Academic Year 2023/2024
‘Zero-Defect Manufacture for a circular economy’ Curriculum at UNITN

Entry year

**First semester (30 ECTS)**

Compulsory major courses (18 ECTS)
- **146006** Advanced manufacturing and sustainable products - mod.1 Design of smart and sustainable manufacturing (6 ECTS)
- **145534** Optimization models and algorithms (6 ECTS)
- **146011** Materials selection for engineering design (6 ECTS)

I&E course (6 ECTS)
- **146012** Financial analysis and performance management (6 ECTS)

Elective major course
- **146113** Design of precision systems (6 ECTS)

**Second semester (30 ECTS)**

Compulsory major courses (18 ECTS)
- **146006** Advanced manufacturing and sustainable products - mod. 2 Simulation of manufacturing processes (6 ECTS)
- **146007** Dynamics in systems and networks
  - Mod. 1 Dynamical systems (6 ECTS)
  - Mod. 2 Network dynamics (6 ECTS)

I&E courses (6 ECTS)
- **146014** Project management (6 ECTS)

Elective major courses
- **145572** Circular economy for materials processing (6 ECTS)
- **146010** Sustainable materials management (6 ECTS)
- **145486** Recycling and sustainable materials (6 ECTS)

Exit year (AY 2024/2025)

**First semester (36 ECTS)**

Compulsory major courses (15 ECTS)
- Digital production, assembly and logistics systems (9 ECTS)
- **146009** Engineering system design (6 ECTS)

I&E course
- People management and company organization and Summer School (15 ECTS)
- Industrial Project (related to the Master’s thesis - 6 ECTS)

**Second semester (24 ECTS)**

Master’s thesis (24 ECTS)

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1 International students must demonstrate adequate competence in the Italian Language (Level A1 CEFR – 3 ECTS – type F) before starting the exam session.
2 Students must select 12 ECTS for elective courses during the first year (e.g. both elective course might be chosen among courses offered in the second semester).
3 The list of the courses offered in the second year might change.