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für akkreditierung
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Award of the EUR-ACE® Label in Switzerland

Guide | 30.10.2024

Content

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Introduction

This document sets out the procedure for awarding the EUR-ACE® Label[1]. It describes the essential elements that must be met or the information that must be provided by the higher education institution in order for the Swiss Agency of Accreditation and Quality Assurance ("AAQ" or "Agency") to decide whether or not to award the Label. The Agency's decision applies to Swiss Bachelor's and Master's programmes and is based on the results of an internal evaluation with external expertise. This evaluation must be part of the quality assurance procedures of the institution that requests the AAQ to accompany the procedure for obtaining the EUR-ACE® Label[2]. The proposal to award the EUR-ACE® Label meets the requirements set out in the *EUR-ACE® Framework. Standards and Guidelines*[3] ("*EUR-ACE® Framework*" or "*EAFSG*") published by the European Network for Accreditation of Engineering Education ("ENAEE").

This guide, entitled *Award of the EUR-ACE® Label in Switzerland,* follows the structure of the report used by the AAQ to decide on the award of the EUR-ACE® Label. It indicates the main elements of the procedure and describes the content of the different chapters of the report. Information to be provided by the study programme to facilitate the drafting of the report or details concerning the experts' analysis appear in italics and are grouped under "*Comments*" at the end of the various chapters.

1. Presentation of the study programme

This section of the report is used to present the Bachelor's or Master's programme and to justify the application for the EUR-ACE® Label. The AAQ reports the main data of the programme, such as the start date, the number of students enrolled at the last consolidation date, the number of graduates of the last promotions and the planned duration of studies. It indicates whether the programme is full-time or part-time. It also specifies the number of ECTS credits planned for the programme and mentions any revisions to the curriculum.

Comments
The programme must submit a presentation containing the information required for this chapter to the AAQ at the latest when it submits its self-assessment report. This presentation can be included in the report.

2. Evaluation procedure with external expertise

This part of the report begins with a presentation of the evaluation procedure followed by the programme wishing to obtain the EUR-ACE® label. This evaluation must follow a procedure involving external expertise chosen by the higher education institution and described in its quality assurance system. It can take place every 5, 6 or 7 years.

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[1] As the Label is a registered trademark, the expression “EUR-ACE® Label” requires the use of the sign “®”.
[2] The procedure for accompanied evaluation is described in the Guide to accompaniment by AAQ entitled *Internal higher education evaluation for the awarding of quality labels*, amended on 31 August 2024. URL: https://aaq.ch/wp/wp-content/uploads/dlm_uploads/2024/10/2024-08-31-Internal-higher-education-evaluation-for-the-awarding-of-quality-labels.-Guide-to-accompaniment-by-AAQ.pdf.
[3] ENAEE, *EUR-ACE® Framework. Standards and Guidelines,* 4 November 2021. URL : https://www.enaee.eu/wp-content/uploads/2023/11/EAFSG-approved-4-Nov-2021.pdf.

The composition of the group of experts is then detailed. It must comply with the recommendations set out in the *EUR-ACE® Framework*[4]. Composed of at least three people, the group includes :

- A student registered at another higher education institution in Switzerland or abroad, and whose profile is related to the field to be assessed.
- A person with professional experience related to the field to be assessed.
- A teacher working at another higher education institution in Switzerland or abroad, or a person with teaching experience related to the field being assessed.
- A specialist in educational quality or pedagogy working in a higher education institution in Switzerland or abroad.

It is possible for one and the same person to embody several of these profiles. Depending on the specific characteristics of the institution, other types of skills may also be included in the group of experts, which should not, however, comprise more than five people.

This chapter then goes on to look at the different stages of the evaluation process (preparation for the visit, the on-site visit and the expert report). It explains when the experts will receive the self-assessment report prepared by the programme, which is usually about two months before the on-site visit. It should be noted that the self-assessment report must be organised in accordance with the evaluation criteria of the higher education institution's quality assurance system and that the compatibility of these criteria with the requirements of the *EUR-ACE® Framework* is checked by the AAQ before the procedure is launched.

