

# ANNUAL REPORT

1 September 2018 – 31 July 2019



# Annual Report

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## **A. Organization & Management**

### **Introduction**

#### **General**

Civil Engineering covers a wide range of engineering applications from dams, tunnels, pipelines and highways to buildings. Civil Engineering is distinguished as being one of the earliest engineering disciplines. Throughout the ages it has provided creative and feasible solutions to many of the basic human needs and problems, and it still continues to take pride in being a fundamental building block of civilization

#### **Mission**

Understanding of the fundamentals of science and engineering so that they can develop solutions to Civil Engineering problems and enhance their computing, communication, and research skills. It is aimed to especially emphasize teamwork, independent and innovative thinking and leadership qualities. In particular, the Civil Engineering Program aims to:

- Train the students to have theoretical background in basic sciences and engineering and to be equipped with necessary technical skills,
- Develop students' competency in reading, writing and oral communication,
- Provide practical experience which will enable students to utilize and enhance their engineering knowledge,
- Promote students' self-discipline and self-assurance and the ability to learn on their own,
- Encourage team work, collaboration and development of interpersonal skills,
- Motivate the students towards contributing to the progress of science and technology,
- Teach the importance of ethical behavior in social and professional life,
- Produce graduates for the engineering and the business communities who are observant, inquisitive and open to new technologies for developing better solutions,
- Produce graduates for the engineering and business communities with integrity, determination, judgment, motivation, ability and education to assume a leadership role to meet the demanding challenges of the society.

## Study programs offered by the Department

### 1. The Bachelor

The Bachelor Program in Civil Engineering is composed of three years of full-time academic study.

The first year of the degree program presents a broad, practical overview of the field of civil engineering. During this first year, presentation of the course material is primarily delivered at a foundational level with engineering fundamentals stressed and reinforced across the curriculum. A strong understanding of practical and physical principles is fostered and promoted and an abundance of learning opportunities is provided to apply these fundamentals to the solution of real-world design scenarios that would be encountered by both technologists and engineers. Throughout the program, opportunities are presented to students to strengthen their graphical, written, and oral communication skills. A significant amount of time is directly related to hands-on training in material testing, surveying, manual and computer-aided drafting, and instruction in the use of engineering software tools.

The second and third year are mainly composed of basic engineering courses involving the study and application of the principles of geotechnical engineering (behavior of soils, design of foundations), structural engineering (analysis and design of reinforced concrete and steel structures), hydraulics engineering (flow of water in pipes, open channels, water resources), and the general systems approach to engineering problems. The final two years of the degree program are academically rigorous, with thorough investigation of the theoretical foundations of civil engineering science and design topics. At the same time, the practical application of civil engineering knowledge is presented and applied through course assignments and project work. Additionally, the student is challenged to view the engineer's role from an interdisciplinary and multidisciplinary perspective. The role of the engineer as a manager is also developed. In the final two years of the program, the student's educational experience is enriched through a series of liberal studies courses. To further develop engineering skills for professional practice, the degree concludes with the completion of a summer practice.

In the second semester of third year, students whose GPA is higher than 3.0 have the chance to choose between graduation project (Microthesis) or comprehensive exam. Students whose GPA is below 3.0 are obliged to enter the comprehensive exam.

## 2. Professional Master

The Professional Master of CE Program offers a year of advanced study for graduate students with previous professional degrees in civil engineering (or equivalent with a strong knowledge background). This Professional Master's degree program is an interdisciplinary program of study with a concentrated time for completion. The program is intended for qualified students who already have professional work experience. Students without professional experience after completion of the professional degree may be admitted, depending on the quality of their work. Students must demonstrate evidence of high-quality work and potential for development based on their grade-point average, letters of recommendation. Classes generally take place in the evenings (6.00 pm – 9.00 pm). The program's goals are to further train professionals in civil engineering who are able to work effectively in teams across a large range of scales and with a well-developed knowledge. The program offers a unique blend of courses in different areas. Students will share working methods, acquire additional skills, and explore new avenues of professional development under the supervision of an interdisciplinary group of faculty members in the Department of Civil Engineering at Epoka University.

### *Curriculum*

The Professional Master degree combines a core curriculum with the opportunity to take elective courses tailored to a student's particular areas of interest. These courses typically relate to the student's field of interest and are selected by the student in consultation with department advisor. To earn the Professional Master degree, students must complete one year in residence, 60 ECTS credits of coursework and the core curriculum.

### *Course Structure*

The program is taught in English. Therefore, Albanian and international applicants from countries in which the official language is not English are required to submit official evidence of English language proficiency.

## 3. Master of Science

Our practice-oriented Master of Science in Civil Engineering (MSc) program builds upon an undergraduate education and facilitates more advanced study in one of the branches of civil engineering. The program consists of 120 ECTS, and all graduate courses are offered in the late afternoon or evening.

### ***Mission Statement***

The Master of Science in Civil Engineering (MSc) program is intended to serve graduate students who have a Bachelor on Civil Engineering or closely-related undergraduate degree in order to strengthen their knowledge and understanding of civil engineering principles and practices. The program is primarily intended for students who currently are, or intend to become, practicing civil engineers, and thus focuses on the application of these principles and practices to real-world problems encountered by professional civil engineers.

Another purpose of the program is to facilitate applied research on relevant civil engineering topics. Such research should 1) serve societal needs by addressing contemporary issues, 2) contribute to the professional development of both students and faculty and 3) provide preparation for further academic study and research for those students who wish to pursue a Ph.D.

### ***Educational Objectives***

Graduates of the MSc program should have:

1. A knowledge of engineering principles sufficient to understand the bases and applicability of standard analysis, design, and implementation practices within their emphasis area.
2. The ability to conduct engineering analyses and to develop and implement designs and problem solutions that conform to applicable codes and standards of practice.
3. An understanding of the various technical and non-technical factors that impact the feasibility and implementation of civil engineering projects, including: technical feasibility, multi-party involvement, environmental assessment, financial/economic planning, owner/public works administration, owners' strategic plans, and socioeconomic/equity issues.
4. The foundation needed to develop engineering judgment via professional practice, and to effectively identify, consider, and account for multiple and competing objectives.
5. The technical knowledge and skills needed to pursue lifelong learning with the ability to independently extend personal knowledge and understanding of engineering topics and practices by conducting literature searches, consulting with others, and using other similar techniques.
6. Knowledge and skills necessary to pass specialty license examinations in their respective emphasis areas.

