

Master in Computer science

Master of Science in Informatics at Grenoble (MoSIG)

Presentation

The training covers a wide spectrum at the level of the first year master's trains graduates with a general education and foundation solid in computer science (in terms of programming languages, databases, networks, software engineering, object-oriented design/programming, complexity, and interactive software) ; the second year of the master's allows students to acquire organizational skills related to research work and to become specialized in a field of computer science in connection with the numerous options offered (Information systems and advanced software engineering, Human-centred computer science - design of highly reliable embedded and cyberphysical systems, artificial Intelligence and web - graphics, vision, and robotics, interactive and ubiquitous systems, and embedded, parallel, and distributed systems). The objective is to give the necessary foundations for a job in research and development as well as to undertake a thesis in Computer science in the fields covered by academic and industrial laboratories.

The aim of the course is to carry out high-level training in computer science for teaching, research, engineering, and development.

The initial semester (Master1 - S7) is composed of foundational courseware

The second semester (Master1 - S8) combines core foundational courseware with optional specialization courses.

For the semester S9 of 30 ECTS, students need to select courses worth 24 ECTS in their chosen theme (according to their initial training) and 6 ECTS of courses from a different theme, if timetables are consistent and enrollment restrictions apply.

The final semester (Master2 - S10) is dedicated to an end of studies research (or professional) project.

The course is labelled "Core AI" by [MIAI](#).

[Mosig master website](#)

Registration and scholarships

Access conditions

The first year of master's degree is accessible on file (and / or interview) to candidates with a national diploma conferring the degree of license in a field compatible with that of the master or via a validation of studies or acquired according to the conditions determined by the university or training. The second year master's is accessible to candidates according to their transcripts (and/or interview) :

- Having validated the first year of a compatible course
- Or by validating studies or acquired experience according to the conditions determined by the university or the training.

Public continuing education : You are in charge of continuing education :

- if you resume your studies after 2 years of interruption of studies
- or if you followed a formation under the regime formation continues one of the 2 preceding years

- or if you are an employee, job seeker, self-employed

If you do not have the diploma required to integrate the training, [you can undertake a validation of personal and professional achievements \(VAPP\)](#)

[skin.odf-uga:SKIN_ODF_CONTENT_PROGRAM_CANDIDATURE_LABEL](#)

Do you want to apply and register? Note that the procedure differs depending on the degree considered, the degree obtained, or the place of residence for foreign students.

[Find out which procedure applies to me and apply](#)

Prerequisites

Language requirements :

- Students are required to provide evidence of Competence in English.
English scores required for the MSIAM, programs: TOEFL IBT 78, CBT 210, Paper 547 / TOEIC 700 / Cambridge FCE / IELTS 6.0 min.
This is equivalent to CEFR level B2.

If you have successfully completed a degree (or equivalent) course at a University in one of the following countries then you meet the English requirement automatically: Australia, Canada, Guyana, Ireland, New Zealand, South Africa, United Kingdom, United States of America, West Indies.

Further studies

Ph.D.

Practicals informations :

- > Component : UFR IM2AG (informatique, mathématiques et mathématiques appliquées), Grenoble INP - Ensimag (Informatique, mathématiques appliquées et télécommunications)
- > level : Baccalaureate +5
- > Duration : 2 years
- > Course type : Initial and Continuing Education
- > Location(s) : Grenoble - University campus

Contacts

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Program

Program under construction - awaiting vote
 CFVU

Master 1st year

Semester 7

| | |
|--|--------|
| UE Programming language and compiler design | 6 ECTS |
| UE Software engineering | 3 ECTS |
| UE Principles of operating systems | 6 ECTS |
| UE Algorithms Problem Solving | 3 ECTS |
| UE Mathematics for computer science | 3 ECTS |
| UE Introduction to visual computing | 3 ECTS |
| UE Technical writing and speaking | 3 ECTS |
| 1 option(s) to choose from 1 | |
| UE Programming project (OS) | 3 ECTS |
| UE Programming project (Compiler design) | 3 ECTS |

Semester 8

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| UE Research project | 3 ECTS |
| UE Research methodology | 3 ECTS |
| 8 option(s) to choose from 13 | |
| UE Introduction to modeling and verification of digital systems | 3 ECTS |
| UE Operations Research | 3 ECTS |
| UE Data base foundations | 3 ECTS |
| UE Introduction to distributed systems | 3 ECTS |
| UE Human computer interaction | 3 ECTS |
| UE Intelligent systems: reasoning and recognition | 3 ECTS |
| UE Computer networks principles | 3 ECTS |
| UE 3D graphics | 3 ECTS |
| UE Introduction to mobile robotics | 3 ECTS |
| UE Introduction to cryptology | 3 ECTS |

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| UE Parallel algorithms and programming | 3 ECTS |
| UE Fundamental Computer Science | 3 ECTS |
| UE Foundations of Data Science | 3 ECTS |
| UE Embodying the shift: digital in the age of low-tech | 3 ECTS |

