

Master Electronique, énergie électrique, automatique

Parcours Wireless Integrated Circuits and Systems (WICS)

Présentation

The WICS (Wireless Integrated Circuits and Systems) Master is a Master degree focusing in integrated circuit and system design for Analog/Mixed/RF & millimeterwave applications. It gives students the opportunity to learn advanced skill sets with projects led by high-level research units; the techniques and methodologies they will need to promote their research on an international level will be studied.

With a **curriculum focusing on theoretical knowledge supported by practical applications**, the WICS Master prepares students for a career in both the **international research community and the professional applications**. As they finish their training, graduate students are fully ready to pursue a career in thriving fields such as the Internet of Things, future wireless communication systems, sensor networks, or medical applications.

Grenoble (and more generally the French Alps area) is an exceptional research environment for nano & microelectronics (with the Minatec innovation campus). Thus the WICS master is supported by leading research laboratories and companies specialized in radiofrequency and microelectronics. Most students consequently choose to stay in the research field with a thesis, and our partners laboratories (TIMA, RFIC-Lab, CEA-Leti, LCIS, IMEP-LAHC) hire about 10 doctoral students each year in the field of radiofrequencies.

A double degree with Politecnico di Torino has been created. It concerns the WICS Master in France (at the UGA and Grenoble INP) and the Laurea magistrale in Ingegneria elettronica in Italy (at Politecnico di Torino). Courses are taught in English. The first year of this program is taught at PoliTo, the second year at UGA/Grenoble INP.

Admission

- 1st year of Master WICS degree:

The prospective student should:

- have completed at least **three full years of University** studies (180 ECTS)

- 2nd year of Master WICS degree:

The prospective student should:

- have completed at least **four full years of University** studies (a first year of Master's degree, bachelor or equivalent degree with 240 ECTS)
- have followed basic classes in Electronics and Radio Frequency
- prove an English proficiency with CEFR (B2), TOEFL (IBT 87-109), IELTS (5.5-6.5), TOEIC (785-945) or equivalent. Students coming from English-speaking countries or/and who had a University curriculum in English are considered proficient enough. If you don't have the opportunity to take the test in your home University, an English test is organized during the first week of the classes, to check the level of everyone.

- Double degree program:

The prospective student should:

- have completed at least three full years of University studies (180 ECTS) in the fields of Electronics or Applied physics.
- prove an English proficiency with CEFR (B1), IELTS (5.0), or equivalent as a minimum. Both certificates from an accredited institution and/or statements from the home institution are accepted

For applicants whose country of residence does not fall under the "Study Portal in France" (PEF), the schedule of the application campaigns for the eCandidat application is available [ici](#).

Public continuing education:

You are in charge of continuing education:

- if you resume your studies after 2 years of interruption of studies,
- or if you followed training under the continuous training regime one of the previous 2 years
- or if you are an employee, job seeker, self-employed.

If you do not have the diploma required to integrate the training, you can undertake a [validation of personal and professional achievements \(VAPP\)](#).

Poursuite d'études

PhD

Infos pratiques :

- > **Composante :** UFR PhITEM (physique, ingénierie, terre, environnement, mécanique)
- > **Durée :** 1 an
- > **Type de formation :**
- > **Lieu :** Grenoble - Polygone scientifique
- > **Contacts :**

Responsable(s) pédagogique(s)

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Programme

Master Systèmes électroniques (SE) 1re année

Semestre 7

UE Représentation d'Etat	3 ECTS	28h
UE Gestion de projet entrepreneurial	3 ECTS	25h

UE Automates et systèmes embarqués	6 ECTS	50h
UE Traitement du signal avancé et aléatoire	3 ECTS	24,5h
UE Electronique radio-fréquence	3 ECTS	24h
UE Systèmes de transmission analogique et numérique	3 ECTS	30h

UE Projet SE part 1	3 ECTS	21h
UE Projet SE part 2	3 ECTS	26h
UE Systèmes d'exploitation (C,C++)	3 ECTS	25,5h

Semestre 8

UE SISO Feedback control	3 ECTS	39h
UE Compatibilité électromagnétique	3 ECTS	30h
UE Stage	6 ECTS	
UE Antennes	3 ECTS	24h
UE Systèmes d'exploitation temps réels (OS, RTOS)	3 ECTS	25,5h
UE Conception en micro-nano électronique	3 ECTS	25h
UE Projet SE part 3	3 ECTS	24h
UE Codage et théorie de l'information	3 ECTS	27,5h

1 élément(s) au choix parmi 2

UE Anglais	3 ECTS	
UET		

Master 2e année

Semestre 9

UE Radiofrequency Communication Systems	6 ECTS	62h
UE Radiofrequency Integrated Circuits	6 ECTS	52h
UE Microwave Circuits	6 ECTS	48h
UE Antennas and Electromagnetic Compatibility	3 ECTS	26h
UE Integrated technologies & process of fabrication	3 ECTS	28h
UE Specialty courses	3 ECTS	32h
UE Research Lab Work	3 ECTS	48h

Semestre 10

UE Research internship	24 ECTS	
UE Research Lab Work	3 ECTS	48h
1 élément(s) au choix parmi 2		
UE FLE	3 ECTS	
UE Anglais	3 ECTS	22h