

Master in Electronics, electrical energy, automation

Master in systems, control and information technologies (MiSCIT)

Presentation

Control and information technology components are increasingly used in complex engineering systems. The pervasive infiltration of computer systems (embedded systems and networks) in engineered products and in society requires new insights and ideas in engineering research, education and entrepreneurship. Model-based system integration methodology combined with an overall emphasis on compositional design methodology then appears as a crucial issue in modern process automation and research in automatic control. The proposed curriculum consequently includes advanced topics in control-oriented modeling, systems theory, supervision communication networks and real-time operation, along with the more classical multi-objective and discrete-events control issues. The aim is to provide high level knowledge and skills for research and developments (R&D) in process automation, from the latest theories to their applications.

<http://www.gipsa-lab.fr/MiSCIT/home/>

Registration and scholarships

This two-semester program is a specialty (second and last year, master 2nd year in the French system) of the master EEATS. The French master is 2 year, but when you apply a centralized University board examines your application to grant you, if suitable, the first year as equivalent and at the end of the one-year MiSCIT program you obtain a diploma corresponding to 2 years of studies (master EEATS, MiSCIT specialty diploma).

Eligibility for students

- at least 180 ECTS for the students in an exchange program who wish to join MiSCIT for one semester in order to validate specific classes in their home institution
- at least 240 ECTS (typically 4 years of university studies) for students wishing to validate the master 2nd level

For students from foreign countries who completed a full bachelor program of 4 years or more, your application will be evaluated by a specific jury (called the *Commission de Validation des Acquis*).

Requirement : In order to apply to this master program, the prospective student should hold a master 1st year, bachelor or equivalent degree completed after **four full years of university** studies, have followed basic classes in Automatic control, 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.

For candidates whose country of residence is not included in the "Studies in France" portal (PEF) scheme, the calendar for the eCandidat application campaigns is available [here](#).

For more informations : www.gipsa-lab.fr/MiSCIT/admission.php

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 \(VAPP\)](#)

You want to apply and sign up for a Master? Please be aware that the procedure differs depending on the diploma you want to take, the diploma you have already obtained and, for foreign students, your place of residence. Let us be your guide – simply follow this [link](#)

Practicals informations :

- > **School** : UFR PhITEM (physique, ingénierie, terre, environnement, mécanique)
- > **Duration** : 2 years
- > **Course type** : Initial and Continuing Education
- > **Location(s)** : Grenoble - Scientific Polygon
- > **Contacts** :

Programme director

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Programme administration

Application
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Program

Master in Electrical energy systems (SEE) 1st year

Semester 7

UE State-space representation	3 ECTS	28h
UE Entrepreneurial project management	3 ECTS	25h
UE Automata and embedded systems	6 ECTS	50h
UE Power networks	3 ECTS	33,5h
UE Electrical machines	3 ECTS	33,5h
UE Summary of converters	3 ECTS	24h
UE Structures of converters	3 ECTS	33,5h
UE Passive components	3 ECTS	25h
UE SEE project part 1	3 ECTS	26h

Semester 8

UE SISO Feedback control	3 ECTS	39h
UE Electromagnetic compatibility	3 ECTS	30h
UE Internship	6 ECTS	
UE Speed variation	3 ECTS	26h

UE Modelling of power systems	3 ECTS	26h
UE Advanced power electronics	3 ECTS	39,5h
UE SEE project part 2	3 ECTS	26h
UE SEE project part 3	3 ECTS	26h
1 option (s) to choose from 2		
UE English	3 ECTS	
UE Transverse teaching of choice		

Master Electrical systems (SE) 1st year

Semester 7

UE State-space representation	3 ECTS	28h
UE Entrepreneurial project management	3 ECTS	25h
UE Automata and embedded systems	6 ECTS	50h
UE Advanced random signal processing	3 ECTS	24,5h
UE Radiofrequency electronics	3 ECTS	24h
UE Analog and digital transmission systems	3 ECTS	30h
UE SE project part 1	3 ECTS	21h

UE SE project part 2	3 ECTS	26h
UE Operating systems (C,C++)	3 ECTS	25,5h

Semester 8

UE SISO Feedback control	3 ECTS	39h
UE Electromagnetic compatibility	3 ECTS	30h
UE Internship	6 ECTS	
UE Antennas	3 ECTS	24h
UE Real-time operating systems (OS, RTOS)	3 ECTS	25,5h
UE Design in micro-nano electronics	3 ECTS	25h
UE SE project part 3	3 ECTS	24h
UE Coding and information theory	3 ECTS	27,5h

1 option (s) to choose from 2

UE English	3 ECTS	
UE Transverse teaching of choice		

Master 2nd year

Semester 9 CST

UE Multi-objective control	6 ECTS	72h
UE Modeling and system identification	3 ECTS	24h
UE Discrete event systems	3 ECTS	21h
UE Modeling and control of PDE	6 ECTS	42h
UE Nonlinear and predictive control	6 ECTS	34h

1 option (s) to choose from 2

UE Design project 1	3 ECTS	26,5h
UE Efficient methods in optimization	3 ECTS	27h

1 option (s) to choose from 2

UE English	3 ECTS	30h
UE French as a foreign language	3 ECTS	

Semester 9 IPA

UE Multi-objective control	6 ECTS	72h
UE Modeling and system identification	3 ECTS	24h
UE Discrete event systems	3 ECTS	21h
UE Embedded control and modeling labs	3 ECTS	45h
UE Communication systems	3 ECTS	34h

UE Supervision and diagnosis	3 ECTS	30h
UE Network applications	6 ECTS	71h

1 option (s) to choose from 2

UE French as a foreign language	3 ECTS	
UE English	3 ECTS	30h

Semester 10 CST

UE Project management and seminars	3 ECTS	67,5h
UE Internship	24 ECTS	
UE Design project 1	3 ECTS	

Semester 10 IPA

UE Introduction to data assimilation	3 ECTS	32h
UE Project management and seminars	3 ECTS	67,5h
UE Internship	24 ECTS	