

SCIENCES, INGÉNIERIE ET TECHNOLOGIES

MASTER ELECTRONIC SYSTEMS FOR EMBEDDED AND COMMUNICATING APPLICATIONS

Aéronautique et espace



Target level
BAC +5



ECTS
120 credits



Duration
2 ans



Language(s)
Français

Subprograms

- › MASTER ELECTRONIC SYSTEMS FOR EMBEDDED AND COMMUNICATING APPLICATIONS M1
- › MASTER ELECTRONIC SYSTEMS FOR EMBEDDED AND COMMUNICATING APPLICATIONS M2
- › MASTER ELECTRONIC SYSTEMS FOR EMBEDDED AND COMMUNICATING APPLICATIONS M2

Presentation

2 internships (6 weeks + 6 months) in a laboratory or a company. One individually tutored project in a research team (100h tutoring), plus several project with small groups of students.

Objectives

Knowledge of analog and digital electronic systems. Knowledge of the embedded systems from the hardware point of view. Antenna and RF systems theory and applications. Signal and image processing in the communications and aeronautics systems. Power management of embedded and autonomous systems.

Skills

To design electronic embedded systems. To design communicating systems in the radiofrequency domain. To Design power management for embedded systems. To develop signal and image processing in the context of communications and aeronautics.

Organisation

Admission

Access conditions

Bachelor of Science or equivalent in the domain of electronic engineering.

And after

Further studies

Manufacturers of electronic devices in the aeronautic context. Manufacturers in the hardware for embedded systems. Main companies in the aeronautics and automotive fields

Professional insertion

Manufacturers of electronic devices in the aeronautic context.
Manufacturers in the hardware for embedded systems. Main
companies in the aeronautics and automotive fields

Useful info

Contacts

Contact master ESECA

✉ master-eseca @ univ-toulouse.fr

Know more

🔗 <http://www.toulousetech.net/en/programs/master-of-science-XB/sciences-engineering-and-technologies-SIT/msc-electronic-systems-for-embedded-and-communicating-application-eseca-program-program1-msc-electronic-systems-for-embedded-and-communicating-application-eseca-2-en.html>

Program

Organization

PhD in the domains of electronics, signal processing, communications, aeronautics and space.

MASTER ELECTRONIC SYSTEMS FOR EMBEDDED AND COMMUNICATING APPLICATIONS M1

	Nature	CM	TD	TP	Crédits
M1 Electronic Systems for Embedded & Communicating Appli.	UE				
Parcours Normal - M1 ESECA Semestre 7	UE				30 credits
Parcours Standard sem 7 ESECA	UE				
UE Social Science & Culture sem 7	UE				7 credits
French (FLE) M1 ESECA semestre 7	UE				
Conferences on aeroautics - sem 7	UE				
Communication	UE				
Sport - M1 ESECA	UE				
UE Math. - M1 ESECA	UE				6 credits
Maths Fourier Analysis	UE				
Maths - Complex variable - Vector analysis	UE				
Maths Probability / Statistics	UE				
Programming	UE				4 credits
Basis of Programming / Matlab	UE				
C programming	UE				
Microprocessor	UE				
UE Analog Electronics	UE				8 credits
Circuits	UE				
Project Analog Electronics	UE				
Analog Electronics Pratical	UE				
Semic-conductor devices	UE				
Filtering	UE				
Transmission lines	UE				
UE Digital Electronics	UE				5 credits
Digital electronics	UE				
VHDL - M1 ESECA	UE				
Parcours PIM sem 7 - M1 ESECA	UE				
UE PIM Commun	UE				26 credits
UE PIM N7	UE				4 credits
Ligne de Transmission	UE				
Circuits RF passifs et actifs	UE				

Antennes	UE	
Programmation C	UE	
M1 ESECA Semestre 8	UE	30 credits
UE Social Science & Culture sem 8	UE	6 credits
Sport semestre D	UE	
Research (Industrial) Project	UE	
Langues M1 ESECA	UE	
Anglais 2EN semestre 8	UE	
LV2 M1 ESECA	UE	
Conf. Aéro. Sem 8	UE	
UE Digital Electronics	UE	6 credits
Digital Electronics Project	UE	
Front-end acquisition	UE	
UE Optics & Telecoms	UE	8 credits
Optoelectronics	UE	
Telecoms	UE	
Practical Hyper / Opto	UE	
Laser and optical fiber sensing techniques	UE	
UE RF	UE	7 credits
Antennas	UE	
Passive RF	UE	
Active RF circuits	UE	
MEMS	UE	
Hyper Frequency Project	UE	
UE Signal and Image	UE	3 credits
Signal processing	UE	
Digital Sign.Proc.	UE	
Image processing	UE	
Signal & Image processing project	UE	