Master 1st year Graduate School program

Semester 7

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|--|--------|
| UE Programming language and compiler design | 6 ECTS |
| UE Software engineering | 3 ECTS |
| UE Principles of operating systems | 6 ECTS |
| UE Algorithms Problem Solving | 3 ECTS |
| UE Mathematics for computer science | 3 ECTS |
| UE Introduction to visual computing | 3 ECTS |
| UE Technical writing and speaking | 3 ECTS |
| 1 option(s) to choose from 1 | |
| UE Programming project (OS) | 3 ECTS |
| UE Programming project (Compiler design) | 3 ECTS |

Semester 8

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|--|--------|
| UE GS_MSTIC_Scientific approach | 6 ECTS |
| 8 option(s) to choose from 8 | |
| UE Introduction to modeling and verification of digital systems | 3 ECTS |
| UE Operations Research | 3 ECTS |
| UE Data base foundations | 3 ECTS |
| UE Introduction to distributed systems | 3 ECTS |
| UE Human computer interaction | 3 ECTS |
| UE Intelligent systems: reasoning and recognition | 3 ECTS |

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| UE Computer networks principles | 3 ECTS |
| UE 3D graphics | 3 ECTS |
| UE Introduction to mobile robotics | 3 ECTS |
| UE Introduction to cryptology | 3 ECTS |
| UE Parallel algorithms and programming | 3 ECTS |
| UE Fundamental Computer Science | 3 ECTS |
| UE Foundations of Data Science | 3 ECTS |
| UE Embodying the shift: digital in the age of low-tech | 3 ECTS |

Master 2nd classic program

Semester 9

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| UE Process engineering | 6 ECTS |
| UE Advanced networking | 6 ECTS |
| UE Advanced parallel system | 6 ECTS |
| UE Fundamentals of Data Processing and Distributed Knowledge | 6 ECTS |
| UE Scientific Methodology, Regulatory and ethical data usage | 6 ECTS |
| UE Robotics | 6 ECTS |
| UE Computer Graphics | 6 ECTS |
| UE Multi-agent systems | 3 ECTS |
| UE Information visualization | 3 ECTS |
| UE Computer vision | 6 ECTS |
| UE Augmented and virtual | 6 ECTS |
| UE Advanced software modeling and engineering | 6 ECTS |
| UE Human in the Loop | 6 ECTS |
| UE Cloud Computing, from infrastructure to applications | 6 ECTS |
| UE System design | 6 ECTS |
| UE Large scale Data Management and Distributed Systems | 6 ECTS |
| UE GPU Computing | 6 ECTS |
| UE Testing and verification, from algorithms to practice | 6 ECTS |
| - UE SAT/SMT solving | 3 ECTS |
| - UE Program testing and verification | 3 ECTS |
| UE From Basic Machine Learning models to Advanced Kernel Learning | 6 ECTS |
| UE Advanced Machine Learning: Applications to Vision, Audio and Text | 6 ECTS |

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| UE Natural Language Processing & Information Retrieval | 6 ECTS |
| UE Information Security | 6 ECTS |
| UE Mathematical Foundations of Machine Learning | 3 ECTS |
| UE Statistical learning: from parametric to nonparametric models | 6 ECTS |
| UE Refresh courses | |

Semester 10

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| UE Research project | 30 ECTS |
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Master 2nd Graduate School program

Semester 9

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| UE GS_MSTIC_Research ethics | 6 ECTS |
| UE Process engineering | 6 ECTS |
| UE Advanced networking | 6 ECTS |
| UE Advanced parallel system | 6 ECTS |
| UE Fundamentals of Data Processing and Distributed Knowledge | 6 ECTS |
| UE Scientific Methodology, Regulatory and ethical data usage | 6 ECTS |
| UE Robotics | 6 ECTS |
| UE Computer Graphics | 6 ECTS |
| UE Multi-agent systems | 3 ECTS |
| UE Information visualization | 3 ECTS |
| UE Computer vision | 6 ECTS |
| UE Augmented and virtual | 6 ECTS |
| UE Advanced software modeling and engineering | 6 ECTS |
| UE Human in the Loop | 6 ECTS |
| UE Cloud Computing, from infrastructure to applications | 6 ECTS |
| UE System design | 6 ECTS |
| UE Large scale Data Management and Distributed Systems | 6 ECTS |
| UE GPU Computing | 6 ECTS |
| UE Testing and verification, from algorithms to practice | 6 ECTS |
| - UE SAT/SMT solving | 3 ECTS |
| - UE Program testing and verification | 3 ECTS |
| UE From Basic Machine Learning models to Advanced Kernel Learning | 6 ECTS |

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|---|--------|
| UE Advanced Machine Learning: Applications to Vision, Audio and Text | 6 ECTS |
| UE Natural Language Processing & Information Retrieval | 6 ECTS |
| UE Information Security | 6 ECTS |
| UE Mathematical Foundations of Machine Learning | 3 ECTS |
| UE Statistical learning: from parametric to nonparametric models | 6 ECTS |
| UE Refresh courses | |

Semester 10

| | |
|----------------------------|---------|
| UE Research project | 30 ECTS |
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