

SCIENCES, INGÉNIERIE ET TECHNOLOGIES

MASTER OF SCIENCE : SATELLITE COMMUNICATION SYSTEMS (SATCOM)



Niveau d'étude
visé
BAC +5



ECTS
120 crédits



Durée
2 ans

Présentation

The Space Communication Systems program is tailored to provide students with necessary and up-to-date knowledge for mastering different aspects of digital communications

Objectifs

Since fifty years, satellite systems have demonstrated their excellence to collect and distribute data in a vast coverage area for the benefit of thousands of users. Within the global telecommunications industry, space communications display one of the most profitable businesses in permanent evolution. Companies of the sector, both system and service providers, are constantly looking for junior executives offering the expertise matching the specifics of space communications. The Space Communication Systems program is tailored to provide students with necessary and up-to-date knowledge for mastering different aspects of digital communications, signal processing, and networking applied to communication or navigation systems. Such systems are strategic in aeronautical or space applications.

The program, is built upon on the following foundations:

- a global approach of system design and analysis by taking into account the environments, the limitations and the constraints, the interfaces and the expected performances, expertise in the disciplines contributing to the design of these systems: signal processing, digital communications, networking, etc.

- simulation tools and field techniques,
- development of applications for the space, aeronautical and embedded-system domains.

First semester: academic session of around 500 hours, provided by INP-ENSEEIH, ISAE and Télécom

Bretagne's permanent professors and experts from the aerospace Industry bringing current knowledge and experience, including:

- lectures, tutorials, experimental and practical sessions, online exercises, practical works in team, simulation with MATLAB, OPNET, or specific software,

- 3 projects carried out in pairs for about 100 hours globally,

- conferences, demonstrations in laboratory, experimentations on links, navigation receivers (GPS, etc.).

Second semester: students have to conduct a professional thesis in the aerospace Industry or in a laboratory, in France or abroad, supervised by a tutor from the host organisation and from INP-ENSEEIH, ISAE or Télécom Bretagne. The thesis is concluded by the preparation of a report and a public defense

Career opportunities

This Advanced Master in space communications systems offers students various positions in systems design and project management for space companies and agencies.

Savoir-faire et compétences

Organisation

Admission

Conditions d'admission

Academic requirements

A master's degree, or an equivalent degree in science or engineering, or bachelor degree completed by 3 years of professional experience

Selection and admission

Admission to ISAE's master at: <http://admissionsmasters.isae-supaero.fr>

Selection and admission are made by an admission committee: possible interviews can be organized if necessary

Deadlines for application: several admission committees scheduled from February to July, see schedule on our website: <http://admissionsmasters.isae-supaero.fr>

Language requirements :

TOEFL (Paper-based): 550, or TOEFL (IBT): 79, or TOEIC: 785, or IELTS: 6.5

Et après

Poursuite d'études

Space and specific techniques

Insertion professionnelle

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

Infos pratiques


Contacts

n7@enseeiht.fr

Lieu(x)

 Toulouse

En savoir plus

 <http://www.toulouse-tech.net/en/programs/advanced-master-7/sciences-engineering-and-technologies-SIT/advanced-master-in-satellite-communications-systems-program-program1-fruai00000000apritn3x4ae-en.html?search-keywords=satellite>

Programme

Organisation

Study field : Materials Engineering, Systems Engineering

	Nature	CM	TD	TP	Crédits
1 ère année Sat Com	UE				60 crédits
Semestre 7 Sat Com	UE				30 crédits
SOFT AND HUMAN SKILLS- Sem. 7	UE				7 crédits
EPS-2A-Sem.7	Matière				
Français Langue Etrangère (FLE (PIM)	Matière				
Conferences on aeronautics - sem 7	UE				
Communication	UE				
PROGRAMMING	UE				3 crédits
Basis of Programming / Matlab	UE				
C programming	UE				
Microprocessor	UE				
DIGITAL ELECTRONICS	UE				5 crédits
VHDL - M1 ESECA	UE				
Digital electronics project	UE				
Maths	UE				4 crédits
Theory of distributions for signal processing	UE				
Probability Statistics	UE				
Stochastic process	UE				
Introduction to digital communications	UE				8 crédits
Signal processing	UE				
Digital signal processing	UE				
Digital communications	UE				
Channel coding	UE				
Simulation of communication chains	UE				
Semestre 8 Sat Com	UE				30 crédits
	Nature	CM	TD	TP	Crédits
2ème année Satcom	UE				60 crédits
Semestre 10 Sat Com	UE				30 crédits
PFE	UE				30 crédits
Semestre 9 Sat Com	UE				30 crédits
SHS	UE				5 crédits
Satellite Comm. Business & Regulation & Space Law	Matière				
Project management	Matière				
Conferences on Satcom	UE				
Tutored project	UE				

Satellite Comm. Business & Regulation & Space Law	Matière	
Project management	Matière	
Visits and conferences	Matière	
ADVANCED TELECOMMUNICATION TECHNIQUES 1	UE	6 crédits
Network & Telecom Protocols	Matière	
Advanced digital communication	UE	
Modern channel coding	UE	
Digital com. for non linear channels	UE	
Network & Telecom Protocols	Matière	
Spread spectrum techniques	Matière	
Digital filter banks	Matière	
ADVANCED TELECOMMUNICATION TECHNIQUES 2	UE	5 crédits
Spread spectrum techniques	Matière	
Digital filter banks	Matière	
RF Satellite Channel	Matière	
Digital receivers & SDR Technology	Matière	
Digital receivers & SDR Technology	Matière	
Modern Channel Coding	Matière	
FUNDAMENTALS OF SATCOM SYSTEMS	UE	7 crédits
Introduction to Satellite communications	Matière	
Satellite payloads & ground segment	Matière	
Missions, platforms and operations	Matière	
Space techniques and applications	UE	6 crédits