

COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Engineering		
ACADEMIC UNIT	Department of Planning and Regional Development – Department of Civil Engineering		
LEVEL OF STUDIES	Postgraduate		
COURSE CODE	MCC102	SEMESTER	Winter
COURSE TITLE	Project Management		
INDEPENDENT TEACHING ACTIVITIES <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i>		WEEKLY TEACHING HOURS	CREDITS
		3	7,5
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	Special background, specialization		
PREREQUISITE COURSES:	Mathematics		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes (when there are ERASMUS students)		
COURSE WEBSITE (URL)			

(2) LEARNING OUTCOMES

<p>Learning outcomes</p> <p><i>The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.</i></p> <p><i>Consult Appendix A</i></p> <ul style="list-style-type: none"> • Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area • Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B • Guidelines for writing Learning Outcomes
<p>Learning Objectives</p> <p>Upon completion of the course, students will be able to:</p> <ol style="list-style-type: none"> 1. Identify the importance of managing a technical project and the factors that affect the efficiency of the production factors used for the construction of projects and the effectiveness of management. 2. Schedule a technical project by applying modern time scheduling methods, under uncertainty or not. 3. Schedule a technical project economically and calculate the optimal time and optimal construction cost by optimizing the resources employed for the construction of projects. 4. Understand the concepts of mathematical programming and operations research. 5. They structure a mathematical model with the aim of optimizing basic quantities that characterize a technical project (costs, profit, benefits, etc.) 6. They apply operations research methods to solve linear and nonlinear problems (Simplex method, transportation problem, assignment problem). 7. They understand the problems of construction site organization and apply methods for managing their problems.

8. They understand the problems of risk management in technical projects and construction sites.
9. They evaluate alternative solutions related to the organization and securing of a construction site depending on the size and specificities of the project under construction.

Course Purpose

The purpose of the course is to contribute to the understanding of the principles and concepts of Project Management and their application in the administration, management, organization and planning of private or public technical projects.

The theoretical part of the course aims to analyze and describe the principles of project management, as well as to describe the basic methodologies of management and rational planning and their evaluation. The methodologies related to the temporal and financial planning of technical projects are described, which aim to organize and manage projects of various types in a rational manner, achieving optimal time, cost and construction quality.

In the exercises part, representative examples of projects are selected and the methodologies taught in the theoretical part are applied. In the exercises and applications, real problems are selected with data and quantities as close to reality as possible, so as to become familiar with the practice and to acquire a sense of the quantities that characterize technical projects.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

<i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i>	<i>Project planning and management</i>
<i>Adapting to new situations</i>	<i>Respect for difference and multiculturalism</i>
<i>Decision-making</i>	<i>Respect for the natural environment</i>
<i>Working independently</i>	<i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i>
<i>Team work</i>	<i>Criticism and self-criticism</i>
<i>Working in an international environment</i>	<i>Production of free, creative and inductive thinking</i>
<i>Working in an interdisciplinary environment</i>	<i>.....</i>
<i>Production of new research ideas</i>	<i>Others...</i>
	<i>.....</i>

The general skills that students should have acquired and that the course aims to achieve concern the development of creative and inductive thinking, through the analysis of project evaluation problems, their correlation or connection with the relevant approaches and the general concerns that arise and are shaped during the semester in which the students participate, and the ability to approach development problems and address future "challenges" in the development of the local or national economy, through the understanding of the relevant concepts and the benefits that the preparation of the work ensures.

(3) SYLLABUS

The main course content includes the following sections:

1. Project management, leadership and guidance in construction companies and projects, performance, motivation, incentives and employee remuneration.
2. Human resource management in technical projects.
3. The "problem" of determining labor remuneration in construction companies, selection, changes and evaluation of personnel.
4. Time planning for construction of projects, CPM, PERT, MPM methods.
5. Time planning for construction of projects under uncertainty, probabilistic analysis.
6. Cost elements of technical projects, Optimization of cost, time and potential in the construction of projects.
7. Linear and nonlinear programming problems, assumptions and mathematical model construction.
8. Solving linear programming problems, applications in technical projects.
9. The start and convergence of the SIMPLEX method, the dual problem

10. The transportation problem, problems, applications in engineering projects.
11. The assignment problem, problems, applications.
12. Nonlinear programming, problems, applications
13. Construction sites, location and organization, The characteristics of construction projects, The organization and facilities of construction sites.
14. Risk management in engineering projects
15. Organization and management of construction sites, Inventory planning and control, The cost of inventory, Inventory management
16. The economic order quantity model

