TELEMATICS ENGINEERING B. Eng.

SEMESTER 8

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Year 2015/16

Course Name:	Project Management	**Course Code:**	595000236
Year:	4	**Semester:**	8
Credits (ECTS):	4,5	**Credit Hours:**	3
Area:	Organization Engineering	**Type:**	Engineering Topic / Required
Term:	Spring	**Language:**	Spanish
Prerequisites / Co-requisites:		None	
Coordinator:		Margarita Martínez	
Bachelor Engineering Program:		Telematics Engineering Communications Electronics Engineering Telecommunications Systems Engineering Sound and Image Engineering	

Course Contents

1. Introduction to Project management
2. Starting a Project and feasibility studies
3. The engineering Project
4. Methodology of Project management
5. The professional environment of the Project maker

ABET Student Outcomes

(b) An ability to design and conduct experiments, as well as to analyze and interpret data

(c) An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability

(d) An ability to function on multidisciplinary teams

(e) An ability to identify, formulate, and solve engineering problems

(f) An understanding of professional and ethical responsibility

(g) An ability to communicate effectively

(h) The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

(i) A recognition of the need for, and an ability to engage in life-long learning

(j) A knowledge of contemporary issues

(k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Study Outcomes (according to the Spanish program definition)

CG 03 Skilled for public speaking and in written and communicating information

throughout documents and public speeches.

CG 05 Ability for teamwork in multidisciplinary environments.

CG 06 Ability for adaptability, negotiation, conflict resolution and leadership.

CG 07 Ability to design, manage, and direct projects.

CG 08 Ability to organize, plan and make decisions.

CG 09 Ability to analyze and assess the social and environmental impact of technical solutions.

CG 10 Ability to handle specifications, rules and regulations and to apply them in the practice of the profession.

CG 14 An attitude of Ethics and professional responsibility, as well as respect for human rights and cultural diversity.

CE B5 Acceptable knowledge of the concept of company, institutional and juridical frame of the company. Companies Organization and management.

CE TEL 01 Ability to use communication and computer applications (office automation, databases, advanced calculus, project management, visualization...) to support the development and utilization of networks, services and telecommunication and electronics applicati

CE TEL 02 Ability to use applications of communication and computer (office automation, databases, advanced calculus, management of projects, visualization...) to support the development and utilization of nets, services and applications of telecommunication and electronics.

CE TEL 06 Knowledge and use of the principles of programming in telecommunication networks, systems and services.ntinuous improvement, as well as knowing their economic and social impact.

Specific outcomes of instruction (according to the Spanish program definition)

1.- Knowledge of the project basics and knowledge of the peculiarities of the telecommunication project.

3.- Knowledge of the main techniques of evaluation of projects (go, IR, IRR).

4.- Knowledge of the main techniques of programming projects (GANT, PERT).

5.- Familiarity with the project documents: memory, plans, specifications, budget.

6.- Identify the main risks associated with the development of a project.

7.- Prepare technical presentations for the oral defense of an engineering project properly using audiovisual media.

8.- Construct time diagrams using planning and scheduling tools of projects.

9.- Describe the main functions and responsibilities of a project manager..

10.- Find the necessary information for the design of an engineering project.

11.- Assess the feasibility of an engineering project from the technical, environmental, economic and financial point of view.

12.- Write correctly the contents of a technical project, according to contained minimum requirements by legislation

13.- Identify the rules and regulations of application to engineering in a determined field projects.

Bibliography

"Introducción a la gestión de proyectos. La iniciación del proyecto y sus estudios de viabilidad. El proyecto de ingeniería. Metodología de la gestión de proyectos", M. Martínez, W. Pérez y F. del Río, Dpto. Publicaciones, 2013.

Year 2015/16

Course Name:	Advanced Telematic Applications	**Course Code:**	595000237
Year:	4	**Semester:**	8
Credits (ECTS):	4,5	**Credit Hours:**	3
Area:	Telematics Applications	**Type:**	Engineering Topic / Required
Term:	Spring	**Language:**	Spanish
Prerequisites / Co-requisites:		Modeling Languages Advanced Networks and Services Communications Software	
Coordinator:		José Fernán Martínez	
Bachelor Engineering Program:		Telematics Engineering	

Course Contents

1. Robotics Technolgy
2. Robotics: Systems and Tools
3. Robotics: Perception and Navigation
4. Robotics: Cognition

ABET Student Outcomes

(b) An ability to design and conduct experiments, as well as to analyze and interpret data

(d) An ability to function on multidisciplinary teams

(g) An ability to communicate effectively

(h) The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

(j) A knowledge of contemporary issues

(k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Study Outcomes (according to the Spanish program definition)

CE TM03 Ability to build, utilize, and manage telematic services, including internet, web, architectural design (data and protocols), programming, distributed knowledge management, multimedia information management, using analytic tools for planning, dimensioning, and analysis.

