Syllabus

Kursbeschreibung

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, Patrick.Dallasega@unibz.it https://www.unibz.it/en/faculties/engineering/academic-staff/person/33073 Prof. Guido Orzes, Guido.Orzes@unibz.it 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	
Inhaltsangabe	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 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. 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 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) Project Crashing e) Resource allocation 4. Project progress measurement and forecast a) Progress measurement b) The Earned Value Analysis (EVA) c) The Earned Value Performance Measurement (EVPM) 5. Project risk management a) Methodologies for project risk identification b) Methodologies for project risk evaluation 6. Construction Project Management a) The Last Planner System (LPS) b) The Location Based Management System (LBMS) 7. Exercises a) Exercises on AOA, AON b) Exercises on CPM, PERT, project crashing, resource allocation c) Exercises on EVA

	d) Exercises using Microsoft Project e) Last Planner Simulation game f) Excursion to local companies to provide practical illustrations of project management processes. Module 2 - Process and Technology Management 4. Process management a) Introduction to business process management b) Process identification and description c) Process modelling (Business Process Model and Notation - BPMN) d) Process discovery e) Process analysis f) Process redesign Exercises: • Exercises on process modelling using the BPMN software BIZAGI • Case study (process modelling and redesign) 5. Technology management a) Introduction to technology management b) Technology management activities: acquisition, exploitation, identification, protection, selection c) Technology management tools: portfolio management, patent analysis, value analysis, stage-gate, S-curve, technology roadmapping Exercises on technology management
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).
Anwesenheitspflicht	Recommended
Spezifische Bildungsziele	Intended Learning Outcomes (ILO)

und erwartete Lernergebnisse	Module 1 - Project Management Knowledge and understanding: 1. The students know the basic and most common methodologies of Project Management (Planning, Scheduling and Monitoring) and the main used tools. 2. The students are able to understand the issues relating to the development, implementation and management of production and logistics systems; Applying knowledge and understanding: 3. Students will be able to apply theoretical concepts of planning, organizing and managing projects. 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. Making judgements 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. Communication skills: 6. Ability to structure and prepare a presentation describing project management concepts with business language Ability to learn: 7. Ability to autonomously extend the knowledge acquired during the study course in different industrial contexts Module 2 - Process and Technology Management Knowledge and understanding: 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 9. The students will know various methods used for the technology management and foresight 10. The students will understand how firms can rely on external collaboration to innovate

	Applying knowledge and understanding: 11. Students will be able to apply theoretical concepts of process management and to use BPMN tools for the process description and modelling 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 Making judgments: 13. Students will be able to transfer the knowledge and methods learned to real practical applications 14. Students will be able to describe processes in a way that allows to find their criticalities and to redesign them 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 Communication skills: 16. Students will be able to present process analyses and technology roadmaps 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 Ability to learn: 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: Written exam: 2 hours; ILOs assessed: 1,2,3,4,5; Presentation case study: 15 minutes per student group; ILOs assessed: 5, 6, 7; Module 2: Written exam (1 exercise & 3 questions): 1,5 hours; ILOs

	assessed: 8 - 18; Case study (modelling and re-design): BPMN models + 1 page report; ILOs assessed: 8, 11, 13, 18. Assessment language: English
Bewertungskriterien	Project Management – Module 1: 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. Process and Technology Management – Module 2: 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. 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. Final grade: Average of Module 1 and Module 2.
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** · “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 **Module 2 - Process and Technology Management** · 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/ Technology management · 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	Menschenwürdige Arbeit und Wirtschaftswachstum, Nachhaltiger

Entwicklung (SDGs)	Konsum und Produktion, Industrie, Innovation und Infrastruktur

Kursmodul

Titel des Bestandteils der Lehrveranstaltung	Project Management
Code der Lehrveranstaltung	47540A
Wissenschaftlich-disziplinärer Bereich	IIND-05/A
Sprache	Englisch
Dozenten/Dozentinnen	Prof. Patrick Dallasega, Patrick.Dallasega@unibz.it 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	
Inhaltsangabe	
Themen der Lehrveranstaltung	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) Project Crashing e) Resource allocation 4. Project progress measurement and forecast

	a) Progress measurement b) The Earned Value Analysis (EVA) c) The Earned Value Performance Measurement (EVPM) 5. Project risk management a) Methodologies for project risk identification b) Methodologies for project risk evaluation 6. Construction Project Management a) The Last Planner System (LPS) b) The Location Based Management System (LBMS) 7. Exercises a) Exercises on AOA, AON b) Exercises on CPM, PERT, project crashing, resource allocation c) Exercises on EVA d) Exercises using Microsoft Project e) Last Planner Simulation game f) Excursion to local companies to provide practical illustrations of project management processes.
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 · 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

Kursmodul

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, Guido.Orzes@unibz.it 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	
Inhaltsangabe	
Themen der Lehrveranstaltung	1. Process management a) Introduction to business process management b) Process identification and description c) Process modelling (Business Process Model and Notation - BPMN) d) Process discovery e) Process analysis

	f) Process redesign Exercises: • Exercises on process modelling using the BPMN software BIZAGI • Case study (process modelling and redesign) 2. Technology management a) Introduction to technology management b) Technology management activities: acquisition, exploitation, identification, protection, selection c) Technology management tools: portfolio management, patent analysis, value analysis, stage-gate, S-curve, technology roadmapping Exercises on technology management
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	Process management · 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/ Technology management · 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.