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Face-to-face in-classroom and distance learning.	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	Computers are used during the lectures of the course, but also in communication with the students. They are used in delivering Power Point lectures, presenting related slides, videos and instructional CDs and providing statistical material and bibliography for the needs of the course and the work being done.	
TEACHING METHODS <i>The manner and methods of teaching are described in detail.</i> <i>Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.</i> <i>The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</i>	Activity	Semester Workload
	Teaching	3x13=39 hours
	Study & analysis of literature	40
	Homework writing	21
	Total	100
STUDENT PERFORMANCE EVALUATION <i>Description of the evaluation procedure</i> <i>Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other</i> <i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	Evaluation process	Yes/No
	Language	Greek
	Problem solving	Yes
	Written work	Yes
	Specified evaluation criteria	
	Specified evaluation criteria	Determination of weight
	Understanding concepts	25%
	Use of theories and methods	25%
	Applying theories and methodologies to problems solving	25%
	Problem-solving speed	25%
	The evaluation criteria used are linked to the learning outcomes, since the students' ability to show their knowledge and depth of understanding of the core content of the course is indirectly assessed.	
	The assessment system and criteria are familiar to the students, and they are considered sufficient to reflect the degree of understanding of the course and in-depth knowledge of its content.	

	The examination process is assessed indirectly, since students are asked to comment after the exams are over. In addition students can view their writing if they wish and find out what mistakes they have made and to comment on them.
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(5) ATTACHED BIBLIOGRAPHY

Suggested Bibliography:

1. Polyzos S., (2018), Project Management, 3rd Edition, Kritiki Publications, Athens.
2. Polyzos S., (2017), Project Planning and Organization, 2nd Edition, Tziola Publications, Thessaloniki.
3. A Guide to the Project Management Body of Knowledge (PMBOK Guide) (2021)– 7th Edition, Project Management Institute, ISBN: 978-1-62825-664-2
4. Chasiakos Ath. (2000), "Technical Economics", University of Patra.
5. Gower (Dennis Lock), "Project Management ", Ellin Publications, Athens.
6. Dimitriadis A. (1996), "Project Management ", Athens.
7. Efthimoglou P. (1992), "Mathematics of Finance", Thessaloniki.
8. Thomson P. (1981), "Organization and Economics of Construction", McGraw Hill, London.
9. Ladopoulos I, (1995), Personnel Management and Business Administration Issues, Athens.
10. Efraimidis Ch. (1999), "Construction Management", Athens.
11. Gower (Dennis Lock), "Project Management", Ellin Publications, Athens.
12. Polyzos S., Tsiotas D. (2023), Interregional transport Infrastructures and Regional Development: A methodological Approach, Theoretical and Empirical Researches in Urban Management, Vol. 18(2), pp. 5-30.
13. Polyzos S., (2006) "Public investments and Regional Development: The role of Regional Multipliers", International Journal of Sustainable Planning and Development, vol. 1(3), pp. 1-16.
14. Polyzos S., Niavis S. (2013), "Evaluating port efficiency in the Mediterranean", Int. J. Data Analysis Techniques and Strategies, vol. 5(1), pp. 84-100.
15. Construction Project Management, Peter Fewings
16. Code of Practice for Project Management for Construction and Development (Construction Management), by Chartered Institute of Building
17. Construction Planning, Programming and Control, Brian Cooke, Peter Williams
18. Modern Construction Management, Frank Harris, Ronald McCaffer, Francis Edum-Fotwe
19. The Management of Construction. A project Life Cycle Approach, F. Lawrence Bennett
20. Building Cost Planning for the Design Team, Jim Smith, Elsevier Science & Technology
21. Site Management for Engineers, Trevor Holroyd, Thomas Telford Ltd

Scientific journals:

1. Journal of Project Management
2. Project Manager
3. Project Management Journal
4. International Journal of Project Organization and Management
5. PM Network
6. International Journal of Managing Projects in Business
7. International Journal of Information Technology Project Management
8. Project Manager Today
9. Theoretical and Empirical Researches in Urban Management
10. International Journal of Construction Project Management
11. Journal of Project, Program & Portfolio Management
12. Built Environment Project and Asset Management
13. The Project Manager
14. Planning Practice and Research
15. Topos
16. Aeichoros

