Digital Transformation in Manufacturing and Engineering Design

Online pre-registered lessons (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)

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

08.30 - 09.30	Digital Twins and AI - Making Industrial Operations Intelligent *(Prof. Erwin Rauch – unibz)*
09.30 - 11.00	Connectivity Digital Twins (5G and Beyond) *(Prof. Johann Marquez-Barja – UAntwerp)*
11.00 - 11.30	Break
11.30 - 13.00	A Cloud Machine Learning-Based Indirect Monitoring Method in Manufacturing Applications *(Prof. Tegoeh Tjahjowidodo – KU Leuven)*
13.00 - 14.15	Lunch
14.15 - 16.15	IoT Lab at Smart Minifactory *(Prof. Erwin Rauch – unibz)*
16.15 - 16.30	Break
16.30 - 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)