### *Curriculum*

The **Master of Science** in Civil Engineering offers to the students the possibility of specializing into four profiles such as: **Structural Engineering, Construction Management, Construction Materials** and **Water Resources Engineering**. It combines a core curriculum with the opportunity to take elective courses tailored to a student's particular areas of interest. These courses typically relate to the student's thesis topic and are selected by the student in consultation with department advisor. To earn the MSc degree, students must complete in total 120 ECTS credits from their coursework and a Master thesis.

#### *Curriculum:*

Structural Engineering

Construction Management

Construction Materials

Water Resources Engineering

#### *Course Structure*

The program is taught in English. Therefore, Albanian and international applicants from countries in which the official language is not English are required to submit official evidence of English language proficiency.

#### *Master Thesis*

Thesis topics are developed individually by the student in consultation with faculty advisor. To prepare for their thesis research and writing, students must complete a course that offers instruction in research methods and academic writing. Thesis committees consist of three members, usually faculty members of the Department of Civil Engineer at Epoka University. Students can also invite an outside reader to partake in the thesis committee.

A preliminary thesis proposal is prepared during the fall semester and presented to the department after the winter break. The thesis project is substantially developed during the spring semester in close collaboration with the academic advisor. The thesis is typically finalized during the summer and formally



presented to E/A faculty. (Although MSc students are strongly encouraged to complete their written thesis during the summer, students have the option of going on filing fee for an extra semester and finalizing their written thesis during the fall.)

#### **4. PhD (Doctorate)**

The objective of the doctoral study program is the advancement of analytical and/or experimental knowledge through a combination of specialized courses and a research thesis under the supervision of an experienced researcher forms the main component of the doctoral programs. Where possible, research of interest to industry is encouraged. CE-PhD Program in Civil Engineering is necessary for the formation of academicians in various fields of research in Civil Engineering. Program also gives opportunity to qualified students from various academic disciplines for further education at an advanced level in Civil Engineering. The PhD study program for full-time students lasts for a minimum of six semesters (three academic years), up to a maximum of eight semesters (four academic years) and for part-time students, it lasts for a minimum of six semesters (three academic years), up to a maximum of twelve semesters (six academic years). The first year is devoted to the core courses. Formal work on the dissertation begins in the second year; students are encouraged to get the start on their thesis by research and writing.

## **B. Resources**

### **Department Staff**

**Assoc Prof. Dr. Miriam Ndini.** She is an Associated Professor in the Department of Civil Engineering at Epoka University. Her research and teaching focuses on water, she is a hydrologist.

With a background in Civil Engineering- Hydraulics, she has been working as a researcher on the field of Hydrology. This work consists on estimation the water resources in the watershed, evaluating the flow parameters, measuring the data from the hydrologic network, elaboration and analysing them.

Actively she is involved in projects dealing with effects of climate changes on water resources and its impact on different sectors.

All through research, she is involved in teaching. From the year 2000 she is teaching on the courses as Fluid Mechanics; River Mechanics; Water Resources Engineering and Hydrology.

She is also the Head of Department of Civil Engineering.

**Assoc. Prof. Dr. Huseyin Bilgin** in the Civil Engineering Department at Epoka University, Tirana Albania. He is actively taking part in teaching, research and the practice of structural and earthquake engineering, with emphasis on the response, analysis and design of reinforced concrete and masonry structures.

He teaches the compulsory core courses Engineering Mechanics and Mechanics of Materials for second-year students and, he is the coordinator of the elective courses Introduction to Structural Dynamics, Supervised Independent Study and Research and Introduction to Earthquake Resistant Design in the 7<sup>th</sup> and 8<sup>th</sup> semester of the area of structural engineering specialization. He also teaches the graduate courses Structural Dynamics and Earthquake Engineering.

His main research interests are related to the response of structures to extreme loads focusing on the areas of structural and earthquake engineering with the emphasis on problems of non-linearity and performance evaluation of members, connections and structures.

He has been involved in several research projects in these areas and has worked as an expert consultant on numerous engineering projects mostly made of reinforced concrete, but also of other structural materials. He has also participated in various national and international scientific activities related to structural and earthquake engineering.

He has supervised PhD, MSc and undergraduate students studying in the above fields.

**Assist. Prof. Dr. Erion Luga** is the Director of Center of Research and Design in Applied Sciences at Epoka University and a Lecturer in the Department of Civil Engineering. He got his integrated diploma in Civil Engineering in February 2009 from the Civil Engineering Department at the Polytechnic University of Tirana, then completed his Master of Second Level in February 2011 at Epoka University in the subdiscipline of Construction Materials. In February 2015 he completed the PhD studies in the same field at Erciyes University/Turkey. His current research focuses on recycling of industrial by-products in construction materials, mainly in concrete, sustainability and optimization in their production etc. During his PhD studies Mr. Luga has also worked in the investigation of several structures and materials in the region of Kayseri, Turkey. During his research he has been dealing with the design of different materials to be introduced in the construction sector. Regarding his lecturing experience, he has been teaching courses such as: General Chemistry, Materials Science, Introduction to Construction Materials, Properties of Fresh & Hardened Concrete, Durability of Concrete, Special Concretes, Supplementary Cementing Materials and Advanced Concrete Technology. On the other hand Dr. Luga has several journal publications in indexed journals also he has participated in different conferences related to concrete and construction materials. He has also supervised some very successful Master thesis.

**Dr. Julinda Keçi** is a faculty member of the Civil Engineering Department at Epoka University, Albania. She has a Master of Science degree in Structural Engineering from Polytechnic University of Tirana, and a PhD in Civil Engineering, specializing in Construction Management. Her research interests include construction management and technology, project planning, risk management, and economic assessment of engineering projects. One of the primary foci of her work is the implementation of sustainable methods in projects management and building performance. She was involved in international projects and in the organization of several international Civil Engineering conferences. She has published works on risk management, construction management, project planning, building optimization through geotechnical and earthquake design, etc.

**Dr. Enea Mustafaraj** is a full-time lecturer at the Department of Civil Engineering at Epoka University. He has actively been taking part in teaching of fundamental courses related to reinforced concrete design and the fundamentals of steel design, as well as analysis of structures in bachelor and master level. He has also supervised bachelor and master students. His research activities are related to structural assessment of structures, mainly the historical ones, improvement of the performance of existing URM buildings using various retrofitting techniques. He completed his master studies in June 2012 with my

thesis entitled “A Case Study of Structural Assessment of Five Ottoman Mosques in Albania”. He was awarded the PhD degree in June 2016, with a dissertation entitled “External Shear Strengthening of Unreinforced Damaged Masonry Walls”. During the last years, he has been studying structural performance of unreinforced, reinforced and damaged masonry walls subjected to diagonal compression (as of ASTM E-519-04). Dr. Mustafaraj has participated in national and international projects, conferences and workshops, and is author of more than 19 publications.

