jOiNEd For sUsTainability - bUilding climate REsilient communities in WB and EU

Presentation of climate and sustainability practices at UPT

Identifying gaps between climate and sustainability action in EU and the Balkan

Date: 15 July 2023
Place: Lund, Sweden

Co-funded by the European Union

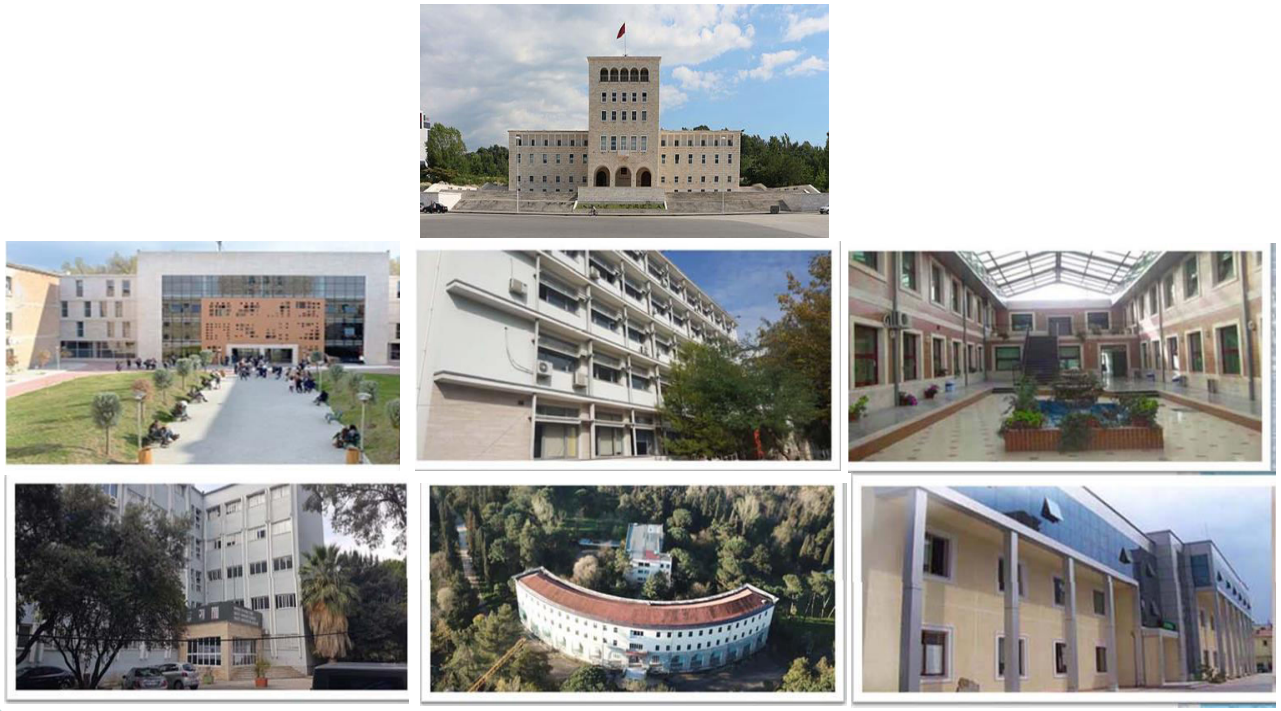
Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or EACEA. Neither the European Union nor the granting authority can be held responsible for them."

The Mission of the Polytechnic University of Tirana

- To create, transmit, develop and protect knowledge (through teaching, scientific research and services).
- To provide lifelong learning opportunities as part of the continuous professional development.
- To help economic development at the national and regional level.
- To contribute to the increase in the standards of democracy, civilization of society and educate young people for such a society.

Co-funded by the European Union

THE FACULTIES AT THE POLYTECHNIC UNIVERSITY OF TIRANA



1. Faculty of Information Technology;
2. Faculty of Electrical Engineering;
3. Faculty of Mechanical Engineering;
4. Faculty of Civil Engineering;
5. Faculty of Architecture and Urbanism;
6. Faculty of Mathematical Engineering and Physics Engineering;
7. Faculty of Geology and Mining;
8. Institute of Geo-sciences

Co-funded by the European Union

CLIMATE AND SUSTAINABILITY PRACTICES AT FACULTY OF CIVIL ENGINEERING

Masters:

