Objective(s) of a Study Programme:

To educate Masters able to introduce and administer the environmental management systems at the industrial companies, analyse and solve environmental problems by applying preventive environmental management principles, cleaner production measures and environmental technologies in industry.

Access to Professional Activity

The graduate can carry out research, expert, consulting and managerial work in enterprises and institutions of environmental management and cleaner production.
Sustainable Management and Production

<table>
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<tr>
<th>Module code</th>
<th>Module title and description</th>
<th>ECTS credits</th>
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<tbody>
<tr>
<td>S190M183</td>
<td>Business Process Management</td>
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<tr>
<td>T270M014</td>
<td>Cleaner Production</td>
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<tr>
<td>T270M023</td>
<td>Environmental Impact Assessment</td>
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<td>T270M016</td>
<td>Sustainable Development Policy, Law and Economics</td>
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<td>Electives 1</td>
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<td>T270M027</td>
<td>Environmental Management</td>
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<td>T270M017</td>
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<td>Manufacturing Planning and Control</td>
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<td>T270M124</td>
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| PR00M125    | Final Degree Project         | 30           |

Learning outcomes:

Knowledge and Understanding

A1 Ability to evaluate sustainability of the technologies and develop proposals on sustainable technologies design and implementation in different industrial branches.

A2 Ability to evaluate environmental problems/challenges and identify their solutions based on systems approach in the different hierarchical levels (world-wide, international, regional, national, municipal, company (organization) and individual/households).

A3 Knowledge on the main tools and measures of environmental systems analysis, their main characteristics and ability to apply them for decision making in complex problems.

A4 Ability to identify, describe and compare environmental, quality, health, work safety and integrated management systems, their implementation possibilities and procedures, identify, analyse and assess aspects of sustainability.

A5 Ability to apply process management knowledge for development, management and improvement of service, production systems and supply chains.

Engineering Analysis

B1 Ability to identify the main stakeholders during the problem assessment phase and analyse their activities and collaboration possibilities finding the optimal solution, based on modelling and experimental research methods.

B2 Analyse and assess environmental quality, construe and use the data and information about pollution identification and prevention methods and technologies in the different environments.

B3 Ability to simulate, analyze and assess the processes and their interrelations and main problems in ecosystems, regions and companies (organizations), write analytical reports and effectively communicate to the different audience.

B4 Ability to analyse and identify optimal environmental efficiency evaluation measures, which allow to provide quantitative results of environmental management efficiency, perform interdisciplinary assessment of innovations in development and implementation phases.

B5 Ability to provide set of indicators to set and develop goal and action plan for company or organization ensuring the sustainable development.

B6 Ability to assess natural resources, amounts and reserves of primary resources, their extraction possibilities, and to apply different tools and measures for sustainable management of natural resources, their efficient consumption, reuse and recycling.
Sustainable Management and Production

Learning outcomes:

**Engineering Design**

C1  Ability to design and optimize multi-factorial systems using various methodologies from different disciplines.

C2  Understanding of companies (organizations) and their environment, competence to create and present a product (service) prototype from the initial idea.

C3  Will know principles of the intellectual property, requirements of the academic ethics and originality of scientific research and will be able to apply it when developing scientific, research and applied works.

C4  Will be able to apply circular economy, circular design and modeling techniques of innovative engineering, management and economic systems to maintain the value of resources and reduce the risk of raw material supply in the long run.

**Fundamental and Applied Research**

D1  Ability to plan the scientific experiment, organize its execution according standardized requirements, summarize the results and develop scientific publication.

D2  Will know and be able to apply the main scientific methods and measures related to the specialty, will follow evolution of the main scientific ideas and be able to use systems approach to select an optimal method.

D3  Will be able to perform scientific and professional literature search, perform analysis, apply appropriate citation methods and measures to formulate scientific problems, goals and tasks.

**Skills of Practical Work in Solving Engineering Problems**

E1  Ability to develop sustainable innovation investment project.

E2  Be able to indicate and review advantages and shortages of the different technical solutions related to sustainable development, propose and motivate technical proposals for the problem solutions, prevention and minimization of emissions, waste and effluents from the production processes.

E3  Will have deep knowledge on the development of innovations and other organizational principles of engineering.

E4  Ability to plan and manage manufacturing process at the industrial company.

**Personal and Social Skills**

F1  Ability to function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary and international settings.

F2  Understands recruitment processes and practices, possess career and application skills and basics of leading.

F3  Will be competent to develop, present, manage and evaluate different projects, environmental management report, corporate social responsibility report and sustainability report.

F4  Will be able to make integrated evaluation of complex problems and to use methodologies from different disciplines in order to make best decision based on the principles of sustainability.