RÉPUBLIQUE FRANÇAISE
Liberté
Égalité
Fraternité

GRENOBLE INP UGA Phelma

Graduate School of Engineering in Physics, Electronics, Materials Sciences

Master of engineering in Embedded systems and connected objects

SEOC

PRESENTATION

"Embedded Systems and Connected Devices", SEOC, offers a two years cursus, to prepare a high level Engineering Master's Degree in both embedded systems and communication techniques. The Master program offers advanced courses on the design flow of hardware and software systems (modeling and implementation languages, development and validation methods), on wireless communication systems, protocols, networks and data management, and on security and safety.

The curriculum includes two internships (8 weeks and 6 months,) during which the students work fulltime, either in industry or in academic research facility.

INDUSTRIAL SECTORS

Embedded communicating systems are ubiquitous in many areas of our daily and economic life and are as diverse as avionics, automotive control, cell phones or the billions of connected objects of the future Internet of Things.
Engineers from the SEOC program are specialists in these ever-expanding fields at the meeting point of networking, mobile applications, System-on-Chips and embedded real-time software.

They have various career options in many industrial sectors: software and hardware engineer, embedded system or real-time system project manager, systems integrator, network architect, mobile application developer, safety and security expert, in avionics and automotive industry, IoT, information, health or environmental sectors. Hiring is done by large industrial groups as well as by small innovative private specialist firms.

RESEARCH

The teachers in these program are mostly researchers of labs in Grenoble: LIG, G-Scop, LJK, TIMC, Inria, GIPSA-Lab, Verimag, TIMA, Cybersecurity Institute, IMEP-LAHC. This geographical proximity between the School and the research labs, allows proposing research projects to students during the first year of the program in the "Introduction to Research" elective course. In the second year, students may also choose an internship in a research lab.

Several SEOC Alumni undertake a research career by pursuing their studies through a PhD.

ASSETS

SEOC program provides an advanced and complete education in software and embedded systems, transmission, networks, digital electronics, safety and security, with a good balance between practical training and theoretical concepts. During the first year a full-time 4 weeks project illustrates software engineering and concepts of programming languages through the development of a large application. In second year, students implement a large project in SEOC domain. They select one of the two following projects:

> Implementation of an embbedded system: from design to complete validation of an integrated hardware/software embedded system.

> Development of a Java network application: design of a complete object-oriented architecture, with advanced notions of network programming, using an Integrated Development Environment and performance evaluation.

PRESS RANKINGS

Shanghai
Since 2020, Grenoble INP - UGA has contributed to the international ranking of the University of Grenoble Alpes
Shanghai Global 2022
Grenoble Alpes University ranked among the 150 best universities in the world and in the top 5 of French universities.

QS 2023 ranking by theme: Grenoble INP - UGA makes good progress in the field of engineering and technology
Grenoble INP - UGA has made good progress in the overall field of "engineering and technology", moving up 74 places to 93rd position worldwide and 5th position in France, making it the leading institution outside the Paris region.
The institute has made eight appearances in this ranking.

REUTERS

Grenoble INP - UGA leader in 2 lists from Reuters Ranking 2019

Most innovative universities in Europe
- 2nd of the French Engineerings Schools
- 13th in France

Grenoble INP - Phelma, UGA is the school for scientific diversity. It offers its students courses in various fields with a promising future:

- **Microelectronics and nano-technologies** (electronics, nanosciences, materials, health),
- **Decarbonated energy** (nuclear energy, photovoltaic, electrochemical storage),
- **Information technology** (digital communication, image and signal processing, telecommunications, computing and networks, Internet of Things, artificial intelligence),
- **Innovative materials** (for aeronautics, automobiles, sport & leisures, health, microelectronics, energy),
- **Biotechnology and biomedical engineering** (medical imagery and therapy, implantable devices),
- **Sustainable development** (decarbonated energies, eco-processes, recycling, material durability, energy management, natural signal analysis).

Based in Grenoble in the heart of the French Rhône Alpes region, Phelma boasts a rich academic and industrial infrastructure. As the only teaching institute on the Minatec innovation campus, Phelma benefits from an exceptional Training / Research / Industry synergy.

GRENOBLE INP Phelma UGA

1,400 students
380 + Engineering graduates a year
+ More than 25% of engineering go on to complete a thesis

110 permanent teacher-researchers from **11** laboratories associated with the school
Approximately 370 stakeholders from industry and research

CONTACT

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