# Syllabus

## *Kursbeschreibung*

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| **Titel der Lehrveranstaltung** | Project, Process and Technology Management |
| **Code der Lehrveranstaltung** | 47540 |
| **Zusätzlicher Titel der Lehrveranstaltung** | |
| **Wissenschaftlich-disziplinärer Bereich** | |
| **Sprache** | Englisch |
| **Studiengang** | Master in Industrie- und Maschineningenieurwesen |
| **Andere Studiengänge (gem. Lehrveranstaltung)** | |
| **Dozenten/Dozentinnen** | Prof. Patrick Dallasega,<br>Patrick.Dallasega@unibz.it<br>https://www.unibz.it/en/faculties/engineering/academic-staff/person/33073<br>Prof. Guido Orzes,<br>Guido.Orzes@unibz.it<br>https://www.unibz.it/en/faculties/engineering/academic-staff/person/36819 |
| **Wissensch. Mitarbeiter/Mitarbeiterin** | |
| **Semester** | Erstes Semester |
| **Studienjahr/e** | 1 |
| **KP** | 10 |
| **Vorlesungsstunden** | 56 |
| **Laboratoriumsstunden** | 36 |
| **Stunden für individuelles Studium** | 0 |
| **Vorgesehene Sprechzeiten** | 30 |
| **Inhaltsangabe** | The course is one of the basics of the scientific area of Industrial Engineering.<br>The course gives a general overview of the main scientific |

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| | contents. During the course, the presented theoretical topics will be integrated through targeted application-oriented exercises and through a real game-based business simulation.<br>The learning objectives of module 1 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.<br>The learning objectives of module 2 are to introduce students to the fundamentals of process and technology management. In particular, the part that concerns the process management will deal with process identification, modelling and redesign and the part that concerns the technology management will deal with technology foresight and related methods. |
| **Themen der Lehrveranstaltung** | Module 1 - Project Management<br>• Introduction to Project Management<br>• Project planning<br>• Project scheduling methods<br>• Project progress measurement and forecast<br>• Project risk management<br>• Construction Project Management<br>• Exercises<br>Module 2 - Process and Technology Management<br>• Process identification and description<br>• Process modelling (Business Process Model and Notation - BPMN) and process discovery<br>• Process analysis and redesign<br>• Technology management activities: acquisition, exploitation, identification, protection, selection<br>• Technology management tools: portfolio management, patent analysis, value analysis, stage-gate, S-curve, technology roadmapping |
| **Stichwörter** | project management, process management, technology management, project scheduling, project monitoring |
| **Empfohlene Voraussetzungen** | None. |
| **Propädeutische Lehrveranstaltungen** | |
| **Unterrichtsform** | Frontal lectures and exercises in class (laptops are required for some lectures and exercises) |

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| **Anwesenheitspflicht** | Recommended |
| **Spezifische Bildungsziele und erwartete Lernergebnisse** | Intended Learning Outcomes (ILO)<br><br>Module 1 - Project Management<br><br>Knowledge and understanding:<br>1. The students know the basic and most common methodologies of Project Management (Planning, Scheduling and Monitoring) and the main used tools.<br>2. The students are able to understand the issues relating to the development, implementation and management of production and logistics systems;<br><br>Applying knowledge and understanding:<br>3. Students will be able to apply theoretical concepts of planning, organizing and managing projects.<br>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.<br>Making judgements<br>5. The students are able to interpret Key Performance Indicators of project management to understand if projects are over, under or on budget and time.<br><br>Communication skills:<br>6. Ability to structure and prepare a presentation describing project management concepts with business language<br><br>Ability to learn:<br>7. Ability to autonomously extend the knowledge acquired during the study course in different industrial contexts<br><br>Module 2 - Process and Technology Management<br><br>Knowledge and understanding:<br>8. The students will understand the issues related to the process identification, modelling and redesign and will know the basic and most common methods used in process management<br>9. The students will know various methods used for the technology management and foresight |

