

Digital Transformation in Manufacturing and Engineering Design

Online pre-recorded lectures (asynchronous) - Topics

- Industry 4.0: what's next - a glimpse into the future
(Prof. Dominik Matt – unibz)
- Introduction to Additive Manufacturing
(Prof. Yuri Borgianni – unibz and Dr. Cristian Cappellini – unibg)
- Industrial Robotics: evolution and trends
(Prof. Alessandro Gasparetto – uniud)
- Introduction to managing digital transformation
(Dr. Margherita Molinaro – unibz)
- Classical and modern approaches to systems modeling
(Prof. Jose Manuel Lopez-Guede – University of the Basque Country)
- Connectivity Digital Twins (5G and Beyond)
(Prof. Johann Marquez-Barja – UAntwerp)

Intensive week (in presence) - Program

Monday 13th March 2023 - Additive manufacturing

- 08.00 - 08.30 Gathering at the meeting point and registration of participants
(Piazza Università 1)
- 08.30 - 09.30 Welcome, structure of the course and the group work
(Prof. Guido Orzes – unibz)
- 09.30 - 11.00 Digital Modelling and Additive Manufacturing with Polymeric Materials
(Dr. Norbert Blanco and Dr. Ines Ferrer – UdG)
- 11.00 - 11.30 Break
- 11.30 - 13.00 Design for Additive Manufacturing
(Prof. Yuri Borgianni – unibz)
- 13.00 - 14.15 Lunch
- 14.15 - 15.45 Hands on Additive Manufacturing - Lab
(Prof. Yuri Borgianni – unibz)
- 15.45 - 16.00 Break
- 16.00 - 18.00 Group work
- 18.00 - 19.30 Welcome aperitif

Tuesday 14th March 2023 - Advanced robotics (at NOI Techpark)

- 09.00 - 10.30 Safety Standards in Robotics - An Introduction
(Prof. Erwin Smet – UAntwerp)
- 10.30 - 11.00 Break
- 11.00 - 12.30 Mobile Robotics: advanced solutions for indoor and field applications
(Diego Tiozzo – uniud)
- 12.30 - 13.45 Lunch
- 13.45 - 16.15 Robotics Lab: NOI Techpark Lab visit + First Lab
(Prof. Renato Vidoni – unibz)
- 16.15 - 16.30 Break
- 16.30 - 18.00 Group work

Wednesday 15th March 2023 - Managing digital transformation

- 09.00 - 09.45 Implementation of I4.0 technology from a management/organizational point of view
(*Prof. Guido Orzes – unibz*)
- 09.45 - 10.30 Industry 4.0 and sustainability
(*Dr. Margherita Molinaro – unibz*)
- 10.30 - 11.00 Break
- 11.00 - 12.30 Impact of Industry 4.0 on production systems
(*Dr. Andrea Bikfalvi and Dr. Rodolfo de Castro – UdG*)
- 12.30 - 13.45 Lunch
- 13.45 - 15.45 Digital Transformation Lab
(*Prof. Guido Orzes and Dr. Margherita Molinaro – unibz*)
- 15.45 - 16.00 Break
- 16.00 - 18.00 Group work

Thursday 16th March 2023 - Digital twin and simulation

- 09.00 - 10.30 Digital Twins and AI - Making Industrial Operations Intelligent
(*Prof. Erwin Rauch – unibz*)
- 10.30 - 11.00 Break
- 11.00 - 12.30 A Cloud Machine Learning-Based Indirect Monitoring Method in Manufacturing Applications
(*Prof. Tegoeh Tjahjowidodo – KU Leuven*)
- 12.30 - 13.45 Lunch
- 13.45 - 15.45 IoT Lab at Smart Minifactory
(*Prof. Erwin Rauch – unibz*)
- 15.45 - 16.00 Break
- 16.00 - 18.00 Group work

Friday 17th March 2023 - Assistant systems

- 08.30 - 09.30 Work 4.0 and Worker Assistance Systems
(*Prof. Erwin Rauch – unibz*)
- 09.30 - 10.30 Assistant Systems in Construction
(*Prof. Patrick Dallasega – unibz*)
- 10.30 - 11.00 Break
- 11.00 - 13.00 Eye tracking and biometric devices Lab
(*Prof. Yuri Borgianni – unibz*)

Online final presentations

Friday 21st April 2023

- 09.00 - 11.00 Group work presentations*

*Preceded by online meetings on demand (max. 2 office hours per group)