## Syllabus
### Course description

<table>
<thead>
<tr>
<th>Course title</th>
<th>Digital Transformation and Sustainability Management</th>
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</thead>
<tbody>
<tr>
<td>Course code</td>
<td>47553</td>
</tr>
<tr>
<td>Scientific sector</td>
<td>ING-IND/35</td>
</tr>
<tr>
<td>Degree</td>
<td>Master Industrial Mechanical Engineering</td>
</tr>
<tr>
<td>Semester</td>
<td>2</td>
</tr>
<tr>
<td>Year</td>
<td>1</td>
</tr>
<tr>
<td>Academic year</td>
<td>2022/23</td>
</tr>
<tr>
<td>Credits</td>
<td>5</td>
</tr>
<tr>
<td>Modular</td>
<td>No</td>
</tr>
<tr>
<td>Total lecturing hours</td>
<td>28</td>
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<tr>
<td>Total lab hours</td>
<td></td>
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<tr>
<td>Total exercise hours</td>
<td>18</td>
</tr>
<tr>
<td>Attendance</td>
<td>Recommended</td>
</tr>
<tr>
<td>Prerequisites</td>
<td>None</td>
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<tr>
<td>Course page</td>
<td>[Course Offering / Free University of Bozen-Bolzano (unibz.it)]</td>
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### 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.

### 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
1. Digital Transformation in manufacturing and logistics
   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
logistics
  a. Stakeholder management (requirements, reporting, involvement)
  b. Sustainability management
c. Sustainable business models
d. Circular economy

Teaching format
Frontal lectures and exercises

Learning outcomes
Knowledge and understanding
  • 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

Applying knowledge and understanding
  • Ability to adjust exemplary business models considering digital transformation and sustainability
  • Ability to adjust exemplary production networks considering digital transformation and sustainability

Making judgements
  • 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

Communication skills
  • Ability to prepare, conduct and join interactive discussions in class
  • Ability to structure, prepare, and present arguments related to the course topics

Learning skills
  • 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
  • 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.
<table>
<thead>
<tr>
<th>Required readings</th>
<th>Lecture notes and documents for exercise will be available in TEAMS and/or OLE</th>
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</thead>
<tbody>
<tr>
<td>Supplementary readings</td>
<td>Books and articles will be suggested by the teacher during the course</td>
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