

# ARCHITECTURE

## SINGLE CYCLE MASTER'S DEGREE

(All courses are taught in Italian)

### FIRST YEAR

Architectural Planning Laboratory 1  
History of the Architecture I  
Geometry + Mathematics  
Architectural Drawing + Descriptive Geometry  
Materials and Planning of Construction Elements  
Classical Archaeology I

### SECOND YEAR

Architectural Planning Laboratory 2  
History of the Architecture II  
Statics  
Architectural Construction Laboratory 1  
Town Planning  
Environmental Technical Physics I

Theory of the Architecture/Classical Archaeology II

### THIRD YEAR

Architectural Planning Laboratory 3  
Construction Science  
Town Planning Laboratory  
Architectural Surveying  
Urban and Environmental Surveying  
Environmental Technical Physics II  
History of the Architecture III

### FOURTH YEAR

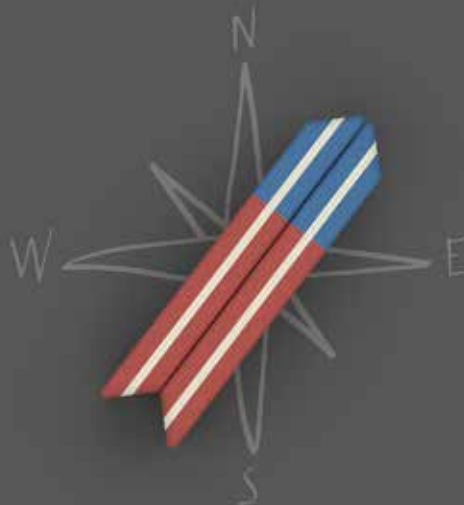
Architectural Planning Laboratory 4  
History of the Architecture IV  
Restoration Laboratory  
Architectural Construction Laboratory 2  
Urban Sociology  
Estimation  
Landscape Architecture

### FIFTH YEAR

Structural Morphology/ Architectural Technology/  
Typological and Morphological Characters/  
History of Decorative and Industrial Arts/  
Lightning, Sound and Climate Control/Interior Design  
English language  
Stage  
Final exam

#polibaorienta

# Architecture



Politecnico di Bari

[www.poliba.it](http://www.poliba.it)

Single cycle Master's Degree

## ARCHITECTURE

(All courses are taught in Italian)

Course duration: 5 years

Site: Bari

### Course Characteristics

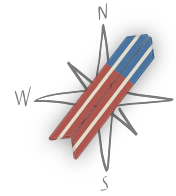
The objective of the course is the specific training of architects as professional figures able to understand the relationships between man, architectural creations and the environment, taking into account the structural and construction aspects, the utility of buildings, the social and economic implications of the built environment and to create architectural projects.

The central didactic nucleus consists of the culture of planning, based on historic-scientific knowledge such as mathematics and history as well as technologies, and technical aesthetic procedures, such as planning activity applied to the fields of architecture, the city, restoration, town planning and landscaping that includes structural calculation and the use of representation techniques and cost analysis.

In addition to the overall strategic objectives, the articulation in different study plans aims at providing specific skills, such as those in the field of archaeological and historical monuments of ancient and medieval periods in the Mediterranean area.

### Professional opportunities

Graduates from the Master's course can enroll in the Italian Albo Professionale (professional register) for Architects, Planners, Landscapers and Conservationists and in section



#polibaorienta

A of the Italian Albo Professionale degli Ingegneri (professional register for engineers) on passing the professional exam. They can set up as self-employed professionals or seek employment in the following sectors:

- construction, transformation, conservation, restoration of buildings;
- improving and planning the city and the land;
- production sectors (construction companies, specialists, etc);
- public and private institutions and authorities (local and national administrations, heritage supervision, research institutions).

Master's degree graduates can also carry out teaching, knowledge-based activities and work on the development of architectural, environmental and archaeological heritage.

### Structure and organization of the course

The five years course is structured in three didactic cycles (2+2+1), each with its own learning objectives:

- the first cycle (1st and 2nd years), dedicated to basic training;
- the second cycle (3rd and 4th years), dedicated to scientific and technical training;
- the third cycle (5th year), dedicated to specific themes and further disciplinary studies specific thematic and disciplinary further studies as well as writing the degree thesis.

# INDUSTRIAL DESIGN

THREE YEARS BACHELOR'S DEGREE

(All courses are taught in Italian)

## FIRST YEAR

Technical Drawing 1

Interior Design Laboratory 1

Graphic Planning 1

Drawing

Lightning, Sound and Climate Control

Numerical Calculus

Statics

Chemistry

## SECOND YEAR

Technical Drawing 2

Interior Design Laboratory 2

Graphic Planning 2

History of Contemporary Art

Engineering Techniques

Virtual Simulation and Prototyping

Elective course

(Fundamentals of Computer Science/Theory of Architecture)

## THIRD YEAR

Realization of Industrial Products

History of Decorative and Industrial Arts

Management of Industrial Innovation

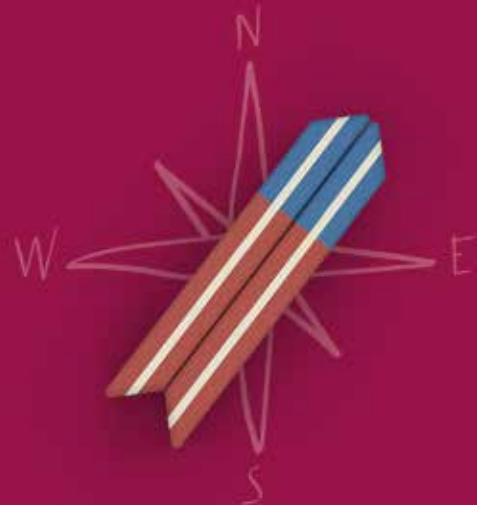
Industrial Marketing

Elective course

Business Models/History of the Architecture/Interior Design)

#polibaorienta

# Industrial Design



Politecnico di Bari

[www.poliba.it](http://www.poliba.it)

Three years Bachelor's Degree

## INDUSTRIAL DESIGN

Site: Bari

### Course characteristics

The course has built its own identity paying attention to both industrial and craft aspects of the "know how" of each local territory. This cultural project agrees with the region requirements for worker's skills and production needs in term, not only of technical knowledge, but also of collective memory capable of transforming any technical artifact, into an artifact that connotes and identifies languages which gives value and meaning to its technology and production process. For these reasons tradition and technological innovation are the two key terms at the basis of the specific objectives of the course.

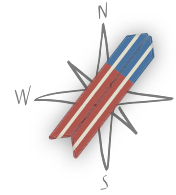
The project process is the core which builds the results in the three sectors of industrial product, interior and furniture design and graphic design. In the project there is a constant interdisciplinary comparison with researches about product form and technical, mechanical, economic, IT and marketing management.

### Professional opportunities

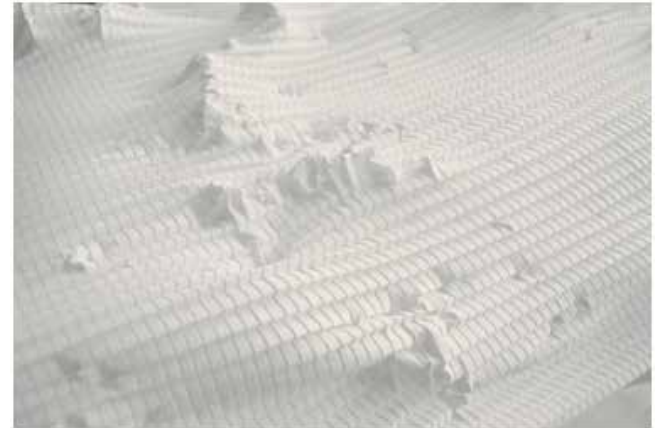
Graduates can immediately work to the production in sectors of specific interest of the degree course or can work as independent professional, in public and private sectors, institutions, architecture and design firms, as well as businesses of all sizes operating in the field of technical drawing, furniture design, multimedia and visual communication.

Graduates in Industrial Design can continue their studies by enrolling in:

- Second level Master's Degree courses
- First level post-graduate courses.



#polibaorienta



### Structure and organization of the course

The course is structured in two didactic cycles (2+1) each with its own learning objectives:

- The first cycle (1st and 2nd years), is aimed at basic learning and covers the three sectors of the industrial product, interior design and graphic design.
- The second cycle (3rd year) is devoted to technical-scientific and professional learning (specialized) and the writing of the degree thesis through collaboration in specific relationships with local businesses.

# AEROSPACE SYSTEMS ENGINEERING

THREE YEARS BACHELOR'S DEGREE

(All courses are taught in Italian)

## FIRST YEAR

Mathematical Analysis  
Technical Representation Methods  
Geometry and Algebra  
Economics and Business Organization  
Fundamentals of Computer Science  
Chemistry  
Elective course

## SECOND YEAR

Fluid Thermodynamics  
Fundamentals of Control Systems Engineering  
Theoretical and Applied Mechanics  
Materials and Technology for Aerospace  
Principles of Electrical Engineering  
Generators, actuators and electric aeronautic systems

## THIRD YEAR

Fundamentals of Electronics  
Flight Mechanics  
Reliability and Maintenance of Aeronautic plant  
Elective course

### Information Engineering curriculum

Signals and Telecommunication systems for Aerospace  
Electromagnetic Instrumentation for Aerospace  
Avionic System Programming  
Electronic Instrumentation and Laboratory

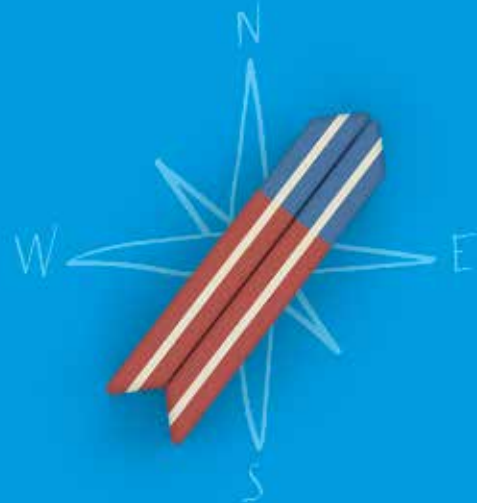
### Industrial Engineering curriculum

Mechanical Behavior and Aerospace Materials  
Aeronautic Construction  
Fundamentals of Measurement  
Propulsion Systems

For further information:  
[climeg.poliba.it](http://climeg.poliba.it)

#polibaorienta

# Aerospace Systems Engineering



Politecnico di Bari  
[www.poliba.it](http://www.poliba.it)

Three years Bachelor's Degree

## AEROSPACE SYSTEMS ENGINEERING

Site: Taranto

### Educational Objectives

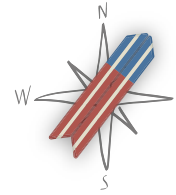
The course provides the basic knowledge as well as specific competencies about aerospace engineering. The multidisciplinary approach combines expertise in Industrial and ICT engineering. All activities are oriented to newest technologies applied to material characterization, and methods for industrial planning and production as well as to design, produce and use of ICT devices. The bachelor degree is a pathway qualification for further learning.

