Programme evaluation to award the EUR-ACE® Label

Guide | 25.03.2022
# Content

1. Evaluation to award the EUR-ACE® Label ................................................................................. 1
   1.1 External evaluation .................................................................................................................. 1
   1.2 EUR-ACE® Label .................................................................................................................. 1
   1.3 Criteria to be evaluated (Quality standards) ....................................................................... 2
2. Steps of the external evaluation procedure .............................................................................. 3
   2.1 External experts ..................................................................................................................... 3
   2.2 Conduct of the external evaluation ....................................................................................... 4
      2.2.1 Before the visit ............................................................................................................... 4
      2.2.2 During the visit ............................................................................................................. 4
      2.2.3 After the visit ............................................................................................................... 5
   2.3 Expert group report ............................................................................................................... 5
   2.4 Decisions, publication and follow-up .................................................................................. 5
3. Appendix ...................................................................................................................................... 6
1. Evaluation to award the EUR-ACE® Label

This guide is published as an annex to the AAQ Accompanied Evaluation procedure and specifies the awarding of the EUR-ACE label by AAQ. It is based on the Framework Standards and Guidelines (EAFSG) published by ENAEE in 2015. Higher education institutions (HEIs) that evaluate their study programmes in engineering can submit an application to AAQ for the award of the EUR-ACE label. AAQ then uses this guide to check whether the HEI’s procedure meets the requirements. If this is the case, AAQ will start accompanying the evaluation with the university with a view to awarding the label.

1.1 External evaluation

In Switzerland, external evaluation of study programmes is voluntary. However, accredited higher education institutions are obliged to evaluate their teaching activities on a regular basis. In order to be able to apply for the label, their procedure must, in accordance with these guidelines and the EAFSG, include the following phases:

- Self-evaluation;
- External evaluation including a visit; and
- Decision-making process on the evaluation and on the awarding of the label.

Study programmes that award a bachelor’s or master’s degree (BSc or MSc) are eligible. The key is that the audited criteria or quality standards meet the requirements of the EAFSG (see section 1.3). The self-evaluation allows the study programme to conduct a self-reflection on how each evaluation criterion has been taken into account, and then to submit the findings to the external expert group (see section 2.2.1).

A group of external experts takes a position on whether or not all the evaluation criteria have been met and draws up an expert report in which they make proposals for improvement (see sections 2.2 and 2.3).

The study programme has the right to respond to the expert report, which it exercises through a position statement. The competent body, e.g. the Rectorate, takes note of the self-evaluation report, the expert report and the position statement, checks whether the programme meets the quality requirements, and issues recommendations and/or conditions as appropriate (see section 2.4).

1.2 EUR-ACE® Label

The EUR-ACE® label was created by the European Network for Engineering Accreditation (ENAEE) founded in 2006. This association is part of the Bologna process and focuses its actions on engineering education by “improving and promoting the quality of engineering graduates’ education in order to facilitate their professional mobility and to strengthen their personal and collective competences to adapt to socio-economic needs”. To achieve these objectives, ENAEE empowers accreditation agencies across Europe to deliver the label. In Switzerland, the AAQ is empowered to do so. ENAEE then requires the agency to apply its EUR-ACE® system based on guidelines and references.
The standards for self-evaluation are described in terms of
- Student workload requirements;
- Programme outcomes;
- Programme management.

The guidelines for the evaluation process of training programmes set out the application for an evaluation, the composition of the expert panel, the duration of the site visit, the programme of the visit, the evaluation and how the final recommendations should be used.

1.3 Criteria to be evaluated (Quality standards)

The application of the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) in Swiss HEIs requires the examination of the following 19 criteria for study programmes. In formulating them, the quality standards according to the HEdA Ordinance and the EAFSG were taken into account. The criteria refer to the study programmes that allow the acquisition of the title Bachelor of Science or Master of Science and apply for the award of the EUR-ACE label. The formulation of the criteria also gives the possibility to offer teaching in individual training programmes leading to the same title.

The criteria are organised in five groups:

Group 1: Study Programme Profile and Consistency

1. The study programme has defined its competency profile, which is clearly focused on professional fields and national and international levels.
2. The competency profile of the study programme complies with the requirements of qf.ch-HS and with international standards and best practices.
3. The study programme is consistently aligned with the training portfolio and academic strategies and/or fields, and the development plan of the HEI concerned.
4. The study programme determines the short, medium and long-term development prospects.

Group 2: Structure of the Study Programme

5. The course plan and the training programme(s) enable the students to develop their targeted competencies.
6. The study programme offers students a diverse and personalised teaching approach.
7. Normative and academic texts are updated and published.
8. The study programme combines training and research.

