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

**240 ECTS**

#### 1st course

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

#### 2nd course

- Numerical Methods in Engineering 6 ECTS UPC
- Industrial Design 6 ECTS UPC
- Microeconomics I 6 ECTS UPF
- Macroeconomics I 6 ECTS UPF
- Mechanism and Machine Theory 6 ECTS UPC
- System Dynamics 4.5 ECTS UPC
- Continuum Mechanics 4.5 ECTS UPC
- Quality Management 9 ECTS UPC
- Microeconomics II 6 ECTS UPF
- Macroeconomics II 6 ECTS UPF

#### 3rd course

- Science and Technology of Materials 6 ECTS UPC
- Thermodynamics 6 ECTS UPC
- Manufacturing 3 ECTS UPC
- Modelling, Optimisation and Simulation 4.5 ECTS UPC
- Production Management 4.5 ECTS UPC
- Econometrics 6 ECTS UPF
- Strength of Materials 6 ECTS UPC
- Electrotechnics 6 ECTS UPC
- Fluid Mechanics 6 ECTS UPC
- Microeconomics III 6 ECTS UPF
- Macroeconomics III 6 ECTS UPF

#### 4th course

- Digital Control 4.5 ECTS UPC
- Project Management 4.5 ECTS UPC
- Electric Machinery 4.5 ECTS UPC
- Environmental Engineering 4.5 ECTS UPF
- Data Management 6 ECTS UPF
- Optional Subject I 6 ECTS UPF
- Heat Transfer 6 ECTS UPC
- Electronics 6 ECTS UPC
- Optional Subject II 6 ECTS UPF
- Bachelor’s Thesis 12 ECTS UPC/UPF


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**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 bachelor’s degree is 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 students taking 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 economics 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.
Study at the universities that are ranked highest in international rankings in their fields of expertise

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<tr>
<th>Ranking</th>
<th>UPF</th>
<th>UPC</th>
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<tbody>
<tr>
<td>ARWU</td>
<td>Ranked 51-75 in the world university ranking in the subject Economics (1st in Spain and 17th in Europe)</td>
<td>Ranked 41st in the world university ranking in the subject Electrical &amp; Electronic Engineering (1st in Spain and 9th in Europe)</td>
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<td>THE</td>
<td>Ranked 135th in the world universities overall (1st in Spain and 49th in Europe)</td>
<td>Ranked among the top 450 offering Engineering in the world universities overall (1st Politechnic University ranked in Spain), Ranked 101-150 young university in the world (1st Politechnic University ranked in Spain)</td>
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<td>QS</td>
<td>Ranked 38th in the world university ranking in the subject area Economics &amp; Econometrics (1st in Spain and 9th in Europe)</td>
<td>Ranked 8th in the world university ranking in the subject area Engineering and Technology (2nd in Spain and 23-24 in Europe)</td>
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<td>CWUR</td>
<td>Ranked 4th in the world rank by subject on Engineering, Multidisciplinary</td>
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