### Professional opportunities

Graduates can carry out professional activities in the industrial and IT areas, in particular for design, production and maintenance of aeronautic systems.

The wide range of skills provided by the learning pathway leads to an effective employment in many contexts:

- Aeronautical and space industries;
- Public and private sector bodies;
- Companies involved in the production and transformation of different materials for aerospace applications and related sectors;
- Mechanical, electromechanical, and industrial plants, for automation;



#polibaorienta

- Companies working on the design, product and use of apparatus, systems and infrastructures regarding the acquisition and treatment of information and its use for telematic applications;
- Public and private sector, terrestrial and space telecommunication and remote monitoring service companies.

Graduates can apply for the access to the following regulated professions:

- Junior industrial engineer
- Junior IT engineer

# MANAGEMENT ENGINEERING

THREE YEARS BACHELOR'S DEGREE  
(Courses are taught in Italian)

## FIRST YEAR

Mathematical Analysis  
Geometry and Algebra  
General Physics  
Fundamentals of Computer Science  
Chemistry  
Methods for Technical Drawing  
Methods of Optimization  
Business and Economics Organization  
English

## SECOND YEAR

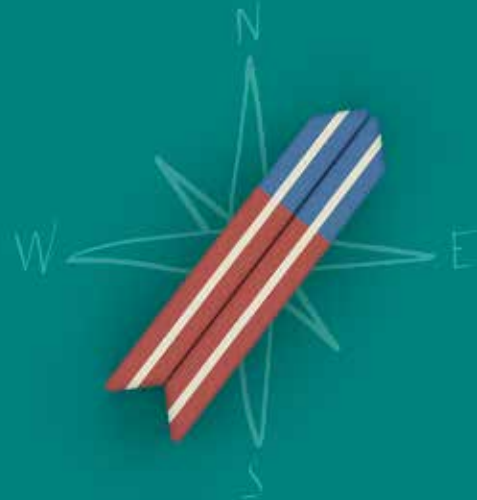
Economic Systems  
Principles of Electrical Engineering  
Solid Mechanics + Elements of Machine Mechanics  
Materials Technology + Mechanical Technologies  
Thermal Physics + Energy Systems  
Elements of Mechanical Design  
Fluid Dynamics

## THIRD YEAR

Production Process Design + Quality  
Business and Project Management  
Industrial Plants  
Workplace Safety  
Elective course  
Internship

Further information at <https://climeg.poliba.it/>

#polibaorienta  
**Management  
Engineering**

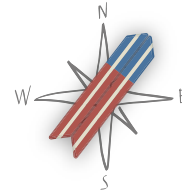


Politecnico di Bari  
[www.poliba.it](http://www.poliba.it)

Three years Bachelor's Degree

## MANAGEMENT ENGINEERING

Site: Bari



#polibaorienta

### Educational Objectives

The course in Management Engineering offers to students a solid preparation in the basic sciences (mathematical analysis, chemistry, physics, geometry and algebra), and in the disciplines characterizing the field of Management Engineering (for example, economics and business organization, business and project management, economic systems, mechanical and general materials technology, design and quality of production processes, industrial plant).

At the end of the course, the students possess the ability to tackle and solve problems involved in the design and management of technological, logistics, industrial and tertiary system. The knowledge of possible methodological approaches and relevant techniques for qualitative-quantitative management permits a systemic view of those complex systems.

### Professional opportunities

The employment and professional opportunities available for are in the field of engineering such as the evaluation of decisions based on tangible and intangible technical-economic process variables or auxiliary IT systems for business management.

The specific professional areas of this learning pathway are

in the industrial, manufacturing and service sectors, as well as independent professional activities.

With reference to the industrial and manufacturing sectors, a significant number of graduates find an employment in the mechanical and agriculture sectors, food and pharmaceutical industries. In the tertiary sector, graduates can work in public companies (for example healthcare, transport, utilities) and private ones (for example telecommunications, banking and financial services, business consultancy).

The wide range of skills, provided by the learning pathway, leads to actual employment of the Management Engineer in many industrial production contexts and advanced Information and Communication services.

Graduates can apply for the access to the following regulated professions:

- Junior Industrial Engineer
- Graduate Industrial Inspector



# MECHANICAL ENGINEERING

THREE YEARS BACHELOR'S DEGREE

(All courses are taught in Italian)

## FIRST YEAR

Mathematical Analysis  
Geometry and Algebra  
General Physics  
Fundamentals of Computer Science  
Chemistry  
Methods for Technical Representation  
English  
Business and Economics Organization

## SECOND YEAR

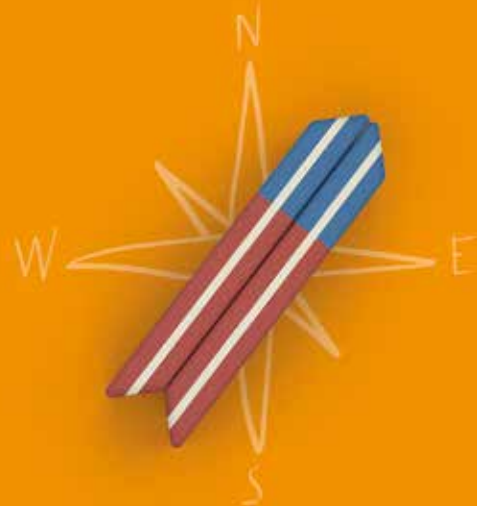
Applied Thermodynamics and Heat Transfer  
Mechanics of solids and structures  
Fluid Dynamics  
Applied Mechanics I  
Analytical Mechanics  
Principle of Electrical Engineering  
Manufacturing I and Materials engineering and technology

## THIRD YEAR

Energy Systems and Fluid Machinery I  
Mechanical and Thermal Measurements  
Mechanic of Materials and Mechanical Design 1  
Mechanical Plants  
Internship  
Elective course

For further information:  
[climeg.poliba.it](mailto:climeg.poliba.it)

#polibaorienta  
**Mechanical  
Engineering**

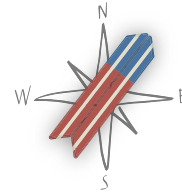


Politecnico di Bari  
[www.poliba.it](http://www.poliba.it)

Three years Bachelor's Degree

## MECHANICAL ENGINEERING

Site: Bari



#polibaorienta

### Educational Objectives

The Degree Course offers professional preparation through specific design courses in the mechanical field. These courses provide advanced technical know-how connected to design, mechanical production, technological processes, industrial plants and systems management.

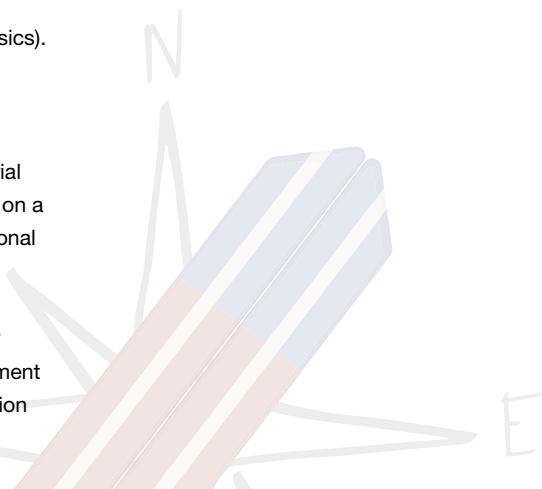
The course provides its students with a solid preparation in the basic sciences, disciplines characterizing the field of Mechanical Engineering (for example Applied Machine Mechanics, Mechanical Technology, Mechanical Design, Energy Systems, Measurements) and, widening the outlook, the disciplines of Industrial Engineering (for example Economics, Technical Industrial Design and Technical Physics).

### Professional opportunities

The wide spectrum of the preparation provided by the learning pathway leads to gainful employment in all industrial production contexts and in the advanced IT service sector on a local, national and international level. The specific professional fields open to first level Bachelor's Degree graduates in Mechanical Engineering are those of the Mechanical and Electro-mechanical Industries, business and authorities for energy conversion, plant production businesses, measurement laboratories, testing and certification laboratories, automation

and robotic industries, manufacturing and processing industries, independent professional activities. The latter can provide professional and consultancy services since the degree course leads to enrolment in the following professional bodies:

- Junior Industrial Engineer;
- Graduate Industrial Engineering.



