

## MASTER OF SCIENCE “CIVIL ENGINEERING”

### STUDY PROGRAMME OBJECTIVES

The Master of Science in “Civil Engineering” aims to prepare the student to become proficient in acting as a professional in solving all the tasks that may arise during the exercise of his activity as an Executive Engineer, Designer, in structures, objects, works and scientific-technical problems of a high level of difficulty, i.e. as a Supervisor, Researcher or Lecturer-Spreader of knowledge in this field, etc. in all possible positions offered, in constant collaboration with other colleagues or collaborators.

This study programme aims to achieve that, at the end, the student has the ability to plan, organize, supervise and coordinate the actors and elements needed in the construction process such as developers, subcontractors, consultants, designers, implementers, finances, materials, etc. to be able to take the relevant role from the first stages or, further, in the coordination of all construction and implementation processes until the relevant conclusions and the correct follow-up of their implementation.

### LEARNING OUTCOMES

At the end of this study programme, students will be professionally trained as Civil Engineers gaining knowledge and competencies up to advanced, as follows:

- On Construction and the Construction Industry.
- On the materials used in the realization of structures, objects and works of civil engineering.
- On the different technologies and the ways of operation of each of them.
- To identify and solve various problems encountered during concrete work in construction and implementation of structures, facilities or works.
- To identify factors and impact that have on the process construction processes or cycles.
- On various research methods and their concrete application in the realization of Scientific Research in the field of civil engineering.
- Advanced knowledge on various computer programs used in the field of civil engineering.
- For maximum elimination of factors with negative impact on the environment construction processes or cycles.
- To be an active part in the design studio or construction site, taking over and realized:
  - Decomposition of construction projects, in its various phases.
  - Detailed extraction of the necessary materials, type, quantity and relevant characteristics for each of them, in the full realization of the work in progress.
  - Drafting and following the "Calendar Plan" of the development of works in the relevant construction site or facility.
  - Compilation and maintenance of the "Booklet of works" in accordance with the requirements of the project and the reality of implementation of works on site, etc.
  - Detailed extraction of the necessary materials, type, quantity and relevant characteristics for each of them, in the full realization of the work in design.
  - Processing of construction projects, in its various phases.
  - Drafting the "Prevention of works" and monitoring the development of works in accordance with it.
  - Realization of Scientific Research and related works in the field of civil engineering.

- Giving and developing relevant lectures or seminars in various subjects of the field, etc.

## CURRICULUM

MASTER OF SCIENCE "CIVIL ENGINEERING" 120 ECTS				
No	Year	Sem	Course Name	ECTS
<b>A - GENERAL COURSES / 10% /12 ECTS</b>				
1	I	1	Advanced Research Methods	6
2	I	1	Advanced applications of technical physics	6
				<b>12</b>
<b>B – SPECIALIZATION COURSES/ 50%-60%/60 ECTS</b>				
1	I	1	Advanced Structural Analysis 1	6
2	I	2	Advanced Structural Analysis 2	6
3	I	2	Rock and soil mechanics	6
4	I	1	Special Reinforced Concrete Structures	6
5	I	2	Reinforced Concrete and Steel Structures	8
6	II	1	Foundation Engineering	6
7	II	1	Applied Geology	6
8	I	2	Structure dynamics and seismic engineering	6
9	I	1	Bridges and Tunnels	5
10	II	1	Urban Design 1	5
				<b>60</b>
<b>C - INTERDISCIPLINARY/ INTEGRATIVE COURSES/ 12%-20% / 18 ECTS</b>				
<b>PROFILE:</b>		<b>TRANSPORT INFRASTRUCTURE</b>		
1	II	1	Topography and Cartography	6
3	II	2	Restoration and Reinforcement of Structures	6
3	I	2	Road, Rail and Airport floors	6
				<b>18</b>
<b>D - ADDITIONAL COURSES / 10% / 12 ECTS</b>				
1	II	2	Professional Internship	<b>12</b>
<b>E - FINAL OBLIGATIONS /10%-15% / 12-18 ECTS</b>				
1	II	1-2	Diploma Thesis	<b>18</b>
			<b>Total</b>	<b>120</b>