Master of Science in Civil Engineering
Structurist Profile
Infrastructure and Transport Profile
Geotechnics Profile

Master of Science in Hydro-technics Engineering

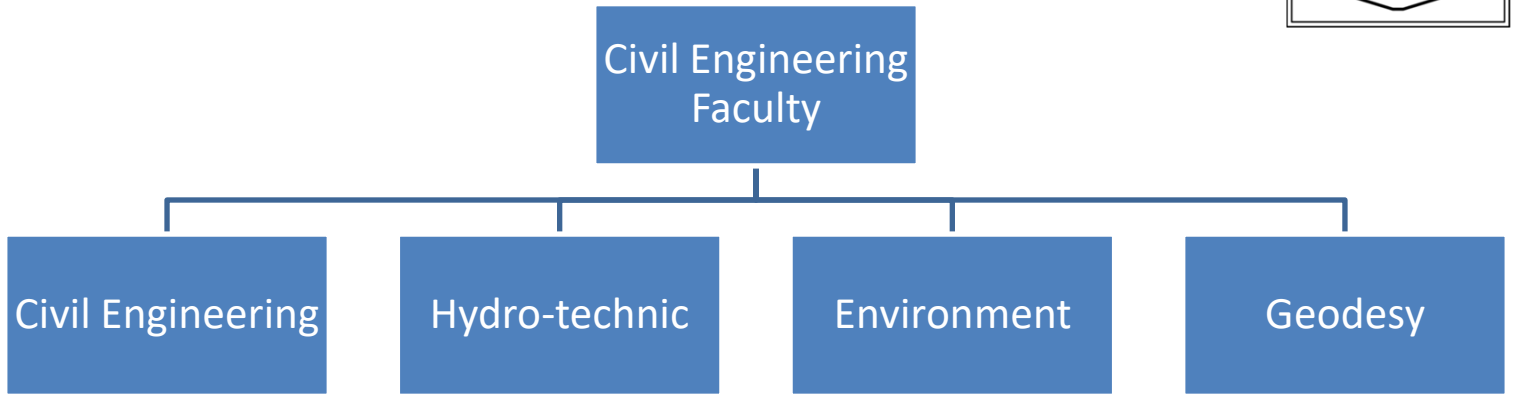
Master of Science in Environmental Engineering
Water Treatment Profile
Energy Profile

Master of Science in Geodesy

Dual Diploma in Civil Engineering in partnership with Ecole Spéciale des Travaux Publics, Paris

- **PhD in:**

PhD in Construction Engineering profile Environmental Engineering
PhD in Geodesy Engineering profile



No Programs	**1**	**1**	**1**	**1**
Bachelor	No	Yes	Yes	No
No Programs	**3**	**1**	**2**	**1**
Master	No	Yes	Yes	No
No Programs			**1**	**1**
Doctorate			Yes	No

No of Programs	**13**
Climate Change and Sustainability practices	6
% of programs	**46%**

Co-funded by the European Union

CLIMATE AND SUSTAINABILITY PRACTICES AT FACULTY OF MECHANICAL ENGINEERING

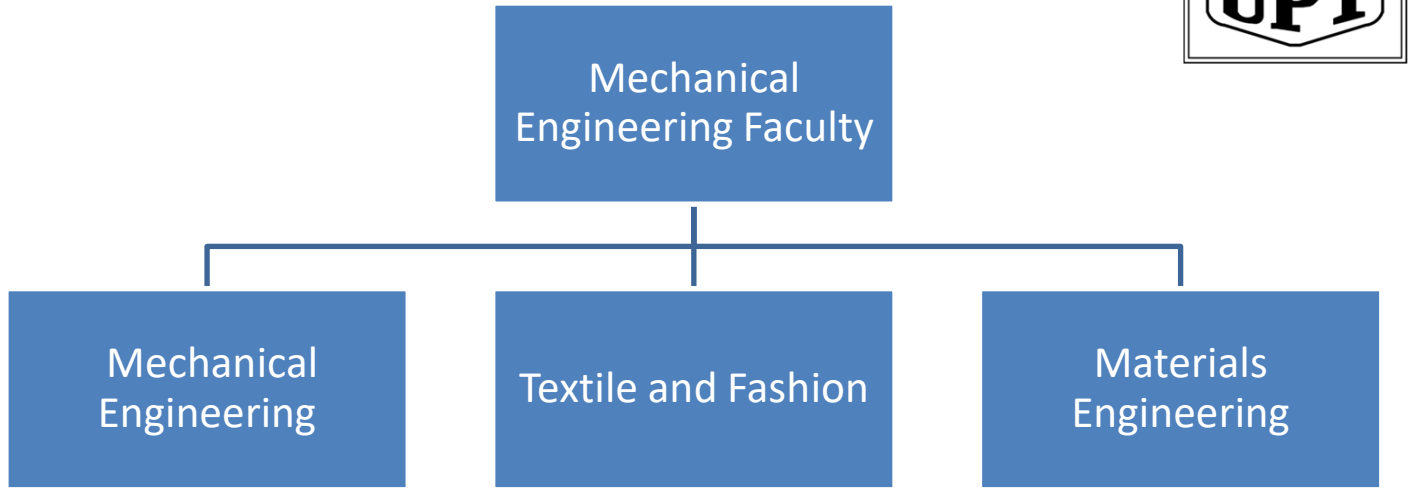
Diplomas
Bachelor in Mechanical Engineering
Bachelorin Textile and Fashion Engineering
Bachelorin Materials Engineering