# ENVIRONMENTAL ENGINEERING

THREE YEARS BACHELOR'S DEGREE

(All courses are taught in Italian)

## FIRST YEAR

Mathematical Analysis  
Geometry and Algebra  
Fundamentals of Computer Science  
Economics and Business Organization  
European Environmental Law  
Chemistry  
Ecology applied to Engineering  
General Physics

## SECOND YEAR

Construction Science  
Territorial Engineering  
Hydraulics  
Topography and Numerical Cartography  
Materials Technology and Urban Waste Treatment  
Mobility Infrastructure  
Elective course

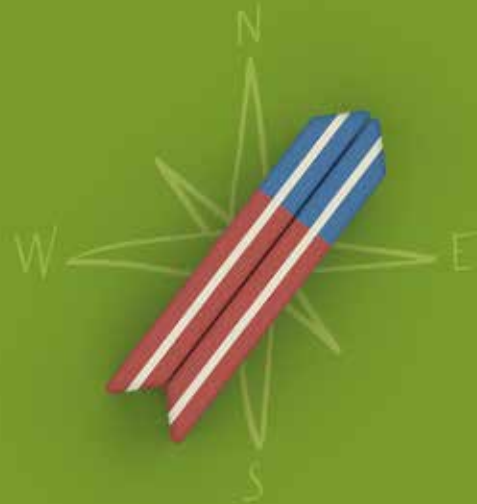
## THIRD YEAR

Geotechnics  
Fundamentals of Construction Techniques and Sustainability of Structures  
Hydraulic Protection for the Territory and Hydraulic Infrastructures  
Health Care and Environmental Engineering  
Fundamentals of Transportation  
Elective course  
Internship

For further information:  
[diac.poliba.it](http://diac.poliba.it)

#polibaorienta

# Environmental Engineering



Politecnico di Bari  
[www.poliba.it](http://www.poliba.it)

Three years Bachelor's Degree

## ENVIRONMENTAL ENGINEERING

Site: Taranto

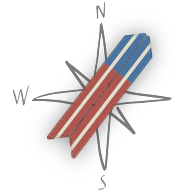
### Educational Objectives

The degree course in Environmental Engineering provides the students with the basic scientific knowledge of Civil and Environmental engineering and is highly oriented towards the themes of environmental safeguarding, recovery and remediation.

At the end of the course in Environmental Engineering, graduates will be able to:

- deal with complex problems deriving from the interaction between man-made and environmental actions;
- acquire the indispensable elements to characterize and manage the natural resources present in the territory in order to make their use compatible, while at the same time guaranteeing sustainable development of environmental systems;
- utilize techniques for the planning, design and evaluation of the environmental impact and compatibility of engineering works;
- utilize systems and methods of environmental physics and chemistry;
- operate for the environmentally friendly management and town planning of the territory;
- design, construct and monitor the structures and infrastructures of the territory.

The learning pathway guarantees that graduates will meet the requirements for admission to the Professional Exam, for entry to the Italian Professional Register of Engineers, section B Civil and Environmental.



#polibaorienta

### Professional opportunities

The professional fields open to graduates are those of planning, organization and site management of civil and environmental engineering works, consultancy for technical and commercial structures, both in the manufacturing and service sectors as well as in public administration.

The main employment opportunities are with:

- construction and maintenance companies for civil engineering works, plants and infrastructures;
- engineering services firms and companies for the design of civil engineering works, plants and infrastructures;
- public offices for the design, planning, management and control of urban and territorial systems;
- businesses, authorities, consortia and agencies for the management and control of work and service systems;
- public and private sector businesses and authorities, engineering services firms, involved in design, planning, realization and management of engineering works and systems for environmental and territory control and monitoring, land defense, waste processing and, environmental and energy resources management;
- businesses, laboratories, public and private sector companies, and engineering services firms for environmental geognostics, measurement and surveying for the control and protection of territory, engineering works, systems, recycling and reuse.

# CIVIL AND ENVIRONMENTAL ENGINEERING

THREE YEARS BACHELOR'S DEGREE  
(All courses are taught in Italian)

## FIRST YEAR

Mathematical Analysis  
General Physics  
Geometry and Algebra  
Rational Mechanics  
Chemistry  
Design

## Civil Engineering course

## Environmental Engineering course

### Second year

Architecture Techniques  
Hydraulics  
Applied Geology  
Materials Science and  
Technology  
Geomatics  
Fundamentals of Electric and  
Magnetic Circuits

Environmental Hydraulics  
Numerical Cartography  
Environmental Physics  
Techniques  
Territorial Engineering  
Territorial Geology  
Applied Geology for  
Environmental Protection

### Third year

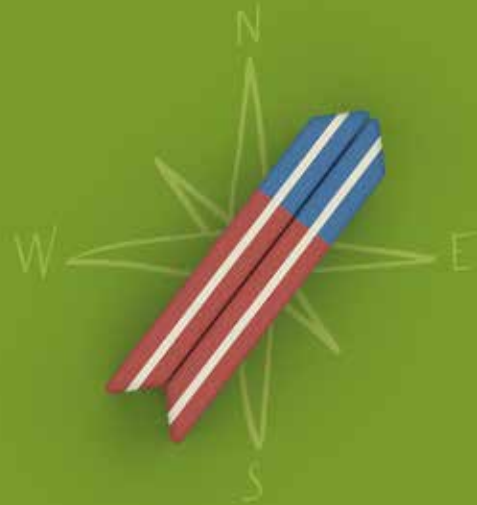
Roads, Railways and Airports  
Hydraulic Constructions

Basin Infrastructure and Planning  
Materials Technology + Water  
chemistry and Technology

For further information:  
[diac.poliba.it](http://diac.poliba.it)

#polibaorienta

# Civil and Environmental Engineering



Politecnico di Bari  
[www.poliba.it](http://www.poliba.it)

Three years Bachelor's Degree

## CIVIL AND ENVIRONMENTAL ENGINEERING

Site: Bari

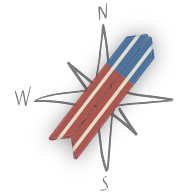
### Educational Objectives

The Degree Course in Civil and Environmental Engineering aims to provide the student with mastery of scientific contents and methods as well as acquisition of specific professional knowledge belonging to the sector. The course offers the students a learning pathway opportunely designed in order to provide a solid basic training indispensable for the formation of an engineer.

At the end of the course graduates in Civil and Environmental Engineering will be able to:

- acquire the fundamentals of the design and construction of infrastructures as well as structural design and maintenance;
- utilize techniques and instruments for the planning, design and evaluation of the environmental impact and compatibility of works;
- acquire the theoretical principles and experimental methodologies at the basis of problems connected to interventions that involve water, soil and subsoil;
- use appropriate instruments for the environmental and urban management of the territory.

The training pathway leads to the award of the Degree required for admission to the Professional Exam for enrolment in the Italian Register of First Level Engineers section B Civil – Environmental.



#polibaorienta

### Professional opportunities

The professional fields open to First Level graduates in Civil and environmental Engineering are those of planning, organization and site management of civil and environmental engineering works, consultancy for technical and commercial structures both as free-lance professionals and in manufacturing or service companies as well as in public administration. During the course the student will develop the technical competences necessary to carry out design and site management activities that do not require specialized knowledge. Graduates will be able to operate autonomously and competently in the design and realization of buildings with simple structures, water supply systems and collection of waste water, roads and transport systems.

The main employment opportunities are in the following sectors:

- companies involved in the construction and maintenance of civil infrastructure works and plant;
- professional studios and companies for the design of civil infrastructure works and plant;
- public offices for the design, planning, management and control of urban and territorial systems;
- businesses, authorities, consortia, and agencies for the management and control of works and services;
- service companies carrying out feasibility studies on the urban and territorial impact of infrastructure.

# BUILDING ENGINEERING

## THREE YEARS BACHELOR'S DEGREE

(All courses are taught in Italian)

### FIRST YEAR

Mathematical Analysis  
Architectural Drawing  
Chemistry  
General Physics  
Geometry  
Rational Mechanics  
Descriptive Geometry  
Materials Technology and Applied Chemistry

### SECOND YEAR

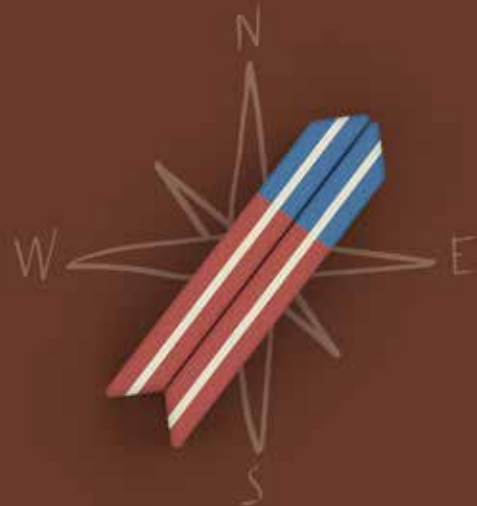
Hydraulic Techniques  
Construction Science  
Architecture Techniques  
Town Planning Techniques  
Topography and Surveying Techniques + Transport Infrastructure  
Environmental Physics Techniques

### THIRD YEAR

Building Production and Sites  
Geotechnics  
Building Typology and Technology  
Estimation  
Elective course

For further information:  
[diac.poliba.it](http://diac.poliba.it)

#polibaorienta  
**Building  
Engineering**



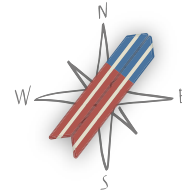
Politecnico di Bari  
[www.poliba.it](http://www.poliba.it)

Three years Bachelor's Degree

## BUILDING ENGINEERING

Internship

Site: Bari



#polibaorienta

### Educational Objectives

The degree course in Building Engineering aims to provide the student with a mastery of the general scientific methods and contents as well as acquisition of specific professional knowledge in the building sector.

In the course the traditional scientific basis centered on the disciplines of mathematics, geometry, general physics and chemistry are integrated with other disciplines connected to the so-called building sciences, namely physics of buildings, the chemistry and physics of building materials and their behavior in use, the science and techniques of constructions for structural aspects and other fundamental disciplines in the sectors of technology and economics as well as the basic elements of hydraulics and roads.

