An original syllabus in photonics at the Ecole Généraliste d’Ingénieurs de Marseille

François Flory
Ecole Généraliste d’Ingénieurs de Marseille, Dom U. de St Jérôme 13397 Marseille Cedex 20 France
Phone : 33 (0) 491 28 80 58; Fax : 33 (0) 491 28 88 13; e-mail : francois.flory@enspm.u-3.mrs.fr

Abstract: With the creation of a school of engineers, which is part of the French system of the Grandes Ecoles, a deep reflection based on the experience of three schools, which are merging, has been led. Optics and photonics are very important parts of the proposed general syllabus.

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Photonics is a strongly multidisciplinary field. Highly skilled people in this field have a wide knowledge in physics associated with specific competences in optics. In Marseille, after the experience of forty years of teaching to engineers, the Ecole Nationale Supérieure de Physique de Marseille decided to merge with two other schools of engineers to strengthen the delivered education and to meet the need of companies and laboratories for managers or for high level scientists. The new school called Ecole Généraliste d’Ingénieurs de Marseille delivers a high level of education for engineers and researchers capable in conceiving and managing complex systems in particular optics hearted systems, in driving multidisciplinary teams, in anticipating quickly moving environment.

The education of each student is based on a strong scientific basis and a wide general culture, extended by acquisition of competences in a more specific field. So, a great part of the students can have of a strong knowledge in photonics with more than 1500 hours proposed in this field. A highly selective process is used to have students capable in succeeding a dense education for three years. An assessment of competences is set when the student is accepted and regularly actualized so that the student can himself define is curricula and his professional project.

Numerous opportunities to perform a full year in a foreign university or in another French school of Engineers are offered to students during their last year of study within the scope of exchange agreements. Students have also the opportunity to perform the European Master of sciences in Optics for the Information Technology during their last year of study. They can also perform a PhD for three more years in international level laboratories of the school.

The opportunity of the creation of this new, fully autonomous establishment belonging to the ministry of education and research, allows defining innovative pedagogical processes. In particular, beyond the conventional lectures, laboratories works, there is also the constant worry of relating one field to another, of keeping the student active, of keeping students’ mind opened and curious, of caring about applications which is pursued. A long time project work is performed by the students in a small group leading to an experience in project management. Training in companies are full parts of the syllabus.

Students and associative life is encouraged. The organizations of events by the students, sport meetings, and cultural activities are part of their time in the school.

The Fresnel Institute doing research in Electromagnetism, photonics, image processing, optical thin films, micro/nano components, biophotonics is strongly linked to the school. Astrophysics, mechanics, acoustic, chemistry and some other labs very close to the Ecole d’Ingénieurs Généralistes de Marseille making easier the convergence of technology.

The school houses the optics and photonics cluster of the south of France, POPsud, and innovation and transfer technology structures are in the close surrounding.

More than fifty companies directly concerned with photonics are in the region and of course many others in France, in Europe or in other countries are partners. Several of them are in the board of directors and in different councils (research, pedagogy).

So students are directly in relations with their future professional environment.

More details will be presented during the conference.