

## 7.15 CE0740 – Engineering Project Management

### (1) GENERAL

<b>SCHOOL</b>	ENGINEERING SCHOOL		
<b>ACADEMIC UNIT</b>	CIVIL ENGINEERING DEPARTMENT		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE		
<b>COURSE CODE</b>	CE0740	<b>SEMESTER</b>	7
<b>COURSE TITLE</b>	Engineering Project Management		
<b>INDEPENDENT TEACHING ACTIVITIES</b> <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>	<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>	
	3	3	
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
<b>COURSE TYPE</b> <i>general background, special background, specialised general knowledge, skills development</i>	Special Background Course		
<b>PREREQUISITE COURSES:</b>	None		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	Greek, English, French, Italian		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	YES		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uniwa.gr/courses/PEY105/">https://eclass.uniwa.gr/courses/PEY105/</a>		

### (2) LEARNING OUTCOMES

<p><b>Learning outcomes</b></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"> <li>• <i>Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</i></li> <li>• <i>Descriptors for Levels 6, 7 &amp; 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</i></li> <li>• <i>Guidelines for writing Learning Outcomes</i></li> </ul> <p>Today's professional environment is highly competitive, continuously changing and difficult to manage. The aim of this course is to provide to the students the tools and techniques to more effectively and successfully manage projects.</p> <p>On successfully completing this course unit, students will be able to:</p> <ul style="list-style-type: none"> <li>• Understand both people-related and technical requirements necessary for the successful management of engineering projects</li> <li>• Develop the work breakdown structure of a project</li> <li>• Apply network analysis methods for project scheduling and develop Gantt charts</li> <li>• Estimate activity resources and develop resource scheduling</li> <li>• Estimate project budgets and plan cost management</li> <li>• Utilize project management software</li> </ul>
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- Understand the quality management philosophy and be familiar with quality management systems.
- Understand the essential tasks for achieving healthy and safe construction sites.

### 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?;

Search for, analysis and synthesis of data and information, with the use of the necessary technology

Adapting to new situations

Decision-making

Working independently

Team work

Working in an international environment

Working in an interdisciplinary environment

Production of new research ideas

Project planning and management

Respect for difference and multiculturalism

Respect for the natural environment

Showing social, professional and ethical responsibility and

sensitivity to gender issues

Criticism and self-criticism

Production of free, creative and inductive thinking

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Others...

The course aims to the following general competences:

- Search for, analysis and synthesis of data and information, with the use of the necessary technology
- Working independently
- Team work
- Working in an international environment
- Decision making

### (3) SYLLABUS

#### Theory Lectures

- Introduction to Project Management – Basic definitions: project definition, project life cycle, project environment in which civil engineering projects are carried out, project complexity, project management bodies of knowledge, project management standards, benefits of project management, project stakeholders
- Scope management, Work Breakdown Structure (WBS), Product Breakdown Structure (PBS), Organisation Breakdown Structure (OBS).
- Project Time Management:
  - Plan schedule management – Define Activities - Sequence of Activities.
  - Schedule Network Analysis
  - Generalized Precedence Relations
  - The Critical Path Method (CPM) – The Program Evaluation and Review Technique (PERT)
  - Scheduling using Gantt Chart
  - Time/Cost Scheduling Trade-Offs – Project Crashing
  - Resource – Constrained Project Scheduling
  - Project Control – S curves
- Project Quality Management: Quality Management Philosophy, Quality Assurance, Quality Planning, Quality Control, Quality Control Plan, Quality Costs, Total Quality Management (TQM), Quality management systems (ISO standards)
- Health and safety in construction: Rules and regulations, setting up the site, site access and boundaries, first aid, site management, working at height, etc.
- Lean construction management: Basic definitions, lean thinking, the importance of value, learning to see waste, value stream

#### Tutorials

The analytical program of tutorials follows the program of the theoretical part mentioned above. Each laboratory exercise is designed to establish a grounded view of the relation between theory and application.

#### Computer Laboratory Lectures

During laboratory lectures students are introduced to the Microsoft Project Software (MS project), which is a powerful project management tool for project planning, managing and monitoring. It constitutes in practice one of the widespread used IT tool for mid-range project managers who are managing large project with up to about 2000 tasks.

In the last week of the semester, students need to submit their own project using the MS project software.