Master of Science in Mechanical Engineering
Energy Profile
Machine Construction and Movable Vehicles Profile
Industrial Production and Management Profile

Master of Science in Textile and Fashion Engineering

Master of Science in Materials Engineering
Materials Profile
Metallurgy and Foundry Profile

PhD in:
PhD in Mechanical Engineering profile



No Programs	**1**	**1**	**1**
Bachelor	**Yes**	**No**	**No**
No Programs	**2+1**	**1**	**2**
Master	No+ **Yes**	**No**	**No**
No Programs	**1**		
Doctorate	**Yes**		

No of Programs	**10**
Climate Change and Sustainability practices	3
% of programs	**30%**

Co-funded by the European Union

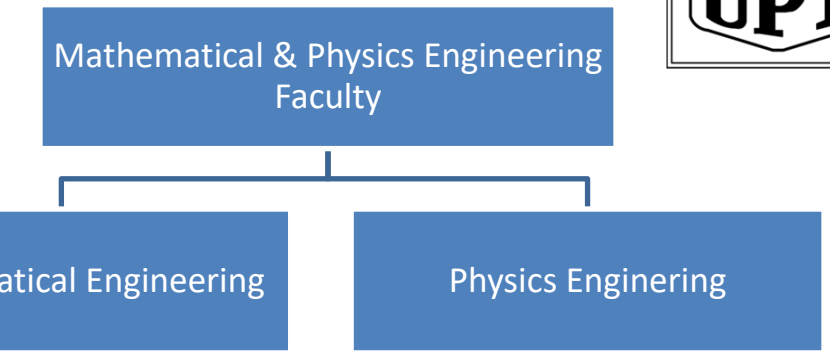
CLIMATE AND SUSTAINABILITY PRACTICES AT FACULTY OF MATHEMATICAL & PHYSICS ENGINEERING

BACHELOR:
1. In Physical Engineering;
2. In Mathematical Engineering;

MASTER OF SCIENCE:
1. In Mathematical Engineering;
2. In Physical Engineering, Medical Physicist profile;
3. In Physical Engineering, Physical Engineer profile.

PROFESSIONAL MASTER:
1. In Systems Analysis;
2. In Mathematical Engineering, Actuarial profile.
3. In Physical Engineering;

PhD:
- In Mathematical Engineering, with the Direction of System Analysis,
- Physical Engineering, with the Direction of Medicine.



No Programs	1	1
Bachelor	No	Yes
No Programs	1	1+1
Master	No	No + Yes
No Programs	2	1
Professional Master	No	Yes
No Programs	1	1
Doctorate	Yes	Yes

No of Programs	10
Climate Change and Sustainability practices	5
% of programs	50%

Co-funded by the European Union

CLIMATE AND SUSTAINABILITY PRACTICES AT FACULTY OF ARCHITECTURE & URBANISM

Diplomas:

BACHELOR:
1. In Interior Architecture and Design.

MASTER OF SCIENCE:
1. In Architecture, Architect profile;
2. In Architecture, Urbanist profile;

PROFESSIONAL MASTER:
1. In the Restoration of Cultural Monuments.

PhD:
1. In Architecture – Urbanism.