**MSc. Marsed Leti** is a Research Assistant in Civil Engineering Department at Epoka University, Tirana, Albania. He holds a Master of Science degree in structural engineering from Epoka University therefore his main research interests are related to the response of reinforced concrete structures under static and dynamic loading conditions conducted mainly by the non-linear analysis methods. He is dynamically taking part in teaching, research and student activities since 2014-2015 academic year. He has been teaching and assisting in: Civil Engineering Drawing, Engineering Mechanics I, Mechanics of Materials, Statics and Strength of Materials and Structural Mechanics. Moreover he has been involved in several activities such as: Open Forums, Workshops, Site Visits, Laboratory experiments etc. organized at Epoka University during 2014-2018 academic years. He owns good command of: English, Civil Engineering, AutoCAD, SAP2000, Etabs, Zeus NL, Perform 3D, Stereo Statika, Microsoft Office, Google sheet, Matlab, USEE, Nonlin, Photoshop, Illustrator, After effects etc...

#### Part time Academic Staff

MSc. Vasil Leka

MSc. Erdi Myftaraga

Assoc. Prof. Dr. Ylber Muçeku

#### Academic Visitors (2018-2019)

On May 24, 2019 Department of Civil Engineering organized an Open Lecture with Prof. Marco Corradi about “**Repair and Reinforcement of Historic Masonry Structures**”. He discussed about the structural behavior and in-plane and out-of-plane response of historic masonry under seismic loading, and how does and earthquake affect a masonry structure. Prof. Corradi presented a discussion on the recent trends in the use of composite materials

and stainless-steel profiles for repair and reinforcement of historic masonry structures which suffer from earthquakes, natural hazards, and degradation. This process is quite challenging as dealing with the structures suffering degradation can vary from inadequate load carrying capacity to complexities involved with the choice of repair materials and techniques.

**On May 16, 2019, Department of Civil Engineering** organized another open lecture with **Assoc. Prof. Dr. Lars Schiøtt Sørensen** and **Dr. Malina Cvoro**, coming from Technical University of Denmark and the University of Banja Luka, Bosnia, respectively. The themes of the lectures were: **“Performance- based Fire Safety Engineering”** and **“Urban And Architectural Measures for the Protection of the Fire “**. In the lecture **“Performance- based Fire Safety Engineering”**, by **Assoc. Prof. Dr. Lars Schiøtt Sørensen**, there was made an introduction of performance-based codes and Fire-safety Engineering. In the lecture **“Urban and Architectural Measures for the Protection of the Fire “**, by **Dr. Malina Cvoro**, the topic was about: Prevention of fire protection is ensured by planning and implementing preventive measures and actions to prevent the outbreak of fire in the most efficient way. In the event of a fire, the risk to human life and health, the endangering of material goods, as well as environmental damage, shall be reduced to a minimum and limited fire at the place of outbreak.

**On May 8 2019, Department of Civil Engineering** organized another open lecture in the framework of K-FORCE program, with **Dr. Saša Spaić**. Coming from the The Higher Education Technical School of Professional Studies, Novi Sad, during the lecture, Dr. Spaić discussed about **“Fire Investigation”**.

On May 7, 2019 there was organized the open lecture ***“Risk Assessment in Public Spaces”*** by the department of **Civil Engineering**, where the next guest lecturer was **José G. Rangel Ramirez José G. Rangel Ramirez**,–Is a Post- Doctoral Researcher at University of Aalborg, Denmark Faculty of Civil Engineering in Denmark. In his research activities he deals with public gathering spaces such as plazas, squares and parks. Connecting spaces, such as sidewalks and streets, are also public spaces. In the 21st century, some even consider the virtual spaces available through the internet as a new type of public space that develops interaction and social mixing.

On April 24, 2019, Department of Civil Engineering organized an open lecture in ***“System Identification of Bridges using Ambient Vibration Measurements and Numerical Simulations”***, with Prof. Dr. Damir Zenunovic from ***Faculty of Mining, Civil Engineering and Geodesy, University of Tuzla***.

On **03.04.2019**, Civil Engineering Department organized an Open Lecture in ***“New Recycle Reinforced Concrete”*** with **Dr. Dora Foti**. Dr. Dora Foti is coming from Department of Civil Engineering and Architecture in the Polytechnic University of Bari, Italia. She is an Associate Professor at the Polytechnic University of Bari, author of more than 200 publications in the field of Structural Engineering and Earthquake Engineering and Coordinator of many National and International research projects. **‘Use of recycled waste bottles PET-fibers for the reinforcement of concrete’**, was the topic that was analysed and discussed with the students.

On 4 of March there was organized the open lecture ***“Physical Protection systems of critical infrastructure objects and their vulnerability assessment”*** by the department of Civil Engineering, where the next guest lecturer was **Mr. Tomáš Loveček. Prof. Tomáš Loveček, PhD.** – is Vice-dean for Science and Research at University of Žilina, Faculty of Security Engineering in Slovakia. In his research activities he deals with issues of designing and evaluation of the object protection systems and issues of information security management.

#### Administrative Staff

Ms. Bevli Hoxha was graduated in Political Science and International Relations in the Faculty of Law and Social Sciences at Epoka University. She also holds a master degree for the same field of study. Due to an internship at the Albanian Parliament, provided by the Epoka University, she had the opportunity to be part of different commissions like: Defence, Foreign Policies, Law, Finance & Economic. She currently works as the coordinator of Civil Engineering Department at Epoka University.

