

Faculty of Environmental, Geomatic and Energy Engineering

Field of study: **Environmental Engineering**

First-cycle full-time programme

passed by: **the Council of the Faculty of Environmental, Geomatic and Energy Engineering**

l – lectures, c – classes, p – project work, lab – laboratory classes/language course, E – examination

Field Modules; [Core Modules](#); [Socio-Economic Sciences and Humanities \(SSH\)](#)

Semester 1

Module Code	Module title	Σ	l	c	lab	p	ECTS credits
	Mathematics 1	45	1E	2	-	-	4
	Mathematics 2	45	1E	2	-	-	4
	Chemistry	60	2E	1	1	-	5
	Environmental Protection	30	2	-	-	-	2
	Technical Drawing and Descriptive Geometry	30	1	-	1	-	2
	Surveying and Photogrammetry	30	1	-	1	-	2
	Biology and Ecology	60	2E	-	2	-	5
	Fundamentals of Computer Science	30	1	-	1	-	3
	SSH (elective module)	45	3	-	-	-	3
	Student Savoir-Vivre	5	5h	-	-	-	pass/fail
	Total	375+5	14+5	5	6	-	30
		380/25(+5g)					

Semester 2

Module Code	Module title	Σ	l	c	lab	p	ECTS credits
	Mathematics 3	30	1E	1	-	-	4
	Mechanics and Strength of Materials 1	30	1	1	-	-	3
	Principles of Computer-Aided Design 1	45	-	-	3	-	3
	Physics	60	2E	1	1	-	5
	Meteorology, Climatology and Air Protection	45	2E	-	-	1	4
	Materials Science	30	1	-	1	-	2
	Hydrogeology 1	30	1	-	-	1	3
	Fluid Mechanics	45	2	-	1	-	3
	Hydraulics 1	15	1	-	-	-	1
	Principles of Standardisation	8	8	-	-	-	pass/fail
	Foreign Language 1	30	-	-	2	-	1
	Electrical Engineering	15	-	-	1	-	1
	Protection of Intellectual Property	4h	4h	-	-	-	pass/fail
	Total	375+4+8 hours	11+4+8 hours	3	9	2	30
		387/25 (12g)					

	Elective Modules: Socio-Economic Sciences and Humanities (SSH) / general academic modules	I	ECTS credits
	Occupational Safety and Ergonomics	1	1
	Protection of Intellectual Property	1	1
	History of Philosophy	1	1
	Fundamentals of Economics	1	1
	Ethics	1	1
	History of European Civilisation	1	1
	Student Savoir-Vivre *	1	1
	History of Music *	1	1
	Science of Musical Instruments *	1	1

Semester 3

Module Code	Module title	Σ	I	c	lab	p	ECTS credits
	Mechanics and Strength of Materials 2	45	1E	1	-	1	4
	Hydraulics 2	45	1	-	1	1	3
	Civil Engineering: Engineering Structures	60	2E	-	-	2	5
	Soil Mechanics	30	1	-	-	1	2
	Sanitary Chemistry	60	2E	-	2	-	5
	Engineering Thermodynamics	45	2E	1	-	-	5
	Water Supply Pipelines 1	45	1	1	-	1	3
	Principles of Computer-Aided Design 2	15	-	-	1	-	1
	Field Elective	15	1	-	-	-	1
	Foreign Language 2	30	-	-	2	-	1
	Physical Education *	30	-	-	2	-	1
	Total	420	11	3	8	6	30/31*
					420/28		

* ECTS credits for Physical Education classes exceed the minimum number of credits required in order to obtain the diploma

	Field electives (sem.3)	I	ECTS credits
	Unit Processes for Environmental Engineering	1	1
	Renewable Power Engineering	1	1
	Environmental Resources Management (ERM)	1	1

Semester 4

Module Code	Module title	Σ	I	c	lab	p	ECTS credits
	Hydrology	45	1E	1	-	1	4
	Water Treatment 1	60	2	1	1	-	4
	Geotechnics	60	2E	-	1	1	5
	Trenchless Technologies	30	1E	-	1	-	3
	Water Supply Pipelines 2	45	1E	-	-	2	5
	Sewage Pipelines 1	45	2	-	-	1	3
	Heat-Flow Surveying	30	1	-	1	-	2

	<i>Hydrogeology 2</i>	30	1	-	-	1	2	
	Field Elective	15	1	-	-	-	1	
	Foreign Language 3	30	-	-	2	-	1	
	Physical Education *	30	-	-	2	-	1	
	Total	420	12	2	8	6	30/31*	
		420/28						