Architecture & Urbanism Faculty

Interior & Architecture Design

No Programs	**1**
Bachelor	**No**
No Programs	**2**
Master	**Yes**
No Programs	**1**
Professional Master	**No**
No Programs	**1**
Doctorate	**Yes**

No of Programs	**5**
Climate Change and Sustainability practices	3
% of programs	**60%**

Co-funded by the European Union

CLIMATE AND SUSTAINABILITY PRACTICES AT FACULTY OF INFORMATION TECHNOLOGY

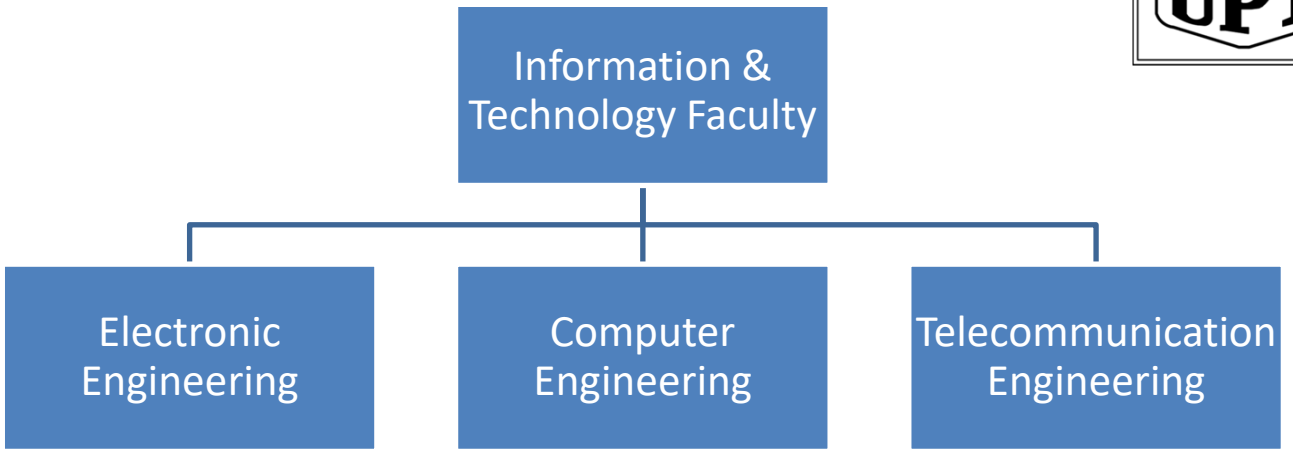
Diplomas:

BACHELOR:
1. Electronic Engineering;
2. Computer Engineering;
3. Telecommunication Engineering.

MASTER OF SCIENCE:
1. Electronic Engineering;
2. Computer Engineering;
3. Telecommunication Engineering.

PROFESSIONAL MASTER:
1. Computer Engineering;
2. Information Technology.

PhD in:
1. PhD in Computer Engineering;
2. PhD in Telecommunication and Information Engineering.



No Programs	**1**	**1**	**1**
Bachelor	**No**	**No**	**No**
No Programs	**1**	**1**	**1**
Master	**No**	**No**	**No**
No Programs		**1**	**1**
Professional Master		**No**	**No**
No Programs		**1**	**1**
Doctorate		**No**	**No**

No of Programs	**10**
Climate Change and Sustainability practices	0
% of programs	**0%**

Co-funded by the European Union

CLIMATE AND SUSTAINABILITY PRACTICES AT FACULTY OF GEOLOGY & MINING

Diplomas:

BACHELOR:

- In Geo-environmental Engineering;
- In Geoinformatics Engineering;
- In Mineral Resources Engineering;
- In Petroleum and Gas Engineering;
- In Geological Engineering.

Master of Science:

- In Mineral Resources Engineering, Mining and Surveying Engineering profile;
- In Mineral Resources Engineering, Mineral Enrichment and Waste Recycling Engineering profile;
- In Oil and Gas/Petroleum Engineering;
- In Geology Engineering, Geoinformatics profile;
- In Geology Engineering, Engineering Geology and Hydrogeology profile;
- In Geology Engineering, Ore Deposits and Petrology profile;
- In Geology Engineering, Hydrocarbon Fields Geology profile;
- In Geoenvironmental Engineering;

PROFESSIONAL MASTER:

- In Mineral Resources Engineering, Mining Engineering profile;
- In Mineral Resources Engineering, Geomatics profile;
- In Mineral Resources Engineering, Mineral Enrichment and Waste Recycling Engineering profile;
- In Oil and Gas/Petroleum Engineering;
- In Geology Engineering, Geoinformatics Engineering profile;
- In Geology Engineering, Engineering Geology and Hydrogeology profile;
- In Geology Engineering, Hydrocarbon Fields Geology profile;
- In Geology Engineering, Ore Deposits and Petrology profile;
- In Geoenvironmental Engineering.