## **Finance**

## **IT Resources, Physical Infrastructure and Library Resources**

## C. The Curriculum

### Undergraduate Teaching

<b>Faculty of Architecture and Engineering</b>															
<b>Department of Civil Engineering</b>															
<b>FIRST YEAR</b>															
<b>First Semester</b>															
COURSES		Course Type	Compulsory /Elective	Weekly Course Distribution				Epo ka	Semestral Lecture and studying hours						ECTS
Code	Course Name			Theory	Pra ct.	L ab .	Tota l	Cred its	Lec t.	Pra ct.	La b.	Si te W .	Oth er	Tot al	
MTH 101	Calculus I	A	Compulsory	3	2	0	5	4	48	32	0	0	95	175	7
PHY 101	General Physics I	A	Compulsory	3	2	0	5	4	48	32	0	0	95	175	7
CHM 103	General Chemistry	A	Compulsory	3	0	0	3	3	48	0	0	0	36	84	4
CE 101	Introduction to Civil Engineering	B	Compulsory	2	0	0	2	2	32	0	0	35	33	100	4
CE 121	Civil Engineering Drawing	B	Compulsory	2	2	0	4	3	32	32	0	0	36	100	4
ENG 103	Development of Reading and Writing Skills in English I	E	Compulsory	3	0	0	3	3	48	0	0	0	52	100	4
Semestral Total				16	6	0	22	19	256	96	0	35	347	734	30
<b>FIRST YEAR</b>															
<b>Second Semester</b>															
COURSES		Course Type	Compulsory /Elective	Weekly Course Distribution				Epo ka	Semestral Course and studying hours						ECTS
Code	Course Name			Theory	Pra ct.	L ab .	Tota l	Cred its	Lec t.	Pra ct.	La b.	Si te W .	Oth er	Tot al	
CE 132	Engineering Mechanics I	B	Compulsory	2	2	0	4	3	32	32	0	10	76	150	6
CE 122	Materials Science	C	Compulsory	3	0	0	3	3	48	0	0	10	42	100	4
MTH 102	Calculus II	A	Compulsory	3	2	0	5	4	48	32	0	0	95	175	7
ENG 104	Development of Reading and Writing Skills in English II	E	Compulsory	3	0	0	3	3	48	0	0	0	52	100	4
CEN 104	Introduction to Computers and Programming	E	Compulsory	2	2	0	4	3	32	32	0	0	61	125	5
CE 104	Geology for Civil Engineers	B	Compulsory	3	0	0	3	3	48	0	0	32	20	100	4
Semestral Total				16	6	0	22	19	256	96	0	52	346	750	30

<b>SECOND YEAR</b>															
<b>Third Semester</b>															
COURSES		Course Type	Compulsory /Elective	Weekly Course Distribution				Epo ka	Semestral Lecture and studying hours					ECTS	
Code	Course Name			Theory	Pract.	Lab.	Total	Credits	Lect.	Pract.	Lab.	Site Work	Other	Total	
MTH 201	Differential Equations	A	Compulsory	3	0	0	3	3	48	0	0	0	77	125	5
CE 223	Introduction to Construction Materials	B	Compulsory	3	0	2	5	4	48	0	32	65	55	200	8
CE 213	Mechanics of Materials I	B	Compulsory	2	2	0	4	3	32	32	10	0	101	175	7
MTH 205	Probability and Statistics for Engineers	A	Compulsory	3	0	0	3	3	48	0	0	0	77	125	5
CE 233	Engineering Mechanics II	B	Compulsory	3	0	0	3	3	48	0	0	0	77	125	5
Semestral Total				14	2	2	18	16	224	32	42	65	387	750	30
<b>SECOND YEAR</b>															
<b>Fourth Semester</b>															
COURSES		Course Type	Compulsory /Elective	Weekly Course Distribution				Epo ka	Semestral Course and studying hours					ECTS	
Code	Course Name			Theory	Pract.	Lab.	Total	Credits	Lect.	Pract.	Lab.	Site Work	Other	Total	
	*Elective	D	Elective	3	0	0	3	3	48	0	0	0	77	125	5
CE 214	Mechanics of Materials II	B	Compulsory	3	0	0	3	3	48	0	0	0	77	125	5
CE 240	Engineering Hydrology	B	Compulsory	2	2	0	4	3	32	32	0	42	35	141	5
CE 260	Structural Mechanics	B	Compulsory	4	0	0	4	4	64	0	0	20	66	150	6
CE 284	Surveying	C	Compulsory	2	2	0	4	3	32	32	0	36	25	125	5
	Non-technical elective	D	Elective	3	0	0	3	3	48	0	0	0	52	100	4
Semestral Total				17	4	0	21	19	272	64	0	98	332	766	30
<b>THIRD YEAR</b>															
<b>Fifth Semester</b>															
COURSES		Course Type	Compulsory /Elective	Weekly Course Distribution				Epo ka	Semestral Lecture and studying hours					ECTS	
Code	Course Name			Theory	Pract.	Lab.	Total	Credits	Lect.	Pract.	Lab.	Site Work	Other	Total	
CE 301	Summer Practise I	E	Compulsory	0	0	0	0	0	0	0	0	70	5	75	3
CE 311	Engineering Economics	C	Compulsory	2	2	0	4	3	32	32	0	0	61	125	5
CE 381	Principles of Transportation and Traffic Engineering	B	Compulsory	3	2	0	5	3	48	32	0	10	60	150	6



CE 395	Structural Analysis	B	Compulsory	4	0	0	4	4	64	0	0	30	56	150	6
CE 361	Soil Mechanics	B	Compulsory	4	0	0	4	4	64	0	0	40	21	125	5
CE 341	Fluid Mechanics	B	Compulsory	2	2	0	4	3	32	32	0	32	29	125	5
Semestral Total				15	6	0	21	17	240	96	0	182	232	750	30

<b>THIRD YEAR</b>															
<b>Sixth Semester</b>															
COURSES		Course Type	Compulsory /Elective	Weekly Course Distribution				Epo ka	Semestral Course and studying hours					ECTS	
Code	Course Name			Theory	Pra ct.	L ab .	Tota l	Cred its	Lec t.	Pra ct.	La b.	Si te W .	Oth er	Tot al	
CE 332	Reinforced Concrete Fundamentals	B	Compulsory	4	0	0	4	4	64	0	0	36	25	125	5
CE 322	Construction Engineering and Management	B	Compulsory	4	0	0	4	4	64	0	0	36	25	125	5
CE 382	Foundation Engineering	B	Compulsory	2	2	0	4	3	32	32	0	36	25	125	5
CE 326	Hydromechanics	B	Compulsory	4	0	0	4	4	64	0	0	36	25	125	5
CE 348	Fundamental of Steel Design	B	Compulsory	2	2	0	4	3	32	32	0	36	25	125	5
CE 388	Graduation Project	F	Compulsory	0	0	0	0	0	16	59	0	0	50	125	5
CE 366	Final Comprehensive Exam			0	0	0	0	0	16	0	0	0	109	125	
Semestral Total				16	4	0	20	18	288	123	0	180	284	875	30

