International MSc
Control for Green Mechatronics

Objectives

Mechatronics is an interdisciplinary field in which the following disciplines act together: electronic systems, information technology and mechanical systems. Thanks to this synergistic integration, mechatronics allows operability, improved or new functions and high reliability that could never be obtained in one device with purely mechanic, purely electronic or purely information technology. Nowadays, mechatronic systems can be found everywhere: in medical applications (medical robotics, dental machines), in vehicular applications (automatic gear, engines with electronics, automatic and driver-less vehicles), in production industry (industrial robotics, production lines), in aerospace (mobile robotics, robotic arms, actuated wings tillers), in precision systems (atomic force microscopes, hard disk driver, electronic-mechanical watches, microrobotics), in petroleum engineering (extraction machines, actuated networks of pipelines)...

This international master on Control for Green Mechatronics (GreeM) promotes a high-quality educational offer in the area of mechatronics systems with a particular focus on two points: their functional performances and their energetic efficiency. After graduation, the students will have mastered the area of green mechatronics where they will be able to design new or re-design existing mechatronic systems, to model and simulate them, to calculate controllers for their automation and their performances improvement, and to setup networks of mechatronic systems, all together with consideration of the energy efficiency. The career prospects of the students are very high because mechatronic systems are found and increasingly developed in a very wide range of applications. The fact that today's problematic, like energy consumption in technological devices, is particularly tackled in this master will make the graduated students very attractive to industry at the international level. Furthermore, high skills and specialized students will have been educated making them the best candidates for research and PhD programs in the fields of mechatronics at large.

Contents

This master program lasts two academic years split into four semesters with a total accreditation of 120 ECTS: 3 semesters being theoretical (S7, S8 and S9, see Fig.1) and the last (S10) being internship. The objective of the 1st year class (S7 and S8) is to discover the fundamentals of mechatronics as well as their design and control, with already an awareness to energy consumptions in mechatronic systems. Siemens and Schneider certifications on Mechatronics are also proposed to students in the 1st year class. In the 2nd year class, the objective is to provide advanced methodologies and controls courses and novel technologies courses, such as energy harvesting, for green mechatronics.

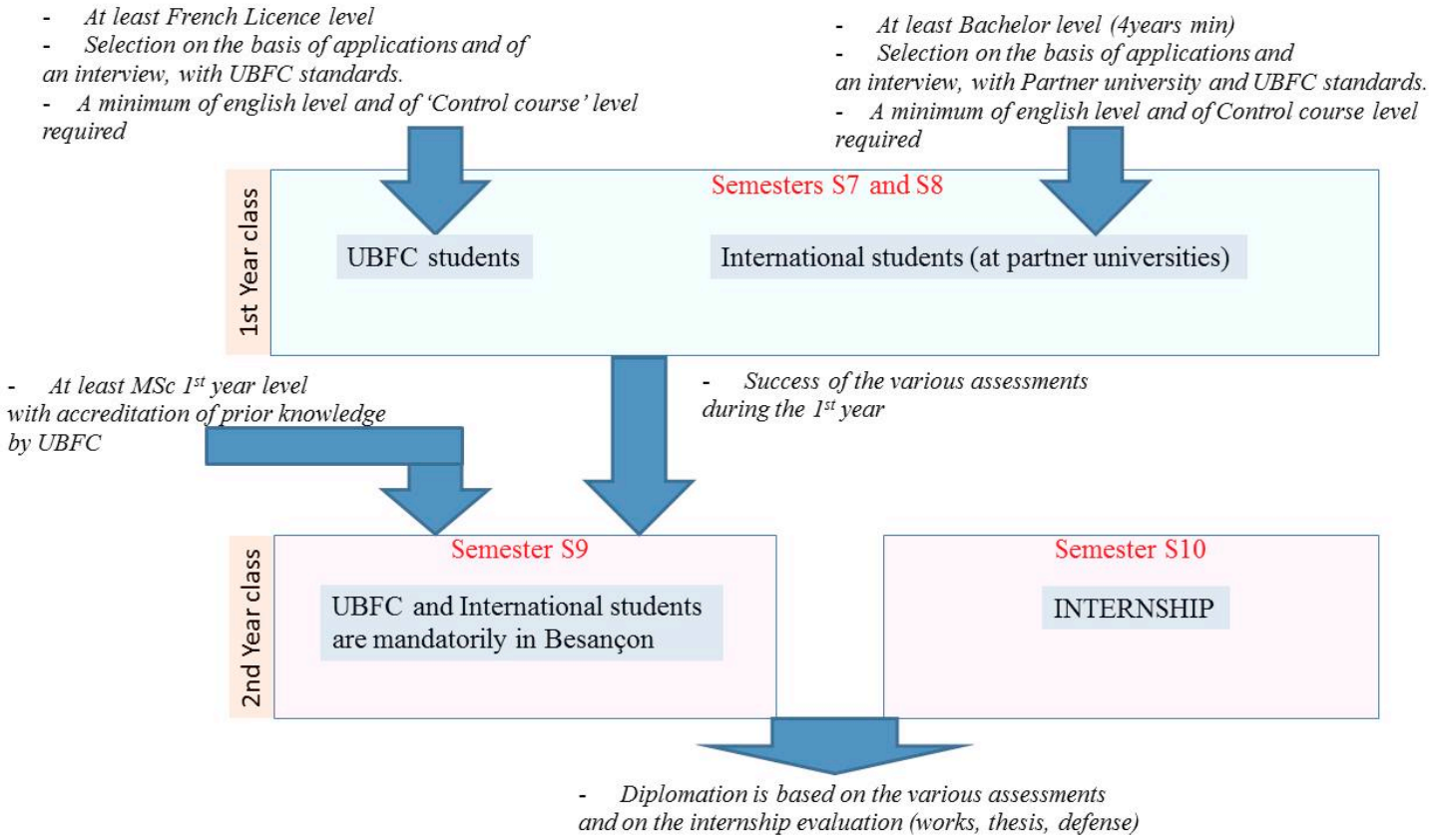
UBFC students enrolled in this master will have the possibility to spend one or two semesters of the 1st year in one of the international partner universities, while international students (from partner universities) can already come at UBFC-site for one or two semesters during that. All students are mandatorily at UBFC-site during the first semester of the 2nd year. Finally, the last semester is an internship that can be at international level or in France, at one of the research laboratories and institutes enrolled in this master or in industry.

Most of the classes courses are taught in English, except some courses common with another master program at the University of Franche-Comté and occurring in S7. There is also a module called 'French' (FLE, 3ECTS), the

only non-scientific course, in which French culture and language are introduced. Also a mentoring system between UBFC students and international students will be set up for practical sake (finding accommodations, discovering local language and cultures, visiting the country...).

Recruitments

The following image synthesizes the various possibilities to enroll the GreeM master.



Strong motivations, career objectives and ambitions, and backgrounds will be the main criteria used to evaluate candidatures wanting to enroll the GreeM master.

To become international-students:
Internationam students are those who are enrolled in both a partner university and at UBFC. Potential international students can discuss to the local contact at the partner university. The list of partner universities and local contacts will be available at the website of the GreeM master.

Contacts

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Useful links

The website link will be available soon....