PhD:

- In Geo-sciences, Resources and Environment.

Geology & Mining Faculty

	Geo-environmental Engineering	Geoinformatics Engineering	Mineral Resource Engineering	Petroleum and Gas Engineering	Geological Engineering
No Programs	**1**	**1**	**1**	**1**	**1**
Bachelor					
No Programs	**1**	**1**	**2**	**1**	**3**
Master					
No Programs	**1**	**1**	**3**	**1**	**3**
Profess. Master					
No Programs			**1**		
Doctorate					

No of Programs	**23**
Climate Change and Sustainability practices	0
% of programs	**0%**

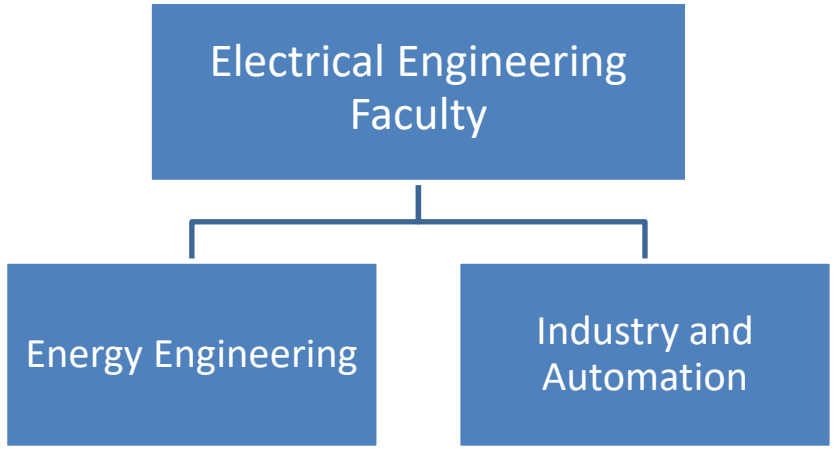
Co-funded by the European Union

CLIMATE AND SUSTAINABILITY PRACTICES AT FACULTY OF ELECTRICAL ENGINEERING

Diplomas
Bachelor degree in Electrical Engineering
•Energy Profile
•Industry Automation Profile

Master of Science (MSc)
•Energy Profile
•Industry Automation Profile

PhD in:
•PHD in Electro - energy profile
•PHD in Electrotechnics profile
•PhD in Industry Automation profile



No Programs	**1**	**1**
Bachelor	**No**	**No**
No Programs	**1**	**1**
Master	**No**	**No**
No Programs	**2**	**1**
Doctorate	**No**	**No**

No of Programs	**7**
Climate Change and Sustainability practices	0
% of programs	**0%**