## Graduate Teaching

### 1. Structural Engineering Curricula

<b>FIRST YEAR</b>									
<b>First Semester</b>									
COURSES		Course Type	Compulsory /Elective	Weekly Course Distribution				Epoka	ECTS
Code	Course Name			Theory	Pract.	Lab.	Total	Credits	
CE 423	Project Planning	C	Compulsory	2	2	0	4	3	7.5
CE 435	Reinforced Concrete Structures	B	Compulsory	2	2	0	4	3	7.5
CE 548	Intermediate Structural Dynamics	B	Compulsory	2	2	0	4	3	7.5
CE	Technical Elective	C	Elective	2	2	0	3	3	7.5
<b>Semestral Total</b>				<b>8</b>	<b>8</b>	<b>0</b>	<b>15</b>	<b>12</b>	<b>30</b>
<b>Second Semester</b>									
COURSES		Course Type	Compulsory /Elective	Weekly Course Distribution				Epoka	ECTS
Code	Course Name			Theory	Pract.	Lab.	Total	Credits	
CE 442	Advanced Numerical Methods	E	Compulsory	3	0	0	3	3	7.5
CE 454	Advanced Construction Materials	B	Compulsory	2	2	0	4	3	7.5
CE 555	Earthquake Resistant Design of Structure	B	Compulsory	2	2	0	4	3	7.5
	Elective	D	Elective	3	0	0	3	3	7.5
<b>Semestral Total</b>				<b>10</b>	<b>4</b>	<b>0</b>	<b>14</b>	<b>12</b>	<b>30</b>
<b>SECOND YEAR</b>									
<b>Third Semester</b>									
COURSES		Course Type	Compulsory /Elective	Weekly Course Distribution				Epoka	ECTS
Code	Course Name			Theory	Pract.	Lab.	Total	Credits	
CE 503	Research Methods	A	Compulsory	3	0	0	3	3	7.5
	Technical Elective	B	Elective	3	0	0	3	3	7.5
CE 507	Supervised Independent Study and Research	B	Compulsory	4	2	2	8	6	15
<b>Semestral Total</b>				<b>10</b>	<b>2</b>	<b>2</b>	<b>14</b>	<b>12</b>	<b>30</b>

<b>Fourth Semester</b>									
COURSES		Course Type	Compulsory /Elective	Weekly Course Distribution				Epoka	ECTS
Code	Course Name			Theory	Pract.	Lab.	Total	Credits	
CE 500	Master Thesis	F	Compulsory	0	0	0	0	0	30
Semestral Total				0	0	0	0	0	
		Weekly Course Distribution				Epoka	ECTS		
<b>B- Type Electives</b>		Theory	Pract.	Lab.	Total	Credits			
CE 532	Soil Structure Interaction	3	0	0	3	3	7,5		
CE 562	Computer Application in Civil Engineering	3	0	0	3	3	7,5		
CE 548	Intermediate Structural Dynamics	3	0	0	3	3	7,5		
CE 533	Soil Improvement Techniques	3	0	0	3	3	7,5		
CE 587	<a href="#">Masonry Structures</a>	3	0	0	3	3	7,5		
CE 591	Advanced Structural Analysis	3	0	0	3	3	7,5		
CE 538	Composite Materials	3	0	0	3	3	7,5		
CE 547	Supplementary Cementing Materials	3	0	0	3	3	7,5		
CE 540	Advanced Materials Science	3	0	0	3	3	7,5		
CE 543	Advanced Concrete Technology	3	0	0	3	3	7,5		
CE 544	Materials Testing and Measurements	3	0	0	3	3	7,5		
CE 584	Admixtures for Concrete	3	0	0	3	3	7,5		
CE 549	Special Concretes	3	0	0	3	3	7,5		
		Weekly Course Distribution				Epoka	ECTS		
<b>C- Type Electives</b>		Theory	Pract.	Lab.	Total	Credits			
CE 413	Legal Aspects In Construction Works	3	0	0	3	3	7,5		
CE 417	Construction Site Techniques	3	0	0	3	3	7,5		

CE 416	Risk management in Construction	2	2	0	3	3	7,5		
CE 419	Building Construction Estimating	2	2	0	3	3	7,5		
CE 449	Economics of Sustainability	3	0	0	3	3	7,5		
CE 443	Construction Contracts	3	0	0	3	3	7,5		
CE 478	Hydraulic Structures	3	0	0	3	3	7,5		
CE 484	Fundamentals of River Engineering	3	0	0	3	3	7,5		
CE 452	Statistical Techniques In Hydrology	3	0	0	3	3	7,5		
CE 451	Groundwater Engineering	3	0	0	3	3	7,5		
CE 526	Water Resources Engineering	3	0	0	3	3	7,5		
CE 520	Modeling In Hydrology	3	0	0	3	3	7,5		
CE 437	Computational Fluid Dynamics	3	0	0	3	3	7,5		
CE 464	Intermediate Fluid Mechanics	3	0	0	3	3	7,5		
		Weekly Course Distribution				Epoka	ECTS		
	<b>Electives Courses</b>	Theory	Pract.	Lab.	Total	Credits			
CE 435	Reinforce Concrete Structure	2	2	0	4	3	7,5		
ARCH 451	Landscape Perspectives in DRM & FS	2	0	2	4	3	7,5		
CE 455	River Engineering	2	2	0	4	3	7,5		
CE 458	Advanced Construction Materials	2	0	2	4	3	7,5		
CE 484	Earthquake Disaster Mitigation	3	0	0	3	3	7,5		
CEN 436	Introduction to Remote Sensing for Earth Observation	3	0	0	3	3	7,5		

## 2. Construction Management Curricula

COURSES		Course Type	Compulsory /Elective	Weekly Course Distribution				Epoka	ECT S
Code	Course Name			Theor y	Pract.	Lab.	Total	Credit s	
CE 423	Project Planning	B	Compulsory	2	2	0	4	3	7.5
CE 435	Reinforced Concrete Structures	B	Compulsory	2	2	0	4	3	7.5
CE 419	Building Construction Estimateing	B	Compulsory	2	2	0	4	3	7.5
	Technical Elective	C	Elective	3	0	0	3	3	7.5
Semestral Total				9	6	0	15	12	30
<b>Second Semester</b>									
COURSES		Course Type	Compulsory /Elective	Weekly Course Distribution				Epoka	ECT S
Code	Course Name			Theor y	Pract.	Lab.	Total	Credit s	
CE 442	Advanced Numerical Methods	E	Compulsory	3	0	0	3	3	7.5
CE 454	Advanced Construction Materials	C	Compulsory	2	2	0	4	3	7.5
CE 416	Risk Management in Construction	B	Compulsory	2	2	0	4	3	7.5
	Elective	D	Elective	3	0	0	3	3	7.5
Semestral Total				10	4	0	14	12	30
<b>SECOND YEAR</b>									
<b>Third Semester</b>									
COURSES		Course Type	Compulsory /Elective	Weekly Course Distribution				Epoka	ECT S
Code	Course Name			Theor y	Pract.	Lab.	Total	Credit s	
CE 503	Research Methods	A	Compulsory	3	0	0	3	3	7.5
	Technical Elective	B	Elective	3	0	0	3	3	7.5
CE 507	Supervised Independent Study and Research	B	Compulsory	4	2	2	8	6	15
Semestral Total				10	2	2	14	12	30
<b>Fourth Semester</b>									
COURSES		Course Type	Compulsory /Elective	Weekly Course Distribution				Epoka	ECT S
Code	Course Name			Theor y	Pract.	Lab.	Total	Credit s	
CE 500	Master Thesis	F	Compulsory	0	0	0	0	0	30
Semestral Total				0	0	0	0	0	30
		Weekly Course Distribution				Epoka	ECT S		
<b>C- Type Electives</b>		Theor y	Pract.	Lab.	Total	Credit s			