Group 3: General Conditions of the Study Programme

9. The governance of the study programme is consistently described, formalised and coordinated.
10. The teaching staff have the necessary pedagogical and educational qualifications and skills required for the specific characteristics and needs of the training programme(s).
11. The teaching staff benefit from the training and continuing education policies.
12. The resources are in line with the training provided.
13. The study programme has a national and an international focus, and promotes student mobility.
Group 4: Quality Assurance

14. The steering committee overseeing the study programme takes the opinions of key stakeholders into consideration.
15. The study programme takes social issues such as sustainability and diversity into account.
16. The study programme has mechanisms in place to continuously improve its framework curriculum, training programme(s) and teaching.
17. The stakeholders participate in evaluating the lessons and the study programme, and are regularly informed of any measures taken.

Group 5: Criteria specific to the EUR-ACE label

18. The study programme, its course plan and training programme(s) meet the EUR-ACE® requirements in terms of learning outcomes for bachelor’s or master’s degree programmes.
19. The study programme records and documents the progress of students throughout the course, particularly in relation to their qualifications on entry. The overall performance of students is monitored and analysed.

In the appendix, the scope of the evaluation of the criteria and reading keys are presented.

2. Steps of the external evaluation procedure

2.1 External experts

For each study programme evaluation under the EUR-ACE® label, a group of external experts is set up. This panel is validated by the HEI and the AAQ. Its role is to examine the self-evaluation report produced by the study programme and to check to what extent it meets all the criteria laid down and whether the development prospects envisaged by the programme are consistent with the analysis that precedes them.

The group of experts external to the HEI is made up of four people, with the following composition and characteristics:

- A student studying at another HEI (student profile)
- A representative of professional communities who has professional experience related to the field covered by the study programme (professional profile)
- A disciplinary expert (teacher or academic coordinator) from outside HEI who has proven experience in teaching and/or academic leadership and management (disciplinary profile)
- An expert in pedagogy or quality in engineering education, from outside HEI and proposed by AAQ, with mastery of the EUR-ACE® learning outcomes assessment (quality profile)

For the composition of the panel, HEI and AAQ check that each external expert is able to judge independently and impartially, has not been involved in the study programme being evaluated for the last five years, has a sufficient command of the language of the evaluation procedure to understand the institutional documents governing the evaluation to conduct interviews during the visit and to co-write the expert report.
Each expert signs a HEI responsibility charter that commits them to participate actively and constructively in evaluations, to guarantee freedom of expression and to behave in a way that respects diversity and the values of confidentiality and integrity.

The HEI is on hand to support the expert group throughout the entire procedure. If required, it will maintain communications between the expert group and the study programme as they do not communicate directly apart from the discussions held during the on-site visit.

A joint HEI and AAQ training session is held before the visit to train the experts in their role and to prepare them for the visit. After the training, the experts have time to discuss and prepare for the interviews. Each expert group is under the responsibility of a chairperson who is appointed by the HEI and the AAQ when the group is set up.

2.2 Conduct of the external evaluation

2.2.1. Before the visit

The representatives of the study programme carry out a self-evaluation and summarise the findings in a written report (self-evaluation report). This process involves key groups in the study programme, in particular the students, mid-level faculty staff, teaching staff, administrative personnel and technical personnel.

The self-evaluation report is reflective and self-critical and contains data, descriptions and analyses on the basis of which the extent to which the quality standards are fulfilled can be assessed. It also contains deliberations on how the study programme could be developed further.

Sufficiently in advance of the visit, the experts are given access to all the information and documentation necessary for the assessment of the study programme. They should analyse this documentation, checking in particular the extent to which the self-evaluation meets the criteria listed in section 1.3 and defined in the appendix to this guide, and that the planned development prospects are consistent with the preceding analysis.

2.2.2. During the visit

The on-site visit gives the expert group an opportunity to assess whether the study programme meets the quality standards and how it can be developed further if necessary. It begins with the training session and the preparatory meeting between the experts (see section 2.1).

The expert group meets the various stakeholder groups of the study programme, in particular the people in charge of the course, the lecturers, the quality assurance staff, representatives of the student body, mid-level faculty staff and administrative and technical personnel. The process also provides for work meetings of the expert group. As a rule, the on-site visit lasts two days including the training session.

The on-site visit ends with a debriefing session, during which the expert group describes its first impressions to the HE institution and provides an overview of its strengths and immediate challenges. However, the expert group does not make any definitive statements about compliance with quality standards at this time. Any discussion that follows allows the experts to clarify their observations but is not intended to challenge them.
2.2.3. After the visit

Following the visit, the experts work on the evaluation report. They have a defined period of time after the visit to put the results of their work in writing in an agreed manner (see section 2.3).

