European Society for Engineering Education
Europäische Gesellschaft für Ingenieur-Ausbildung
Société Européenne pour la Formation des Ingénieurs

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SEFI's Opinion on the Joint Declaration of the European Ministers of Education, signed in Bologna.

SEFI welcomes the important initiative taken by the European ministers of Education in signing the Joint Declaration in Bologna in June last year. SEFI strongly supports the idea of the crea-tion of a European Higher Education Area.

SEFI wishes to make the following general comments:

- SEFI shares the opinion of the Ministers concerning the need for a system of easily readable and comparable degrees**,** through a Diploma Supplement or otherwise,

- SEFI supports a wider use of the ECTS system as a proper means to promote student mobility,

- SEFI is convinced of the importance of increased mobility for students, teachers, researchers and administrative staff and it does in many ways promote such mobility,

- SEFI is already, by its statutes, committed to the idea of developing the European dimen-sion in Education. It does so primarily by serving as a network of engineering educators and a forum for discussion and information exchange, as well as

through the activities of its Working Groups, for instance, in curriculum development,

- SEFI shares the opinion of the European Ministers concerning the importance of European cooperation in quality assurance and accreditation. In certain countries in Europe, Engineering Education programmes are already accredited by competent bodies. SEFI welcomes any initiative leading to a common reflection, aiming at a deeper understanding and cooperation between these agencies**.** SEFI is fully prepared to pursue its action in this area, in cooperation with these accreditation agencies and other organisations.

The Ministers also commit themselves to the adoption of an education system based on two main cycles, where the first cycle shall in itself be relevant to the labour market and where the second should lead to a Master's degree.

The introduction of a larger number of Master's degree programmes, building on Bachelor's degrees, will no doubt make European Engineering Education more attractive for non-European students, especially if the programmes are run entirely or partly in English. It will also facilitate student mobility within Europe. SEFI therefore welcomes a large-scale introduction of separate 1-2 year Master's Programmes in Engineering.

The particular conditions and circumstances of Engineering Education must, however, be taken into consideration. It is often said that the educational systems across Europe are very different. This may be true in some fields but in Engineering Education the systems are already similar in many respects. There are many reasons behind this. One reason is the international character of the engineering profession. Another is the influence that the classical

19th century German technical university has had in the past as a model for other countries, particularly in Northern, Eastern and Central Europe. SEFI and other organisations have also contributed to a convergence of ideas.

In many European countries, two distinct types of engineering curricula are offered, one more scientifically oriented and one more application-oriented. Both of these have been developed to respond to the particular needs of industry and graduates of both types of curricula are well received by the job market.

There is today a high degree of consensus that the professional engineering degree should take about five years following secondary school. An exception has always been the United Kingdom, which has traditionally accepted the three-year honours degree as an adequate university education for the professional engineer, but its system of separate professional recognition adds further years of practical training to the qualification requirements. Recently, Britain has moved in the direction of its European partners by making the four-year MEng degree the minimum academic requirement for professional recognition as a Chartered Engineer.

Most European countries also have various forms of shorter Engineering Education. The length and character of these curricula may vary slightly from country to country but they have normally two factors in common; they are more vocationally oriented, or application-oriented, than the longer programmes and, although bridges normally exist, they are not primarily designed as a first part of a two-tier system. Graduates of these programmes play an important role, particularly in small and medium-sized enterprises.

SEFI is convinced that this existing European system for Engineering Education has much merit, that the system is quite compatible with the vision of a European Higher Education Area and that it should not be sacrificed. The cultural diversity of Europe is also a source of richness and changes in the architecture of

Engineering Education must not be allowed to destroy this richness.

This does not, of course, exclude the creation of a two-tier Bachelor/Master system also in Engineering Education, whenever this is judged appropriate. The Master's degree should, in such cases, be equivalent to the existing 5-year degrees.

It is also essential that changes in the organisation of engineering studies take into account the ongoing evolution in the transfer of knowledge and the emergence of virtual universities, flexible learning and distance education.

SEFI's view is thus that:

- any reform of the structure of European Engineering Education must take the particular conditions of this field of education into account,

- the existing European integrated 5-year curricula in Engineering are compatible with the idea of a European Education area,

- the existing European system of longer integrated curricula leading straight to a Master's Degree in Engineering should be maintained, possibly in parallel with a two-tier Bachelor/Master system,

- the longer, as well as the shorter, more application-oriented, curricula, correspond to a clear need and graduates from both types of programme have a good position on the job market,

- the specific qualities of the present, existing, application-oriented Engineering degrees should be recognised and safe-guarded,

- the creation of new 1-2 year Master’s programmes in Engineering should be encouraged.