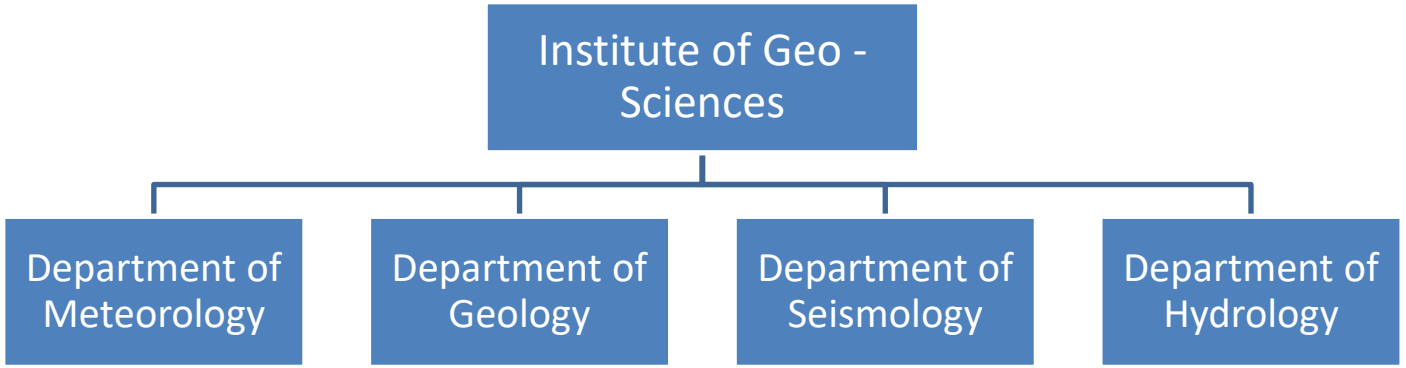
Co-funded by the European Union

CLIMATE AND SUSTAINABILITY PRACTICES AT INSTITUTE OF GEO - SCIENCES

The Institute of Geo-Sciences, Energy, Water and Environment is a national research unit that operates under the umbrella of the Polytechnic University of Tirana. From the organizational viewpoint it is designed in seven main departments, each of them containing up to three research units.

These departments are:

1.Department of Meteorology;
2.Department of Geology;
3.Department of Seismology;
4.Department of Hydrology.

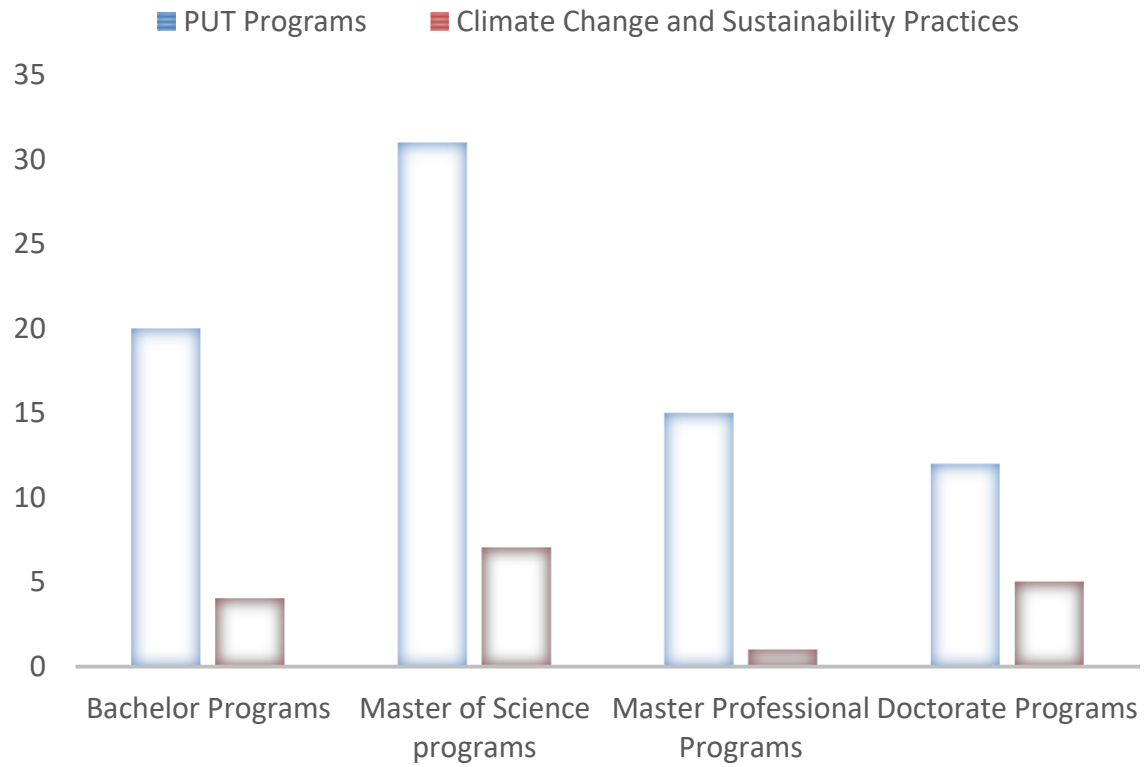


All the Departments of the Geo-Science Institute are dealing with different projects and subjects that have to do with climate change and sustainability practices

Co-funded by the European Union

Climate Change and Sustainability practices in Polytechnical University Study Programs

No of Bachelor Programs	**20**	**20%**
Climate Change and Sustainability Practices	**4**	
No of Master of Science Programs	**31**	**23%**
Climate Change and Sustainability Practices	**7**	
No Professional Master Programs	**15**	**6%**
Climate Change and Sustainability Practices	**1**	
No Doctorate Programs	**12**	**42%**
Climate Change and Sustainability Practices	**5**	