The preparation and conduct of the on-site visit are also described. The members of the group of experts first meet online in a training session supervised by the higher education institution and the AAQ. The purpose of this session is to ensure that the experts have all the information they need to assess the engineering programme. Part of the training is explicitly dedicated to the requirements of the EUR-ACE® Label. The chapter concludes with a description of the on-site visit. This takes the equivalent of two days and can be structured as follows:

- First afternoon: preparatory meeting of the experts, finalisation of the questions to be asked during the interviews and organisation of the interviews.
- Second day: interviews with the various parties involved in the programme (programme managers, students, teachers, administrative and technical staff, professionals) and tour of the facilities.
- Last morning: additional interview with the head of the programme and preparation of the preliminary conclusions of the evaluation. Presentation of these conclusions at the end of the visit.

The on-site visit must be organised in accordance with the *EUR-ACE® Framework*[5]. The various interviews and the examination of the programme should make it possible to assess the level of competence of the graduates. The experts must have at their disposal the information they need to verify the engineering skills acquired, in particular some examples of diploma theses.

The chapter concludes with some details about the expert report. This report must enable the AAQ to define whether the programme meets the requirements of the *EUR-ACE® Framework*,

[4] *Ibid*., p. 28.
[5] *Ibid*.

particularly in relation to the Learning Outcomes ("LO"). It is therefore essential that the experts formally assess the Programme Outcomes ("PO") and Learning Outcomes defined in the *EAFSG*.

Comments
The training of the group of experts is based on a full description of the context of the programme to be evaluated and the institutional requirements that the programme must meet. The presentation of the quality criteria is supplemented by a description of the assessment practices used in order to measure the Programme Outcomes and Learning Outcomes against the expectations of the professional sector and the requirements of the EUR-ACE® Framework*. The assessment of POs and LOs is a necessary condition for the award of the Label and must be clearly reflected in the expert report (see section 3.2 below).*

The AAQ actively participates in the training of the group of experts and is available throughout the procedure to answer any questions related to the requirements of the EUR-ACE® Label.

3. Compliance with the *EUR-ACE® Framework*

The conclusions presented in the different parts of this chapter are linked to the criteria identified by the higher education institution as corresponding to the requirements set by the ENAEE in the *EUR-ACE® Framework*. They are based on the observations of the experts involved in the evaluation of the study programme.

Compliance with the various requirements is assessed using a three-level scale: "fulfilled", "partially fulfilled" or "not fulfilled".

Recommendations may be made in each sub-chapter to improve the programme's compliance with the requirements of the EUR-ACE® Label. If the requirements set out in the *EUR-ACE® Framework* are not met, or if the data provided does not allow an external evaluation of the programme, one or more conditions are formulated.

Comments
In the early stages of the evaluation, it is essential that the programme provides the experts with all the necessary information so that their evaluation can include an examination of the programme in accordance with the EUR-ACE® Framework*.*

3.1 Student worklaod requirements

The workload requirements are described using ECTS credits. The Programme Outcomes for Bachelor and Master Degree programmes are structured as follows: Bachelor Degree programmes, of a minimum of 180 ECTS credits. Master Degree Programme, of a minimum of 90 ECTS credits.

To assess compliance with this requirement[6], the AAQ relies on the documents provided by the study programme and the conclusions of the group of experts.

[6] *Ibid.*, p. 5.

3.2 Programme Outcomes framework

Programme Outcomes describe the knowledge, understanding, skills and abilities which an accredited engineering degree programme must enable a graduate to demonstrate[7]. The learning process must enable holders of a Bachelor's or Master's degree to demonstrate competence in the eight areas of learning identified below[8].

Knowledge and understanding

Bachelor programme:

• Knowledge and understanding of the mathematics, computing and other basic sciences underlying their engineering specialisation, at a level necessary to achieve the other programme outcomes.
• Knowledge and understanding of engineering fundamentals underlying their specialisation, at a level necessary to achieve the other programme outcomes, including some awareness at their forefront.
• Awareness of the wider multidisciplinary context of engineering.

