

Study programme by semester

Year 1:

Semester 1

Subject 0. Research methodology. Credits: 3.

Coordination (University Mohammed V): Ali Idri, Ismail Kassou

Coordination (University of Murcia): Dr. Ambrosio Toval Alvarez, Dr. Joaquín Nicolás Ros

Research methodology. The goal of this course is to provide students the ability to: (1) understand some basic concepts of research and its methodologies; (2) select and define appropriate research problems and parameters; (3) organize and conduct research (advanced project) in a more appropriate manner; (4) write a research report and thesis and (5) write a research proposal (grants).

Semester 2

Subject 1. Global software development. Credits: 2.

Coordination (University of Murcia): Dr. Ambrosio Toval Alvarez, Dr. Joaquín Nicolás Ros

Global software development (GSD) is increasingly becoming common practice in the software and IT industries, as the ability to develop software at remote sites allows organizations to benefit from access to a qualified resource pool and a reduction in development costs, thus representing an important competitive advantage. However, the increased globalization of software development creates specific software engineering challenges due to the impact of temporal, geographical and cultural differences. This requires novel and effective techniques, technologies, tools, behaviours and practices from many disciplines to address these issues. This research line focuses on applying requirements engineering in a global software development.

Subject 2. E-learning environments: development and use. Credits: 2.

Coordination (University of Murcia): Dr. José Luis Fernández Alemán, Dr. Ginés García Mateos

An e-learning environment is a complex socio-technical system with many different stakeholders involved (software developers, learners, content providers, subject tutors, authors and accreditors). Using standards encourages interoperability (common terminology, concepts and procedures). The new e-learning tools need to conform to stated standards so that they can be used across different LMSs (Learning Management Systems). This research line aims at investigating tools, analytical methods, procedures and standards to foster the development, use and application of e-learning environments.

Subject 3. Semantic Web. Credits: 2.

Coordination (University of Murcia): Dr. Jesualdo Fernández Breis, Dr. Rafael Valencia García,

The Semantic Web is an extension of the current Web, in which information is given a well-defined meaning, better enabling computers and people to work in cooperation, because the semantics of the Web content is machine processable. The achievement of the Semantic Web depends on the development of a series of research subareas, like Knowledge Representation and Reasoning, Ontological Engineering, Ontology Learning and Population, Semantic Interoperability, Semantic Web Services and Cloud Computing and Natural Language Processing. Consequently, the objective of this research line embraces investigation on these topics to foster the development of Semantic Web technologies and the Semantic Web.

Year 2:

Semester 1

Subject 1 : Software quality models and standards. Credits: 2.

Coordination (University Mohammed V): Dr. Ali Idri, Dr. Laila Cheikhi and Dr. Ambrosio Toval Alvarez

In software engineering, the quality of the software product is not a luxury, but a fundamental requirement. Hence, to assess software quality, many models have been proposed by individual researchers and standards such as McCall, Dromey, Boehm, ISO 9126 and ISO 25000. Two fields will be studied: 1) Quality models prediction for Object Oriented Software and 2) quality models based on ISO 9126 standards. In the first, we study the Effect of coupling and inheritance on the change Impact using data from two industrial systems provided by the CRIM

of Montréal. This investigation uses machine learning algorithms to produce the predictive models. In the second, we study the relevance or not of the relationships between the three quality models of ISO 9126. Empirical studies are done using the ISO 9126 Standards- 4 documents: quality characteristics and measurements International Software Benchmarking Standards Group (ISBSG) that is a Data repository containing more than 4000 software projects.

Subject 2: Empirical Software Engineering. Credits: 2.

Coordination (University Mohammed V): Dr. Ali Idri, Dr. José Luis Fernández Aleman

In this subject, empirical investigation on software engineering is studied. In particular, models and standards for software reliability and software cost estimation are emphasized. In software reliability, we are dealing with models prediction models of reliability to develop a reliability model for some specific software areas such as e-learning, software for mobile environment, etc. In software cost estimation, we are developing an accurate model to estimate how the software will cost at earlier stages in the software development cycle. Such prediction model may be mainly used for software projects management. In both areas, software reliability and software cost estimation, we are using data mining techniques such as decision trees, neural networks and case-based reasoning to build models.

Subject 3. Scenario engineering. Credits: 2.

Coordination (University Mohammed V): Dr. Ali Idri, Dr. Mohammed El Koutbi

In this course, we try to address all possible transformations PIM-PIM or PIM-PSM based on a scenario approach. We aim to build a framework that supports the life cycle of a scenario: scenario elicitation, scenario extension to address different aspects like user interactions, real-time operations, security properties, scenario formalization for verification issues, from UML scenarios to formal specifications, from UML scenarios to code (Java), from UML scenarios to code (BEPL) in B2B systems.

Semester 2

Year 3:

Semester 1

Work experience in industry (University Mohammed V).

Semester 2

Work experience in industry (University of Murcia).

Mobility arrangements

Year 1:

Semester 1:

Semester 2: Mobility for the purpose of study and research (from University Mohammed V to University of Murcia)

Year 2:

Semester 1: Mobility for the purpose of study and research (from University of Murcia to University Mohammed V)

Semester 2:

Year 3:

Semester 1: Mobility for the purpose of temporary work (internships, traineeships, and apprenticeships) in Rabat (from University of Murcia to University Mohammed V).

Semester 2: Mobility for the purpose of temporary work (internships, traineeships, and apprenticeships) in Murcia (from University Mohammed V to University of Murcia).