HAD500 - Drone systems: design & mission
From the MS HADA
(Helicopter, Aircraft and Drone Architecture)

Key elements
 Period: January
 Estimated duration: 25 hours
 For whom: recent graduates, jobseekers and experienced employees
 Location: ISAE-SUPAERO, Toulouse
 Language: English

Highlights
• A review of UAS in the world
• Designing Unmanned Aerial Systems
• Drone missions

This module provides a complete overview on Unmanned Aerial Systems, with a good balance between theoretical concepts and use cases approach, be that on civil or military operations.

Learning objectives
After completing this course, participants will be able to:
• analyze a full Unmanned Aerial System (UAS) in response to technical requirements.

Prerequisites
• Basic knowledge in Aeronautics
• System design knowledge

Information and registration
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## Course content

- UAS markets, missions and roadmaps
- Overview of UAS in the world
- Short-range UAS, VTOL UAS, MALE, HALE, UCAV
- Civil Drone: surveillance, inspection, delivery, Taxi…
- Consumer and prosumer drones
- Optionally-piloted vehicles (OPV)
- Introduction to UAS design
- Safety challenge and regulations
- Flight avionics
- Mission system & data links: LOS, BLOS, SATCOM, RVT, LTE
- Sense & avoid capabilities
- Payload selection
- Ground control station
- Introduction to micro- and mini-UAS.

## Teaching methods

<table>
<thead>
<tr>
<th>Teaching methods</th>
<th>Yes</th>
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<tbody>
<tr>
<td>Lectures / tutorial</td>
<td>X</td>
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<tr>
<td>Collaborative learning</td>
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<td>Flipped classroom</td>
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<td>Blended learning (online and face to face)</td>
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<td>Learning by doing</td>
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<td>Project-based</td>
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<td>Simulation</td>
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<td>Case study</td>
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## Assessment

- Oral exam