

COURSE PROGRAM

Academic Year 2024/2025

Identification and characteristics of the course			
Code	401073	ECTS Credits	6
Name (Spanish)	Planificación y Gestión de Proyectos		
Name (English)	Projects Planning and Management		
Titles	Master Degree in Informatics Engineering (MDIE) Master Degree in Telecommunications Engineering (MDTE) Master Degree in ICT Management (MDICTM)		
Centre	Escuela Politécnica (EP)		
Semester	First	Character	Basic Studies
Module	Management and leadership (MDIE) Master Degree in Telecommunications Engineering (MDTE) Project Management (MDICTM)		
Subject	Projects in ICT Service Engineering (MDIE) Projects in ICT Service Engineering (MDTE) Projects in ICT Service Engineering (MDICTM)		
Lecturers			
Name	Office	e-mail	Web page
Javier Romero Álvarez	Spilab Lab 01 – Edif Inf. 22 - edif. telecom.	jromero@unex.es	
Juan Francisco Izquierdo León		jfizquierdo@unex.es	
Subject Area	Computer Languages and Systems Signal Theory and Communications		
Department	Computers and Telematics Systems Engineering Computers and Communication Technology		
Coordinating lecturer	Juan Francisco Izquierdo León		
Competencies *			
Master Degree in Information and Communication Technologies Management			
Basic Competencies:			
<ul style="list-style-type: none"> • CB6 - Knowledge and understanding that provide a basis or opportunity for originality in developing and / or applying ideas, often in a research context. • CB7 - Ability to apply the acquired knowledge and their ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their area of study. 			
General Competencies:			
<ul style="list-style-type: none"> • CG1 - Conceive, plan and manage the development of complex computer and telecommunications applications, or with special requirements, the result of the constant appearance of new technologies. • CG7 - Train the graduates with the necessary skills for the design and planning of integral ICT projects that involve the different technologies of the sector. • CG8 - Provide graduates with the necessary knowledge for the management of integral ICT projects. 			
Specific Competencies:			

* Los apartados relativos a competencias, breve descripción del contenido, actividades formativas, metodologías docentes, resultados de aprendizaje y sistemas de evaluación deben ajustarse a lo recogido en la memoria verificada del título.

<ul style="list-style-type: none"> • CEGP2 - Capacity for strategic planning, development, management, coordination, and technical and economic management in the fields of ICT related, among others, with: systems, applications, services, networks, infrastructures or facilities respecting the proper compliance with quality criteria and environmental and in multidisciplinary work environments. • CEGP3 - Ability to manage research, development and innovation projects, in companies and technology centers, with guarantee of safety for people and goods, the final quality of products and their homologation.
<p>Cross-Curricular Competencies:</p> <ul style="list-style-type: none"> • CT1 - Innovative and entrepreneurial spirit. • CT11 - Leadership capacity • CT12 - Capacity for management of teams and organizations.
<p>Master Degree in Informatics Engineering</p>
<p>Basic Competencies:</p> <ul style="list-style-type: none"> • CB6 - Knowledge and understanding that provide a basis or opportunity for originality in developing and / or applying ideas, often in a research context. • CB7 - Ability to apply the acquired knowledge and their ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their area of study.
<p>General Competencies:</p> <ul style="list-style-type: none"> • CG1 - Ability to project, calculate and design products, processes and facilities in all fields of Informatics Engineering. • CG3 - Ability to lead, plan and supervise multidisciplinary teams • CG5 - Capacity for the elaboration, strategic planning, direction, coordination and technical and economic management of projects in all the fields of Informatics Engineering following criteria of quality and environmental.
<p>Specific Competencies:</p> <ul style="list-style-type: none"> • CEDG2 Capacity for strategic planning, elaboration, direction, coordination, and technical and economic management in the fields of Informatics Engineering related, inter alia, to: systems, applications, services, networks, infrastructures or computer facilities and development centers or software factories, respecting the adequate fulfilment of the quality and environmental criteria and in multidisciplinary work environments. • CEDG3 Capacity for the management of research, development and innovation projects in companies and technological centers.
<p>Cross-curricular competencies:</p> <ul style="list-style-type: none"> • CT01 Innovative and entrepreneurial spirit. • CT02 Capacity for management of teams and organizations. • CT03 Leadership capacity.
<p>Master Degree in Telecommunications Engineering</p>
<p>Basic competencies:</p> <ul style="list-style-type: none"> • CB6 Knowledge and understanding that provide a basis or opportunity for originality in developing and / or applying ideas, often in a research context. • CB7 Ability to apply the acquired knowledge and their ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their area of study.
<p>General competencies:</p> <ul style="list-style-type: none"> • CG1 - Ability to plan, calculate and design products, processes and facilities in all areas of telecommunications engineering. • CG3 - Ability to lead, plan and supervise multidisciplinary teams. • CG5 - Capacity for the development, strategic planning, direction, coordination and technical and financial management of projects in all areas of the Telecommunications

