

Master in Informatics and Computing Engineering



Vacancies (2021/22): **20** *
Visit dges.gov.pt

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* For students not currently attending MIEIC

GENERIC OBJECTIVES

MEIC's primary objective is to promote the qualification of its graduates in recent developments and advanced aspects of Informatics Engineering (EI), with application to the conception, design, implementation and operation of computer systems and the integration of ICT in organizational environments, thus enabling its graduates to perform high responsibility roles and leadership roles in complex, innovative and multidisciplinary contexts, or to pursue a PhD.

To this end, it offers an education combining:

- . common education on the most recent developments in the major scientific and technical areas of EI;
- . specialized education in advanced EI topics of interest to each student by choosing optional UCs;
- . flexible education in complementary aspects in Management and Transversal Skills.

The study cycle comprises 40.5 ECTS of compulsory UCs, 49.5 ECTS of optional UCs and 30 ECTS of Dissertation.

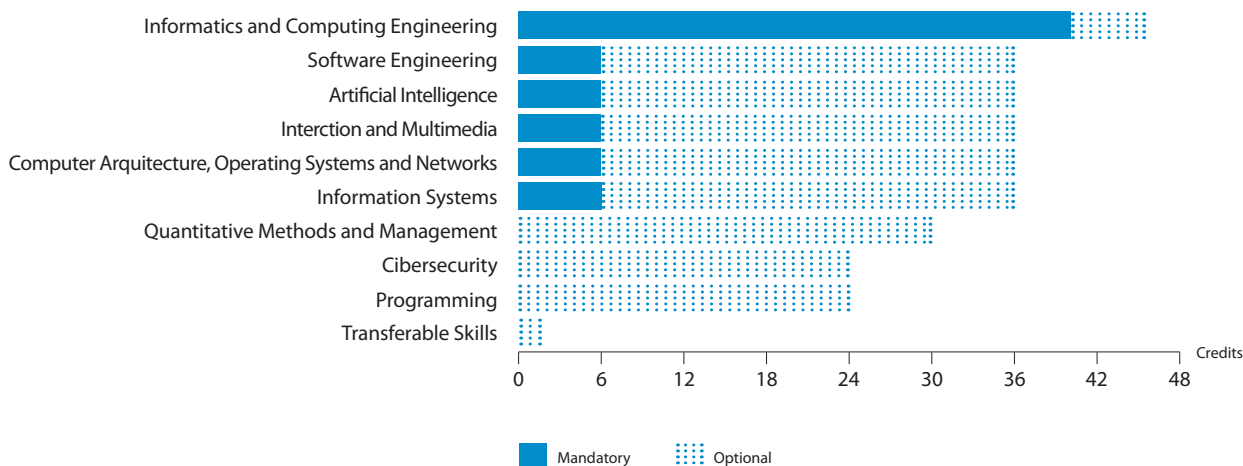
LEARNING OBJECTIVES

- In general, acquire with the necessary proficiency knowledge of engineering sciences and technologies in the ICT domain, as well as management skills and personal, professional and interpersonal skills and attitudes, and be able to use them to solve, anticipate and prevent complex problems in the ICT domain and to conceive, design, implement and operate complex ICT-based systems in social and business contexts.
- More specifically, be able to perform the professional roles indicated in the European ICT Professional Role Profiles which require competences at level e-4 (master) of the European e-Competence Framework, (e.g., Devops Expert, Data Scientist, Cyber Security Specialist, Solution Designer, etc.), including roles of high responsibility in complex innovation-focused contexts and leadership roles in multidisciplinary projects in the ICT domain.

TEACHING AND LEARNING METHODOLOGIES

The training profile that this cycle of studies aims to achieve will lead to graduates with comprehensive training in recent developments in Informatics Engineering and specialized training in more advanced and professional topics of interest to each student. Bearing in mind that the student's path throughout the study cycle is evolving, from core mandatory course units (CUs) to more specialized optional ones, the methodologies are also adapting, with training based on the combination of theoretical and practical classes in the mandatory CUs, to the more personalized training and with greater autonomy of students in theoretical-practical classes in the optional CUs, culminating in a dissertation work to be carried out with great autonomy. The typologies of classes (T, TP, PL, OT) and teaching methodologies (project-based learning, autonomous research-based learning, etc.) of each CU are adapted to the desired level of learning (application, analysis, etc.).

SCIENTIFIC AREAS



STUDY PLAN

1º YEAR

1º SEMESTER	Credits
. Machine Learning	6
. Large Scale Software Development	6
. Information Processing and Retrieval	6
. Large Scale Distributed Systems	6
. Interactive Graphics Systems	6

2º SEMESTER	Credits
. Project Management Laboratory	6

Optional Curricular Units (24 Credits)

. Agents and Multi-Agent Systems	6
. Software Systems Architecture	6
. Machine Learning Complements	6
. Mobile Computing	6
. Design and Development of Digital Games	6
. Requirements Engineering	6
. Advanced Data Structures and Algorithms	6
. Enterprise Management and Entrepreneurship	6
. Networks and Systems Management	6
. Information Security Management	6
. Information Systems Management	6
. Marketing	6
. Optimization	6
. Natural Language Processing	6
. Constraint Logic Programming	6
. Network Security	6
. Computer Systems Security	6
. Multimedia Services and Applications	6
. Embedded and Real Time Systems	6
. Database Technologies	6
. Computer Vision	6
. Any curricular unit of University of Porto (2nd cycle)	6

2º YEAR

1º SEMESTER	Credits
. Transferable Skills	1,5
. Dissertation Planning	4,5

Optional Curricular Units (24 Credits)

. Project Appraisal	6
. Data Analysis and Integration	6
. Non Relational Databases	6
. Efficient Heterogeneous Computing	6
. Advanced Parallel Computing	6
. Software Language Engineering	6
. Secure Software Engineering	6
. Formal Methods for Critical Systems	6
. Modelling and Simulation	6
. Business Models for the Digital Economy	6
. Virtual and Augmented Reality	6
. Intelligent Robotics	6
. Seminars	6
. Cyberphysical Systems and Internet of Things	6
. Advanced Software Construction Techniques	6
. Software Testing, Verification and Validation	6
. Advanced Topics in Interaction and Multimedia	6
. Semantic Web and Linked Data	6
. Any curricular unit of University of Porto (2nd cycle)	6

2º SEMESTER	Credits
. Dissertation	30

A3ES

Agência de Avaliação
e Acreditação
do Ensino Superior

In accreditation

Credits in ECTS (European Credit Transfer System)