall level of academic requirements for access to the profession is quite high. A broad majority of the countries requires at least the EQF Levels 6 and 7. This is also reflected in the level of requirements in engineering education programmes.
- Mining Engineers are often self-employed or employed with personal legal authorization, employment without personal legal authorization plays only a small role in the picture of the different forms of exercise of the profession.
- Academic education can't be compensated in 74% of the professions.
- A small majority of the professions requires professional experience and/or a professional exam/interview for the access to the profession/use of the professional title.
- The variety of scopes of authorizations is quite broad.
- In regard to the definition of a CTP proposal for Mechanical and Industrial Engineers the project team decided that further input of the stakeholders in regard to their interest would be necessary.

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net

Annexes

- **Annex I – List of Survey Respondents (provided as excel file)**
- **Annex II – List of Contact Persons in all countries (provided as excel file)**
- **Annex III – Fact Sheets per Country (provided as excel file)**
- **Annex IV – Fact Sheets per Profession (provided as excel file)**

ECEC Secretariat, *Vienna*
Tel: +43 1 5055807-51,
E-mail: office@ecec.net