FEANI INDEX

Procedures to analyse proposals from National Members

(Approved by EMC on 10th December 2004)

1. New Procedures

1.1 – Nomination of a Working group

When a National Monitoring Committee formulates a proposal to include engineering courses in the Index, EMC nominates a **Working Group** to perform a desktop study of that proposal, according to the procedures established in this document and produce a report for EMC approval.

The dimension of the Working Group is between 1 and 3 members, depending on the number of courses included in the proposal.

If there is an EMC member from the proposing country, he/she will be co-opted to the Working Group, to act as a facilitator between EMC and NMC .

1.2 – Screening of the courses

Several factors must interfere in the decision of the Working Group on how to analyse a proposal from a National Member:

1) First and most important, it is necessary to know if the courses have been submitted to a **professional accreditation system**. If the answer is positive, EMC should compare that system with FEANI procedures and take the decision if, in future, courses submitted to that accreditation system will be automatically accepted or have to follow the normal FEANI procedures.

2) If the **school is included in the Index**, it means that the school was considered capable to provide one or more courses, in terms of curricula, teaching staff and facilities according to FEANI requirements. If the new course structure (characterised by the EMC evaluation form) is similar to the structure of courses from the same school already in the Index, the new course will be approved .

3) If the school is not in the Index, but there is a **national education system** imposing that the vast majority of subjects in a specific curricula is **common nation-wide** it is important that the school has the human resources and adequate facilities to deliver the program.

4) If the proposal does not fit partially or completely in the previous paragraphs, the Working Group must collect relevant information in order to make a proposal to EMC. This information should include the EMC evaluation forms, a brief description of the

teaching staff qualification in terms of academic degrees and professional experience and a description of the laboratory facilities used by the course.

When the curricula of the course includes a final project or dissertation, a description of its objectives and a summary of some of them should also be requested.

If the National member proposal includes up to **7 courses**, all of them will be dealt with. Above this value it is necessary to select a sample of 7 courses, representing all the different disciplines, in particular border cases and courses of shorter duration.

1.3 – Minimum requirements

In the recent past, during the discussions on the introduction of a European General Directive it was decided that the actual EurIng formation system (high level of secondary education, minimum of 3 years of higher education studies, minimum of 7 years educational/professional formation and a professional review) is a flexible and suitable methodology, in order to achieve recognition of a level of **overall competence to practice the engineering function**.

The educational basis of the EurIng designation must contain a suitable balance of Mathematics, Basic Sciences, Engineering fundamentals, Engineering specialization and Complementary subjects (communication skills, management, teamworking, law, security, environment, languages, …) and a large variety of accepted combination of these subjects exist today.

However, as mentioned in paragraph 2.2, EMC has to clarify what minimum requirements the content of the curricula of an engineering higher education course should have in order to be included in the Index .

EMC should use this discussion to introduce two new factors, a common unit of accreditation (instead of hours, or weeks, or semesters) and a minimum requirement for Mathematics, independent from Basic Sciences. The first factor is important for comparison purposes and the second factor is important in the differentiation of higher education courses from technically oriented post-secondary courses.

As the **European Credit Transfer System (ECTS)** is progressively being adopted by most European Universities, FEANI should also adopt this system of measuring the workload expected from a student to pass a subject.

According to ECTS, one year of studies (30 weeks) corresponds to 60 credits and 1 credit is proportional to the student workload, including classes, individual work and exams. A 3U course corresponds to 180 ECTS and a 5U course to 300 ECTS.

In countries where other accreditation units are used, its **translation to ECTS** will be studied by EMC and implemented.

Taking into consideration that any higher education engineering course must be directed in such a way that the student will learn “To think”, “To do” and “To be”, **basic sciences** are

essential for the first component, **engineering subjects** for the second and **complementary subjects** for the third.

Taking into consideration that there are many suitable higher educational routes to achieve an **overall competence** to practice the engineering function (after an adequate professional experience), a professional engineering course must have the following minimum requirements:

Basic sciences (Mathematics, Physics, Chemistry, Biology, Geology, ...) must represent a minimum of 20% of the overall ECTS. Higher Mathematics (linear algebra, analytical geometry, differential and integral calculus, numerical analysis, operational research, discrete mathematics, statistics, ...) must represent a minimum of 24 ECTS.

Engineering subjects must correspond to a minimum of 60% or 50% of the overall ECTS, if its duration is 3U or longer, respectively.

Non-technical subjects (communication skills, economics, management, team working, law, safety, environment, languages, …) must correspond to a minimum of 10% of the overall ECTS.

One subject may be integrated in more than one of the above classifications, contributing with its ECTS to them.

	3 years	> 3 years
Basic Sciences (Mathematics)	≥ 20% (>24 ECTS)	≥ 20% (>24 ECTS)
Engineering subjects	≥ 60%	≥ 50%
Non-technical subjects	≥ 10%	≥ 10%

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