The experts are compensated for their mandate and can comment on the course of the procedure.

2.3 Expert group report

The purpose of the expert report is to present the experts’ point of view in the context of the EUR-ACE® evaluation process. It is based on the analysis of the documents submitted and the interviews conducted during the visit. The report contains the following specific elements:

- An in-depth analysis of the study programme in relation to the evaluation criteria (compliance with the quality standards)
- An overview of the strengths and weaknesses of the study programme and an overall appraisal of the latter
- An in-depth analysis of the development perspectives of the study programme and any requirements for its future development
- Recommendations (potential lines of progress, not detailed prescriptions) for the improvement and development of the study programme, based on the analysis presented above.

Particular attention should be paid to the formulation of recommendations by limiting their number, categorising them (general / specific recommendations), specifying the link with the previous analysis by giving, if possible, the number of the criterion concerned. The report is addressed to the programme being assessed, the HEI and any other stakeholders. It will be published on the HEI and AAQ websites.

The chairperson of the group of experts is responsible for the smooth running of the discussions and ensures that the drafting work progresses. They ensure that the report is drafted according to an outline made available to the experts. The report is checked by the HEI before it is distributed to those concerned. This review focuses on the form of the report to ensure that it is well founded and complete.

2.4 Decisions, publication and follow-up

The evaluation process for study programmes under the EUR-ACE® label provides for a statement of the programme’s position on the expert report. Thereafter, all the documentation, i.e. the self-evaluation report and its annexes, the expert report and the statement, is sent to the relevant HEI department. The HEI informs the AAQ. The AAQ makes a decision on whether or not to award the label and informs the HEI, including the recommendations and any conditions linked to the EUR-ACE® references. This decision is subject to an embargo until the Rectorate’s decision on the evaluation of the programme is released.

The decision of the AAQ is not appealable. However, the HEI may file a re-examination application with the Accreditation Council. The EUR-ACE label is valid for a maximum of 6 years.
The AAQ publishes its decision on the award of the label on its website (as soon as the above-mentioned embargo is lifted), together with the expert report and the programme’s position paper.

The HEI will inform AAQ on the fulfilment of conditions imposed when awarding the label. If the conditions are met, the label will be confirmed and remain valid for the rest of the six-year period. If the conditions are not met, the EUR-ACE label will be withdrawn and a new application has to be filed with the AAQ.

3. Appendix

See next page.
Appendix:
Explanations of the criteria and suggestions for supporting data

In order to facilitate the understanding of the criteria, a short text specifying the scope of the evaluation covered by each of them as well as the related reading keys are presented. The latter are given to illustrate how the criteria can be put into practice. They are not exhaustive and are intended to facilitate critical reflection, remove any ambiguities and improve consistency and precision.

Examples of supporting data for the assessment are suggested in order to provide a more specific idea of usable relevant evidence. The examples are listed for each criteria group.

Group 1: Study Programme Profile and Consistency

1. The study programme has defined its competency profile, which is clearly focused on professional fields and national and international levels.

Scope
The competence profile responds to the proven needs both in terms of the provision of new knowledge and new research topics and in terms of professional opportunities.

Reading keys
Taking account of developments in the professional field; correspondence between the competences set out in the competency profile and the job descriptions.

2. The competency profile of the study programme complies with the requirements of nqf.ch-HS and with international standards and best practices.

Scope
This criterion concerns the differentiation of learning outcomes between bachelor’s and master’s levels.

Reading keys
Correspondence with the legislative and normative framework (directives, etc.).

3. The study programme is consistently aligned with the training portfolio and academic strategies and/or fields, and the development plan of the HEI concerned.

Scope
HEIs have a clear mission, mandated to it by the (public or private) competent authorities. The mission defines the tasks of the institution according to its type and special features. This quality standard assesses the connection and coherence between the study programme and the strategy of the university according to its mission.

Reading keys
Connection and coherence between the study programme and the strategy of the HEI according to its mission.
4. The study programme determines the short, medium and long-term development prospects.

Scope
This criterion relates to the capacity of the study programme to regularly question its development, while at the same time being in line with a long-term approach and the evolution of professional fields. Its capacity to adapt regularly should be examined. It should also question the relevance of a minimum/maximum number of students and the financial/economic feasibility of the study programme.

Reading keys
Existence of a development plan integrating activities related to the training programme(s), teaching and study support activities, etc; consideration of developments in the professional field; inter-professional development perspectives.

