

Syllabus

Course description

Course title	Project Economics and Management
Course code	47500
Scientific sector	ING-IND/17, ING-IND/35
Degree	Master
Semester	1st
Year	1st
Academic Year	2018-2019
Credits	10 ECTS
Modular	Yes

Total lecturing hours	Module1: 32h lecture Module2: 32h lecture
Total lab hours	
Total exercise hours	Module1: 16h exercise Module2: 16h exercise
Attendance	Recommended
Prerequisites	None
Course page	http://www.unibz.it/en/sciencetechnology/progs/master/industrial-and-mechanical-engineering/default.html

Specific educational objectives	<p>The course is one of the basics of the scientific area of Industrial Engineering.</p> <p>The course gives a general overview of the main scientific contents. During the course, the presented theoretical topics will be integrated through targeted application-oriented exercises and through a real game-based business simulation.</p> <p>The learning objectives are to introduce engineering students in the fundamentals of project management. Specifically, it will deal with the subjects of project planning, project scheduling and project monitoring. In addition, students will be introduced to organizational projects. They will learn how project, programme, and portfolio management could help companies to gain competitive advantages and to manage organizational changes.</p>
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Module 1	Project Management
Lecturer	Dr. Patrick Dallasega patrick.dallasega@unibz.it
Scientific sector of the lecturer	ING-IND/17
Teaching language	English
Office hours	See on timetable
Teaching assistant (if any)	-

Office hours	-
List of topics covered	<ol style="list-style-type: none"> 1. Introduction to Project Management 2. Project planning <ol style="list-style-type: none"> a) The Work Breakdown Structure (WBS) b) The Organizational Breakdown Structure (OBS) c) The Cost Breakdown Structure (CBS) d) Budget calculation 3. Project scheduling methods <ol style="list-style-type: none"> a) Network diagram techniques (AOA, AON) b) The Critical Path Method (CPM) c) The Program Evaluation Review Technique (PERT) d) Project crashing (Cost Change per Time Unit) e) Resource allocation 4. Project progress measurement and forecast <ol style="list-style-type: none"> a) Progress measurement b) The Earned Value Analysis (EVA) c) The Earned Value Performance Measurement (EVPM) d) Performance indexes 5. Construction Project Management <ol style="list-style-type: none"> a) Lean Management – Lean Construction b) The Last Planner System c) The Location Based Management System d) Industry 4.0 – Construction 4.0 6. Project Risk Management <ol style="list-style-type: none"> a) Methodologies for project risk identification b) Methodologies for project risk evaluation 7. Exercises <ol style="list-style-type: none"> a) Exercises on AOA, AON b) Exercises on CPM, PERT c) Exercises on EVA d) Exercises using Microsoft Project e) Last Planner Simulation game f) Excursion
Teaching format	Frontal lectures by means of power point presentations or on the blackboard, exercises and case studies, computer laboratory, excursions.

Module 2	Project Economics
Lecturer	
Scientific sector of the lecturer	ING-IND/35
Teaching language	English
Office hours	See on timetable
Teaching assistant (if any)	-
Office hours	-
List of topics covered (Module 2 ING-IND/35)	<ol style="list-style-type: none"> 1. Project Management Skills & Challenges for People & Organization Development in the modern SMEs. The organizational context of project, programme and portfolio management (interfaces to other

	<p>organizational structures)</p> <ul style="list-style-type: none"> a) Overview of Project Management standards b) Concepts c) Project, Programme, Portfolio and Governance d) Environment e) Key components of a project f) Project Management data and information, major deliverables and business documents g) The environment in which projects operate h) Project Manager role and competencies i) Program Manager role and competencies j) Portfolio Manager role and competencies <p>2. (Multi)Project-Management & Portfolio Management Techniques</p> <ul style="list-style-type: none"> a) PPPM-definition : Project, Programme and Portfolio Management b) PPP Processes c) Corporate Governance and PPP Governance <p>3. Project Types, Approaches and Rating Methods</p> <ul style="list-style-type: none"> a) Project types and life cycle b) How to manage different project types <p>4. Project Financing and KPIs</p> <ul style="list-style-type: none"> a) Project Management Metrics b) Performance scorecards c) Understanding and using performance metrics <p>5. Project Controlling & Reviews</p> <p>6. Exercises on Programme Management and Portfolio</p>
<p>Teaching format</p>	<p>Frontal lectures by means of Power Point presentations or on the blackboard, exercises and case studies.</p>