Co-funded by the European Union

Proposed methodology to evaluate Climate Change and Sustainability practices in Polytechnical University Study Programs

Goal 6 Clean Water and Sanitation

Goal 7 Affordable and Clean energy

Goal 8 Decent Work and Economic Growth

Goal 9 Industry Innovation and Infrastructure

Goal 11 Sustainable Cities and Communities

Goal 12 Responsible Production and Consumption

Goal 13 Climate Action

Goal 14 Life Below Water

Goal 15 Life on Land

Co-funded by the European Union

Each subjects in a program to be checked against 181 targets

Goal 6 Clean Water and Sanitation	–	**8 targets**
Goal 7 Affordable and Clean energy	–	**5 targets**
Goal 8 Decent Work and Economic Growth	–	**12 targets**
Goal 9 Industry Innovation and Infrastructure	–	**8 targets**
Goal 11 Sustainable Cities and Communities	–	**10 targets**
Goal 12 Responsible Production and Consumption	–	**11 targets**
Goal 13 Climate Action	–	**5 targets**
Goal 14 Life Below Water	–	**10 targets**
Goal 15 Life on Land	–	**12 targets**

181 targets

Co-funded by the European Union

No	1st year of Bachelor in Environmental Engineering		
	Subjects	*ECTS credits*	Sustainability & Climate Change content in each subject
1	Geometry algebra	4.0	-
2	Mathematic analysis 1	4.0	-
3	General Physics 1	5.0	-
4	Chemistry	5.0	-
5	Descriptive Geometry - Technical drawing	6.0	-
6	Fundamentals of computer science	5.0	-
7	Construction Materials	5.0	-
8	Mathematic analysis 2	4.0	-
9	General Physics 2	5.0	-
10	Rational Mechanics	6.0	-
11	Foreign Language	3.0	-
12	Topography	5.0	-
13	CAD	3.0	-
First Year Total Credits:		***60***	0

Co-funded by the European Union

No	2nd year of Bachelor in Environmental Engineering		
	Subjects	*ECTS credits*	Sustainability & Climate Change content in each subject
1	Environmental economy	5.0	
2	Ecology	6.0	
3	Fluid mechanics on environment I	5.0	-
4	Environmental thermodynamic I	5.0	-
5	Applied chemistry on environment I	6.0	-
6	Erosion	5.0	
7	Fluid mechanics on environment II	5.0	-
8	Environmental thermodynamic II	5.0	-
9	Applied chemistry on environment II	5.0	-
10	Heat transfer	6.0	
11	Construction science	6.0	-
Second Year Total Credits		***60***	7 SDCs

Decent Work and Economic Growth
Sustainable Cities and Communities
Responsible Production & Consumption

Climate Action
Life Below Water
Life on Land

Climate Action
Life on Land

Affordable and Clean Energy

Co-funded by the European Union

No	3rd year of Bachelor in Environmental Engineering		
	Subjects	*ECTS credits*	Sustainability & Climate Change content in each subject
1	Environmental Legislation	3.0	
2	Environmental physics and chemistry	6.0	
3	Water pollution and urban wastewater treatment	6.0	
4	EIA and environmental management	6.0	
5	Urban solid waste management	5.0	
6	Air pollution	6.0	

Co-funded by the European Union

No	3rd year of Bachelor in Environmental Engineering		
	Subjects	*ECTS credits*	Sustainability & Climate Change content in each subject
7	Thermals and hydraulics machinery	5.0	-
8	Urban planning	5.0	
9	Heating Ventilation and Air Conditioning	5.0	
10	Engineering geology	4.0	-
11	Optional Subjects 1: Soil pollution and its remediation Optional Subjects 2: Electrotechnics Note Each optional subject has 3 credits and the student must choose one subjects.	3.0	
12	Bachelor Thesis	6.0	
Third Year Total Credits: 60		***60***	7 SDGs