CE 413	Legal Aspects In Construction Works	3	0	0	3	3	7.5		
CE 417	Construction Site Techniques	3	0	0	3	3	7.5		
CE 449	Economy of Sustainability in Construction	3	0	0	3	3	7.5		
CE 443	Construction Contracts	3	0	0	3	3	7.5		
		Weekly Course Distribution				Epoka	ECT S		
	<b>C- Type Electives</b>	Theor y	Pract.	Lab.	Total	Credit s			
CE 532	Soil Structure Interaction	3	0	0	3	3	7,5		
CE 562	Computer Application in Civil Engineering	3	0	0	3	3	7,5		
CE 548	Intermediate Structural Dynamics	3	0	0	3	3	7,5		
CE 533	Soil Improvement Techniques	3	0	0	3	3	7,5		
CE 587	<a href="#">Masonry Structures</a>	3	0	0	3	3	7,5		
CE 591	Advanced Structural Analysis	3	0	0	3	3	7,5		
CE 538	Composite Materials	3	0	0	3	3	7,5		
CE 547	Supplementary Cementing Materials	3	0	0	3	3	7,5		
CE 540	Advanced Materials Science	3	0	0	3	3	7,5		
CE 543	Advanced Concrete Technology	3	0	0	3	3	7,5		
CE 544	Materials Testing and Measurements	3	0	0	3	3	7,5		
CE 584	Admixtures for Concrete	3	0	0	3	3	7,5		
CE 549	Special Concretes	3	0	0	3	3	7,5		
CE 473	River Hydraulic	3	0	0	3	3	7,5		
CE 526	Water Resources Engineering	3	0	0	3	3	7.5		
CE 483	Water Supply System	3	0	0	3	3	7.5		
CE 523	Waste Water Treatment Plants	3	0	0	3	3	7.5		
CE 476	Hydraulic Structures I	3	0	0	3	3	7.5		
CE 477	Hydraulic Structures II	3	0	0	3	3	7.5		

		Weekly Course Distribution				Epoka	ECT S		
<b>Electives Courses</b>		Theor y	Pract.	Lab.	Total	Credit s			
CE 435	Reinforce Concrete Structure	2	2	0	4	3	7,5		
ARC H 451	Landscape Perspectives in DRM & FS	2	0	2	4	3	7,5		
CE 455	River Engineering	2	2	0	4	3	7,5		
CE 458	Advanced Construction Materials	2	0	2	4	3	7,5		
CE 484	Earthquake Disaster Mitigation	3	0	0	3	3	7,5		
CEN 436	Introduction to Remote Sensing for Earth Observation	3	0	0	3	3	7,5		

### 3. Water Resources Profile Curricula:

COURSES		Course Type	Compulsory / Elective	Weekly Course Distribution				Epoka	ECT S
Code	Course Name			Theor y	Pract.	Lab.	Total	Credit s	
CE 423	Project Planning	B	Compulsory	2	2	0	4	3	7.5
CE 435	Reinforced Concrete Structures	C	Compulsory	2	2	0	4	3	7.5
CE 452	Statistical Techniques in Hydrology	B	Compulsory	2	2	0	4	3	7.5
CE	Technical Elective	B	Elective	3	0	0	3	3	7.5
Semestral Total				9	6	0	15	12	30
<b>Second Semester</b>									
COURSES		Course Type	Compulsory / Elective	Weekly Course Distribution				Epoka	ECT S
Code	Course Name			Theor y	Pract.	Lab.	Total	Credit s	
CE 442	Advanced Numerical Methods	E	Compulsory	3	0	0	3	3	7.5
CE 454	Advanced Construction Materials	C	Compulsory	2	0	2	4	3	7.5
CE 463	Fundamentals of River Engineering	B	Compulsory	2	2	0	4	3	7.5
	Elective	D	Elective	3	0	0	3	3	7.5
Semestral Total				10	2	2	14	12	30

<b>SECOND YEAR</b>									
<b>Third Semester</b>									
COURSES		Course Type	Compulsory / Elective	Weekly Course Distribution				Epoka Credits	ECT S
Code	Course Name			Theor y	Pract.	Lab.	Total		
CE 503	Research Methods	A	Compulsory	3	0	0	3	3	7.5
CE	Technical Elective	B	Elective	3	0	0	3	3	7.5
CE 507	Supervised Independent Study and Research	B	Compulsory	4	2	2	8	6	15
Semestral Total				10	2	2	14	12	30
<b>Fourth Semester</b>									
COURSES		Course Type	Compulsory / Elective	Weekly Course Distribution				Epoka Credits	ECT S
Code	Course Name			Theor y	Pract.	Lab.	Total		
CE 500	Master Thesis	F	Compulsory	0	0	0	0	0	30
Semestral Total				0	0	0	0	0	30
<b>B- Type Electives</b>		Weekly Course Distribution				Epoka	ECT S		
		Theor y	Pract.	Lab.	Total	Credits			
CE 473	River Hydraulic								
CE 526	Water Resources Engineering	3	0	0	3	3	7.5		
CE 483	Water Supply System	3	0	0	3	3	7.5		
CE 523	Waste Water Treatment Plants	3	0	0	3	3	7.5		
CE 476	Hydraulic Structures I	3	0	0	3	3	7.5		
CE 477	Hydraulic Structures II	3	0	0	3	3	7.5		
CE 451	Groundwater Engineering	3	0	0	3	3	7.5		
CE 520	Modeling in Hydrology	3	0	0	3	3	7.5		
CE 525	Computational Fluid Dynamics	3	0	0	3	3	7.5		
		Weekly Course Distribution				Epoka	ECT S		
<b>Electives Courses</b>		Theor y	Pract.	Lab.	Total	Credits			
CE 435	Reinforce Concrete Structure	2	2	0	4	3	7,5		
ARC H 451	Landscape Perspectives in DRM & FS	2	0	2	4	3	7,5		
CE 455	River Engineering	2	2	0	4	3	7,5		