Master programme:

• In-depth knowledge and understanding of mathematics, computing and sciences underlying their engineering specialisation, at a level necessary to achieve the other programme outcomes.
• In-depth knowledge and understanding of engineering disciplines underlying their specialisation, at a level necessary to achieve the other programme outcomes.
• Critical awareness of the forefront of their specialisation.
• Critical awareness of the wider multidisciplinary context of engineering and of knowledge issues at the interface between different fields.

Engineering analysis

Bachelor programme:

• Ability to analyse complex engineering products, processes and systems in their field of study; to select and apply relevant methods from established analytical, computational and experimental methods; to correctly interpret the outcomes of such analyses.
• Ability to identify, formulate and solve engineering problems in their field of study; to select and apply relevant methods from established analytical, computational and experimental methods; to recognise the importance of non-technical - societal, health and safety, environmental, economic and industrial - constraints.

Master programme:

• Ability to analyse new and complex engineering products, processes and systems within broader or multidisciplinary contexts; to select and apply the most appropriate and

[7] *Ibid.*, p. 6.
[8] *Ibid.*, p. 7-11.

relevant methods from established analytical, computational and experimental methods or new and innovative methods; to critically interpret the outcomes of such analyses.
• Ability to conceptualise engineering products, processes and systems.
• Ability to identify, formulate and solve unfamiliar complex engineering problems that are incompletely defined, have competing specifications, may involve considerations from outside their field of study and non-technical - societal, health and safety, environmental, economic and industrial - constraints; to select and apply the most appropriate and relevant methods from established analytical, computational and experimental methods or new and innovative methods in problem solving.
• Ability to identify, formulate and solve complex problems in new and emerging areas of their specialisation.

Engineering desing

Bachelor programme:

• Ability to develop and design complex products (devices, artefacts, etc.), processes and systems in their field of study to meet established requirements, that can include an awareness of non-technical - societal, health and safety, environmental, economic and industrial - considerations; to select and apply relevant design methodologies.
• Ability to design using an awareness of the forefront of their engineering specialisation.

Master programme:

• Ability to develop, to design new and complex products (devices, artefacts, etc.), processes and systems, with specifications incompletely defined and/or competing, that require integration of knowledge from different fields and non-technical - societal, health and safety, environmental, economic and industrial commercial - constraints; to select and apply the most appropriate and relevant design methodologies or to use creativity to develop new and original design methodologies.
• Ability to design using knowledge and understanding at the forefront of their engineering specialisation.

Investigations

Bachelor programme:

• Ability to conduct searches of literature, to consult and to critically use scientific databases and other appropriate sources of information, to carry out simulation and analysis in order to pursue detailed investigations and research of technical issues in their field of study.
• Ability to consult and apply codes of practice and safety regulations in their field of study.
• Laboratory/workshop skills and ability to design and conduct experimental investigations, interpret data and draw conclusions in their field of study.

Master programme:

• Ability to identify, locate and obtain required data.

• Ability to conduct searches of literature, to consult and critically use databases and other sources of information, to carry out simulation in order to pursue detailed investigations and research of complex technical issues.
• Ability to consult and apply codes of practice and safety regulations.
• Advanced laboratory/workshop skills and ability to design and conduct experimental investigations, critically evaluate data and draw conclusions.
• Ability to investigate in a creative way the application of new and emerging technologies at the forefront of their engineering specialisation.

Ingineering practice

Bachelor programme:

• Understanding of applicable techniques and methods of analysis, design and investigation and of their limitations in their field of study.
• Practical skills for solving complex problems, realising complex engineering designs and conducting investigations in their field of study.
• Understanding of applicable materials, equipment and tools, engineering technologies and processes, and of their limitations in their field of study.
• Ability to apply norms of engineering practice in their field of study.
• Awareness of non-technical - societal, health and safety, environmental, economic and industrial - implications of engineering practice.
• Awareness of economic, organisational and managerial issues (such as project management, risk and change management) in the industrial and business context.