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| | 10. The students will understand how firms can rely on external collaboration to innovate<br><br>Applying knowledge and understanding:<br>11. Students will be able to apply theoretical concepts of process management and to use BPMN tools for the process description and modelling<br>12. Students will learn how to apply theoretical models of technology foresight and to implement complex technology foresight methods like T-start and scenario planning<br><br>Making judgments:<br>13. Students will be able to transfer the knowledge and methods learned to real practical applications<br>14. Students will be able to describe processes in a way that allows to find their criticalities and to redesign them<br>15. Students will be able to recognize consciously the technological positioning of a company and to find options for its development and improvement, using technology foresight<br><br>Communication skills:<br>16. Students will be able to present process analyses and technology roadmaps<br>17. Students will be able to interact in a competent and professional way in complex, multi-participants workshops like the ones used in T-plan and scenario planning methods<br><br>Ability to learn:<br>18. Students will be able to autonomously extend the knowledge acquired during the study course by reading and understanding. |
| **Spezifisches Bildungsziel und erwartete Lernergebnisse (zusätzliche Informationen)** | |
| **Art der Prüfung** | Module 1:<br>Written exam: 2 hours; ILOs assessed: 1,2,3,4,5;<br>Presentation case study: 15 minutes per student group; ILOs assessed: 5, 6, 7; |

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| | Module 2:<br>Written exam (1 exercise & 3 questions): 1,5 hours; ILOs assessed: 8 - 18;<br>Case study (modelling and re-design): BPMN models + 1 page report; ILOs assessed: 8, 11, 13, 18.<br>Assessment language: English |
| **Bewertungskriterien** | Project Management – Module 1:<br>The grade is calculated from the results of the written exam and the case study (exercise part). The theoretical part counts 50% and the exercise part counts 50% of the final grade.<br><br>Process and Technology Management – Module 2:<br>The grade is based on a written exam with exercises and theoretical questions and on a case study (on process modelling and re-design). The written exam counts 80%, and the case study (modelling and re-design) 20% of the final grade.<br>The assessment is based on ability to solve exercises about the topics of the course (process mapping and re-organization and technology roadmapping), clarity of answers, mastery of language (also with respect to teaching language), ability to summarize and establish relationships between topics.<br><br>Final grade:<br>Average of Module 1 and Module 2 (but the mark in each Module must >= 18 to overcome the exam). |
| **Pflichtliteratur** | Module 1 Lecture notes and documents for exercises will be available on the Microsoft Teams group of the module. Module 2 Lecture slides and notes will be available in the OLE page of the module (self-enrollment key will be provided to students in the first lecture). |
| **Weiterführende Literatur** | Module 1 - Project Management<br><br>· “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<br><br>· De Marco, A. (2011). “Project Management for Facility Constructions”, Springer Science & Business Media. |

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| | · Cantamessa, M., Cobos, E., Rafele, C., (2007) “Il Project Management – Un approccio sistemico alla gestione dei progetti”, ISEDI De Agostini.<br><br>· Pmi lexicon pm terms PMI.org<br><br>· Project Management: A Systems Approach to Planning, Scheduling, and Controlling 11th Edition by Harold R. Kerzner (Author)<br><br>· Project Management – Competency Development Framework<br><br>· www.iso.org ISO21500:2013 – ISO21502-5 www.pmi.org Project Management standard - PMBOK® GUIDE V Edition<br><br>· http://www.ipma-usa.org/ IPMA_ICB_4_0_WEB<br><br>Module 2 - Process and Technology Management<br><br>· Dumas, M., La Rosa, M., Mendling, J., & Reijers, H. A. (2018), 2nd edition. “Fundamentals of business process management”, Berlin: Springer. · Modeler user guide of BIZAGI, available at: http://help.bizagi.com/process-modeler/en/<br><br>Technology management<br><br>· Cetindamar, D., Phaal, R., & Probert, D. (2016). “Technology management: activities and tools”. Macmillan International Higher Education. · Phaal, R., Farrukh, C., & Probert, D. (2010). T-Plan: “The fast start to technology roadmapping: Planning your route to success”. University of Cambridge, Institute for Manufacturing. |
| **Weitere Informationen** | |
| **Ziele für nachhaltige Entwicklung (SDGs)** | Menschenwürdige Arbeit und Wirtschaftswachstum, Nachhaltiger Konsum und Produktion, Industrie, Innovation und Infrastruktur |

# *Kursmodul*

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| **Titel des Bestandteils der Lehrveranstaltung** | Project Management |
| **Code der Lehrveranstaltung** | 47540A |
| **Wissenschaftlich-disziplinärer Bereich** | IIND-05/A |