Engineering, following environmental and quality criteria
<p>Specific competencies:</p> <ul style="list-style-type: none"> • CEG2 Capacity for the development, direction, coordination, and technical and financial management of projects in the fields of systems, networks, infrastructure and telecommunications services, including supervision and coordination of the subprojects of the work annexed; common telecommunication infrastructures in buildings or cores residential home projects including digital telecommunications infrastructure in transport and environment, with corresponding power supply facilities and assessment of electromagnetic emissions and electromagnetic compatibility.
<p>Cross-curricular competencies:</p> <ul style="list-style-type: none"> • CT01 Innovative and entrepreneurial spirit. • CT02 Capacity for management of teams and organizations. • CT03 Leadership capacity.
Themes and syllabus
Brief description of the syllabus *
<p>The course includes the following syllabus: Management of comprehensive ICT projects. Union between technology and business. Strategies in the field of ICT. Different areas and functions of an ICT company or a technology center.</p> <p>The course addresses the discipline of Project Planning and Management in the field of ICT engineering. To do this, the concept of the Project Management Office (PMO) is presented as a modern paradigm of organizational management. Based on this concept, the concepts of Program and Project are addressed as units of operation of a PMO. Finally, the whole life cycle of a project is approached from the presentation of commercial offers to its conclusion through the planning of the different management areas and their execution. The course is associated with the practical work of developing a complete planning for a case study.</p> <p>The objective of the course is to provide the student with a global vision of the tasks that comprise the discipline of ICT project management from its conception. This is to focus on the professional profile of the student in the field of management and leadership.</p>
<p>UNIT I: MOTIVATION AND INTRODUCTION</p> <p>Theme 1 Title: Introduction Theme 1 Contents:</p> <ol style="list-style-type: none"> 1.1 Motivation, Objective and Content 1.2 The Project in CIT Engineering 1.3 Project, Process and Methodologies 1.4 Project Planning and Management 1.5 Conclusion
<p>Theme 2 Title: PMO – Project Management Office Theme 2 Contents:</p> <ol style="list-style-type: none"> 2.1 Motivation, Objective and Content 2.2 The PMO paradigm as a modern model of organizational management 2.3 Structural models of PMO 2.4 PMO as knowledge management unit of organizations 2.5 PMO as a consulting unit in organizations 2.6 PMO as a field of professional development 2.7 Conclusion
<p>Theme 3 Title: Project Management Theme 3 Contents:</p>