Examples of supporting data for the criteria in group 1
- Competence profile
- Latest professional and academic survey and analysis relevant to the engineering programme
- HEI development plan
- Development plan/projection of the study programme
- Financial/economic feasibility study

Group 2: Structure of the Study Programme

5. The course plan and the training programme(s) enable the students to develop their targeted competencies.

Scope
This criterion assesses the overall coherence of the study plan at module level and its implementation in the study programme(s). It ensures that the final competences set out in the study plan are achieved by students graduating from the programme.

Reading keys
Demonstration that the implementation of the training programme(s) enables all students to achieve the competences targeted; coherence in the study programme strategies on the methods of assessment of learning throughout the training programme(s) and within the modules.

6. The study programme offers students a diverse and personalised teaching approach.

Scope
This criterion makes it possible to assess whether the forms and methods of teaching are conducted, regularly evaluated and adapted to the teaching in a way that enhances the students’ learning experience. The forms and methods of teaching stimulate students’ curiosity.
and learning while enabling them to acquire the competences targeted by the training programme(s).

**Reading keys**

Forms and methods of pedagogical and didactic support (design thinking, project-based learning, flipped classroom, e-learning, etc.) and their relevance to the learning objectives of the study programme.

7. **Normative and academic texts are updated and published.**

**Scope**

A regular updating process is foreseen to ensure consistency between the actual training and the applicable rules.

**Reading keys**

Publication and updating of study programme documentation on the internet, intranet and/or in hard copy (admission and graduation requirements, study regulations, including conditions for exclusion, complaints and appeals, module descriptions, etc.).

8. **The study programme combines training and research.**

**Scope**

This criterion includes the role of research in the development of professional fields and the implications for the development of education and training programmes.

**Reading keys**

Integration of the scientific and professional communities in the development/update of the content of the programme(s); taking scientific and/or technical developments into account, in particular through interactions between education and research (digital skills, design thinking, etc.).

**Examples of supporting data for the criteria in group 2**

- Study plan
- Training programme(s)
- Admission regulation(s) of the study programme and the implementing provisions
- Longitudinal qualitative analysis of admitted profiles
- Study regulation(s), including conditions for exclusions and appeals
- Module descriptions
Group 3: General Conditions of the Study Programme

9. The governance of the study programme is consistently described, formalised and coordinated.

Scope
This criterion refers to the decision-making process established and applied within the study programme in which the responsibilities, competences and functions of each individual are formalised, specified and communicated to the public.

Reading keys
Demonstration of the coherence of the governance processes of the study programme; existence of terms of reference/functional descriptions for each of the players involved in the governance.

10. The teaching staff have the necessary pedagogical and educational qualifications and skills required for the specific characteristics and needs of the training programme(s).

Scope
This criterion refers to the training, qualifications and competences of the teaching staff of the study programme in terms of scientific qualifications, teaching and professional experience and professional, pedagogical and didactic skills.

Reading keys
Consistency between the qualifications and competences of the teaching staff and the specificities and needs of the training programme(s).

11. The teaching staff benefit from the training and continuing education policies.

Scope
The study programme ensures the acquisition and development of the skills of the teaching staff and promotes access to collective or individual training and pedagogical and didactic support (pedagogical advice).

Reading keys
Participation in offered training and development measures; satisfaction of teaching staff with these training and development measures.

12. The resources are in line with the training provided.

Scope
This criterion refers to the availability of resources in terms of personnel, finances, infrastructure, materials and equipment necessary for the proper functioning of the study programme, e.g. classrooms, libraries, laboratories, computer facilities, teaching aids, study areas, cafeteria, etc.

Reading keys
Adequacy of the resources, and in particular the available digital resources, in relation to the educational policy of the programme and the development of the learning outcomes.
13. The study programme has a national and an international focus, and promotes student mobility.

Scope
This criterion assesses whether the training programme(s) promote the development of mobility windows and summer schools and the mobilisation of staff in order to encourage IN and OUT exchanges.

Reading keys
Positioning of the study programme on the issue of mobility in general; recognition of ECTS credits for mobility projects and survey of student satisfaction.

Examples of supporting data for the criteria in group 3
- Statistics on the number of student and faculty mobility IN and OUT
- List of national and international agreements concerning the study programme

Group 4: Quality Assurance

14. The steering committee overseeing the study programme takes the opinions of key stakeholders into consideration.

Scope
The study programme is able to take appropriate adjustment measures when analyses indicate that a change is necessary.

Reading keys
The stakeholders are informed of the measures taken by the study programme (feedback).

