

Syllabus

Descrizione corso

Titolo insegnamento	Gestione sostenibile e orientata all'innovazione nelle aziende manifatturiere
Codice insegnamento	42190
Titolo aggiuntivo	
Settore Scientifico-Disciplinare	
Lingua	Tedesco
Corso di Studio	Corso di laurea in Ingegneria Industriale Meccanica
Altri Corsi di Studio (mutuati)	
Docenti	prof. dr.-ing. Dominik Matt, Dominik.Matt@unibz.it https://www.unibz.it/en/faculties/engineering/academic-staff/person/492
Assistente	
Semestre	Primo semestre
Anno/i di corso	Opt.
CFU	3
Ore didattica frontale	24
Ore di laboratorio	0
Ore di studio individuale	51
Ore di ricevimento previste	9
Sintesi contenuti	The course is part of the scientific and didactic sector in "Manufacturing Technology and Systems" and "Industrial Mechanical Plants" and is offered as optional course within the Bachelor in Industrial and Mechanical Engineering. It aims at teaching both scientific foundations and practical methods and helps to develop specific professional skills. The aim of this course is to provide an overview of important practices, concepts, methods and techniques of holistic innovation-

	oriented corporate management, from product idea to the various productive and logistical elements of the value chain through to successful commercialization.
Argomenti dell'insegnamento	The lecture belongs to the scientific fields of production systems and technologies, as well as industrial plants, and is offered as an elective course for the Bachelor's program in Industrial and Mechanical Engineering. The course aims to convey general scientific methods and content, as well as specific professional competences. The objective of this course is to provide an overview of important approaches, concepts, methods, and techniques of holistic, innovation-oriented corporate management—from the product idea, through the various productive and logistical stages of the value chain, up to successful marketing. The following topics are among those covered in the lecture: • Fundamentals of innovation management • Different types of innovation • Mechanisms of successful corporate growth • Design and optimization of innovation processes • Fundamentals of digital innovation (twin transition) • Introduction to work preparation and quality management • Fundamentals of sustainable manufacturing and assembly • Introduction to technical project management
Parole chiave	Innovation Management, Twin Transition, Technical Project Management
Prerequisiti	No.
Insegnamenti propedeutici	
Modalità di insegnamento	Frontal lectures with practical illustrative examples in the Smart Mini Factory laboratory.
Obbligo di frequenza	Yes.
Obiettivi formativi specifici e risultati di apprendimento attesi	Knowledge and understanding 1. Knowledge of modern methods and techniques of successful product and process innovation. Applying knowledge and understanding

	2. Development of practical skills in dealing with methods and techniques of product and process innovation through the illustration of the theoretical basics by examples from practice. Making judgements 3. Basic understanding of the timely and target-oriented planning and implementation of innovation projects and for individual working, structuring and documentation of innovative problem solutions using modern technologies for information acquisition and processing. Communication skills 4. Basic understanding of the structured illustration and presentation of innovation oriented project activities. Learning skills 5. To extend the knowledge acquired during the study course by reading and understanding scientific and technical documentation.
Obiettivi formativi specifici e risultati di apprendimento attesi (ulteriori info.)	
Modalità di esame	- Formative assessment: Summary after the lecture: after every lecture; ILOs assessed: 1, 2, 3, 4, 5; Laboratory visit: Exercises in the lab for 8h; ILOs assessed: 2. - Summative assessment: 40% written examination with multiple choice questions: ca. 12 Multiple Choice questions; ILOs assessed: 1, 3, 5; 60% written examination with theory and exercises: ca. 4 theory questions; ILOs assessed: 1, 2, 3, 5.
Criteri di valutazione	Final evaluation by a single final grade. The final grade is calculated 100% from the results of the written exam. Criteria for the evaluation of the written examination: completeness and correctness of the answers.