* ECTS credits for Physical Education classes exceed the minimum number of credits required in order to obtain the diploma

	Field electives (sem.4)	I	ECTS credits
	Urban Underground Infrastructure (UUI)	1	1
	<i>Technology and Organisation of Installation Works</i>	1	1

Specialism: **Sanitary Pipelines and Systems**

Semester 5

Module Code	Module title	Σ	I	c	lab	p	ECTS credits	
	Water Treatment 2 * / <i>Surface and Ground Water Intake*</i>	60	2E	-	-	2	4	
	Wastewater Treatment 1	60	2	1	1	-	4	
	Sanitary Systems	60	2E	1	-	1	4	
	Sewage Pipelines 2 * / <i>Sewage Systems*</i>	45	1E	-	-	2	4	
	Hydro Engineering	45	2	1	-	-	3	
	Heating	45	1E	1	-	1	4	
	Specialism Elective	15	1	-	-	-	1	
	Field Elective conducted in English	15	1		-	-	3	
	Foreign Language 4	30	-	-	2E	-	2	
	<i>Physical Education**</i>	-	-	-	-	-	-	
	<i>Protection of Intellectual Property</i>	15	1	-	-	-	1	
	Total	390	13	4	3	6	30	
		390/26						

* options to be selected

	Specialism Electives (sem.5) Specialism: Sanitary Pipelines and Systems	I	ECTS credits
	Building Physics 1	1	1
	Drainage Systems	1	1
	Pressurised and Vacuum Sewage Pipelines	1	1

	Field electives conducted in English (sem.5)	I	ECTS credits
	Renewable Energy	1	3
	Modern Plastic Pipelines	1	3
	Soil Science & Soil Engineering	1	3

Semester 6

Module Code	Module title	Σ	l	c	lab	p	ECTS credits	
	Wastewater Treatment * / <i>Stormwater Treatment *</i>	45	1E	-	-	2	4	
	Solid Waste Disposal and Treatment	60	2E	-	-	2	5	
	Water and Wastewater Management in Industries * / <i>Water and Wastewater Models for Urban Agglomerations *</i>	45	2E	-	-	1	4	
	Ventilation and Air-Conditioning	45	1E	-	-	2	4	
	Building Law, Water Law and Environmental Protection Law	30	2	-	-	-	2	
	Cost Estimation	30	1	-	-	1	2	
	Gas Supply Systems * / <i>Gas Supply Networks and Systems *</i>	30	1	-	-	1	3	
	Specialism Electives	45	3	-	-	-	3	
	Field Elective conducted in English	15	1*	-	1*	-	3	
	<i>Student Savoir-Vivre</i>	15	1	-	-	-	<i>pass/fail</i>	
	Total	360	15	-	-	9	30	
		360/24						

* options to be selected

	Specialism Electives (sem.6) Specialism: Sanitary Pipelines and Systems	l	ECTS credits
	Sanitary Systems 2	1	1
	Non-Standard Sewage Systems	1	1
	Non-Standard Heating Systems	1	1
	Polymers in Environmental Engineering	1	1
	Combined Sewage Systems	1	1
	Central Heating and Ventilation Systems	1	1

	Field electives conducted in English (sem.6)	l/lab	ECTS credits
	Applications of Trenchless Techniques	1	3
	Engineering Thermodynamics	1	3
	Structural Materials in Environmental Engineering	1	3
	Applied Hydrology	1	3
	Renewable Energy (lab)	1	3

Semester 7

Module Code	Module title	Σ	l	c	lab	p	ECTS credits
	Sewage Sludge Management * / <i>Biomass Treatment Technologies *</i>	30	1	-	-	1	3
	Specialism Electives	60	4	-	-	-	4
	<i>BSc Seminar</i>	<i>30</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>2</i>	<i>4</i>
	<i>BSc Thesis</i>	<i>180</i>				<i>180</i>	<i>15</i>

	4-week Internship	-	-	-	-	-	4
	Total	120+ 180	5	-	-	3 180h	30
		300/8 +180h					

* options to be selected

	Specialism Electives (sem.7) Specialism: Sanitary Pipelines and Systems	I	ECTS credits
	Maintenance (MRO) of Water Supply and Sewage Pipelines	2	2
	Modern Water Supply and Wastewater Engineering	1	1
	Heating and Ventilation Modules	1	1
	Refrigeration and Air-Conditioning (RAC) Modules	1	1
	Sanitary Facilities	1	1
	Heat Management	1	1
	Fans and Compressors	1	1