The learning objective is to provide the employment market with professional engineers, who through an interdisciplinary preparation are able to identify problems and find appropriate solutions, keeping pace with the dynamic innovations in the sector, guaranteeing building quality in physics, technical, performance, processing, energy and economic terms.

The learning path way leads to the award of the degree necessary for admission to the Professional Exam for enrolment in the Italian Professional Register of Engineers Section B Civil and Environmental.

### Professional opportunities

The course prepares graduate to become civil construction technicians and similar professions. Graduates in Building Engineering can operate mainly in activities assisting building design as well as management organization and construction activities in private and public technical offices, building and engineering companies. During the course the student will develop all the competences relevant to building technology, quality of the built environment, technological services, maintenance and recovery, structural design, aspects connected to building production and the management of the building process, safety and security of buildings, also in relation to the general aspects of sustainability and energy saving. The specific competences acquired will enable the graduate to carry out activities supporting the design and engineering of a project, surveying of areas and buildings, organization and management of building sites, management and economic evaluation of building processes, the technical and administrative management of industrial production processes of building materials and components with particular attention to the maintenance and renovation of buildings.



# MEDICAL SYSTEMS ENGINEERING

THREE YEARS BACHELOR'S DEGREE  
(All courses are taught in Italian)

## FIRST YEAR

Mathematical Analysis I  
Mathematical Analysis II  
Fundamentals of Computer Science  
Computer Science Laboratory  
General Physics I  
General Physics II  
Geometry and Algebra  
Chemistry  
Cytology and Histology  
Business and Economics Organization

## SECOND YEAR

Fundamentals of Electronics I  
Fundamentals of Electronics II  
Human Anatomy  
Interaction of Radiation and Living Matter  
Non Ionizing Radiation Health Effects  
Biomedical signals  
Bio Fluid Dynamics  
Mechanical Devices and Systems  
Electric and Magnetic Circuits  
Measurement and Electrical Safety

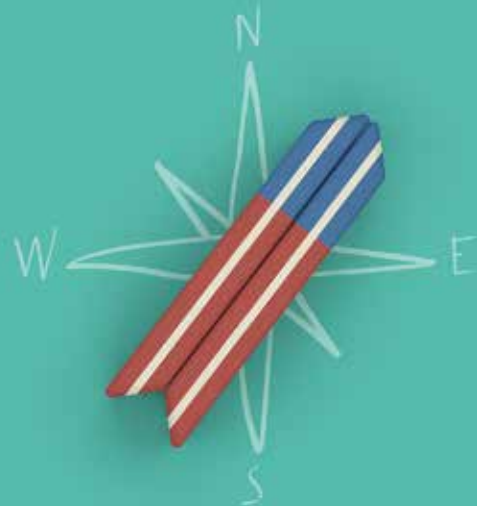
## THIRD YEAR

Biomedical Instrumentation  
Control Systems Analysis  
Control Systems Design  
Bioinformatics and Big Data Analytics  
Biochemistry  
Cellular Biophysics  
Integrated Human Physiology  
Two elective courses  
Internship  
Final Exam

For further information:  
[dee.poliba.it](http://dee.poliba.it)

#polibaorienta

# Medical Systems Engineering

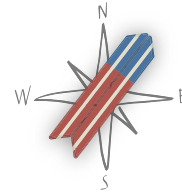


Politecnico di Bari  
[www.poliba.it](http://www.poliba.it)

Three years Bachelor's Degree

## MEDICAL SYSTEMS ENGINEERING

Site: Bari



#polibaorienta

### Educational Objectives

- Provide solid interdisciplinary engineering competences for the:
- design, production, management and organization of biomedical systems and health services
  - assistance to technical and commercial structures
  - analysis of hospital risk
  - safety management in prevention and emergency phases
  - remote patient monitoring

### Professional opportunities

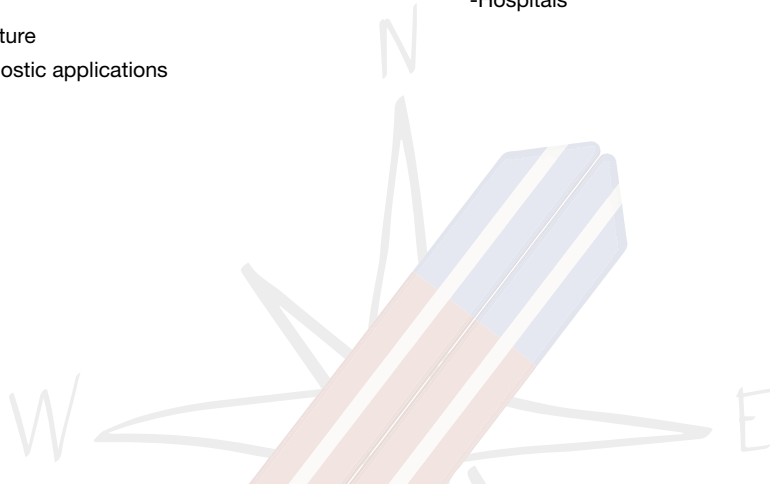
- Junior design and/or management engineer for:
- biomedical apparatus
  - telehealth services and infrastructure
  - hardware manufacture and diagnostic applications
  - robotic assistance systems
  - medical IT systems
  - control systems

### Employment opportunities

- public and private sectors
- manufacturing industries
- regulatory and standardization bodies

### Sectors

- ICT (Information and Communication Technology)
- Pharmaceutical
- Biomedical
- Service providers
- Hospitals



# COMPUTER SCIENCE AND AUTOMATION ENGINEERING

THREE YEARS BACHELOR'S DEGREE  
(All courses are taught in Italian)

## FIRST YEAR

Mathematical Analysis  
Computer Science for Engineering  
Geometry and Algebra  
Numerical Calculus  
Physics 1  
Physics 2  
Business and Economics Organization  
Algorithms and Data Structures in Java  
Elective course

## SECOND YEAR

Physics 3  
Fundamentals of Electric and Magnetic Circuits  
Fundamentals of Electronic  
Fundamentals of Control Systems Engineering  
Operating Systems  
Data Bases and Informative Systems  
English  
Elective course

## THIRD YEAR

Digital Control  
Fundamentals of Measurement  
Fundamentals and Networks of Telecommunications

### Automation Curriculum

Electrical Machines  
Industrial Automation  
Applied Mechanics

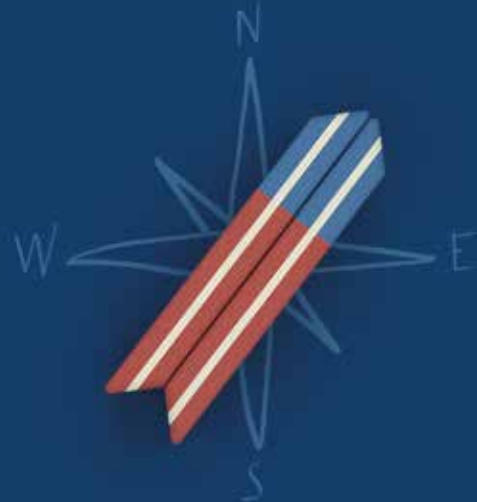
### Computer Systems & Application Curriculum

Computer Architectures  
Electrical Communications  
Software Eng. and Fundamentals of Web

For further information:  
[dee.poliba.it/DEI-en/teaching/courses.html](http://dee.poliba.it/DEI-en/teaching/courses.html)

#polibaorienta

# Computer Science and Automation Engineering

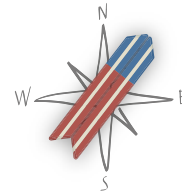


Politecnico di Bari  
[www.poliba.it](http://www.poliba.it)

Three years Bachelor's Degree

# COMPUTER SCIENCE AND AUTOMATION ENGINEERING

Site: Bari



#polibaorienta

## Educational Objectives

Provide a wide spectrum of solid engineering competences for the:

- analysis, design and development of complex systems
- management and control of processes
- organization and integration of applied hardware and software
- maintenance of the life cycle of ICT (Information and Communication Technology) systems

## Professional opportunities

Junior design and/or management engineer for:

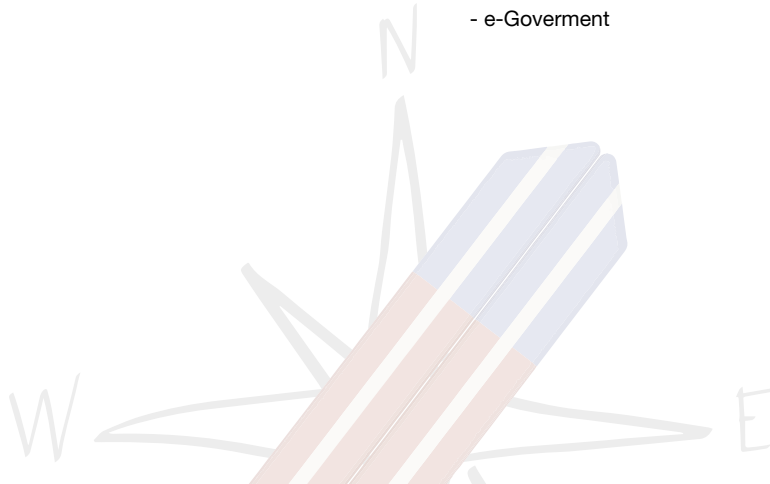
- IT services
- automatic control systems
- information systems
- robotic systems
- telematic architecture
- network systems
- internet applications

## Employment opportunities

- public and private sectors
- industry 4.0
- regulatory and international Standards Organizations

