UNIMORE
UNIVERSITÀ DEGLI STUDI DI MODENA E REGGIO EMILIA

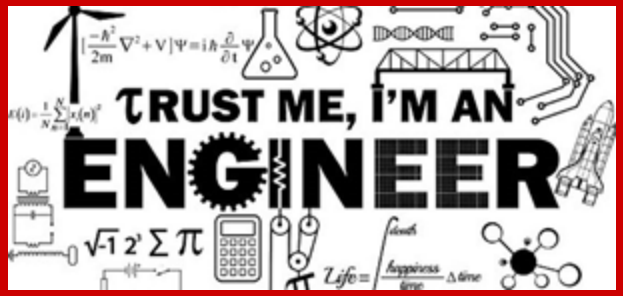
Dipartimento di Scienze e Metodi dell'Ingegneria

Masters' Degree in

Digital Automation Engineering

www.dae.unimore.it

dismi.unimore.it
#Dismi



Digital Automation Engineering

DAE at a glance

The course aims at training engineers able to manage the digital revolution, providing them with the necessary expertise in mathematics, computer science and technologies

The course is innovative and interdisciplinary

The course addresses both physical and virtual automation, namely robots and bots

All lessons are taught in English

Digital Automation Engineering

Course objectives and aims

LM-25 Automation Engineering

Only 16 courses in the same field in Italy

Our degree is the only one with a focus on computer science

The course provides skills in different fields of engineering

- Optimization and statistics
- Artificial Intelligence
- CAD/CAM and simulations
- Electronics and mechatronics
- Robotics and automated plants

Digital Automation Engineering

Access to the course (more info at www.dae.unimore.it)

Free access (no limited number)

Bachelor's degree in Engineering or Sciences

- score higher than 2/3 of the maximum or within best 30% of the reference group for foreign degrees

Prerequisites from previous studies:

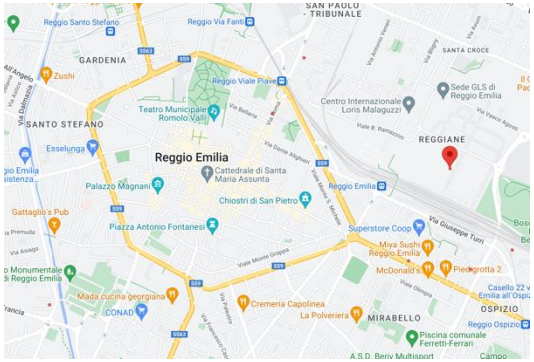
- 33 ECTS in core subjects: mathematics, physics, chemistry
- 6 ECTS in computer science
- 12 ECTS in automation engineering subjects: automatic controls (at least 6 ECTS), electric drives, applied mechanics

Adequate English knowledge is required (B2 level)

Digital Automation Engineering

Lectures

Lectures are given in presence. Attending classes is not mandatory but strongly recommended. Videos are uploaded on the web



First year
Padiglione 15C
Parco innovazione «Ex Reggiane»

Second year
DISMI, Dipartimento di Scienze e Metodi dell'Ingegneria
Via Giovanni Amendola, 2

Digital Automation Engineering

Structure of the course

The first year is the same for all students:

- Core and compulsory subjects

Second year, first semester: a choice of three curricula

- Digital Infrastructure
- Digital Design
- Digital Manufacturing

Second year, second semester:

- Elective courses
- Internship and thesis

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The compulsory courses provide fundamental skills in DAE:

- Statistics and optimization
- Artificial intelligence, data science and robotics
- Electric drives, mechatronics and automated plants

Year/Sem.	Course
1/1	Optimization methods for data-driven engineering processes (6 ECTS)
1/1	Artificial intelligence and data science (12 ECTS)
1/1	Multibody simulation and experimental modal analysis (12 ECTS)
1/2	Advanced probability and statistical methods for engineering (6 ECTS)
1/2	Industrial and collaborative robotics (12 ECTS)
1/2	Advanced electric drives and power converters systems (12 ECTS)
2/1	Advanced design and management of automated plants (6 ECTS)

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The curriculum in Digital Infrastructure provides skills in:

- Design of systems for secure data transmission
- Design of distributed systems and IoT applications
- Design and development of distributed control systems
- High performance computing

Year/Sem.	Course - *Digital Infrastructure*
2/1	Distributed control systems (6 ECTS)
2/1	Distributed and internet of things software architectures (6 ECTS)
2/1	Smart systems for data acquisition (6 ECTS)
2/2	High performance computing for advanced physical analysis (6 ECTS)

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The curriculum in Digital Design provides skills in:

- Design and development of automation systems
- Modeling of complex systems
- Study of thermo-fluid-dynamic processes
- Mechanical and mechatronic simulation methodologies

Year/Sem.	Course - *Digital Design*
2/1	Multi physics flow modelling (6 ECTS)
2/1	Computational thermo-fluid dynamics (6 ECTS)
2/1	Digital multiphysics simulation for machine design (6 ECTS)
2/2	Product design and digital development (6 ECTS)

Digital Automation Engineering

The curriculum in Digital Manufacturing provides skills in:

- Advanced simulation of technological processes
- Design and use of digital technologies
- Sustainable assessment of the manufacturing life cycle
- Smart material design

Year/Sem.	Course - *Digital Manufacturing*
2/1	Virtual solutions for smart manufacturing (6 ECTS)
2/1	Material design and optimization in digital manufacturing (6 ECTS)
2/1	Sustainability & digital transformation (6 ECTS)
2/2	Organizing for digital transformation (6 ECTS)

Digital Automation Engineering

During the final semester

Elective courses

Laboratory activities

Internships in companies and organizations

Several agreements with universities and research centers abroad for study and internship

- Erasmus+ for studies
- Erasmus+ for traineeship
- MORE Overseas
- Challenge Based Innovation (CERN)

Digital Automation Engineering

After completing the course

Several possibilities to continue studying

- Access to PhD schools

Several employment opportunities

- Each DAE course hosts a seminar by a company
- Some companies are financing full academic fees for some students

Digital Automation Engineering

Contacts

Apply for the course here:

- https://www.unimore.it/bandi/StuLau-Lau2V.html

Website of the course:

- https://www.dae.unimore.it/

Contact us at:

- info.dae@unimore.it

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