MASTER ELECTRONIC SYSTEMS FOR EMBEDDED AND COMMUNICATING APPLICATIONS M2

	Nature	CM	TD	TP	Crédits
M2 Electronic Systems for Embedded & Communicating Appli.	UE				60 credits
M2 ESECA Semestre 10	UE				30 credits
M2 ESECA Soutenance PFE	UE				30 credits
M2 ESECA Circuits Intégrés pour Systèmes Embarqués Sem. 9	UE				30 credits
Sciences Humaines et Sociales	UE				2 credits
Soutenance de stage	UE				
Langue M2 ESECA (option ICES et SIP) semestre 9	UE				
Relations entreprises	UE				
Métiers et fonctions de l'Ingénieur dans l'industrie	UE				
Architecture des systèmes mixtes	UE				5 credits

VHDLAMS	UE	
IoT	UE	
Architecture, mise en oeuvre et fiabilité des systèmes embar	UE	
Projet plate forme mobile autonome	UE	
Systèmes optoélectroniques	UE	4 credits
Composants et Circuits optoélectroniques en HF	UE	
Projet liaison optique embarquée	UE	
Capteurs laser et à fibre optique	UE	
Circuits intégrés	UE	13 credits
Digital Synthesis	UE	
Silicon Technology	UE	
SILVACO CAD Technology	UE	
Introduction to Cadence CAD	UE	
ADC and DAC	UE	
System on Chip	UE	
Conception VHDL	UE	
Choix option Analogique ou Numérique	UE	
Option Analogique	UE	
Analog IC	UE	
Instrumentation Chain Integration	UE	
Analog ASIC Project	UE	
Option Numérique	UE	
Signal Processing ASIC Project	UE	
Systèmes embarqués	UE	6 credits
DC/DC Energy Converters	UE	
Drivers	UE	
Noise	UE	
Procédés MEMS	UE	
Projet SIP	UE	
Compatibilité électromagnétique des circuits intégrés	UE	
M2 ESECA Micro-Wave Engineering Semestre 9	UE	30 credits
Equipements	UE	6 credits
RF equipment	UE	
PayLoad Design	UE	
MEMs	UE	
Optical and Microwaves Measurements	UE	
Applied physics 2	UE	3 credits
Silicon Technology	UE	
Active Components	UE	
Plasmas Physics	UE	
Optoelectronics MicroWaves	UE	
Projet Recherche	UE	7 credits
Enseignements Communs	UE	6 credits
Conferences for Microwaves	UE	
Engineering Trade Conferences	UE	
Engineering Trade Conferences	UE	

English	UE	
Project management	UE	
Radar et Systèmes	UE	3 credits
Signal Radar	UE	
Radar Equipement	UE	
Communicating Networks	UE	
Physique Appliquée 1	UE	5 credits
Multi Physics Modelling - COMSOL Software	UE	
EMC	UE	
Network Antennas	UE	
Diffraction Theory	UE	
Real Propagation	UE	
M2 ESECA Signal and Image Processing Semestre 9	UE	30 credits
UE Modélisation et Représentation des signaux	UE	8 credits
Signals Representation and Analysis II	UE	
Signals Representation and Analysis I	UE	
Source coding - Application to audio	UE	
Estimation - Detection	UE	
Forms Classification and Recognition	UE	
UE Traitement des signaux numériques	UE	4 credits
Digital Signal Processing II	UE	
DSP	UE	
UE Technique avancée du traitement du signal	UE	6 credits
Antennas Processing	UE	
Adaptative Processing	UE	
Inverse Problems	UE	
Projet de traitement avancé	UE	
UE Télémedecine et Télédetection	UE	10 credits
Medical imaging	UE	
Remote sensing	UE	
Radar signal	UE	
Projet d'imagerie biomédicale	UE	
Projet de télédetection	UE	
Sciences Humaines et Sociales	UE	2 credits
Soutenance de stage	UE	
Langue M2 ESECA (option ICES et SIP) semestre 9	UE	
Relations entreprises	UE	
Métiers et fonctions de l'Ingénieur dans l'industrie	UE	

MASTER ELECTRONIC SYSTEMS FOR EMBEDDED AND COMMUNICATING APPLICATIONS M2

	Nature	CM	TD	TP	Crédits
M2 Electronic Systems for Embedded & Communicating Appli.	UE				

M2 ESECA Semestre 9	UE	30 credits
UE Social Science & Culture sem 9	UE	9 credits
French (FLE) sem 9	UE	
English sem 9	UE	
Internship presentation	UE	
Research project	UE	
Conferences on aeronautics sem 9	UE	
Relation with enterprises	UE	
UE Embedded Systems	UE	9 credits
Digital Synthesis	UE	
System on Chip	UE	
Signal Processing ASIC Project	UE	
RF equipment	UE	
PayLoad Design	UE	
Architectures, interfacing and reliability of ES	UE	
Mobile autonomous platform project	UE	
UE Power Management	UE	4 credits
DC/DC Energy Converters	UE	
Drivers	UE	
EMC of Integrated Circuits	UE	
UE Radar and remote sensing	UE	3 credits
Signal Radar	UE	
Remote sensing project	UE	
RADAR equipment	UE	
RF/OPTO	UE	5 credits
Composants et Circuits optoélectroniques en HF	UE	
Project Embedded optical links	UE	
Signal for telecommunication	UE	
Space telecoms	UE	
M2 ESECA Semestre 10	UE	30 credits
UE Soutenance PFE semestre 10	UE	30 credits