Master programme:

• Comprehensive understanding of applicable techniques and methods of analysis, design and investigation and of their limitations.
• Practical skills, including the use of computer tools, for solving complex problems, realising complex engineering design, designing and conducting complex investigations.
• Comprehensive understanding of applicable materials, equipment and tools, engineering technologies and processes, and of their limitations.
• Ability to apply norms of engineering practice.
• Knowledge and understanding of the non-technical - societal, health and safety, environmental, economic and industrial - implications of engineering practice.
• Critical awareness of economic, organisational and managerial issues (such as project management, risk and change management).

Making judgements

Bachelor programme:

• Ability to gather and interpret relevant data and handle complexity within their field of study, to inform judgements that include reflection on relevant social and ethical issues.
• Ability to manage complex technical or professional activities or projects in their field of study, taking responsibility for decision making.

Master programme:

• Ability to integrate knowledge and handle complexity, to formulate judgements with incomplete or limited information, that include reflecting on social and ethical responsibilities linked to the application of their knowledge and judgement to deliver sustainable solutions for society, the economy and environment.
• Ability to manage complex technical or professional activities or projects that can require new strategic approaches, taking responsibility for decision making.

Communication and team-working

Bachelor programme:

• Ability to communicate effectively information, ideas, problems and solutions with engineering community and society at large.
• Ability to function effectively in a national and international context, as an individual and as a member of a team and to cooperate effectively with engineers and non-engineers.

Master programme:

• Ability to use diverse methods to communicate clearly and unambiguously their conclusions, and the knowledge and rationale underpinning these, to specialist and non-specialist audiences in national and international contexts.
• Ability to function effectively in national and international contexts, as a member or leader of a team, that may be composed of different disciplines and levels, and that may use virtual communication tools.

Lifelong learning

Bachelor programme:

• Ability to recognise the need for and to engage in independent life-long learning.
• Ability to follow developments in science and technology.

Master programme:

• Ability to engage in independent life-long learning.
• Ability to undertake further study autonomously.

Comments

In its self-assessment report, the study programme will have identified its strengths and potential improvements in relation to the Programme Outcomes listed above. The experts' analysis is based on these results as well as on the table provided by the programme (see Appendix below), which compares the Learning Outcomes expected in the various modules with the Learning Outcomes defined in the EUR-ACE® Framework *and those proposed by the various stakeholders (professionals, students, alumni). In order to carry out their analysis, the experts have access to the results of the various learning methods used, such as practical work, semester projects, diploma theses, competitions, Summer Schools, etc.*

3.3 Programme management

The assessment of the five programme management requirements set out in the *EUR-ACE® Framework* should confirm that the programme enables students to achieve the set objectives and Learning Outcomes[9]. Other elements are also assessed, such as the resources available to the programme and whether students monitoring is in place. Finally, the programme is expected to comply with the quality assurance procedures of the higher education institution to which it belongs.

Programme aims

The aims of accredited programmes must reflect the needs of employers and other stakeholders. The programme outcomes must be demonstrably consistent with the aims.

Comments
The higher education institution must provide the group of experts with the necessary information to determine whether the programme reflects current professional issues and responds to labour market demand.

Teaching and learning process

The teaching and learning process must enable engineering graduates to demonstrate the knowledge, understanding, skills and abilities specified in the Programme Outcomes. The programme curriculum must specify how this is to be achieved.

Comments
The higher education institution must provide the experts with the necessary information to enable them to study the logic of the structure of the programme. In their analysis, the experts refer to the description of the modules in the programme. They also comment on the assessment of students at the end of the programme and check that it covers the Learning Outcomes.

Resources

The resources to deliver the programme must be sufficient to enable the students to demonstrate the knowledge, understanding, skills and abilities specified in the Programme Outcomes.

Comments
The institution must provide the expert group with the necessary information about its teaching staff and the technical resources available for study programme. In their analysis, the experts consider both the theoretical and practical aspects of the programme.

