## Course title
Project, Process and Technology Management

## Course code
47540

## Scientific sector
ING-IND/17, ING-IND/35

## Degree
Master

## Semester
1st

## Year
1st

## Academic Year
2019-2020

## Credits
10 ECTS

## Modular
Yes

### Total lecturing hours
- Module1: 28h lecture
- Module2: 28h lecture

### Total lab hours

### Total exercise hours
- Module1: 18h exercise
- Module2: 18h exercise

## Attendance
Recommended

## Prerequisites
None

## Course page

### Specific educational objectives
The course is one of the basics of the scientific area of Industrial Engineering. 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.

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 organisational changes.

### Module 1
Project Management

#### Lecturer
Patrick Dallasega

#### Scientific sector of the lecturer
ING-IND/17

#### Teaching language
English

#### Office hours
See on timetable

#### Teaching assistant (if any)
Andrea Revolti

#### Office hours
See on timetable
## List of topics covered

1. Introduction to Project Management
2. Project planning
   - a) The Work Breakdown Structure (WBS)
   - b) The Organizational Breakdown Structure (OBS)
   - c) Planning of resources
3. Project scheduling methods
   - a) Network diagram techniques (AOA, AON)
   - b) The Critical Path Method (CPM)
   - c) The Program Evaluation Review Technique (PERT)
   - d) Methods for scheduling repetitive construction projects
   - e) Methods for scheduling non-repetitive construction projects
4. Project progress measurement and forecast
   - a) Progress measurement
   - b) The Earned Value Analysis (EVA)
   - c) The Earned Value Performance Measurement (EVPM)
5. Construction Project Management
   - a) The Last Planner System (LPS)
   - b) The Location Based Management System (LBMS)
   - c) Building Information Modeling supporting Construction Management
6. Project Risk Management
   - a) Methodologies for project risk identification
   - b) Methodologies for project risk evaluation
7. Exercises
   - 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 to the Brenner Base Tunnel to view the project management as well as the logistics process

### Teaching format
Frontal lectures and exercises in computer lab

<table>
<thead>
<tr>
<th>Module 2</th>
<th>Project Economics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecturer</td>
<td></td>
</tr>
<tr>
<td>Scientific sector of the lecturer</td>
<td>ING-IND/35</td>
</tr>
<tr>
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<td>English</td>
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<td>Office hours</td>
<td>See on timetable</td>
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<tr>
<td>Teaching assistant (if any)</td>
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<tr>
<td>Office hours</td>
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<tr>
<td>List of topics covered (Module 2 ING-IND/35)</td>
<td>tbd</td>
</tr>
<tr>
<td>Teaching format</td>
<td>Frontal lectures and exercises in computer lab</td>
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</tbody>
</table>
# Learning outcomes

<table>
<thead>
<tr>
<th>Intended Learning Outcomes (ILO)</th>
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<tbody>
<tr>
<td><strong>Knowledge and understanding</strong></td>
</tr>
<tr>
<td>1. The students know the basic and most common methodologies of Project Management (Planning, Scheduling and Monitoring) and the main used tools.</td>
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<tr>
<td>2. The students are able to understand the issues relating to the development, implementation and management of production and logistics systems;</td>
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<tr>
<td><strong>Applying knowledge and understanding</strong></td>
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<tr>
<td>3. Students will be able to apply theoretical concepts of planning, organizing and managing projects.</td>
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<tr>
<td>4. By means of exercises performed in the computer laboratory the student will be able to use software tools like Microsoft Project which is one of the most used tools of local companies.</td>
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<tr>
<td><strong>Making judgements</strong></td>
</tr>
<tr>
<td>5. The 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.</td>
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<tr>
<td><strong>Communication skills</strong></td>
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<tr>
<td>6. Ability to structure and prepare a presentation describing project management concepts with business language</td>
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<tr>
<td><strong>Ability to learn</strong></td>
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<tr>
<td>7. Ability to autonomously extend the knowledge acquired during the study course in different industrial contexts.</td>
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</tbody>
</table>

## Assessment

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Form</th>
<th>Length /duration</th>
<th>ILOs assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Written exam</td>
<td>2 x 1,5 hours</td>
<td>1,2,3,4,5</td>
</tr>
<tr>
<td></td>
<td>Presentation case study</td>
<td>15 minutes per student group</td>
<td>5,6,7</td>
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</tbody>
</table>

**Assessment language**

English

**Evaluation criteria and criteria for awarding marks**

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.
Final grade:
The final grade results from the average of Module 1 and Module 2.

<table>
<thead>
<tr>
<th>Required readings</th>
<th>Lecture notes and documents for exercise will be available on the reserve collections</th>
</tr>
</thead>
</table>
| **Supplementary readings** | • “Project Management for Construction” by Hendrickson [http://www.ce.cmu.edu/pmbook/](http://www.ce.cmu.edu/pmbook/)  
• Pmi lexicon pm terms [PMI.org](http://www.pmi.org)  
• Project Management: A Systems Approach to Planning, Scheduling, and Controlling 11th Edition by Harold R. Kerzner (Author)  
• Project Management – Competency Development Framework  
• [http://www.ipma-usa.org/](http://www.ipma-usa.org/) IPMA_ICB_4_0_WEB |