

# ADVANCED MASTER SYSTEMS ENGINEERING (SEN)



Niveau d'étude  
visé  
BAC +6



Diplôme  
Mastère  
spécialisé



Domaine(s)  
d'étude  
Ingénierie  
aéronautique et  
spatiale



Accessible en  
VAE, Formation  
initiale,  
Formation  
continue



Établissements  
ISAE -  
SUPAERO

## Présentation



The Advanced Master in "Systems Engineering" provides the international aerospace industry with skilled professionals equipped to specify, design, deploy and maintain complex systems.

This training program develops a system approach with the capacity to federate and manage various, interwoven and complementary activities.

## Objectifs

Systems Engineering is an interdisciplinary engineering discipline combining all sciences and technologies in an integrated team from design, to development, up to operations and delivery of competitive and complex systems. The systems Engineering approach is the capacity to federate and control various, interweaving and complementary engineering activities. The objective of this approach is to deliver satisfactory systems, on-time and within the projected budget, with the level of quality and performances that meets the requirements of an open and competitive market.

The systems Engineering process implements technical processes (requirement engineering, design, integration, verification, validation, etc.) as well as project management processes, agreement processes and enterprise processes.

The program is designed in partnership with industry. Graduates are able to specify, design, deploy and maintain competitive and complex systems, fit to purpose, in various industrial sectors: space, aeronautics, air traffic control, land transport systems, maritime transport, health industry, energy, communication systems, etc

## Admission

### Conditions d'admission

The applicants must hold the following degrees:

- A **Master's Degree** or an equivalent degree
- Or a **Bachelor's Degree** with at least 3 years of professional experience
- International degree equivalent to the aforementioned degrees.

For candidates who do not meet these conditions but can justify 5 years of significant professional experience, these programs can be accessed via the Validation of Professional and Personal Acquisitions - VAPP

Experienced Systems engineers wanting to have their academic and professional skills acknowledged can also

obtain this diploma through Validation des Acquis et de l'Expérience (VAE) / validation of prior learning and experience.

## Et après...

### Insertion professionnelle

Systems Engineering is now a permanent concern for Major Governmental contractors, equipment manufacturers, prime contractor integrating systems, and services companies such as Airlines for instance. Systems Engineering positions embrace numerous disciplines:

- multidisciplinary - mechanics, electronics, information technology...
- strong interface with project management,
- The need for Systems Architects is increasing for both industries developing, producing and maintaining large complex systems (aircraft, ships, military and defence systems, cars, etc.) and other industries developing and producing smaller high technology products (cameras, mobile phones, printers, computers, etc.).

#### Companies recruiting our students :

Safran, CAST, Luxembourg Space Telecommunication, Dassault Aviation, Airbus Group and its subsidiaries, EGIS Avia, Arianespace, ALTEN, AKKODIS, Seditec, Safran Transmission Systems, Thales Alenia Space, INPE (Brazil), AVIC (China), COMAC (China), Thales China, Geo-Informatics and Space Technology Development Agency (Thailand)...

You can find on this [page](#) the job survey concerning our last Advanced Masters graduates

## Contact(s)

### Autres contacts

For more information, please visit the SEN Advanced Master [webpage](#)

If you have any question:

- if you are a student, please contact [info-programmes@isae-supaeo.fr](mailto:info-programmes@isae-supaeo.fr)

- if you are a professional, please contact [info.exed@isae-supaeo.fr](mailto:info.exed@isae-supaeo.fr)

### Accessibilité des lieux et modalités d'enseignement aux étudiants en situation de handicap

The Advanced Master is accessible to persons with disabilities (PSH).

In the event that a learner is in a situation of disability, his or her needs (whatever they are educational, material, technical, human, etc.) are taken into account by the ISAE-SUPAERO's Disability Advisor. ISAE-SUPAERO provides the expertise, the tools, and the networks needed to facilitate the access to premises and resources, to prepare certifications and take examinations.

## Infos pratiques

### Autres contacts

For more information, please visit the SEN Advanced Master [webpage](#)

If you have any question:

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- if you are a professional, please contact [info.exed@isae-supaeo.fr](mailto:info.exed@isae-supaeo.fr)

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## Lieu(x)

 Toulouse

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## En savoir plus

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(SEN)

 <https://www.isae-supaero.fr/en/academics/advanced-masters/programs/advanced-master-systems-engineering-sen/>

# Programme

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## Organisation

### **1st semester:**

Academic session of around 500 h, provided by ISAE-SUPAERO's tenured professors and experts from industry bringing current knowledge and experience, including lectures, tutorials and industrial study cases.

The course is composed of 5 parts:

- Part 1: Outlines, topics and Fundamentals
- Part 2: Roles: processes and Specialities
- Part 3: Deployment, methods & tools
- Part 4: Industrial applications, study cases
- Part 5: Integrated Team Project

At the end of the first semester, all SEN students are encouraged to participate in a one-month complementary program in preparation for ASEP\* level of INCOSE (International Council on System Engineering) certification. INCOSE certification consists of an exam which is of internationally recognized value to validate knowledge and skills in systems engineering.

### **2nd semester:**

Learners 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