Co-funded by the European Union

No	1st year of Master of Sciences in Environmental Engineering, Profile "Water Treatment"		
	Subjects	***ECTS credits***	
1	Builiding Structure Knowledge	3.0	-
2	Watersheds Management	5.0	
3	Environmental Geotechnical	5.0	
4	Dynamics of Underground Waters	5.0	
5	Hydro Energy Dissipation Works	5.0	-
6	Water Biology	6.0	
7	Water Treatment Processes	5.0	
8	Water Pollutants Metrology	6.0	-
9	Water Supply and Sewege Systems	5.0	
10	Fundamental Operations of Water Clarification	5.0	
11	Coastal Protection Works	5.0	
12	Waste Treatment Technologies	5.0	
First Year Total Credits:		***60***	7 SDGs

Co-funded by the European Union

No	2nd year of Master of Sciences in Environmental Engineering, Profile "Water Treatment"		
	Subjects	***ECTS credits***	
1	Statistics of Hydrology	5.0	
2	Urban Waste Water Treatment	5.0	
3	Industrial Waste Water Treatment	5.0	
4	Water Treatment Specific Processes	5.0	
5	GIS - Environmental Maps	4.0	
6	Optional Subjects 1: SeA and Environmental Permission Optional Subjects 2: Communication techniques and Scientific research methods Optional Subjects 3: Civil protection Note Each optional subject has 3 credits and the student must choose two subjects.	6.0	 
7	Internship	12.0	
8	Master Thesis	18.0	
Second Year Total Credits:		***60***	**7 SDGs**

Co-funded by the European Union

No	1st year of Master of Sciences in Environmental Engineering Profile "Energy"		
	Subjects	***ECTS credits***	
1	Energy Balance and Modelling	5.0	
2	Climatology	3.0	
3	Environmental Geotechnics	5.0	
4	Hydro Energy Dissipation Works	5.0	-
5	Metrology of Energy Pollution	5.0	
6	Cooling plants	5.0	 -
7	Builiding Structure Knowledge	3.0	-
8	Racional Use of Energy	5.0	
9	Thermal Simulation of the Building	5.0	
10	Heating and Air Ventilation	5.0	
11	Air Conditioning	5.0	
12	Environmental Risk Assessment	4.0	
13	Waste Treatement Technology	5.0	
First Year Total Credits:		***60***	7 SDGs

Co-funded by the European Union

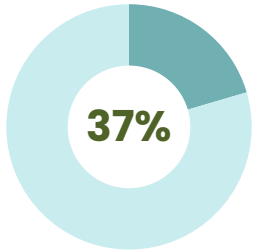
No	2nd year of Master of Sciences in Environmental Engineering Profile "Energy"		
	Subjects	***ECTS credits***	
1	Lighting protection	5.0	
2	Renewable Energy Sources	5.0	
3	Treatment of Pollution from Energy	5.0	
4	GIS - Environmental Maps	4.0	-
5	Noise protection	5.0	
6	Optional Subjects 1: Energy audit in buildings. Optional Subjects 2: Communication Techniques and Scientific Research Methods Optional Subjects 3: SEA and Environmental Permission Note: Each optional subject has 3 credits and the student must choose two subjects.	6.0	 
7	Internship	12.0	
8	Master Thesis	18.0	
Second Year Total Credits:		***60***	7 SDGs

Co-funded by the European Union

CONCLUSIONS
CLIMATE AND SUSTAINABILITY PRACTICES AT DEPARTMENT OF ENVIRONMENTAL ENGINEERING

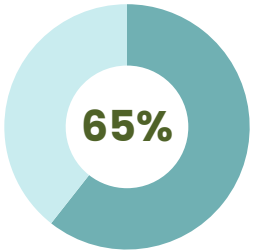
Bachelor Program

- 1st year: 13 subjects
- 2nd Year: 11 subjects /4 subjects (7 SDGs)
- 3rd Year: 11 subjects / 9 subjects (7 SDGs)



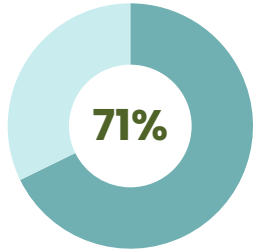
MSc "Water Treatment" Program

- 1st year: 12 subjects / 7 subjects (7 SDGs)
- 2nd year: 8 subjects / 6 subjects (7 SDGs)



MSc. "Energy" Program

- 1st year: 13 subjects / 9 subjects (7 SDGs)
- 2nd year: 8 subjects / 6 subjects (7 SDGs)



Co-funded by the European Union

Thank you for your attention

Contact info about the presenter:

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or EACEA. Neither the European Union nor the granting authority can be held responsible for them."

Co-funded by the European Union