

Syllabus

Course description

Course title	Digital Transformation and Sustainability Management
Course code	47553
Scientific sector	ING-IND/35
Degree	Master Industrial Mechanical Engineering
Semester	2
Year	1
Academic year	2022/23
Credits	5
Modular	No

Total lecturing hours	28
Total lab hours	
Total exercise hours	18
Attendance	Recommended
Prerequisites	None
Course page	Course Offering / Free University of Bozen-Bolzano (unibz.it)

Specific educational objectives	The course provides a deep insight into the developments towards digital transformation and sustainability that are disruptively changing existing patterns of manufacturing and logistics. This will enable industrial and mechanical engineers to analyse and influence the developments which determine the changing boundary conditions of manufacturing and logistics systems.
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Lecturer	Dr. Molinaro Margherita
Scientific sector of the lecturer	ING-IND/35
Teaching language	English
Office hours	15
Teaching assistant (if any)	None
List of topics covered	<ol style="list-style-type: none"> 1. Digital Transformation in manufacturing and logistics <ol style="list-style-type: none"> a. Nature and trends of the digitalization of processes, products and production networks b. New digital business models and their impact on production networks c. Digital transformation processes in production networks d. Desired and undesired effects of digital change in production networks 2. Sustainability management in manufacturing and

	<p>logistics</p> <ul style="list-style-type: none"> a. Stakeholder management (requirements, reporting, involvement) b. Sustainability management c. Sustainable business models d. Circular economy
Teaching format	Frontal lectures and exercises
Learning outcomes	<p><u>Knowledge and understanding</u></p> <ul style="list-style-type: none"> • Advanced understanding of Digital Transformation and Sustainability • Knowledge of the various tasks, methods and approaches of managing production networks regarding digital transformation and sustainability • Knowledge of the management models for digital transformation and sustainability management <p><u>Applying knowledge and understanding</u></p> <ul style="list-style-type: none"> • Ability to adjust exemplary business models considering digital transformation and sustainability • Ability to adjust exemplary production networks considering digital transformation and sustainability <p><u>Making judgements</u></p> <ul style="list-style-type: none"> • Systems Thinking – ability to judge the influences of digital transformation and sustainability on current and future production networks • Ability to transfer the knowledge and methods learned to real practical applications <p><u>Communication skills</u></p> <ul style="list-style-type: none"> • Ability to prepare, conduct and join interactive discussions in class • Ability to structure, prepare, and present arguments related to the course topics <p><u>Learning skills</u></p> <ul style="list-style-type: none"> • Ability to autonomously extend the knowledge acquired during the study course by reading and understanding.
Assessment	Written and/or oral exam
Assessment language	English
Evaluation criteria and criteria for awarding marks	<ul style="list-style-type: none"> • Ability to solve simple exercises about the topics of the course, • Clarity of answers, • Mastery of language (also with respect to teaching language), • Ability to summarize and establish relationships between topics.

Required readings	Lecture notes and documents for exercise will be available in TEAMS and/or OLE
Supplementary readings	Books and articles will be suggested by the teacher during the course