Student admission, transfer, progression and graduation

The criteria for student admission, transfer, progression and graduation must be clearly specified and published, and the results monitored.

[9] *Ibid.*, p. 12-14.

Comments
The institution must provide the group of experts with the admission and study regulations. The experts check that these are published and made available to students and teaching staff. They ensure that student performance is monitored.

Internal quality assurance

Accredited engineering degree programmes must be supported by effective quality assurance policies and procedures.

Comments
The higher education institution must provide the group of experts with a description of the mechanisms required to enable the study programme to be adapted on a regular basis.

3.4 Position statement of the study programme

This part of the report provides a summary of the statement of the Director of the institution and the manager of the programme undergoing the procedure for obtaining the EUR-ACE® Label. The statement concerns the results of the evaluation carried out by the group of experts. The AAQ takes both the expert report and the position statement into account when making its decision.

Comments
The position statement expresses an opinion on the conditions and recommendations formulated by the group of experts. It also indicates the measures that will be taken to implement and monitor them.

4. EUR-ACE® Label awarding proposal

This chapter contains the proposal as to whether the EUR-ACE® Label should be awarded or not, depending on whether the programme evaluated fulfils the requirements of the *EUR-ACE® Framework*. It is written by the AAQ project manager who accompanied the evaluation. This proposal is based on the programme's self-assessment report, the on-site visit, the expert report and the institution's position statement. It is accompanied by a list of conditions and recommendations, if any.

5. EUR-ACE® Label awarding decision

This chapter indicates the AAQ's decision on whether or not to award the EUR-ACE® Label. It gives the name of the programme that has undergone the evaluation procedure, the name of the institution to which it belongs and, in the case of a positive decision, the period of validity of the Label. The AAQ invites the programme to implement the proposed recommendations and requires it to fulfil the conditions set.

The AAQ expects a follow-up report no later than 2 years after the award of the EUR-ACE® Label.

Appendix

Table showing how the institution's evaluation criteria correspond to the requirements of the *EUR-ACE® Framework.*

Requirements of the *EUR-ACE® Framework*	**Institution's criteria**	**Comments**
The workload requirements are described using ECTS credits. The Programme Outcomes for Bachelor and Master Degree programmes are structured as follows: Bachelor Degree programmes, of a minimum of 180 ECTS credits. Master Degree Programme, of a minimum of 90 ECTS credits.		
The Programme Outcomes for engineering programmes are defined and divided into eight learning areas: • Knowledge and understanding; • Engineering analysis; • Engineering design; • Investigations; • Engineering practice; • Making judgements; • Communication and team-working; • Lifelong learning.		
The aims of accredited programmes must reflect the needs of employers and other stakeholders. The programme outcomes must be demonstrably consistent with the aims.		
The teaching and learning process must enable engineering graduates to demonstrate the knowledge, understanding, skills and abilities specified in the Programme Outcomes. The programme curriculum must specify how this is to be achieved.		
The resources to deliver the programme must be sufficient to enable the students to demonstrate the knowledge,		

understanding, skills and abilities specified in the Programme Outcomes.		
The criteria for student admission, transfer, progression and graduation must be clearly specified and published, and the results monitored.		
Accredited engineering degree programmes must be supported by effective quality assurance policies and procedures.		

Comments

The programme ensures that it provides as accurate a picture of its curriculum as possible. It does not fill in the boxes in the table simply out of principle or goodwill. To prove that it can take a critical look at its curriculum and to demonstrate the compatibility of its criteria with the requirements of the EUR-ACE® Framework, *it must provide a description in addition to the table above, explaining the Learning Outcomes expected in the various modules and identifying the programme's strengths and potential improvements. This description must be sufficiently detailed and explicit to enable the experts to measure the Programme Outcomes and Learning Outcomes against the expectations of the professional sector and the* EUR-ACE® Framework.

AAQ
Effingerstrasse 15
Postfach
CH-3001 Bern

www.aaq.ch