



**BACHELOR'S DEGREE
IN INDUSTRIAL
TECHNOLOGIES
AND ECONOMIC
ANALYSIS (UPC-UPF)**



Universitat
Pompeu Fabra
Barcelona



UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH

The UPF is ranked 11th among the world's best young universities (1st in Spain and 6th in Europe)

Source: THE World University Rankings 2019

The UPF is in the 51-75 band among the world's best universities in the subject Economics (1st in Spain and 17th in Europe)

Source: ARWU 2015

The UPC is ranked 4th in the world ranking by subject for Multidisciplinary Engineering

Source: CWUR 2017

The UPC is ranked 76th in the world university ranking by subject area for Engineering and Technology (1st in Spain and 22nd in Europe)

Source: QS World University Rankings by Subject 2020

BACHELOR'S DEGREE IN INDUSTRIAL TECHNOLOGIES AND ECONOMIC ANALYSIS (UPC-UPF)

The bachelor's degree in Industrial Technologies and Economic Analysis combines industrial engineering topics and the fundamentals of economics to provide the high-level interdisciplinary knowledge that will allow graduates to adapt to new situations and assimilate the technological developments that will enable businesses to improve their products and processes.

The bachelor's degree is taught entirely in English by the **Universitat Politècnica de Catalunya (UPC)** and the **Universitat Pompeu Fabra (UPF)**. It responds to the need for new industrial leaders who can provide a solid understanding of innovation and technology and detailed knowledge of economics.

Curriculum

This information may be subject to change. Up-to-date information is available at upc.edu

240 ECTS credits

1st course

| | | |
|-----------------------------|-----|---|
| Calculus I | UPC | 6 |
| Algebra and Geometry | UPC | 6 |
| Physics I | UPC | 6 |
| Programming | UPC | 6 |
| Chemistry | UPC | 6 |
| Calculus II | UPC | 6 |
| Physics II | UPC | 6 |
| Probability and Statistics | UPF | 6 |
| Introduction to Economics | UPF | 6 |
| Introduction to Game Theory | UPF | 6 |

2nd course

| | | |
|----------------------------------|-----|-----|
| Mechanics | UPC | 6 |
| Numerical Methods in Engineering | UPC | 6 |
| Industrial Design | UPC | 6 |
| Microeconomics I | UPF | 6 |
| Econometrics | UPF | 6 |
| Mechanism and Machine Theory | UPC | 6 |
| System Dynamics | UPC | 4.5 |
| Continuum Mechanics | UPC | 4.5 |
| Quality Management | UPC | 3 |
| Microeconomics II | UPF | 6 |
| Macroeconomics I | UPF | 6 |

3rd course

| | | |
|-------------------------------------|-----|-----|
| Science and Technology of Materials | UPC | 6 |
| Thermodynamics | UPC | 6 |
| Manufacturing | UPC | 3 |
| Digital Control | UPC | 4.5 |
| Operations Research | UPF | 4.5 |
| Macroeconomics II | UPF | 6 |
| Strength of Materials | UPC | 6 |
| Electrotechnics | UPC | 6 |
| Fluid Mechanics | UPC | 6 |
| Microeconomics III | UPF | 6 |
| Macroeconomics III | UPF | 6 |

4th course

| | | |
|---------------------------|---------|-----|
| Data Based Management | UPC | 6 |
| Project Management | UPC | 4.5 |
| Electric Machinery | UPC | 4.5 |
| Environmental Engineering | UPC | 4.5 |
| Business Economics | UPF | 4.5 |
| Heat Transfer | UPC | 6 |
| Electronics | UPC | 6 |
| Optional Subject I | UPF | 6 |
| Optional Subject II | UPF | 6 |
| Bachelor's Thesis | UPC/UPF | 12 |

Choices for Optional Subjects:

Advanced Econometrics, Advanced Game Theory, Behavioural Economics, Big Data, Environmental Economics, Ethics and Welfare Economics, Experimental Economics, Financial Economics, Industrial Organisation, Innovation and Technological Change, International Economics, Negotiation and Public Economics

Public access

The bachelor's degree is a public-education degree to which admission may be sought via any of the usual pre-enrolment procedures. Specifically, for weighting subjects from the last year of upper secondary school education for access to university via university pre-enrolment in Catalonia, a coefficient of 0.2 is set for the subjects Mathematics, Physics and Chemistry. Because the degree is taught entirely in English, a good command of the English language is recommended, so that students can follow the classes from the first day.

Interuniversity degree

The subjects are taught on the campuses of the two universities. Thus, in addition to the multidisciplinary nature of the bachelor's degree, students are able to share time and space with other studentstaking industrial engineering and economics degrees. Subjects on industrial technologies are taught at the Barcelona School of Industrial Engineering (ETSEIB) of the UPC and the economics subjects are taught at the Faculty of Economics and Business of the UPF.

International component

The bachelor's degree gives students the opportunity to take part of the degree at foreign universities under mobility agreements with top-level universities worldwide.

Work placement and grants

Emphasis is placed on work placement during non-teaching periods. Work placement allows students to extend their CVs. The bachelor's degree has its own grants programme, in addition to standard university system grants.

Qualification and curriculum

The bachelor's degree qualifies graduates for admission to the master's degree in Industrial Engineering, which is taught at the UPC, and allows them to continue higher education in economics. It provides an excellent opportunity for working on innovation projects in placements at national and international companies and outstanding graduate employability.

Professional opportunities

- Supervision and management of projects, facilities, plants, companies and technology centres in industrial sectors such as energy; automotive engineering; the iron and steel industry; chemistry; robotics; the automobile and railway industry; metallic, mechanical and electrical construction; smart materials; nanotechnology and bioengineering.
- Calculation and design of products and processes, the scope of which includes the economic situation, the sector, the market and business activity.
- Strategic, micro- and macroeconomic planning, quality management and environmental management.
- Research, development and innovation in products, processes and methodologies, and analysis of the implications for their management.
- Leadership and management in economic settings undergoing change.
- Economics and management of companies in regulated sectors and network services.

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This bachelor's degree qualifies you to officially practise as an industrial engineer after taking the master's degree in Industrial Engineering. And, in any case, you can continue your education by taking university courses in economics.

Leading schools:

- The UPC's Barcelona School of Industrial Engineering, the school that opens doors.
- The UPF's School of Economics and Business, whose professors are among the world's 10 most cited academics in their field.

A quality interuniversity degree that opens a window to the world



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