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| **Sprache** | Englisch |
| **Dozenten/Dozentinnen** | Prof. Patrick Dallasega,<br>Patrick.Dallasega@unibz.it<br>https://www.unibz.it/en/faculties/engineering/academic-staff/person/33073 |
| **Wissensch. Mitarbeiter/Mitarbeiterin** | |
| **Semester** | Erstes Semester |
| **KP** | 5 |
| **Verantwortliche/r Dozent/in** | |
| **Vorlesungsstunden** | 28 |
| **Laboratoriumsstunden** | 18 |
| **Stunden für individuelles Studium** | 79 |
| **Vorgesehene Sprechzeiten** | 15 |
| **Inhaltsangabe** | . |
| **Themen der Lehrveranstaltung** | Module 1 - Project Management<br>• Introduction to Project Management<br>• Project planning<br>• Project scheduling methods<br>• Project progress measurement and forecast<br>• Project risk management<br>• Construction Project Management<br>• Exercises |
| **Unterrichtsform** | Frontal lectures and exercises in class (laptops are required for some lectures and exercises). |
| **Pflichtliteratur** | Lecture notes and documents for exercises will be available on the Microsoft Teams group of the module. |
| **Weiterführende Literatur** | "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<br>· De Marco, A. (2011). "Project Management for Facility Constructions", Springer Science & Business Media. |

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| | · Cantamessa, M., Cobos, E., Rafele, C., (2007) “Il Project Management – Un approccio sistemico alla gestione dei progetti”, ISEDI De Agostini.<br>· Pmi lexicon pm terms PMI.org<br>· Project Management: A Systems Approach to Planning, Scheduling, and Controlling 11th Edition by Harold R. Kerzner (Author)<br>· Project Management – Competency Development Framework ·<br>· www.iso.org ISO21500:2013 – ISO21502-5 www.pmi.org Project Management standard - PMBOK® GUIDE V Edition<br>· http://www.ipma-usa.org/ IPMA_ICB_4_0_WEB |

# *Kursmodul*

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|---|---|
| **Titel des Bestandteils der Lehrveranstaltung** | Process and Technology Management |
| **Code der Lehrveranstaltung** | 47540B |
| **Wissenschaftlich-disziplinärer Bereich** | IEGE-01/A |
| **Sprache** | Englisch |
| **Dozenten/Dozentinnen** | Prof. Guido Orzes,<br>Guido.Orzes@unibz.it<br>https://www.unibz.it/en/faculties/engineering/academic-staff/person/36819 |
| **Wissensch. Mitarbeiter/Mitarbeiterin** | |
| **Semester** | Erstes Semester |
| **KP** | 5 |
| **Verantwortliche/r Dozent/in** | |
| **Vorlesungsstunden** | 28 |
| **Laboratoriumsstunden** | 18 |
| **Stunden für individuelles Studium** | 79 |
| **Vorgesehene Sprechzeiten** | 15 |

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| **Inhaltsangabe** | . |
| **Themen der Lehrveranstaltung** | Module 2 - Process and Technology Management<br>• Process identification and description<br>• Process modelling (Business Process Model and Notation - BPMN) and process discovery<br>• Process analysis and redesign<br>• Technology management activities: acquisition, exploitation, identification, protection, selection<br>• Technology management tools: portfolio management, patent analysis, value analysis, stage-gate, S-curve, technology roadmapping |
| **Unterrichtsform** | Frontal lectures and exercises in class (laptops are required for some exercises). |
| **Pflichtliteratur** | Lecture slides and notes will be available in the OLE page of the module (self-enrollment key will be provided to students in the first lecture). |
| **Weiterführende Literatur** | "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<br>· De Marco, A. (2011). "Project Management for Facility Constructions", Springer Science & Business Media.<br>· Cantamessa, M., Cobos, E., Rafele, C., (2007) "Il Project Management – Un approccio sistemico alla gestione dei progetti", ISEDI De Agostini.<br>· Pmi lexicon pm terms PMI.org<br>· Project Management: A Systems Approach to Planning, Scheduling, and Controlling 11th Edition by Harold R. Kerzner (Author)<br>· Project Management – Competency Development Framework ·<br>· www.iso.org ISO21500:2013 – ISO21502-5 www.pmi.org Project Management standard - PMBOK® GUIDE V Edition<br>· http://www.ipma-usa.org/ IPMA_ICB_4_0_WEB |