<ul style="list-style-type: none"> 3.1 Motivation Objectives and Content 3.2 Programs and Projects 3.3 Organizations and standards for project management 3.4 Project life cycle 3.5 Phases, activities and their relationship in project management 3.6 Tools for project management 3.7 Conclusion
<p>UNIT II: PROJECT PLANNING</p> <p>Theme 4 Title: Project scope definition Theme 4 Contents:</p> <ul style="list-style-type: none"> 4.1 Motivation Objectives and Content 4.2 Project Charter 4.3 Requirements Specification 4.4 Costs Estimation 4.5 Project viability and return on investment 4.6 Governance model (Project Management Plan) 4.7 Commercial offer 4.8 Conclusion
<p>Theme 5 Title: Planning. Time Management Theme 5 Contents:</p> <ul style="list-style-type: none"> 5.1 Motivation, Objectives and Content 5.2 Tasks and Work Breakdown Structure (WBS) 5.3 Tasks Sequence and Dependencies 5.4 Project Duration Estimation 5.5 Schedule for the project (Project Plan) 5.6 Conclusion
<p>Theme 6 Title: Planning. Cost Management Theme 6 Contents:</p> <ul style="list-style-type: none"> 6.1 Motivation, Objectives and Content 6.2 Cost Classification 6.3 Tasks Effort Estimation 6.4 Resources Assignment to tasks 6.5 Project cost model 6.6 Conclusion
<p>Theme 7 Title: Planning. Getting Ready for Project Execution Theme 7 Contents:</p> <ul style="list-style-type: none"> 7.1 Motivation, Objectives and Content 7.2 Plan for the Team Acquisition 7.3 Procurement Plan and relationship with suppliers 7.4 Financial needs planning 7.5 Risk management plan 7.6 Communication plan and customer expectations management 7.7 Conclusion
<p>UNIT III: PROJECT MANGEMENT</p> <p>Theme 8 Title: Monitoring and Controlling Management Theme 8 Contents:</p> <ul style="list-style-type: none"> 8.1 Motivation, Objectives and Content 8.2 Project control (Project Auditing) 8.3 Models and standards for quality management 8.4 Crisis management and recovery 8.5 Project Closure 8.6 Conclusion
Practical Activities
P1. Case Study Presentation

P2. Estimation of operating costs
 P3. Effort Estimation and Commercial Offer
 P4. Project Planning, WBS and Schedule
 P5. Budget and Set outs for execution.

Educational activities *

Student workload in hours by lesson		Lectures	Practical activities				Monitoring activity	Homework
Lesson	Total	L	HI	LAB	COM	SEM	SGT	PS
1	3	2						1
2	5	3						2
3	5	3						2
4	14	9						5
5	10	5						5
6	10	5						5
7	10	5						5
8	6	3						3
P1	5			1				4
P2	11			3				8
P3	16			4				12
P4	21	1		4				16
Assessment **	8	3						5
TOTAL	150	45		15				90

L: Lectures (85 students)

HI: Hospital internships (7 students)

LAB: Laboratory or field practices (15 students)

COM: Computer room or language laboratory practices (20 students)

SEM: Problem classes or seminars or case studies (40 students)

SGT: Scheduled group tutorials (educational monitoring, ECTS type tutorials)

PS: Personal study, individual or group work and reading of bibliography

COURSE SCHEDULE

		WEEK														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Themes	1	3														
	2	1	4													
	3		1	4												
	4			1	4	5	4									
	5						1	6	3							
	6								2	5	3					
	7										3	5	2			
	8											1	5			
	P1	3	2													
	P2		1	5	5											
	P3					5	5	3	3							
	P4									6	5	5	5			
	P5												3	12	11	
	Exam															8

