

APS1 - Earth Observation

From the Advanced Master SPAPS (Space Applications and Services)



Highlights

- End to end satellite image processing chain
- Customer oriented observation
- Use of professional tools
- Experts from the space industry

This certificate provides a wide coverage of practical use of satellite images in all domains of Earth observation. Experts from the industry provide the needed skills to master the processing flow from satellite image raw data to customer analytics.

Prerequisites

- Python programming basics

Key elements

Dates: **November 7 to December 13, 2022 (exam: December 8, 2022*)**

Duration: **73 hours**

For whom:
recent graduates, jobseekers and experienced employees

Location:
ISAE-SUPAERO, Toulouse

Course fees: **€5,000**

Language: **English**

Learning objectives

After completing this course, participants will be able to:

- Master the basics of image processing;
- Identify and apply the corresponding treatments;
- Identify relevant analytics for end users;
- Develop the treatment chain needed to obtain the corresponding data;
- Have a broad view of the services that can be provided based on spatial imagery;
- Be able to identify the performances of space data analysis related to intelligence application requirements.

Practical information and registration

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Course content

APS302 - Image processing and data analysis (29 h):

This module addresses all the techniques needed to identify objects within spatial images. Indeed, the exploitation of space images implies to be able to isolate given characteristics and to transform groups of pixels in relevant information for the intended applications: identification of objects (boats, buildings ...), delimitation of outlines (agricultural surfaces, roads, sea ...).

APS303 - Applications and services, agriculture and forest (27 h):

Image processing techniques viewed in modules APS301 and 302 are applied here to agriculture and forest applications. The main objective is to be able to derive analytics from space images in order to provide a value-added service to customers. Examples can be grassland production index, vegetation maps, crop monitoring and forest coverage analysis.

APS304 - Applications and services, natural resources and intelligence (18 h):

Image processing techniques viewed in modules APS301 and 302 are applied here to natural resources (oil gas and mining, water cycle) and intelligence (maritime domain surveillance, land surveillance).

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Teaching methods

Teaching methods	Yes
Lectures / tutorial	X
Collaborative learning	
Flipped classroom	
Blended learning (online and face to face)	
Learning by doing	
Project-based	
Simulation	
Case study	X

Assessment

Written exams