



**MASTER'S DEGREE IN
ENVIRONMENTAL ENGINEERING FOR SUSTAINABLE DEVELOPMENT
DEGREE PROGRAMME 2024/2025**

Course contents are available at this [link](#)






1st year

| Sem | Teaching course | SSD* | TAF* | Credits | h |
|-----------------------|---|------------|------|---------|----|
| Common courses | | | | | |
| 1 | Numerical Computing: Methods, Models and Algorithm | MAT/08 | C | 6 | 60 |
| 1 | Scientific Computing Workshop | MAT/08 | F | 3 | 30 |
| 1 | Environmental Geoengineering | ING-IND/28 | B | 6 | 60 |
| 1 | Environmental Fluid Mechanics | ICAR/01 | B | 6 | 60 |
| | Integrated Course: Remediation and Chemical-Physical Treatment of Soils | | | | |
| 1 | - Module: Chemical-Physical Treatment of Soils | ING-IND/29 | B | 6 | 60 |
| 2 | - Module: Contaminated Sites Remediation | ICAR/03 | B | 6 | 60 |
| 2 | Applied Geophysics | GEO/11 | B | 6 | 60 |
| 2 | Geodesign Lab | ICAR/20 | F | 3 | 50 |
| 2 | Hydrogeology | GEO/05 | B | 6 | 60 |
| 2 | Impact Assessment and Environmental Rehabilitation | ING-IND/28 | B | 6 | 60 |

2nd year

| Sem | Teaching course | SSD* | TAF* | Credits | h |
|-----------------------|--|------------|------|---------|----|
| Common courses | | | | | |
| | <i>One course among:</i> | | | | |
| 1 | Foundations and Earth Retaining Structures | ICAR/07 | C | 6 | 60 |
| 1 | Computational Fluid Mechanics | ICAR/01 | C | 6 | 60 |
| 1 | Remote Sensing for Environment Monitoring and Modelling | ICAR/06 | C | 6 | 60 |
| 1 | Recovery of Secondary Raw Materials | ING-IND/29 | C | 6 | 60 |
| 1 | Urban and Regional Sustainability: Smart Cities and Ecosystem Services in Planning | ICAR/20 | C | 6 | 60 |
| 2 | Geochemical characterization | GEO/09 | C | 6 | 60 |
| 2 | Green and Applied Chemistry | CHIM/03 | C | 6 | 60 |
| 2 | Design of Environmental Remediation and Decontamination Systems | ICAR/03 | C | 6 | 60 |
| 2 | Safety and Project Management at Construction Sites | ING-IND/28 | C | 6 | 60 |
| 2 | Renewable Energy Technologies | ING-IND/09 | C | 6 | 60 |
| | Integrated Course: Digital Platforms for Monitoring | | | | |
| 2 | - Module: Hardware Platforms for IoT | ING-INF/01 | C | 3 | 30 |
| 2 | - Module: Data Processing and Transmission | ING-INF/03 | C | 3 | 30 |



| Curriculum Environmental remediation technologies | | | | | |
|--|---|------------|---|---|----|
| 1 | Sustainable Solid Waste Management: materials and energy recovery  | ICAR/03 | B | 9 | 90 |
| 1 | Wastewater Treatment Plants  | ICAR/03 | B | 9 | 90 |
| 2 | Integrated Course: Treatment of Fluids and Waste Gases - Module: Treatment of Fluids | ING-IND/29 | B | 6 | 60 |
| 2 | - Module: Control and treatment of atmospheric emissions  | ICAR/03 | B | 6 | 60 |
| Curriculum Geo-engineering and Land protection | | | | | |
| 1 | Integrated Course: Hydrogeological Protection - Module: Watershed and Stream Restoration Engineering | ICAR/02 | B | 6 | 60 |
| 1 | - Module: Slope Instability and Hydrogeological Risk | GEO/05 | B | 6 | 60 |
| 1 | Integrated Course: Rock Engineering - Module: Rock Mechanics | ING-IND/28 | B | 6 | 60 |
| 2 | - Module: Excavation Engineering and Underground Works | ING-IND/28 | B | 6 | 60 |
| 2 | <i>Choose between:</i> Coastal Hydraulics | ICAR/01 | B | 6 | 60 |
| 2 | Design and Management of Geoengineering Works for Environment Protection | ING-IND/28 | B | 6 | 60 |
| Curriculum Spatial and Environmental Planning | | | | | |
| 1 | Geodesign | ICAR/20 | B | 6 | 60 |
| 1 | Integrated Course: Strategic Environmental Planning - Module: Environmental Planning  | ICAR/20 | B | 6 | 60 |
| 2 | - Module: Strategic planning  | ICAR/20 | B | 6 | 60 |
| 2 | Integrated Course: Planning Energy System - Module: Sustainable Urban and Territorial Planning | ICAR/20 | B | 6 | 60 |
| 2 | - Module: Territorial Energy Systems: Analysis and Design | ING-IND/11 | C | 6 | 60 |

Additional credits to be acquired

| Sem | Activity | SSD* | TAF* | Credits | h |
|-----|------------------------------------|------|------|---------|---|
| | Elective activities ¹ | | D | 12 | |
| | English Language Test ² | | F | 3 | |
| | Final Examination | | E | 15 | |

TOTAL CREDITS 120

(1) The elective activities must be consistent with the personal educational plan and they need approval by the Degree Programme Board



- (2) The credits of European language level can be acquired:
- passing the English language test at B2 European level (CEFR) at Centro Linguistico d'Ateneo,
 - showing appropriate certification of B2 European level (CEFR) knowledge.
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The Study Programme includes also the following laboratories which can be chosen by students to satisfy part of the credits of own free choice:

| Sem | Laboratory | SSD* | TAF* | Credits | h |
|-----|---|------------|------|---------|----|
| 2 | Environmental Geophysics Lab | GEO/11 | | 3 | 30 |
| 2 | Laboratory of Safety and Project Management at Construction Sites | ING-IND/28 | | 3 | 25 |
| 2 | Sanitary and Environmental Engineering Laboratory | ICAR/03 | | 2 | 25 |
| 2 | Workshop of Regional Planning | ICAR/20 | | 3 | 45 |

Other optional activities can be communicated on course web site.

***Abbreviations**

| | |
|-----|--------------------------------|
| SSD | Scientific Disciplinary Sector |
| TAF | Type of Educational Activity |