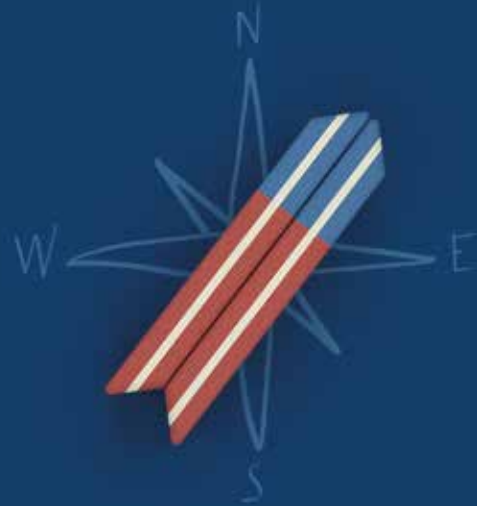
## Sectors

- ICT (Information and Communication Technology)
- Military
- Aerospace
- Biomedical
- e-Government



**ELECTRICAL  
ENGINEERING**  
MASTER'S DEGREE  
(All courses are taught in Italian)

#polibaorienta  
**Electrical  
Engineering**



For a list of subjects taught and further information:  
[dee.poliba.it/DEI-en/teaching/courses.html](http://dee.poliba.it/DEI-en/teaching/courses.html)



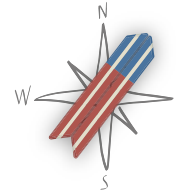
Politecnico di Bari  
[www.poliba.it](http://www.poliba.it)

Master's Degree

# ELECTRICAL ENGINEERING

Course Duration: 2 years

Site: Bari



#polibaorienta

## Educational Objectives

Provide specialized and solid engineering competences for the:

- resolution of highly complex Electrical Engineering problems in new and emerging areas.
- design of complex and/or innovative electrical plant both for civil and industrial uses
- management of complex and/or innovative systems, processes and services for industry and large civil structures
- planning, management, use and control of complex electrical systems and plants
- design of electrical machines, power converters as well as complex and/or innovative electronic power systems for industrial and robotic automation
- design of energy production plant from renewable resources

## Professional opportunities

Design and/or management engineer for:

- complex electrical plant and systems
- industrial process control systems
- electrical apparatus and machines
- systems for energy distribution
- production plant from alternative source

## Employment opportunities

- public and private sector businesses
- manufacturing industries
- regulatory and standardization organizations
- free-lance professionals

Sectors

- Industrial
- Energy
- Renewables
- Environmental

# ELECTRONIC & TELECOMMUNICATIONS ENGINEERING

THREE YEARS BACHELOR'S DEGREE  
(All courses are taught in Italian)

## FIRST YEAR

Mathematical Analysis  
Business and Economics Organization  
General Physics I and II  
Fundamentals of Computer Science  
Computer Science Laboratory  
Geometry and Algebra  
Numerical Calculus  
Chemistry

## SECOND YEAR

General Physics III  
Fundamentals of Electronic Devices  
Electromagnetic Fields  
Electrical Communication  
Fundamentals of Control Systems Engineering  
Fundamentals of Circuit Theory  
English  
Elective Course

## THIRD YEAR

Fundamentals of Electronic  
Microwaves and Antennae  
Electronic Measurements and Instrumentation  
Elective Course

### Telecommunication Curriculum:

Telecommunications Networks  
Digital Signal Processing

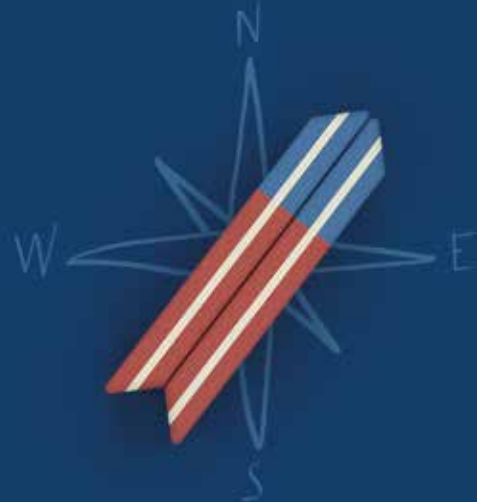
### Electronics Curriculum:

Fundamentals of Optoelectronics  
Automatic Design of Electronic Circuits and Systems  
Fundamentals of Digital Systems

For further information:  
[dee.poliba.it/DEI-en/teaching/courses.html](http://dee.poliba.it/DEI-en/teaching/courses.html)

#polibaorienta

# Electronic & Telecommunications Engineering



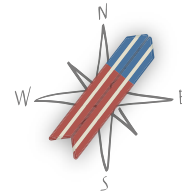
Politecnico di Bari  
[www.poliba.it](http://www.poliba.it)

Three years Bachelor's Degree

# ELECTRONIC & TELECOMMUNICATIONS ENGINEERING

Site: Bari

(All courses are taught in Italian)



#polibaorienta

## Educational Objectives

Provide wide-ranging solid engineering competences with the aim of:

- design and realization of complex electronic systems and architecture of terrestrial and satellite telecommunications
- organization and management of telecommunication networks and services
- development of multimedia systems for the elaboration of audio and video signals

## Professional opportunities

Junior project engineers and/or managers for:

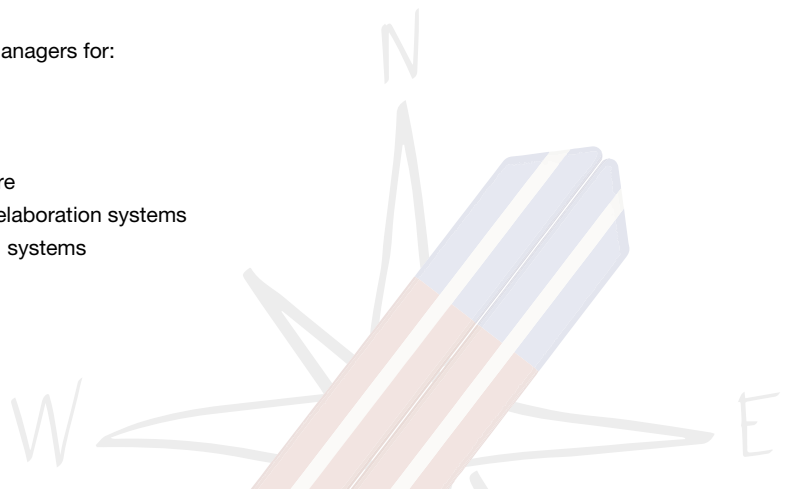
- electronic apparatus
- internet enabling technology
- telecommunication networks
- radio and television infrastructure
- data acquisition, transport and elaboration systems
- integrated analogical and digital systems

## Employment opportunities

- public and private sectors
- industry 4.0
- regulatory and international Standards Organizations

## Sectors

- Information and Communication Technology
- Military
- Aerospace
- Biomedical





# ELECTRICAL ENGINEERING

THREE YEARS BACHELOR'S DEGREE

(All courses are taught in Italian)

## FIRST YEAR

Mathematical Analysis  
Geometry and Algebra  
General Physics I  
Chemistry  
Business and Economics Organization  
General Physics II  
Fundamentals of Computer Science  
English I  
Elective course

## SECOND YEAR

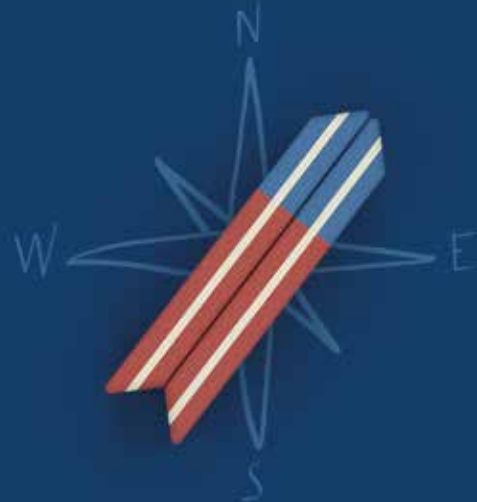
Applied Physics  
Fundamentals of Electric and Magnetic Circuits  
Methods for Technical Representation  
Numerical Methods for Engineering  
Applied Electronics  
Electrical Machines  
Electrical Measurements

## THIRD YEAR

Applied Mechanics  
Distribution and Utilization of Electrical Energy  
Electric Power Systems  
Applied Thermodynamics and Heat Transfer  
Fundamentals of Control Systems Engineering  
Power Electronics  
Elective course  
Internship

For further information:  
[dee.poliba.it/DEI-en/teaching/courses.html](http://dee.poliba.it/DEI-en/teaching/courses.html)

#polibaorienta  
**Electrical  
Engineering**

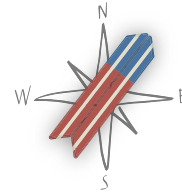


Politecnico di Bari  
[www.poliba.it](http://www.poliba.it)

Three years Bachelor's Degree

# ELECTRICAL ENGINEERING

Site: Bari



#polibaorienta

## Educational Objectives

Provide a wide spectrum of solid engineering competences for:

- design and use of industrial systems with particular reference to electric and energy systems
- production and control systems
- transmission and utilization of electrical energy

## Professional opportunities

Junior project engineer and/or manager for:

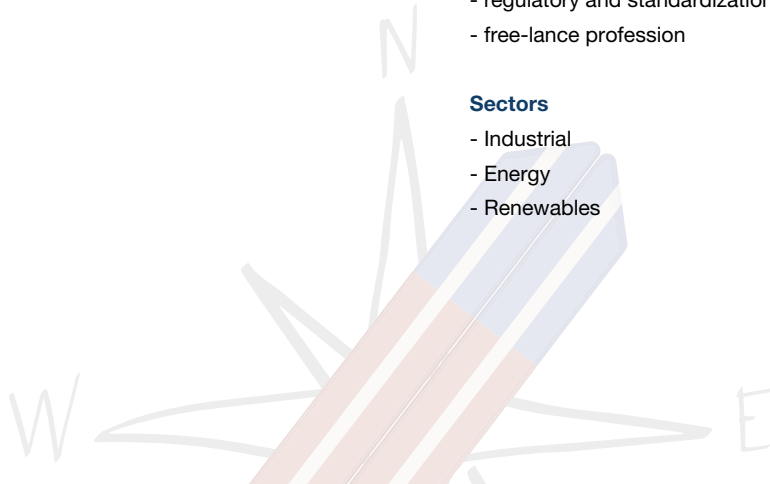
- systems for transmission and distribution of electrical energy
- automated production plant
- photovoltaic plant and wind turbine farms
- hydroelectric power stations