15. The study programme takes social issues such as sustainability and diversity into account.

Scope
This criterion examines how the sector actively contributes to addressing issues of sustainability and diversity and assesses the resources put in place.

Reading keys
Embedding gender and diversity dimensions in teaching and research; application of processes to promote equal opportunities and diversity; possibilities to support students in financial or other terms (grants, awards, scholarships, etc.).

16. The study programme has mechanisms in place to continuously improve its framework curriculum, training programme(s) and teaching.

Scope
This criterion ensures that the data on which the study programme is based are valid, reliable, relevant and consistent.
Reading keys
Periodic review of teaching content and updating of knowledge; diversification of data collection methods and resources; reactivity of the steering bodies of the study programme and of the teaching staff with regard to teaching evaluations.

17. The stakeholders participate in evaluating the lessons and the study programme, and are regularly informed of any measures taken.

Scope
This criterion looks at whether the voice of students, teaching staff and internship providers is taken into account in the evaluation of courses and study programmes.

It also looks at whether a variety of methods are considered for collecting opinions (questionnaires, interviews, consultations, etc.).

Reading keys
Quality assurance provisions for the programme known by the various stakeholders; availability of information relevant to the participation of students, teaching staff and internship providers.

Examples of supporting data for the criteria in group 4
– Example(s) of a survey of student and employer satisfaction with the study programme

Group 5: Criteria specific to the EUR-ACE label

18. The study programme, its course plan and training programme(s) meet the EUR-ACE® requirements in terms of learning outcomes for bachelor’s or master’s degree programmes.

Scope
The learning outcomes as described by the EUR-ACE® standards specify the knowledge, understanding, skills and abilities that engineering students must be able to demonstrate in order to successfully complete an engineering education programme that carries the label, but do not prescribe how they must be achieved.

Reading keys
The programme outcomes are described separately for both bachelor’s and master’s degree programmes. They are divided into 8 learning areas each (see next page).
## EUR-ACE® programme outcomes described for bachelor’s and master’s degrees

<table>
<thead>
<tr>
<th>Knowledge and Understanding</th>
<th>The learning process should enable Bachelor Degree graduates to demonstrate:</th>
<th>The learning process should enable Master Degree graduates to demonstrate:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• 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;</td>
<td>• in-depth knowledge and understanding of mathematics, computing and sciences underlying their engineering specialisation, at a level necessary to achieve the other programme outcomes;</td>
</tr>
<tr>
<td></td>
<td>• 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;</td>
<td>• in-depth knowledge and understanding of engineering disciplines underlying their specialisation, at a level necessary to achieve the other programme outcomes;</td>
</tr>
<tr>
<td></td>
<td>• awareness of the wider multidisciplinary context of engineering.</td>
<td>• critical awareness of the forefront of their specialisation;</td>
</tr>
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<td></td>
<td></td>
<td>• critical awareness of the wider multidisciplinary context of engineering and of knowledge issues at the interface between different fields.</td>
</tr>
<tr>
<td>Engineering Analysis</td>
<td>• 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;</td>
<td>• ability to analyse new and complex engineering products, processes and systems within broader or multidisciplinary contexts; to select and apply the most appropriate and relevant methods from established analytical, computational and experimental methods or new and innovative methods; to critically interpret the outcomes of such analyses;</td>
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<tr>
<td></td>
<td>• 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.</td>
<td>• ability to conceptualise engineering products, processes and systems;</td>
</tr>
<tr>
<td></td>
<td>• 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;</td>
<td>• 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;</td>
</tr>
<tr>
<td></td>
<td>• ability to design using an awareness of the forefront of their engineering specialisation.</td>
<td>• ability to identify, formulate and solve complex problems in new and emerging areas of their specialisation.</td>
</tr>
<tr>
<td>Investigations</td>
<td>• 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</td>
<td>• ability to identify, locate and obtain required data;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• ability to conduct searches of literature, to consult and critically use databases and other</td>
</tr>
</tbody>
</table>

Guide | 25.03.2022 | 13 / 18
19. The study programme records and documents the progress of students throughout the course, particularly in relation to their qualifications on entry. The overall performance of students is monitored and analysed.

**Scope**

This criterion aims to examine the progress of students throughout their course. The monitoring of student performance provides essential information in this respect, and may also be useful for curriculum review and development purposes.

**Reading keys**

The use of different statistical data allow the documentation and analysis of students’ progression throughout the course.
Examples of supporting data for the criteria in group 5

- Table or document that validates the EUR-ACE® programme outcomes against the training programme(s)

- Statistical tables on average length of study, success rate, etc., ideally based on entry qualifications