



SPACE APPLICATIONS AND SERVICES

ADVANCED MASTER



ONE YEAR FULL TIME

- 6 months of courses
- 6 months of professional thesis or internship.

TEACHING LANGUAGE

- English

START OF CLASSES

- End of September

LOCATION

- ISAE-SUPAERO, Toulouse, France

KEY POINTS

- Strong partnership with Airbus Defence & Space (60% of the lecturers).
- Earth observation and applications dedicated to sustainable development.

HEAD OF PROGRAM

- ISAE-SUPAERO: Prof. Raphaël GARCIA
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CONTACT

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OBJECTIVES

The first objective of this program is to give students a broad understanding of space systems and their environment, constraints and capacities in the fields of earth observation, communications and navigation.

The second objective of the program is to help students, using real-life examples and experimental work, to grasp the value of space systems for the creation of space applications and services. Students will propose and design tools and solutions in areas such as the environment, agriculture, transport or urban planning. They will be able to specify a complete telecommunications system according to user needs: Internet access, Internet of Things, fixed or mobile terminals ...

Students will be able to both better understand the performance of space systems and identify user needs, as well as develop new services and applications. The know-how in the digital domain has a central place in the training with topics like big data, cloud computing, digital communications, software radio.

LEARNING APPROACH

1st semester: 6 months of courses dispensed in Toulouse, mainly at ISAE-SUPAERO

2nd semester: students are required to conduct a 4 to 6 months professional thesis or internship:

- in an industry or in a laboratory,
- in France or abroad,

supervised by a tutor from the host organization and from ISAE-SUPAERO

The thesis concludes with the submission of a report and an oral dissertation in front of a jury.

Students who have already acquired professional experience prior to the program, may complete their project in a research center or laboratory.

CAREER OPPORTUNITIES

This Advanced Master degree offers career opportunities in a wide range of fields:

- Jobs related to cross disciplinary use of space data (observation of the earth and its atmosphere, telecommunications, data positioning, data from scientific missions and exploration) in complex information systems,
- Consulting jobs to identify and define requirements, and implement application solutions using space data,
- New jobs related to new space challenges.

CAREER OUTCOMES

- Project Leaders
- Business Engineers
- Business Development Managers
- Consulting Managers
- Research Engineers
- Expert in Space Applications

Companies recruiting our students

Thales Alenia Space, Airbus, CNES, SES ASTRA, AKKODIS

More information





SYLLABUS



- ◆ **Part 1: Space systems**
 - Space systems introduction
- ◆ **Part 2: Digital techniques**
 - Big data and cloud
 - Digital communications and networking basics
- ◆ **Part 3: Earth observation**
 - Remote sensing and sensors
 - Image processing and data analysis
 - Earth observation applications and services
- ◆ **Part 4: Navigation and positioning**
 - Navigation and positioning
- ◆ **Part 5: Space Communications**
 - Telecommunications and networks
 - Broadband satellite communication systems
 - Satellite broadcasting
 - Telecommunication satellites for mobiles
 - Satellite communication business
- ◆ **Part 6: Space economics, regulations & services**
 - Space economics and regulations
 - Services and integrated applications
- ◆ **Part 7: Tutored project**

TESTIMONIES

YOANN AUDETS

Class of 2021-2022

👂 I decided to join the advanced master to complete my initial training. My engineering degree was more focused on Space systems design and I wanted to have more **knowledge about services and state-of-the-art techniques in various fields and mainly navigation.** Having professional engineers as professors is always great. You can always learn from their experience and advice. They give you an inside look at the industry which really helps you to understand. I am really interested in R&D and **this master through academic and industrial speakers helps you understand new technologies and future developments of space programs.**

MEGA DEVARAJU

Class of 2021-2022

👂 One of the reasons for my choice of this University was its proximity and close connections to the Aerospace industry but the primary reason was the Space Applications and Services course. I believe that space shouldn't be limited by the boundaries of nationality and could help solve actual problems in the real world. And I decided to come to ISAE SUPAERO to meet people having similar beliefs and working towards the same goals. The university seemed **to provide exposure and opportunities to interact with industry experts in all kinds of fields.** The Advanced Master packs a lot of information dispensed by industry professionals who have been working in these fields for a long time. There is a good balance between the theoretical knowledge required to understand these concepts and practical exercises to understand how the industry works. **The numerous assignments and projects gave us a lot of experience and prepared us for what to expect in the industry and hopefully, we are all ready for the next adventure to come.**