<p>Learning outcomes</p>	<p>Intended Learning Outcomes (ILO)</p> <p><u>Knowledge and understanding</u></p> <ol style="list-style-type: none"> 1. Students know the basic and most common methodologies of Project Management (Planning, Scheduling and Monitoring) and the main used tools. 2. Students are able to understand the issues relating to the development, implementation and management of production and logistics systems; <p><u>Applying knowledge and understanding</u></p> <ol style="list-style-type: none"> 3. Students are able to apply theoretical concepts of planning, organizing and managing projects. 4. By means of exercises performed in the computer laboratory the students are able to use software tools like Microsoft Project which is one of the most used tools of local companies. <p><u>Making judgements</u></p> <ol style="list-style-type: none"> 5. Students are able to interpret Key Performance Indicators of project economics and management to understand if projects are over, under or on budget and time. <p><u>Communication skills</u></p> <ol style="list-style-type: none"> 6. Students are able to structure and prepare a presentation describing project management concepts with business language. <p><u>Ability to learn</u></p> <ol style="list-style-type: none"> 7. Students are able to autonomously extend the knowledge acquired during the study course in different industrial contexts. 									
<p>Assessment</p>	<table border="1"> <thead> <tr> <th>Form</th> <th>Length /duration</th> <th>ILOs assessed</th> </tr> </thead> <tbody> <tr> <td>Written exam</td> <td>2 x 1,5 hours</td> <td>1,2,3,5</td> </tr> <tr> <td>Development and presentation of a case study</td> <td>15 minutes per student group</td> <td>4,5,6,7</td> </tr> </tbody> </table>	Form	Length /duration	ILOs assessed	Written exam	2 x 1,5 hours	1,2,3,5	Development and presentation of a case study	15 minutes per student group	4,5,6,7
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	<p>The case study consists in <i>planning, scheduling</i> and <i>monitoring</i> of the construction of a combined cycle gas turbine power station in Northern Ireland. In groups of 2-3 students the theoretical concepts learned are applied step by step into practice. Microsoft Project is used as supporting software.</p>
Assessment language	English
Evaluation criteria and criteria for awarding marks	<p>Project Management – Module 1: The final grade is calculated from the results of the written exam. The theoretical part counts 60% and the exercise part counts 40% of the final grade.</p> <p>Final grade: The final grade results from the average of Module 1 and Module 2.</p> <p>The evaluation criteria are the correctness of the resolution of the exercises and the use of technical language.</p>
Required readings	<p>Lecture notes and documents for exercise will be available on the course reserve collections</p> <p>A selection of the material presented in class and useful material will be available on the course reserve collections</p>
Supplementary readings	<ul style="list-style-type: none"> • “Project Management for Construction” by Hendrickson http://www.ce.cmu.edu/pmbook/ • Meredith, J. and Mantel, S., (2000) “Project Management: A managerial Approach”, J. Wiley & Sons New York • De Marco, A. (2011). “Project Management for Facility Constructions”, Springer Science & Business Media. • Cantamessa, M., Cobos, E., Rafele, C., (2007) “Il Project Management – Un approccio sistemico alla gestione dei progetti”, ISEDI De Agostini. • Pmi lexicon pm terms PMI.org • Project Management: A Systems Approach to Planning, Scheduling, and Controlling 11th Edition by Harold R. Kerzner (Author) • Project Management – Competency Development Framework • www.iso.org ISO21500:2013 – ISO21502-5 • www.pmi.org Project Management standard - PMBOK® GUIDE V Edition • http://www.ipma-usa.org/ IPMA_ICB_4_0_WEB