Bachelor's degree in Industrial Technology Engineering
Terrassa School of Industrial, Aerospace and Audiovisual Engineering (ESEIAAT)

The **bachelor's degree in Industrial Technology Engineering** provides knowledge of the range of industrial technologies and offers a multidisciplinary, unifying view of the field of industrial engineering. You will be trained in basic scientific and technological disciplines that will equip you to learn about new methods and theories and gain in-depth knowledge of industrial fields, including technological and business aspects such as project planning, supervision and management, whilst observing social and environmental requirements. Upon completion of your studies, you will have developed the versatility to adapt to changing working environments and to future technological developments that will improve products and processes in the sector.

GENERAL DETAILS

Duration
4 years

Study load
240 ECTS credits (including the bachelor's thesis). One credit is equivalent to a study load of 25-30 hours.

Delivery
Face-to-face

Language of instruction

Check the language of instruction for each subject (and timetable) in the course guide in the curriculum.

Information on language use in the classroom and students' language rights.

Fees and grants
Approximate fees per academic year: €1,107 (€1,661 for non-EU residents). Consult the public fees system based on income (grants and payment options).

Location
Terrassa School of Industrial, Aerospace and Audiovisual Engineering (ESEIAAT)

Official degree
Recorded in the Ministry of Education's degree register

ADMISSION

Places
180

Registration and enrolment
What are the requirements to enrol in a bachelor's degree course?

Legalisation of foreign documents
All documents issued in non-EU countries must be legalised and bear the corresponding apostille.

DOUBLE-DEGREE AGREEMENTS

With other Catalan universities

- Bachelor's degree in Industrial Technology Engineering + Master's degree in Industrial Engineering + Bachelor's degree in Business Administration and Management (UOC)
- Bachelor's degree in Industrial Technology Engineering + Master's degree in Industrial Engineering + Bachelor's degree in Economics (UOC)

Further information on this website

Within the framework of the courses offered by the Interdisciplinary Higher Education Centre (CFIS)

You can also take an interdisciplinary double degree coordinated by the CFIS at two UPC schools.

Further information on the CFIS website

PROFESSIONAL OPPORTUNITIES

Professional opportunities

- Supervision and management of projects, facilities, plants, businesses and technology centres in a range of industrial sectors such as energy; iron and steel; metallurgy; chemicals; robotics; the automotive and rail industries; metal, mechanical and electrical construction; and smart materials, nanotechnology and bioengineering
- Design, calculation and design of products, processes, facilities and equipment.
- Strategic planning, quality management and environmental management.
- Research, development and innovation in products, processes and methods.

ORGANISATION: ACADEMIC CALENDAR AND REGULATIONS

Academic calendar

General academic calendar for bachelor’s, master’s and doctoral degrees courses

Academic regulations

Academic regulations for bachelor’s degree courses at the UPC

Language certification and credit recognition

Queries about language courses and certification

Terrassa School of Industrial, Aerospace and Audiovisual Engineering (ESEIAAT)

This bachelor’s degree is also taught at

- Barcelona · ETSEIB · Show degree

CURRICULUM

Subjects	ECTS credits	Type
FIRST SEMESTER		
Algebra	6	Compulsory
Calculus I	6	Compulsory
Chemistry I	6	Compulsory
Graphic Expression I	6	Compulsory
Physics I	6	Compulsory
SECOND SEMESTER		
Calculus II	6	Compulsory
Chemistry II	6	Compulsory

Subjects	ECTS credits	Type
Fundamentals of Programming	6	Compulsory
Graphic Expression II	3	Compulsory
Industrial Technologies	3	Compulsory
Physics II	6	Compulsory
THIRD SEMESTER		
Advanced Physics	7.5	Compulsory
Business	6	Compulsory
Differential Equations	6	Compulsory
Materials Science	6	Compulsory
Mechanics	4.5	Compulsory
FOURTH SEMESTER		
Automatic Control	4.5	Compulsory
Circuit Theory	6	Compulsory
Continuum Mechanics and Strength of Materials	7.5	Compulsory
Statistics	6	Compulsory
Thermodynamics	6	Compulsory
FIFTH SEMESTER		
Electronics	4.5	Compulsory
Electrotechnics and Electrical Machines	7.5	Compulsory
Fluid Mechanics	4.5	Compulsory
Machine and Mechanism Theory	6	Compulsory
Numerical and Quantitative Methods	7.5	Compulsory
SIXTH SEMESTER		
Advanced Fluid Mechanics	3	Optional
Advanced Programming Oriented Towards Goals	3	Optional
Air Pollution and Treatment Technologies	6	Optional
Applied Uav Control	3	Optional
Autonomous Vehicle Programming	3	Optional
Basic Robotics	6	Optional
Big Data Tools and Applications	3	Optional
Bim for Engineers	3	Optional
Building Energy Certification	3	Optional
Control and Guidance of Mobile Robots	6	Optional
Creative Lab	6	Optional
Creative Programming with Processing	3	Optional
Critical Thinking for 3D Printing	6	Optional
Electromobility and Electrical Aircraft Systems	3	Optional
Embedded Systems Programming	3	Optional