## Employment opportunities

- public and private business
- manufacturing industry
- regulatory and standardization bodies
- free-lance profession

## Sectors

- Industrial
- Energy
- Renewables



# ELECTRONIC ENGINEERING

MASTER'S DEGREE  
(All courses are taught in Italian)

## FIRST YEAR

Electronics for Sensors and Transducers

Digital Electronic Systems

Advanced Topics in Analog Electronics

Advanced Electron Devices

Digital Signal Processing

Radiative Systems and Electromagnetic Compatibility

Design of Integrated Electronic Systems

Laboratory of Digital Electronic Systems

## SECOND YEAR

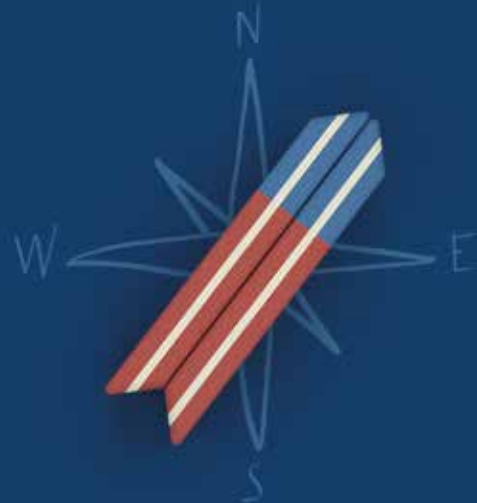
Micro and Nanoelectronic and Optoelectronic Systems

Photonic Devices and Sensors

Design of High Frequency Electronic Systems

Programmable Instrumentation and Sensors

#polibaorienta  
**Electronic Engineering**



For further information:  
<http://dee.poliba.it/DEI-it/didattica/2Im29.html>



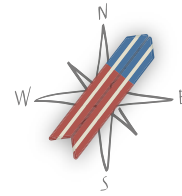
Politecnico di Bari  
[www.poliba.it](http://www.poliba.it)

Master's Degree

## ELECTRONIC ENGINEERING

Course duration: 2 years

Site: Bari



#polibaorienta

### Educational Objectives

Provide specialized engineering competences for the design of:

- advanced electronic systems
- integrated circuits and systems
- optoelectronic systems and devices
- sensors and transducers
- data acquisition and elaboration systems

### Professional opportunities

Project engineers and production managers for:

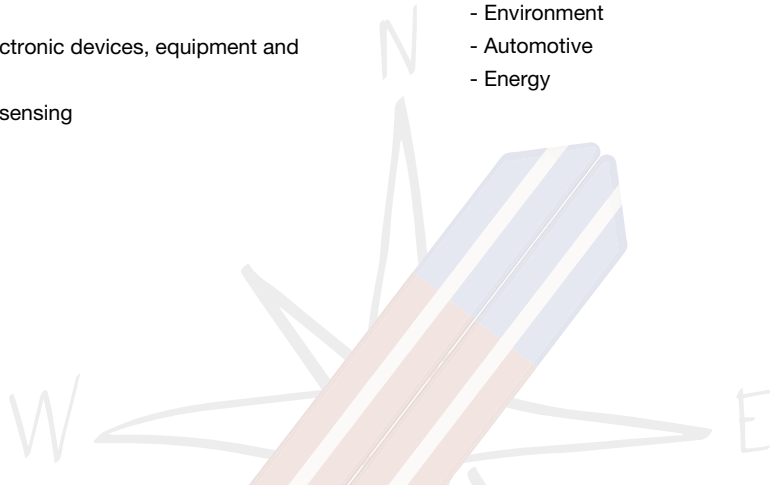
- complex and innovative electronic devices, equipment and systems
- complex and innovative optoelectronic devices, equipment and systems
- complex electronic systems for sensing

### Employment opportunities

- public and private sectors
- industry 4.0
- research centers
- regulatory and international Standards Organizations

### Sectors

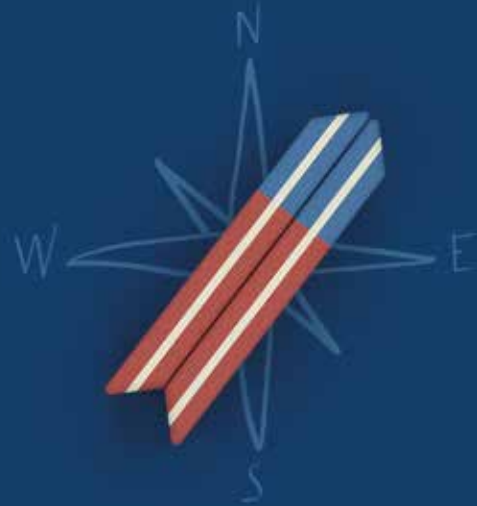
- Information and Communication Technology
- Military
- Aerospace
- Biomedical
- Environment
- Automotive
- Energy



# AUTOMATION ENGINEERING

MASTER'S DEGREE  
(All courses are taught in Italian)

#polibaorienta  
**Automation  
Engineering**



For a list of subjects taught and further information:  
[dee.poliba.it/DEI-en/teaching/courses.html](http://dee.poliba.it/DEI-en/teaching/courses.html)

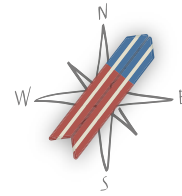


Politecnico di Bari  
[www.poliba.it](http://www.poliba.it)

# AUTOMATION ENGINEERING

Course duration: 2 years

Site: Bari



#polibaorienta

## Educational Objectives

Provide specialized engineering competences for the analysis, design, and management of:

- automation of complex production or manufacturing processes
- modeling, analysis and management of complex systems
- electrical machines and drives, power systems
- industrial, mobile and service robotics
- HMI (Human-Machine Interface), SCADA (Supervisory Control and Data Acquisition) systems

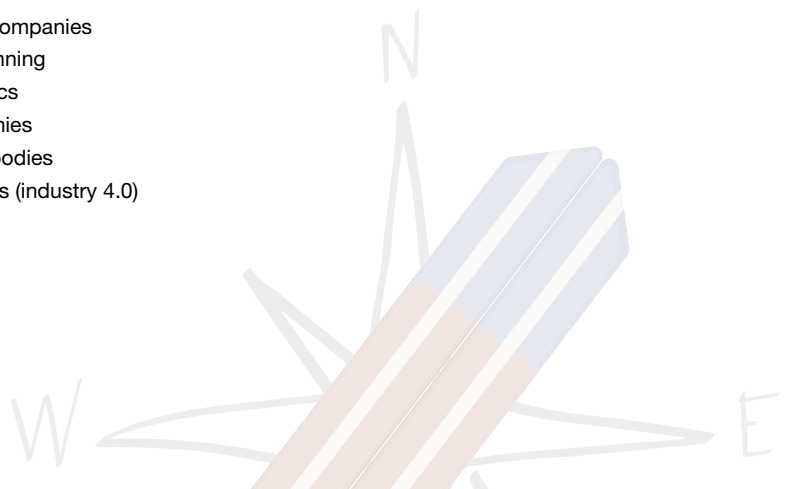
## Professional opportunities

Design, coordination, management or leadership roles in the following areas:

- manufacturing and production companies
- transportation, logistics and planning
- industrial automation and robotics
- research and consulting companies
- regulatory and standardization bodies
- coordinated innovation programs (industry 4.0)

## Sectors

- ICT (Information and Communication Technology)
- Manufacturing
- Automotive
- Aerospace
- Military
- Biomedical

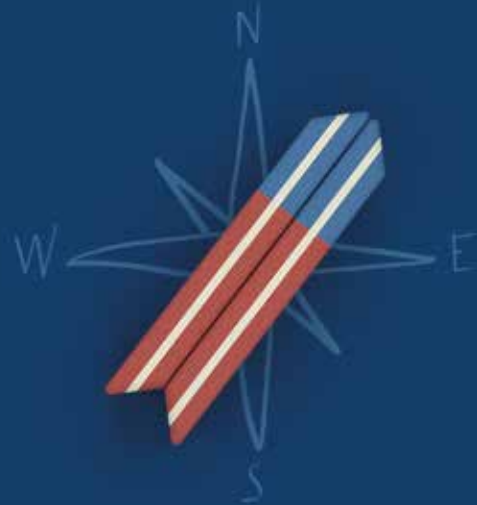


# COMPUTER SCIENCE ENGINEERING

MASTER'S DEGREE TAUGHT IN ENGLISH

#polibaorienta

## Computer Science Engineering



For a list of subjects taught and  
further information:  
[dee.poliba.it/DEI-en/teaching/courses.html](http://dee.poliba.it/DEI-en/teaching/courses.html)

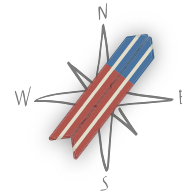


Politecnico di Bari  
[www.poliba.it](http://www.poliba.it)

# COMPUTER SCIENCE ENGINEERING

Course duration: 2 years

Site: Bari



#polibaorienta

## Educational Objectives

Provide engineering skills to design and develop:

- Artificial intelligence systems
- Internet of Things/Everything applications
- Big Data solutions
- Mobile and embedded systems
- Internet and Web-based services
- Tools for Image processing and Artificial Vision
- Distributed systems
- Complex computer systems
- Advanced network architectures
- Algorithms for process control and plant automation

## Internationalization

- All courses are taught in English
- Availability of a Double Degree in Internet Engineering in collaboration with the University of Nice (France)

## Professional Opportunities

Designer and/or administrator of

- Mobile applications
- Intelligent applications
- Robotic systems based on artificial intelligence
- Web portals
- Enterprise Information Systems
- Embedded solutions