** Indicate the total number of evaluation hours of this subject.

TOTAL	7	8	10	9	10	10	9	8	11	11	11	15	12	11	8
Learning Methodology *															
<p>The course combines master classes with sessions dedicated to debate and discussion as well as sessions dedicated to work in groups. More specifically, for each of the topics the lecturer will review the theoretical content of the course in a master class.</p> <p>For each topic the lecturer will provide a series of readings that will be analysed by the student so that the next class will be used to discuss the content of the readings. The debates are conducted by the lecturer towards the points of interest.</p> <p>The knowledge acquired by the student through the lectures, the analysis of the readings and the discussion sessions are put into practice through practical works. These practical works are carried out in groups of 5 or 6 people dealing with a unique case study for the entire course. Each group of students will begin by simulating the establishment of a company and will have to determine their production costs as well as their market costs (retail prices). Later, a practical case (a project) will be proposed to them so that their company must address. For this case of study, the group of students must provide a commercial offer. Once the commercial offer is approved (by the lecturer) each group has to prepare a schedule for the project with the costs and times involved in the commercial offer. After the schedule they have to plan all the actions related to the project launch prior to its execution.</p> <p>All working group sessions will be guided by “learning by doing” and “problem-based learning” techniques. Students will have basic knowledge to deal with the work, but it will be through their development when they actually finish correctly structuring every concept and their relationships.</p> <p>Finally, for the most important topics, there are talks by experts from the industry who give a real vision of how the knowledge studied is used in the day-to-day of companies.</p>															
Learning Outcomes*															
<ul style="list-style-type: none"> • The student Design and plan integrated ICT projects involving the different technologies of the industrial sector. • The student knows the tasks of directing integral ICT projects. • The student is aware of the link between the world of technology and business, as a key point for the correct management of ICT. • The student is able to evaluate the different alternatives, making strategic decisions in the field of ICT. • The student knows and applies in mid-level activities the transversal competences developed in this Master. 															
Evaluation systems *															

The course offers **2 modes of assessment**. The student will be able, through the virtual campus platform, to choose the assessment modality. Said election will be held during the first quarter of the semester. In both assessment modalities, the calls are totally independent, no qualification obtained in one call will be transferred to another subsequent call.

Continuous assessment Modality. The continuous assessment itinerary requires from the student the attendance to all large group, laboratory, and monitoring activities. Besides. Students are required to sit the five practical activities proposed along the course (P1 to P5). Practical activities are evaluated independently of each other. They require a minimum grade of 5. The overall grade of the practical activities is obtained as a weighted average of the grades obtained for each activity using the following formula:

$$\text{PA Grade} = (10\%P1 + 15\% P2 + 20\% P3 + 25\% P4 + 30\% P5)$$

Students must also sit an exam about the theoretical content of the course. The final grade for the course is then obtained using the following formula:

$$\text{Final Grade} = 80\% \text{ PA Grade} + 20\% \text{ Exam Grade}$$

Global Assessment modality. This itinerary is for those students that decided not to use the Continuous Assessment. Students must sit the exam about the theoretical contents of the Itinerary A. Besides, they must also sit an exam about the practical contents of the course. The final grade is then obtained using the following formula:

$$\text{Final Grade} = 80\% \text{ Practical Exam Grade} + 20\% \text{ Theoretical Exam Grade}$$

Bibliography

Basic bibliography

1. The Complete Project Management Office Handbook (ESI International Project Management Series). Second Edition. Gerard M. Hill. Auerbach Publications. 2008. ISBN-13: 978-0849321733
2. Project Management Accounting: Budgeting, Tracking, and Reporting Costs and Profitability. Kevin R. Callahan, Gary S. Stetz and Lynn M. Brooks. John Wiley & Sons. 2007. ISBN-13: 978-0470044698
3. The Program Management Office: Establishing, Managing And Growing the Value of a PMO. Craig J. Letavec. J. Ross Publishing. 2006. ISBN-13: 978-1932159592
4. Earned Value Project Management, 3rd Edition. Quentin W. Fleming and Joel M. Koppelman. Project Management Institute. 2006. ISBN-13: 978-1930699892
5. Creating the Project Office: A Manager's Guide to Leading Organizational Change (Jossey Bass Business and Management Series). Randall L. Englund, Robert Graham and Paul C. Dinsmore. Jossey-Bass, 2003, ISBN-13: 978-0787963989
6. A Guide to the Project Management Body of Knowledge: (Pmbok Guide). Project Management Institute (Corporate Author). Project Management Institute; 4 edition. 2008. ISBN-13: 978-1933890517

Other resources and complementary educational materials

1. Additional resources will be provided online.

Recommendations

It is highly recommended for students to be familiar with the project development in the ICT field.