CE TM08 Ability to carry out professional projects in the specific field of telecommunication technologies in which competences attained in the program have to be synthesized and integrated.

CG 03 Skilled for public speaking and in written and communicating information

throughout documents and public speeches.

CG 05 Ability for teamwork in multidisciplinary environments.

CG 06 Ability for adaptability, negotiation, conflict resolution and leadership.

CG 11 Skills for the use of Information and Communication Technologies..

Specific outcomes of instruction (according to the Spanish program definition)

1.- Describe new technique associated with the specification and design of complex electronic systems.

2.- Know and manage development platforms of telematics applications in different contexts.

3.- Identify technological challenges in the domain of new generation networks and telematics services.

4.- Understand and apply concepts of network architectures and emerging telematics services to specific technological challenges.

5.- Understand advanced concepts regarding design and modeling of systems.

6.- Apply new techniques to the solution of technological problems in the area of networks and new generation telematics services.

Bibliography

Moodle Web Resources

Year 2015/16

Course Name:	Final Degree Project	**Course Code:**	59500240
Year:	4	**Semester:**	8
Credits (ECTS):	12	**Credit Hours:**	8
Area:	Common UPM Skills	**Type:**	Engineering Topic / Required
Term:	Fall / Spring	**Language:**	Spanish / English
Prerequisites / Co-requisites:		200 ECTS passed	
Coordinator:		Head of Studies	
Bachelor Engineering Program:		Telematics Engineering Communications Electronics Engineering Telecommunications Systems Engineering Sound and Image Engineering	

ABET Student Outcomes

(a) An ability to apply knowledge of mathematics, science, and engineering

(b) An ability to design and conduct experiments, as well as to analyze and interpret data

(c) An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability

(e) An ability to identify, formulate, and solve engineering problems

(f) An understanding of professional and ethical responsibility

(g) An ability to communicate effectively

(h) The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

(i) A recognition of the need for, and an ability to engage in life-long learning

(j) A knowledge of contemporary issues

(k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Study Outcomes (according to the Spanish program definition)

CG 02 Ability to express oneself in oral and written form, and to convey information through documents and public presentations..

CG 03 Skilled for public speaking and in written and communicating information throughout documents and public speeches.

CG 04 Ability to abstract, analyze, and synthesize, and to solve problems.

CG 07 Ability to design, manage, and direct projects.

CG 08 Ability to organize, plan and make decisions.

CG 10 Ability to handle specifications, rules and regulations and to apply them in the practice of the profession.

CG11 Skills for the use of Information and Communication Technologies..

CG 13 Learning skills with a high degree of autonomy.

CE TEL 03 Ability to use computer tools of search of bibliographical resources or of information related to the telecommunications and the electronics.

CE TM08 Ability to carry out professional projects in the specific field of telecommunication technologies in which competences attained in the program have to be synthesized and integrated.

Specific outcomes of instruction (according to the Spanish program definition)

1.- Identify and describe the problem or issue subject to investigation or analysis, taking into account the context conditions.
2.- Analyze a problem at different levels of abstraction.
3.- Set hypotheses and research objectives.
4.- Develop and substantiate solutions and recommendations, including multidisciplinary expertise when required.
5.- Write a memory of the work including temporary planning and, if appropriate, cost.
6.- Assess the quality of a research based on its utility.
7.- Collect bibliographic information, at least in two languages, concerning a concrete problem.
8.- Use software support to presentations.
9.- Using spreadsheet or other software to process data and results.
10.- Use specific software.
11.- Describe the basic knowledge related to the project, both the own field of knowledge and other related.
12.- Decide on the veracity and validity of theories and models considering, among other things, the assumptions on which they are based.
13.- Analyse results
14.- Design and evaluate experiments.
15.- Learn through non-guided study.
16.- Communicate results orally.
17.- Know and understand the relevance of historical milestones in the progress of the own field of knowledge.
18.- Identify, assess and discuss the social and ethical implications of technological developments.