## - Services for smart cities

- Complex computer systems and advanced network architectures
- Process automation systems

## Sectors of employment

- Information and Communication Technology
- Automotive
- Military
- Aerospace
- Bio-medical
- e-Government
- e-Business
- Manufacturing





# BUSINESS ENGINEERING

MASTER'S DEGREE

(All courses are taught in Italian)

#polibaorienta  
**Business  
Engineering**

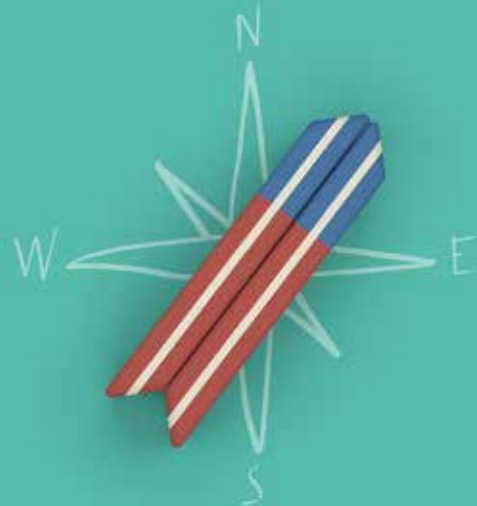
## THE FOLLOWING CURRICULA ARE CURRENTLY ACTIVE:

Curriculum A - Business and Innovation

Curriculum B - Technology and Manufacturing

Curriculum C - Operations Management

Curriculum D - Management and Organization



For further information:  
[climeg.poliba.it](http://climeg.poliba.it)



Politecnico di Bari  
[www.poliba.it](http://www.poliba.it)

Master's degree

## BUSINESS ENGINEERING

Course duration: 2 years

Site: Bari

### Educational Objectives

The target of the course is a versatile engineer able to manage the complexity of technology and business. The business engineer shall also be able to develop new kinds of business through innovative technologies and in new markets.

The course is articulated into the following curricula:

Business and innovation

Technology and manufacturing

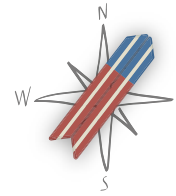
Operations management

Management and organization

The course aims at teaching students the management abilities for

- designing organizational, logistic and manufacturing systems;
- planning and controlling highly complex projects with impact on the environment;
- designing and implementing systems for the allocation and control of financial, technological, human and other intangible resources;
- managing the development of innovative technologies and new business ideas.

Students can apply to a Double Degree with Cranfield University.



#polibaorienta

### Professional opportunities

The Master's Course graduate engineers will be able to adapt their competences to the following roles, among others: Controller, Production Manager, Project Manager, Innovation Manager, Product Manager, Area Manager, Facility Manager. Moreover, thanks to their multidisciplinary competencies, Business Engineers can be employed in small organizations, where adaptability is crucial, as well as in medium and large companies where a formal managerial and organizational approach is required. This versatility makes them be employed in several industries, as the following graph shows (source: Almalaurea, 2015). The 80% of graduates in Business Engineering at the Politecnico di Bari get a stable occupation within a year from graduation.



Graduates can apply for the access to the following regulated

professions:

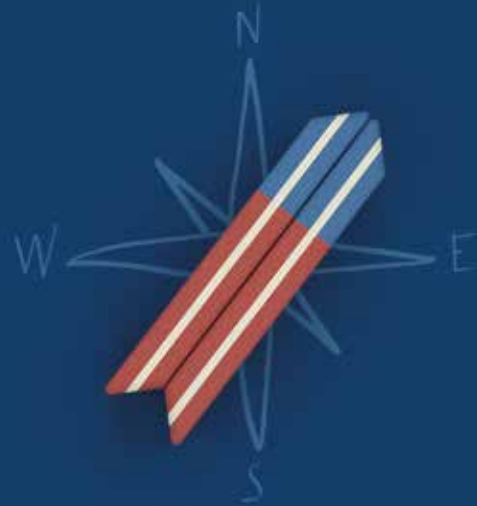
- Industrial Engineer
- Management Engineer

# TELECOMMUNICATIONS ENGINEERING

MASTER'S DEGREE TAUGHT IN ENGLISH

#polibaorienta

# Telecommunications Engineering



For a list of subjects taught and further information:  
[dee.poliba.it/DEI-en/teaching/courses.html](http://dee.poliba.it/DEI-en/teaching/courses.html)



Politecnico di Bari  
[www.poliba.it](http://www.poliba.it)

# TELECOMMUNICATIONS ENGINEERING

Course duration: 2 years

Site: Bari

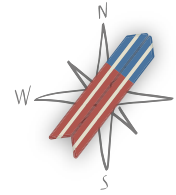
## Educational Objectives

Provide engineering skills to design and develop:

- Wireless networks
- Mobile radio networks 3G/4G/5G
- Satellite networks
- Advanced data network architectures
- Internet of things systems
- Multimedia systems
- Multidimensional signal processing software
- Remote sensing systems
- Optical systems for telecommunications
- Antenna arrays
- Secure communication networks

## Internationalization

- All courses are taught in English
- Availability of a Double Degree in Internet Engineering in collaboration with the University of Nice (France)



#polibaorienta

## Professional opportunities

Designer and/or manager of

- Advanced Internet technologies
- Wired and wireless telecommunication infrastructures
- Optical devices for telecommunications
- Secure protocols and network architectures
- Innovative IoT solutions
- Remote sensing systems and applications
- Antenna arrays
- Multimedia systems and applications
- Future Internet architectures

## Sectors of employment:

- Private and public enterprises
- Industry 4.0
- Regulatory bodies
- Standardization bodies
- Information and communication technology
- Military
- Aerospace
- Bio-medical
- Environment

# CIVIL ENGINEERING

MASTER'S DEGREE

(All courses are taught in Italian)

THE FOLLOWING CURRICULA ARE CURRENTLY ACTIVE:

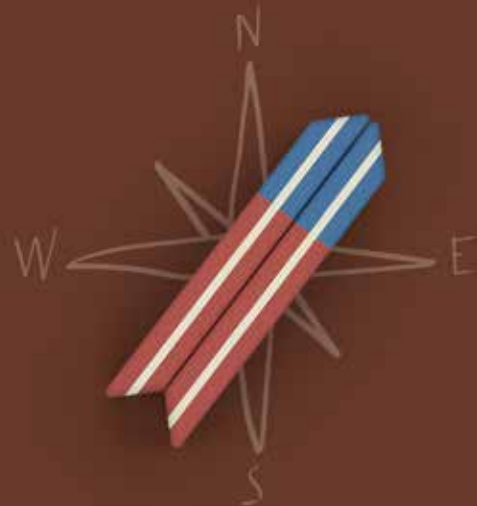
Hydraulic Curriculum

Geotechnical Curriculum

Structure Curriculum

Roads and Transport Curriculum

#polibaorienta  
**Civil  
Engineering**



For further information:  
[diac.poliba.it](http://diac.poliba.it)



Politecnico di Bari  
[www.poliba.it](http://www.poliba.it)

Master's Degree

## CIVIL ENGINEERING

Course duration: 2 years

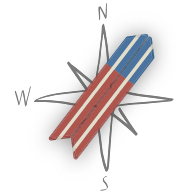
Site: Bari

### Educational Objectives

The master's degree course offers advanced training in the field of design, realization and management of civil constructions, with specific reference both to the problems connected to the realization of new works and the rehabilitation and recovery of existing structures. The learning pathway is designed for first level degree graduates with a solid preparation in the basic sciences and broad knowledge of the fundamental disciplines of civil and Environmental Engineering. The didactic contents are centered on the problems inherent to the design of civil engineering works in its various applications considering the design of hydraulic works, the design of structural projects, geotechnical planning, planning and management of transport and design of road and rail infrastructures. The master's degree graduate in Civil Engineering will have a considerable scientific and technical training involving specific knowledge and techniques for integration with different production sectors which operate in the fields of building, civil infrastructures and the management of isolated or network systems. In addition, the master's graduate will be able to adopt and assimilate technological innovations and manage the evolution of construction processes.

### Professional opportunities

The typical professional areas for the master's graduate in civil Engineering are those of the innovation and development of production, advanced design, planning and programming, management of complex and/or innovative systems, both as a



#polibaorienta

free-lance professional and in construction businesses and public administration.

The main professional opportunities are:

- businesses involved in the construction and maintenance of civil engineering works, plant and infrastructures;
- professional firms and plant or infrastructure design companies.

### Professional opportunities

The typical professional areas for the master's graduate in civil Engineering are those of the innovation and development of production, advanced design, planning and programming, management of complex and/or innovative systems, both as a free-lance professional and in construction businesses and public administration.

The main professional opportunities are:

- businesses involved in the construction and maintenance of civil engineering works, plant and infrastructures;
- professional firms and plant or infrastructure design companies
- public offices for the design, planning management and control of urban and territorial systems;
- businesses, authorities, consortia and agencies for the management and control of systems of works and services;
- service companies for the feasibility study of the urban and territorial impact of civil engineering infrastructures;
- universities and research bodies

The learning pathway leads to the award of the Master's Degree necessary for admission to the Professional Exam for enrolment in the Italian Professional Register of Engineers section A Civil-Environmental.