Subjects	ECTS credits	Type
Energy Storage and Conversion Application	3	Optional
Experimental Designs and Quality Control	4.5	Compulsory
Experimental Labs in Fluids	3	Optional
Heat Technology	6	Compulsory
High Performance Computing for Aerospace Engineering	3	Optional
Highly Automated Production Systems	3	Optional
Hospital Engineering	6	Optional
Initiation to Paper and Graphic Industrial Tecnologies	6	Optional
Introduction to Big Data	3	Optional
Introduction to Biomedical Engineering	3	Optional
Introduction to Cubesats	3	Optional
Introduction to Dynamical Systems and Ergodic Theory	3	Optional
Introduction to Forensic Expert for Technique Dispute Resolution	3	Optional
Introduction to Lean Construction	3	Optional
Introduction to Object-Oriented Programming	3	Optional
Introduction to Rockets	3	Optional
Key Factors for the Professional Success	3	Optional
Leadership and Professional Development in Engineering	3	Optional
Lean Construction and Circular Economy Basics	3	Optional
Manufacturing Organization	6	Compulsory
Materials Technology	4.5	Compulsory
Mobile Programming	6	Optional
Modelisation, Complexity and Sustainability	6	Optional
Numerical Methods for Engineers	6	Optional
Planning, Simulation and Supervision of Industrial Processes	6	Optional
Polymers in Engineering	6	Optional
Power Converters	4.5	Compulsory
Professional Communication for Engineers Through Virtual Reality	3	Optional
Programming of Mobiles Android	6	Optional
Robotics and Automation	3	Optional
Safety Robotics and Automation for Industry 4.0	3	Optional
Surface Chemistry for Industrial Applications Design	3	Optional
Systems Modelling and Simulation	4.5	Compulsory
Technology, Society and Globalization: the Sustainability Challenge in the XXith Century	6	Optional
Uav Generative Design	6	Optional
Uav Research & Development	3	Optional
Uav Research & Development Project	3	Optional
Validating and Communicating Innovative Ideas	6	Optional

Subjects	ECTS credits	Type
Vibroacoustics	3	Optional
Web Applications	3	Optional
SEVENTH SEMESTER		
Business Start-Up and Organisation	3	Compulsory
Digital Electronics	6	Compulsory
Environmental Science and Technology	6	Compulsory
Fluid Technology	4.5	Compulsory
Projects	6	Compulsory
Structural Theory and Industrial Construction	4.5	Compulsory
EIGHTH SEMESTER		
Advanced Control Systems	3	Optional
Alternative Propulsion Vehicles	3	Optional
Analysis of Thermal and Fluid Dynamics Issues in Industrial And/Or Aeronautical Systems and Equipment	3	Optional
Application of Matlab-Octave to Thermal Engineering Problems	3	Optional
Application of Open-Source Cfd to Engineering Problems	3	Optional
Automobile Electronics	3	Optional
Characterization Techniques for Metallic Alloys	3	Optional
Decision Criteria - Engineer as Employee or Engineer as Entrepreneur	3	Optional
Energy Efficiency Systems	3	Optional
Engines and Powertrains	3	Optional
Finite Elements in Structural Analysis	3	Optional
Fluid Dynamic Technologies in Vehicles	3	Optional
Fluid Mechanics II	3	Optional
Fundamentals of Robotics	3	Optional
Greening the Built Environment	3	Optional
Industrial Organic Chemistry	3	Optional
Information and Communication Technology	3	Optional
Innovation and Creativity: Tools for Engineering	3	Optional
Introduction to Reverse Engineering	3	Optional
Introduction to Sailplanes	3	Optional
Knowledge of Industrial Companies and Professional Practice	3	Optional
Lasers and Photonic Technologies for Engineering	3	Optional
Learning From Mechanical Failure in Engineering	3	Optional
Lightweight Materials for Engineering Applications	3	Optional
Lignocellulosic Biorefineries	3	Optional
Materials Characterization and Surface Engineering	3	Optional
Materials Chemistry	3	Optional

Subjects	ECTS credits	Type
Materials Engineering: Learning From Disasters	3	Optional
Mathematical Models in Engineering	3	Optional
Mathematics and Computing Engineering	3	Optional
Mechanical Design and Manufacturing	3	Optional
Mechanics of Robotic Manipulation	3	Optional
Motorbikes Design and Secrets	3	Optional
Nonlinear Systems, Chaos and Control in Engineering	3	Optional
Optimization of Industrial Processes	3	Optional
Plug-In Hybrid Electric Vehicles. Concept, Design and Project of Electric Propulsion Systems	3	Optional
Real-Time Programming and Database Systems	3	Optional
Spoken Academic and Professional Skills	3	Optional
Sustainable Manufacturing Technologies	3	Optional
Telemetry and Smart Electronics Projects	3	Optional
Thermodynamics of Materials	3	Optional
Unit Operation in Engineering	3	Optional
Urban and Regional Planning	3	Optional
Vehicle Dynamics	3	Optional
Wind Turbines Design	3	Optional
Written Academic Skills for Engineering	3	Optional
Bachelor's Thesis	12	Project