



SPRING SEMESTER (M1.2/14.8)

AERONAUTICS & SPACE

TOULOUSE CAMPUS

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Icam Toulouse campus

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OBJECTIVES

Discover A&S-specific concepts in the following domains:

- Structural Analysis
- Embedded Systems

PROGRAM

Lectures/Conferences

Conference series held with the National Center for Space Studies (CNES in French)

- Discovery of the space industry and its generalities
- Deep dive into the the areas constituting space missions

Case Studies

- Structural Analysis: mechanical study of a composite satellite structure according to the specifications of the launcher (Ariane V), calculation and sizing rules
- Embedded Systems: On-board computers, Attitude and Orbit Control System (AOCS), energy management, communication with the ground station

Typical Project(s)

- Study and realization of a nano satellite (ARDUSAT)
- Mission definition, choice of sensors and tests
- Thermal study of the protection of on-board equipment and systems
- Energy study (electricity consumption, battery and solar panel sizing)
- Mechanical vibration study (Ariane V)

Competencies

- Problem statement and analysis, familiarization to domain- specific technical vocabulary and industry business rules

Prerequisites

- Bachelor's Level - Mechanical and Electronic concepts
Note that as lectures and case studies for industrial partners are mostly conducted in French, having a good level of French is recommended.

Assessment

- Regular Progress Reports and Consultation
- Technical Report
- Project Oral and Written Presentation

Partners

Partner companies who deliver lectures/conferences or mentor case studies.

CNES



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Discover A&S-specific concepts in the following domains:

- Structural Analysis
- Embedded Systems
- Supply chain

PROGRAM

Lectures/Conferences

Conference series held by industry partner representatives:

- Terminology, methodology, technology
- Industry insights: experiences, problem situations
- Calculation rules for composite structures and assemblies of structural elements
- Conference on all-electric aircrafts and state of the art technologies

Case Studies

- Structural Analysis: study and sizing of a composite floor
- Embedded Systems: analysis of the problems faced by all-electric aircrafts, visit the IRT St Exupéry laboratory
- Supply Chain: visit of production sites and logistic hubs, logistics or lean management case studies, flow analysis

Typical Major Project(s)

- Design and dimensioning of a composite aircraft structural element

Competencies

- Problem statement and analysis, familiarization to domain-specific technical vocabulary and industry business rules

Prerequisites

- Bachelor's Level - mechanical, electronic and supply chain concepts

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Assessment

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- Technical report
- Project oral and written presentation

Partners

Partner companies who deliver lectures/conferences or mentor case studies.

Airbus / Stelia / Collins aerospace / ratier figeac / IRT Saint Exupéry