Bibliografia obbligatoria	There is no single text that completely covers the entire contents of the course. The course material is collected from various textbooks and research paper.
Bibliografia facoltativa	Will be indicated during the lecture course.
Altre informazioni	
Obiettivi di Sviluppo Sostenibile (SDGs)	Istruzione di qualità, Utilizzo responsabile delle risorse, Innovazione e infrastrutture

Modulo del corso

Titolo della parte costituente del corso	Innovazione e trasformazione duale
Codice insegnamento	42190A
Settore Scientifico-Disciplinare	IIND-04/A
Lingua	Tedesco
Docenti	prof. dr. Erwin Rauch, Erwin.Rauch@unibz.it https://www.unibz.it/en/faculties/engineering/academic-staff/person/17786 prof. dr.-ing. Dominik Matt, Dominik.Matt@unibz.it https://www.unibz.it/en/faculties/engineering/academic-staff/person/492
Assistente	
Semestre	Primo semestre
CFU	2
Docente responsabile	
Ore didattica frontale	24
Ore di laboratorio	0
Ore di studio individuale	26
Ore di ricevimento previste	6
Sintesi contenuti	- Fundamentals of innovation management - Different types of innovation - Mechanisms of successful company growth

	• Design and optimisation of innovation processes • Basics of digital innovation (Twin Transition) • Introduction to work preparation and quality management • Basics of sustainable production and assembly • Introduction to technical project management
Argomenti dell'insegnamento	This course provides a concise overview of innovation management fundamentals and key concepts of sustainable management in industrial companies. It covers types of innovation, innovation processes, sustainability, circular economy principles, sustainable manufacturing, and the 10 R principles. A simple life cycle assessment example illustrates practical application.
Modalità di insegnamento	Le lezioni includono esempi pratici e dimostrazioni applicative nel laboratorio Smart Mini Factory.
Bibliografia obbligatoria	There is no single text that completely covers the entire contents of the course. The course material is collected from various textbooks and research paper.
Bibliografia facoltativa	Will be indicated during the lecture course.

Modulo del corso

Titolo della parte costituente del corso	Gestione dei progetti
Codice insegnamento	42190B
Settore Scientifico-Disciplinare	IIND-05/A
Lingua	Tedesco
Docenti	prof. Patrick Dallasega, Patrick.Dallasega@unibz.it https://www.unibz.it/en/faculties/engineering/academic-staff/person/33073
Assistente	
Semestre	Primo semestre
CFU	1
Docente responsabile	
Ore didattica frontale	8

Ore di laboratorio	0
Ore di studio individuale	17
Ore di ricevimento previste	3
Sintesi contenuti	Scheda sillabo mancante.
Argomenti dell'insegnamento	The Technical Project Management course provides fundamental, practice-oriented knowledge for the successful planning, coordination, and implementation of projects. It begins by examining the key characteristics and objectives of projects, focusing on aspects such as uniqueness, time constraints, clearly defined goals, and the efficient use of resources. A central component of the course is the creation and application of Work Breakdown Structures (WBS). Using practical examples, students learn how to break down complex projects into manageable work packages and systematically represent the project structure. Building on this, various methods for creating network diagrams are introduced. In particular, the Activity-on-Node (AON) and Activity-on-Arrow (AOA) methods are explained and compared in terms of their areas of application. Another key focus is project scheduling. Students learn how to plan project activities over time and present them clearly using Gantt charts. The Critical Path Method is also covered, enabling students to identify time-critical activities and detect potential delays at an early stage. In addition, the course provides an introduction to the use of Extended Reality (XR) technologies in project management. Applications of Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR) for project planning, visualization, communication, and collaboration are presented. The theoretical content is reinforced through a practical project carried out in the Extended Reality Laboratory at NOI Techpark. Working in small teams, students apply the project management methods they have learned to a specific project.
Modalità di insegnamento	Frontal lectures with practical illustrative examples in the Extended Reality laboratory
Bibliografia obbligatoria	The required reading for the lecture will be published on MS Teams.

Bibliografia facoltativa	1) Project Management Institute (PMI) – PMBOK www.pmi.org PMBOK® Guide – Sixth Edition, 2017 (available in the library of Unibz) 2) De Marco, A. (2011). “Project Management for Facility Constructions”, Springer Science & Business Media 3) Meredith, J.; Mantel, S. and Shafer, S. (2016) “Project Management: A managerial Approach”, J. Wiley & Sons Singapore (available in the library of Unibz) 4) Cantamessa, M., Cobos, E., Rafele, C., (2007) “Il Project Management – Un approccio sistemico alla gestione dei progetti”, ISEDI De Agostini 5) Project Management for Construction” by Hendrickson http://www.ce.cmu.edu/pmbook/ (free available)
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