CE 458	Advanced Construction Materials	2	0	2	4	3	7,5		
CE 484	Earthquake Disaster Mitigation	3	0	0	3	3	7,5		
CEN 436	Introduction to Remote Sensing for Earth Observation	3	0	0	3	3	7,5		

#### 4. Construction Materials Profile Curricula:

<b>FIRST YEAR</b>									
<b>First Semester</b>									
COURSES		Course Type	Compulsory /Elective	Weekly Course Distribution				Epoka	ECT S
Code	Course Name			Theor y	Pract.	Lab.	Total	Credit s	
CE 423	Project Planning	C	Compulsory	2	2	0	4	3	7.5
CE 435	Reinforced Concrete Structures	B	Compulsory	2	2	0	4	3	7.5
CE 459	Durability of Concrete	B	Compulsory	2	0	2	4	3	7.5
CE	Technical Elective	C	Elective	2	2	0	3	3	7.5
Semestral Total				<b>8</b>	<b>6</b>	<b>2</b>	<b>15</b>	<b>12</b>	<b>30</b>
<b>Second Semester</b>									
COURSES		Course Type	Compulsory /Elective	Weekly Course Distribution				Epoka	ECT S
Code	Course Name			Theor y	Pract.	Lab.	Total	Credit s	
CE 442	Advanced Numerical Methods	E	Compulsory	3	0	0	3	3	7.5
CE 454	Advanced Construction Materials	B	Compulsory	2	2	0	4	3	7.5
CE 555	Earthquake Resistant Design of Structure	B	Compulsory	2	2	0	4	3	7.5
	Elective	D	Elective	3	0	0	3	3	7.5
Semestral Total				<b>10</b>	<b>4</b>	<b>0</b>	<b>14</b>	<b>12</b>	<b>30</b>
<b>SECOND YEAR</b>									
<b>Third Semester</b>									
COURSES		Course Type	Compulsory /Elective	Weekly Course Distribution				Epoka	ECT S
Code	Course Name			Theor y	Pract.	Lab.	Total	Credit s	
CE 503	Research Methods	A	Compulsory	3	0	0	3	3	7.5
	Technical Elective	B	Elective	3	0	0	3	3	7.5
CE 507	Supervised Independent Study and Research	B	Compulsory	4	2	2	8	6	15

Semestral Total				<b>10</b>	<b>2</b>	<b>2</b>	<b>14</b>	<b>12</b>	<b>30</b>
<b>Fourth Semester</b>									
COURSES		Course Type	Compulsory /Elective	Weekly Course Distribution				Epoka	ECT S
Code	Course Name			Theor y	Pract.	Lab.	Total	Credit s	
CE 500	Master Thesis	F	Compulsory	0	0	0	0	0	30
Semestral Total				0	0	0	0	0	
		Weekly Course Distribution				Epoka	ECT S		
<b>B- Type Electives</b>		Theory	Pract.	Lab.	Total	Credit s			
CE 532	Soil Structure Interaction	3	0	0	3	3	7,5		
CE 562	Computer Application in Civil Engineering	3	0	0	3	3	7,5		
CE 548	Intermediate Structural Dynamics	3	0	0	3	3	7,5		
CE 533	Soil Improvement Techniques	3	0	0	3	3	7,5		
CE 587	<a href="#">Masonry Structures</a>	3	0	0	3	3	7,5		
CE 591	Advanced Structural Analysis	3	0	0	3	3	7,5		
CE 538	Composite Materials	3	0	0	3	3	7,5		
CE 547	Supplementary Cementing Materials	3	0	0	3	3	7,5		
CE 540	Advanced Materials Science	3	0	0	3	3	7,5		
CE 543	Advanced Concrete Technology	3	0	0	3	3	7,5		
CE 544	Materials Testing and Measurements	3	0	0	3	3	7,5		
CE 584	Admixtures for Concrete	3	0	0	3	3	7,5		
CE 549	Special Concretes	3	0	0	3	3	7,5		
		Weekly Course Distribution				Epoka	ECT S		
<b>C- Type Electives</b>		Theory	Pract.	Lab.	Total	Credit s			
CE 413	Legal Aspects In Construction Works	3	0	0	3	3	7,5		
CE 417	Construction Site Techniques	3	0	0	3	3	7,5		
CE 416	Risk management in Construction	2	2	0	3	3	7,5		
CE 419	Building Construction Estimating	3	0	0	3	3	7,5		
CE 449	Economics of Sustainability	3	0	0	3	3	7,5		

CE 443	Construction Contracts	3	0	0	3	3	7,5			
CE 478	Hydraulic Structures	3	0	0	3	3	7,5			
CE 484	Fundamentals of River Engineering	3	0	0	3	3	7,5			
CE 452	Statistical Techniques In Hydrology	3	0	0	3	3	7,5			
CE 451	Groundwater Engineering	3	0	0	3	3	7,5			
CE 526	Water Resources Engineering	3	0	0	3	3	7,5			
CE 520	Modeling In Hydrology	3	0	0	3	3	7,5			
CE 437	Computational Fluid Dynamics	3	0	0	3	3	7,5			
CE 464	Intermediate Fluid Mechanics	3	0	0	3	3	7,5			
		Weekly Course Distribution				Epoka	ECT S			
	<b>Electives Courses</b>	Theory	Pract.	Lab.	Total	Credits				
CE 435	Reinforce Concrete Structure	2	2	0	4	3	7,5			
ARC H 451	Landscape Perspectives in DRM & FS	2	0	2	4	3	7,5			
CE 455	River Engineering	2	2	0	4	3	7,5			
CE 458	Advanced Construction Materials	2	0	2	4	3	7,5			
CE 484	Earthquake Disaster Mitigation	3	0	0	3	3	7,5			
CEN 436	Introdution to Remote Sensing for Earth Observation	3	0	0	3	3	7,5			

