RÉPUBLIQUE FRANÇAISE
Liberté
Égalité
Fraternité

MASTER'S DEGREE IN COMPUTER SCIENCE FOR AEROSPACE (CSA)

A master specialty in Informatics

UNIVERSITÉ TOULOUSE III PAUL SABATIER
FACULTÉ SCIENCES ET INGÉNIERIE

Caracteristics

Geographic location(s)

Université Toulouse III - Paul Sabatier
Campus de Rangueil

Level of education

Master

Distinction

Computer Science

Type of training

> Initial training
> Apprenticeship
> VAE

Accessible in

> In-person classes

Partner Institutions

> Possible double diploma with Technical University of Liberec, Czech Republic
https://www.tul.cz

Contacts

master_csa.contact@univ-tlse3.fr

Accommodation capacity

16 (Master 1)

Terms of access

> 80 ECTS in Computer Science or Information Technologies
> 15 ECTS in Mathematics
> 10 ECTS in Internships, projects or thesis work. If the candidate comes from a non-ECTS country, evidence of equivalent qualifications and experience should be provided.
> All candidates need to have a certified high level of English (having studied in English, being a native English-speaker, or test results in TOEFL/TOEIC/Cambridge or equivalent)

Presentation

The aim of the Computer Science for Aerospace (CSA) Master Degree is to educate future computer scientists and managers, within an international working environment, selecting talented students from all around the world. It aims to provide specialist high-level core knowledge and a unique specialty in computer science for aerospace, encompassing both hardware and software skills.

Based in Toulouse, the leading European city in Aeronautics and Space, it benefits from high-level courses given by lecturers, researchers and engineers from world-leading companies and research laboratories : IRIT, LAAS, ONERA, Airbus Defence&Space, Thales, CNES, IRT Saint-Exupéry, among others. This unique setting means that there are strong links and a long history of collaboration between the university and aerospace companies.

Students enroll in a two-year curriculum covering the fundamental notions of Critical systems, Embedded systems, Safety, Security, Certification, Interactive systems, Dedicated architectures, Networks and systems, Real-time systems, Image analysis, Artificial intelligence, Information systems and Databases.

A Master Thesis in a research laboratory and/or industry is mandatory in the second year, allowing each student to further specialize and open doors to both academic and industrial careers. Also, possibilities of internships within leading companies are provided in both years to complement the skills of each student.

Prospects and professional integration

> Data Scientist, User story analyst, Deep learning and spatiotemporal querying Software Developer
> Production careers : engineer responsible for development teams, operations engineer, head of a methods department, software architect, specialist in distributed software or critical software
> R&D careers : engineer in charge of international projects.
> Operations and maintenance careers : responsible for a maintenance department
> Business engineers, Technical consultant

Knowledge

> Image analysis (especially satellite images) and vision (pattern recognition)
> Databases (parallel and distributed, mobile and embedded)
> Aerospace coloring: scientific computing, design and simulation software (CATIA, Matlab/Simulink)
> Aerospace architectures, systems and networks (fieldbus, embedded systems, real-time systems, avionics networks, etc)
> Certification of socio-technical systems for the aerospace industry (formal certification methods, behavior modeling, human-machine interaction)
> Initiation to research (reading of research papers, synthesis, writings of a master thesis)

Skills

> Master a wide range of knowledges in computer science
> Master methods and tools specific to the engineering: problem identification and resolution, potentialy unfamiliar and not completely defined ones; data collection and interpretation, analysis and design of complex computer systems, experimentation
> Integrate into an organization, lead it and make it evolve: commitment and leadership, project management, interpersonal relations
> Work in an international context
> Work while taking into account societal values: knowledge of social relations, environment and sustainable development, ethics
> Master the constraints and development methods related to the aerospace field

Program

All courses in english. Web site : univ-tlse3.fr/decouvrir-nos-diplomes/master-parcours-computer-science-for-aerospace-csa