Specialism: **Water Supply, Treatment of Wastewater and Solid Waste**

Semester 5

Module Code	Module title	Σ	I	c	lab	p	ECTS credits
	Water Treatment 2 */ <i>Surface and Ground Water Intake *</i>	60	2E	-	-	2	5
	Wastewater Treatment 1	60	2	1	1	-	4
	Sanitary Systems	60	2E	1	-	1	4
	Sewage Pipelines 2 */ <i>Sewage Systems*</i>	45	1E	-	-	2	4
	Hydro Engineering	45	2	1	-	-	3
	Heating	45	1E	1	-	1	4
	Specialism Elective	15	1	-	-	-	1
	Field Elective conducted in English	15	1				3
	Foreign Language 4	30	-	-	2E	-	2
	Physical Education	-	-	-	-	-	-
	<i>Protection of Intellectual Property</i>	<i>15</i>	<i>1</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>1</i>
	Total	390	13	4	3	6	30
		390/26					

* options to be selected

	Specialism Electives (sem.5) Specialism: Water Supply, Treatment of Wastewater and Solid Waste	I	ECTS credits
	Fans and Compressors	1	1
	Water and Soil Remediation	1	1
	Drainage Systems	1	1

	Field electives conducted in English (sem.5)	I	ECTS credits
	Renewable Energy	1	3

	Modern Plastic Pipelines	1	3
	Soil Science & Soil Engineering	1	3

Semester 6

Module Code	Module title	Σ	l	c	lab	p	ECTS credits
	Wastewater Treatment */ <i>Stormwater Treatment *</i>	45	1E	-	-	2	4
	Solid Waste Disposal and Treatment	60	2E	-	-	2	5
	Water and Wastewater Management in Industries */ <i>Water and Wastewater Models for Urban Agglomerations *</i>	45	2E	-	-	1	4
	Ventilation and Air-Conditioning	45	1E	-	-	2	4
	Building Law, Water Law and Environmental Protection Law	30	2	-	-	-	2
	Cost Estimation	30	1	-	-	1	2
	Gas Supply Systems */ <i>Gas Supply Networks and Systems*</i>	30	1	-	-	1	3
	Specialism Electives	45	3	-	-	-	3
	Field Electives conducted in English	15	1*	-	1*	-	3
	<i>Student Savoir-Vivre</i>	15	1	-	-	-	pass/fail
	Total	360	15		-	9	30
			360/24				

* options to be selected

	Specialism Electives (sem.6) Specialism: Water Supply, Treatment of Wastewater and Solid Waste	l	ECTS credits
	Instrumental Methods of Analysis	1	1
	Environmental Monitoring	1	1
	Specifications for Performance and Practical Completion Inspection of Technical Facilities and Devices	2	1
	Surface Water Intakes	1	1
	BAT (Best Available Technology) Standards	1	1
	Waste Management Planning in Various Commune Types	1	1

	Field electives conducted in English (sem.6)	l/lab	ECTS credits
	Applications of Trenchless Techniques	1	3
	Engineering Thermodynamics	1	3
	Structural Materials in Environmental Engineering	1	3
	Applied Hydrology	1	3
	Renewable Energy (lab)	1	3

Semester 7

Module Code	Module title	∑	l	c	lab	p	ECTS credits	
	Sewage Sludge Management * / <i>Biomass Treatment Technologies *</i>	30	1	-	-	1	3	
	Specialism Electives	60	4	-	-	-	4	
	BSc Seminar	30	-	-	-	2	4	
	BSc Thesis	180					15	
	4-week Internship		-	-	-	-	4	
	Total	120 +180	5	-	-	3 180h	30	
		300/8+180h						

	Specialism Electives (sem.7) Specialism: Water Supply, Treatment of Wastewater and Solid Waste	l	ECTS credits
	Industrial Waste Management	1	1
	Maintenance (MRO) of Water Treatment Stations and Wastewater Treatment Plants	2	2
	Maintenance (MRO) of Water Supply and Sewage Systems	2	2
	Aquatic Legal Survey	1	1
	Modelling of Unit Processes	2	2

Summary Chart

Modules	Number of hours				
	Total	l	c	lab	p
Core					
Field					
Information Technologies	30	15		15	
Foreign language	120			120	
Socio-Economic Sciences and Humanities (SSH)	75	75			
Physical Education	60			60	
Grand total	2477+180	1232	255	510	660
	2657	1231		1425	

Number of hours – 2657 (incl. classes, laboratory classes, project work – 53,63%)