#### (4) TEACHING and LEARNING METHODS - EVALUATION

<p style="text-align: center;"><b>DELIVERY</b> <i>Face-to-face, Distance learning, etc.</i></p>	<p>This module is taught through a combination of lectures, tutorial exercises, laboratory sessions and coursework exercises.</p>												
<p style="text-align: center;"><b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b> <i>Use of ICT in teaching, laboratory education, communication with students</i></p>	<ul style="list-style-type: none"> <li>• Teaching using of Interactive board and projector</li> <li>• Support learning process through electronic e-class platform. Exercises and educational material are provided through e-class.</li> </ul>												
<p style="text-align: center;"><b>TEACHING METHODS</b> <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></p> <p><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></p>	<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th style="text-align: left;"><b>Activity</b></th> <th style="text-align: left;"><b>Semester workload</b></th> </tr> </thead> <tbody> <tr> <td>Lectures</td> <td>39</td> </tr> <tr> <td>Computer Laboratory Exercises, Tutorial Exercises</td> <td>15</td> </tr> <tr> <td>Personal Study</td> <td>25</td> </tr> <tr> <td>Coursework</td> <td>11</td> </tr> <tr> <td>Course total</td> <td><b>90</b></td> </tr> </tbody> </table>	<b>Activity</b>	<b>Semester workload</b>	Lectures	39	Computer Laboratory Exercises, Tutorial Exercises	15	Personal Study	25	Coursework	11	Course total	<b>90</b>
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<p style="text-align: center;"><b>STUDENT PERFORMANCE EVALUATION</b> <i>Description of the evaluation procedure</i></p> <p><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></p> <p><i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i></p>	<p>Student performance is assessed through coursework completed during term time and through formal examinations.</p> <p>Written Examination (70%) – Coursework (30%)</p>												

#### (5) ATTACHED BIBLIOGRAPHY

##### Greek Bibliography:

14. Kastrinakis, A. (2018), Construction Project Management, Papasotiriou Publications (in Greek).
15. Polyzos, S. (2018), Management and Management of Projects: Methods and Techniques (3<sup>rd</sup> edition), Kritiki Publications (in Greek).
16. Papastamatis, Z. (2019), Implementation and control in Public Sector projects, A guide to regulation 4412/2016, Ziti Publications (in Greek)
17. Larson, Erik W., Gray Clifford F. (2018), Project Management: The Managerial Process (7<sup>th</sup> American edition), Athens: Klidarithmos Publications (in Greek).
18. Polyzos, S. (2017), Project Scheduling and organization (2<sup>nd</sup> edition), Tziola Publications (in Greek).
19. Dimitriadis, A. (2019), Project Management (5<sup>th</sup> edition), Newtech Publications (in Greek).
20. Bruke, R. (2002), Project Management: Planning and Control Techniques, Kritiki Publications (in Greek).
21. Maylor, H. (2005), Project management (3<sup>rd</sup> edition), Athens: Klidarithmos Publications (in Greek).

##### Foreign Bibliography:

10. Vanhoucke, M. (2012), Project Management with Dynamic Scheduling: Baseline Scheduling, Risk Analysis and Project Control, Springer-Verlag, Berlin Heidelberg.
11. Vanhoucke, M. (2016), Integrated Project Management Sourcebook: A Technical Guide to Project Scheduling, Risk and Control, Springer International Publishing.
12. APM, Body of Knowledge (BoK) 6th Edition (2012), Ibis House, Regent Park, Summerleys Road, Princes Risborough, Buckinghamshire: Association of Project Management (APM).

13. PMI, A Guide to the Project Management Body of Knowledge 5th Edition (PMBOK Guide) (2013), Newtown Square, Pennsylvania: Project Management Institute, Inc.
14. Fellows, R., Langford, D., Newcombe, R. and Urry, S. (2002), Construction management in practice, Blackwell Science.
15. Walker, A. (2007), Project management in construction, 5th edition, Wiley Blackwell.

Related academic journals:

2. Journal of Scheduling, SPRINGER
3. European Journal of Operational Research (EJOR), ELSEVIER Publications
4. International Journal of Planning and Scheduling, INDERSCIENCE PUBLISHERS
5. International Journal of Project Management, ELSEVIER
6. Project Management Journal, SAGE Publications
7. International Journal of Construction Management, TAYLOR & FRANCIS