# ENVIRONMENTAL AND TERRITORY ENGINEERING

MASTER'S DEGREE  
(All courses are taught in Italian)

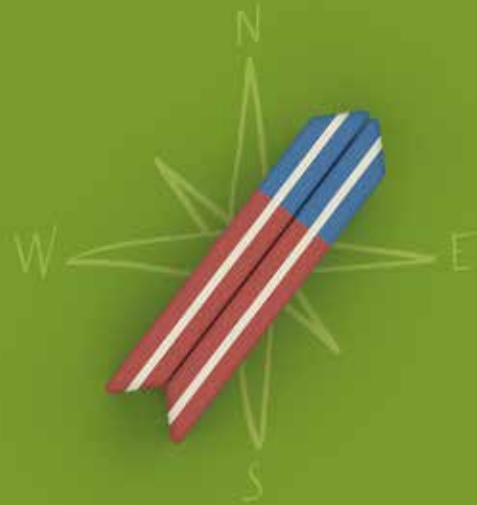
#polibaorienta

## Environmental and Territory Engineering

The following curricula are currently active:

Environmental Curriculum (site: Bari)

Environmental Curriculum (site: Taranto)



For further information:  
[diac.poliba.it](http://diac.poliba.it)



Politecnico di Bari  
[www.poliba.it](http://www.poliba.it)

Master's Degree

## ENVIRONMENTAL AND TERRITORY ENGINEERING

Course duration: 2 years

Site: Bari

### Educational Objectives

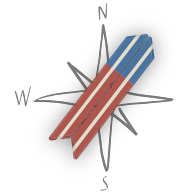
The Master's Degree Course aims at training professionals capable of evaluating the insertion and environmental sustainability of interventions in the natural and built environment. The learning pathway is highly inter-sectorial, with traditional courses in engineering disciplines and innovative didactic pathways, which makes it stimulating from a cultural and professional point of view.

The following specific themes are covered:

- water pollution phenomena and the dynamics of ground water;
- defense against territorial risks and natural disasters;
- remediation of contaminated land;
- environmental planning;
- water treatment;
- management and disposal of solid waste;
- territorial and environmental monitoring systems;
- environmental modelling systems;
- environmental chemistry and technology for territorial protection;
- planning and management of transportation systems

### Professional opportunities

The main job opportunities are those of innovation and product development, advanced project and program planning as well as the management of complex systems. Master's graduates



#polibaorienta

can fulfill highly qualified roles both in the study engineering services firms as well as in industrial and institutional contexts in the following sectors:

- environmental protection and land remediation design;
- management of planning, working and control of complex and/or innovative systems;
- managers responsible for town and territorial planning, programming and design at different scales, as well as for authorization procedures and evaluation of plans, projects and technological plants;
- managers of laboratories involved in high-complexity experiments;
- designers and/or managers of product and process quality systems.

The Master's Degree graduates can enter the job market directly within public and private sectors and services firms involved in design, planning and management of works and systems for environmental and territory control and monitoring, land protection and waste disposal. Such activities also include the management of environmental, geological and energy resources and the evaluation of the environmental impact and compatibility of plans and engineering works.

The learning pathway guarantees that graduates will meet the requirements for admission to the Professional Exam in order to join the Italian Professional Register of Engineers, section A Civil-Environmental.



# BUILDING ENGINEERING

MASTER'S DEGREE

(All courses are taught in Italian)

## I YEAR

Architectural and Urban Composition

Sustainability of processes and building systems + Project  
management and construction

Property Valuation and Investment

History of architecture and city

Historical building refurbishment and Building Heritage maintenance  
and conservation

Strength of Materials II

## II YEAR

Earthquake Engineering

Building Services System Design and Renewables

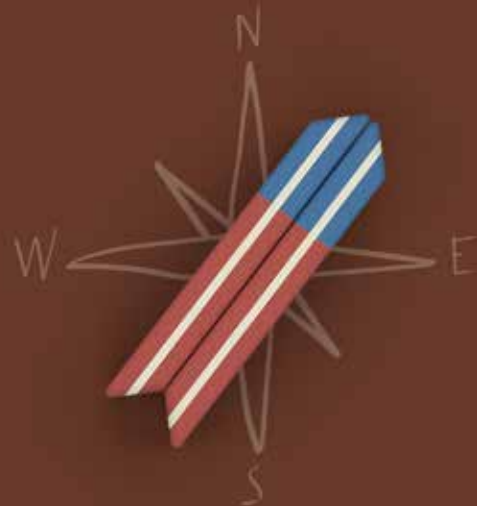
City planning and development

Elective courses

Stage + Final work

(All courses are taught in Italian)

#polibaorienta  
**Building  
Engineering**



For further information:  
[http://www.poliba.it/it/didattica/corsi-di-laurea?course\\_id=10008&year\\_rule=2015](http://www.poliba.it/it/didattica/corsi-di-laurea?course_id=10008&year_rule=2015)



Politecnico di Bari  
[www.poliba.it](http://www.poliba.it)

Master's Degree

## BUILDING ENGINEERING

Course duration: 2 years

Site: Bari

### Educational Objectives

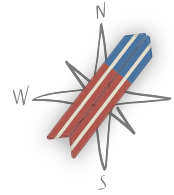
The Master's Degree Programme provides with training for high level professionals, who are able to deal with complex design, operation, organization and management problems featuring the building sector, through interdisciplinary education and engineering methodology, in terms of identification of problems, research of appropriate solutions, optimization of aspects involving materials, techniques, performances, processes and economics, enhancement of principles of sustainability. In particular, the course trains professionals able to operate autonomously in the design of complex building systems, for technological, structural and environmental quality aspects, with specific attention to well-being conditions, service life, energy and environmental impacts.

The teaching contents characterizing the course are focused on building design and production, quality control, building renovation and urban regeneration through the strict integration of disciplines in the area of architectural design, town planning, representation, science and techniques of construction, materials technology, techniques of environmental control and building plant technology.

### Internationalization

A double-degree agreement is available involving the Politecnico di Bari - DICATEch and Universidad de Sevilla – ETSIE. This agreement allows students, following a specific training course in Bari and Seville, to achieve a double degree title:

- Grade en Ciencia y Tecnología de la Edificación, at the end of the first year with a thesis at the ETSIE, US;
- Master's Degree in Building Engineering, at the end of the second year with a dissertation at the Polytechnic.



#polibaorienta

### Professional opportunities

The Master's Degree graduate is a professional with a solid scientific and technical education who is able to operate in the design, production, realization and management of buildings, in building design and town planning, in the design and management of interventions on existing buildings and of the processes of transformation of the built environment.

The potential employment perspectives for the Master's Degree Graduates are found in:

- Engineering companies and professional service firms;
- Business management consultants;
- Companies involved in the design, production, realization and management of buildings;
- Public administrations and local authorities;
- Construction companies and industries producing building materials and products;
- Town planning and design, architectural renovation and restoration;
- Planning of construction and management processes on existing buildings;
- Real estate companies and consultants, as well as companies dealing with the building heritage;
- Companies specialized in services connected with building management and support to the building operation
- Finance companies, banks and companies specialized in project financing consultancy.

The training programme leads students to the Master's Degree qualification necessary for admission to the Professional Exam for Enrolment in the Italian Professional Register of Engineers, section A Civil-Environmental.

# MECHANICAL ENGINEERING

MASTER'S DEGREE  
(All courses are taught in Italian)

The following curricula are currently active:

Technology Curriculum

Energy Curriculum

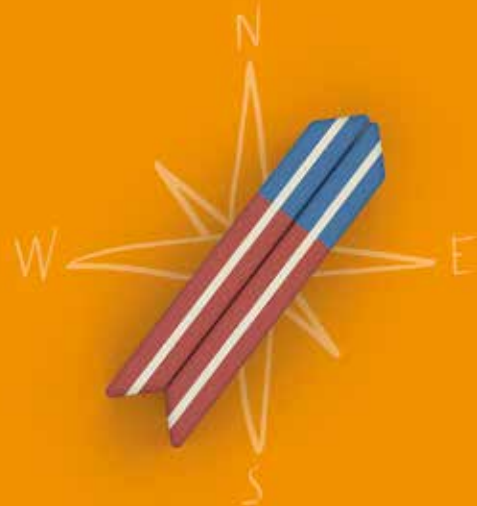
Construction Curriculum

Aeronautics Curriculum

Industrial Curriculum (in Taranto)

Dynamic Systems Curriculum– Double Degree (NYU)

#polibaorienta  
**Mechanical  
Engineering**



For further information:  
<http://climeg.poliba.it>



Politecnico di Bari  
[www.poliba.it](http://www.poliba.it)

Master's Degree

## MECHANICAL ENGINEERING

Course duration: 2 years

### Educational Objectives

The Degree Course encompasses the following curricula:

**Energy Curriculum**, focusing on themes connected to the generation and management of thermal and renewable energies, as well as to the control and regulation of machinery;

**Construction Curriculum**, centered on the mechanical and functional design of components, the characterization of mechanical systems and the development of innovative materials;

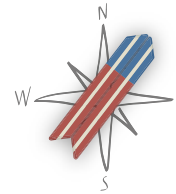
**Technology Curriculum**, regarding themes connected to fabrication through the use of special technologies, safety of mechanical and industrial plants;

**Aeronautics Curriculum**, dealing with the themes of aerodynamics, gas-dynamics, aircrafts, special technologies and aeronautic construction;

**Dynamic Systems Curriculum**, leading to a double degree awarded together with the Polytechnic Institute of New York University (NYU), where students admitted to the double degree program attend several courses;

**Industrial Curriculum** (at the Taranto branch of the Polytechnic of Bari) with themes connected to business management, functional mechanical design, electrical drives and fluid power.

The subjects common to all the curricula deepen the classic themes of mechanics, namely, production technologies,



#polibaorienta

applied mechanics, fluid machinery and energy systems, mechanical plants, mechanical design and construction, advanced technical representation and modeling. Each student will also choose two subjects from any curriculum. All the taught courses will enable the students to deal with and resolve advanced design problems in the various areas of mechanics.

### Professional opportunities

The professional and employment opportunities regard all the fields of mechanical engineering:

Mechanical and electromechanical industry, automotive industry, businesses and authorities of energy production, plant construction companies, automation and robotic industries, aeronautic companies, companies involved in the manufacturing, production, installation and setup of machines and systems, maintenance and management of machines, production lines, management of complex systems, public and private research centers.

The course leads to enrolment in the following professional bodies:

- Mechanical Engineer
- Aerospace and Astronautic Engineer
- Energy and Nuclear Engineer