At the Manresa School of Engineering you will find:
- teaching staff who are committed to students’ learning and well-being,
- cutting-edge research,
- degrees that integrate theoretical and practical education through work on real projects,
- many options to extend your CV, such as international mobility programmes, work placements and a job bank.

This bachelor’s degree qualifies you to officially practise as:
- A technical mining engineer.
- A mining engineer, by taking the master’s degree in Mining Engineering.
With the master’s degree, the bachelor’s degree constitutes an integrated academic programme.

Training the engineers of the future

Further information:
comunicacio.epsem@upc.edu
epsem.upc.edu
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One of humanity’s greatest challenges is to guarantee the supply of raw materials in a way that is efficient and environmentally sustainable in the long term. The European Union’s Green Growth and Circular Economy programme includes strategic objectives such as searching for mineral deposits, optimising current resources and implementing the circular economy. The bachelor’s degree in Mineral Resource Engineering and Mineral Recycling provides multidisciplinary training that will allow you to tackle these challenges by using the most innovative techniques to obtain, manage and recycle natural resources.

You will acquire the knowledge to manage the stages of exploration, prospecting, use and restoration in any project aimed at obtaining mineral resources. You will learn to use the latest technological and computer developments in designing and planning in the mining sector. Training in mining engineering (blasting, mine design, ventilation, mineral processing, etc.), spatial management and civil works will bring you a wide range of employment opportunities in a diversity of settings. You will become a versatile engineer who is able to adapt to any kind of task related to the land and its mineral resources.

### Curriculum

#### First year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Mathematics I</th>
<th>Physics I</th>
<th>Informatics</th>
<th>Chemistry</th>
<th>Environmental Technologies and Sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 credits</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

#### Second year

<table>
<thead>
<tr>
<th>First semester</th>
<th>Mathematics III</th>
<th>Mechanical Systems</th>
<th>Thermodynamics and Fluid Mechanics</th>
<th>General Surveying and Cartography</th>
<th>Geology and Geological Cartography</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 credits</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second semester</th>
<th>Mathematics for Mining Engineering</th>
<th>Strength of Materials</th>
<th>Mineral Deposits</th>
<th>Applied Surveying and Cartography</th>
<th>Prospective Technology</th>
<th>Mineralogy and Petrology</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 credits</td>
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<td>6</td>
<td>4.5</td>
<td>6</td>
<td>4.5</td>
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</table>

#### Third year

<table>
<thead>
<tr>
<th>First semester</th>
<th>Business Organisation in the Circular Economy</th>
<th>Geotechnical Engineering</th>
<th>Geotechnical Modelling</th>
<th>Surface Mining</th>
<th>Principles of Materials Processing</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 credits</td>
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<td>6</td>
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</tr>
</tbody>
</table>

#### Fourth year

<table>
<thead>
<tr>
<th>First semester</th>
<th>Design</th>
<th>Occupational Health and Safety</th>
<th>Underground Mining</th>
<th>Environmental Impact and Restoration</th>
<th>Optional subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 credits</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second semester</th>
<th>Electrotechnics and Control Systems</th>
<th>Urban and Waste Mining</th>
<th>Use of Explosives</th>
<th>Underground Works</th>
<th>Recycling Plants and Minerals</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 credits</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

### Theoretical-practical teaching based on real projects

#### Work placement

Validation of subjects from higher training cycles (CFGS)

#### Go international!

Mining classroom and laboratory

Mining offers international mobility at universities renowned for mining from the third year onwards.

Professional opportunities
You may pursue a career in a wide range of work areas related to engineering:
- Projects for obtaining mineral resources.
- Excavations, tunneling and civil works projects.
- Use and handling of explosives.
- Restoration of degraded areas.
- Waste management and recycling.
- Drilling and water reuse.
- Spatial management and analysis.
- Surveying.

### The challenge of a sustainable future

The teaching staff firmly believe that mining can help transform society towards a more sustainable model. With this aim in mind, they promote the following initiatives:
- IOL-UPC Chair in Sustainable Mining. The Chair fosters study and research in mining and the environment. You may opt for work placement in the framework of this enterprise chair.
- Minera per el Desenvolupament. With this NGO, you can cooperate in South America and Africa to promote improvements in mining and the environment.
- Valentí Masachs Geology Museum. Science outreach on mineral resources and their applications and recycling.

### Placement

100% of graduates of this bachelor’s degree are in work.

Source: 2020 graduate employment survey of Catalan universities by the Catalan University Quality Assurance Agency (AQU Catalunya)

*Optional subjects: Potassium Mining, Construction Materials and Recycling, Hydrogeology, New Mining, Mining and Thermal Waters, Sounding and Horizontal Directional Drilling, Ceramic and Glass Industry.*
BACHELOR’S DEGREE IN MINERAL RESOURCE ENGINEERING AND MINERAL RECYCLING

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