

European Master of Sciences in Nuclear Applications (EMiNA)

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History

The ideas for creating the EMiNA program were influenced by the following ideas and side conditions:

- decreasing availability of resources and the hope to create synergies
- discussions of the implementation of the Bologna Process
- our International Studies of Technology program: bachelor programs – instructed in English language during the first academic year – to attract mainly international students. These students needed some perspective to continue their studies within our university
- discussions and workshops on problem-based and problem-oriented studies
- support from outside

So we started the program in 2003 with 18 students of which the first 6 are just graduating. In the meantime we applied for accreditation by AQAS which was granted last December until December 2011. Presently, we have started instructions of the third batch of students.

Structure

EMiNA is a four-semester master program instructed in English language. It is open for students from different disciplines of science and engineering. Minimum requirement for admission is a bachelors degree and the proof of English abilities by supplying a TOEFL or IELTS test score. In addition, we have the applicants submit a statement why they have selected the program.

During first semester students take three modules of **10 ECTS** each. In **Fundamentals of Engineering** we try to supply some missing knowledge and adjust the students standing to a similar level. The introductory nuclear sciences **Nuclear Physics, Radiation Detection, Nuclear Chemistry, Radiation Biology and Legal Regulations** are instructed in the other classes. Where applicable we use problem-based or problem-oriented methods for instruction.

Second semester comprises of a class **Nuclear Applications** consisting of lectures on Nuclear Data, Reactor Physics, Radioecology and BioMedical Applications. Skills and knowledge acquired so far are applied to a **project work** which can be done either in our labs or with our collaborative partners. **Management and Business Administration** helps to shape future leading forces.

Specialization into the fields of **Nuclear Power Engineering, Radioecology, Nuclear Chemistry and BioMedical Applications** is achieved by choice of electives in semester 3. The system is open to cover additional aspects or new fields. In addition, in **Tools for Working in Science** the students' skills in developing research projects, oral and written communication and quality control is developed.

Semester four is filled with a research project which is summed up in a paper and defended in the public.

We – as well as others – feel the need of cooperation as we can only offer a limited number of electives to our students. Cooperation with other universities adds value as students may study their particular field of interest with the partners or do their projects with them. This also includes partners from research and industries. Students exchange is a value per se which is fostered by our structure. ECTS and module supplements aid the exchangeability of classes instructed in different institutions.

We propose an application within the framework of ERASMUS mundus (Title 1: Master programs) which may support they ideas of the workshop and will introduce the participants to the proposal.