### 5. Professional Master Curricula

First Semester									
COURSES		Course Type	Compulsory /Elective	Weekly Course Distribution				Epoka	ECTS
Code	Course Name			Theory	Pract.	Lab.	Total	Credits	
CE 423	Project Planning	B	Compulsory	3	0	0	3	3	7.5
CE 435	Reinforced Concrete Structures	B	Compulsory	3	0	0	3	3	7.5
	Technical Elective	B/C	Elective	3	0	0	3	3	7.5
	Technical Elective	B/C	Elective	3	0	0	3	3	7.5
Semestral Total				12	0	0	12	12	30
Second Semester									
COURSES		Course Type	Compulsory /Elective	Weekly Course Distribution				Epoka	ECTS
Code	Course Name			Theory	Pract.	Lab.	Total	Credits	
CE 420	Term Project	B/F	Compulsory	3	0	0	3	3	7.5
CE 454	Advanced Construction Materials	B	Compulsory	3	0	0	3	3	7.5
	Technical Elective	B/C	Elective	3	0	0	3	3	7.5
	Elective	E	Elective	3	0	0	3	3	7.5
Semestral Total				12	0	0	12	12	30
		Weekly Course Distribution				Epoka	ECTS		
	<b>Electives Courses</b>	Theory	Pract.	Lab.	Total	Credits			
CE 435	Reinforce Concrete Structure	2	2	0	4	3	7,5		
ARCH 451	Landscape Perspectives in DRM & FS	2	0	2	4	3	7,5		
CE 455	River Engineering	2	2	0	4	3	7,5		
CE 458	Advanced Construction Materials	2	0	2	4	3	7,5		
CE 484	Earthquake Disaster Mitigation	3	0	0	3	3	7,5		
CEN 436	Introduction to Remote Sensing for Earth Observation	3	0	0	3	3	7,5		

**6. Professional Master in “Disaster Risk Management and Fire Safety in Civil Engineering” Curricula:**

COURSES		Course Type	Compulsory /Elective	Weekly Course Distribution				Epoka credits	ECTS
Code	Course Name			Theory	Pract.	Lab.	Total		
CE 431	Project Planning, Management and Coordination	B	Compulsory	2	2	0	4	3	7.5
CE 447	Structural Fire Safety	B	Compulsory	3	0	0	3	3	7.5
CE 473	Flood Risk Assessment	B	Compulsory	3	0	0	3	3	7.5
	Elective	C	Elective	3	0	0	3	3	7.5
Semestral Total				11	2	0	13	12	30
<b>Second Semester</b>									
COURSES		Course Type	Compulsory /Elective	Weekly Course Distribution				Epoka credits	ECTS
Code	Course Name			Theory	Pract.	Lab.	Total		
CE 456	Risk Analysis in Decision-making Process	B	Compulsory	2	2	0	4	3	7.5
ARCH 428	Evaquation Calculation Modeling	B	Compulsory	2	0	2	4	3	7.5
CE 476	Supervised Independent Study and practice	E	Compulsory	1	2	0	3	2	7.5
	Elective	D	Elective	3	0	0	3	3	7.5
Semestral Total				8	4	2	14	11	30
<b>List of Elective Courses</b>									
Code	Course Name	Course Type	Compulsory /Elective	Weekly Course Distribution				Epoka credits	ECTS
				Theory	Pract.	Lab.	Total		
CE 435	Reinforced Concrete Structures	C	Elective	2	2	0	4	3	7.5
ARCH 451	Landscape Perspectives in DRM & FS	D	Elective	2	0	2	4	3	7.5
CE 459	Durability of Concrete	C	Elective	2	0	2	4	3	7.5
CE 455	River Engineering	C	Elective	2	2	0	4	3	7.5
CE 458	Advanced Construction Materials	D	Elective	2	0	2	4	3	7.5
CE 484	Earthquake Disaster Mitigation	C	Elective	3	0	0	3	3	7.5
CEN 436	Introduction to Remote Sensing for Earth Observation	D	Elective	3	0	0	3	3	7.5

**7. PhD Curricula:**

<b>Year I - First Semester</b>		<b>T</b>	<b>P</b>	<b>C</b>	<b>ECTS</b>
CE 8xx	ELECTIVE COURSE	3	0	3	7.5
CE 8xx	ELECTIVE COURSE	3	0	3	7.5
CE 8xx	ELECTIVE COURSE	3	0	3	7.5
CE 8xx	ELECTIVE COURSE	3	0	3	7.5
<b>Total:</b>		<b>12</b>	<b>0</b>	<b>12</b>	<b>30</b>

<b>Year I - Second Semester</b>		<b>T</b>	<b>P</b>	<b>C</b>	<b>ECTS</b>
CE 8xx	ELECTIVE COURSE	3	0	3	7.5
CE 8xx	ELECTIVE COURSE	3	0	3	7.5
CE 8xx	ELECTIVE COURSE	3	0	3	7.5
CE 8xx	ELECTIVE COURSE	3	0	3	7.5
<b>Total:</b>		<b>12</b>	<b>0</b>	<b>12</b>	<b>30</b>

<b>Year II+III</b>		<b>T</b>	<b>P</b>	<b>C</b>	<b>ECTS</b>
CE 800	PhD Thesis	0	0	0	120
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>120</b>

## D. Teaching, Learning, Assessment & Research

### Undergraduate Students' List of Theses

1. *Adela, Lami, Structural Analysis of a 2- Storey Building Using SAP 2000, Assist. Prof. Dr. Erion Luga.*

2. *Bredli, Plaku, Economic and Environmental Design and Analysis of a Structure, Dr. Endrit Hoxha.*

This paper introduce the reader to the fundamental concepts of construction management with emphasis on cost estimation and quantity take off of this activity. The detailed design of a new residential and commercial building located in Himara, carried out by ARL Construction Ltd, is used as a case study.

The paper represents an example in performing essential tasks that comprise a detailed budget for a residential construction. The conclusion of this paper summarises the observations and suggestions that need to be considered while attempting such a duty in practice.

3. *Fiori, Isufi, Structural Assessment of Bashtova Fortress in Central Albania, Dr. Enea Mustafaraj.*

4. *Iva Meniku, Structural Assessment of Bashtova Fortress in Kavaje County, Albania, Dr. Enea Mustafaraj.*

5. *Julian Kata, Structural Analysis of a Two- Story Building Using SAP-2000, MSc. Armando Demaj.*

6. *Griselda Haxhija, Guidelines for Earthquake Resistant Structures, Assoc. Prof. Dr. Hüseyin Bilgin*

## Graduate Students' List of Theses

1. *Gegë Cena, A case study on flexural behavior of reinforced concrete beams strengthened with CFRP Wraps, Dr. Enea Mustafaraj.*

The need for experimental research to find out methods, materials and techniques that are involved on repairing and strengthening of reinforced concrete beams is the aim of this thesis. The use of fiber reinforced polymers (FRP) is an effective and highly used method in recent times for the repair and reinforcement of reinforced concrete structures that have become structurally inefficient over the lifetime.

In this thesis, are presented the results of an experimental study on flexural behavior of reinforced concrete (RC) beams strengthened with Carbon Fiber Reinforced Polymer (CFRP) wraps and as well as determination of existing concrete resistance using destructive and non-destructive testing. The aim of this study was that objects that have deformations and cracks in concrete structures and have lost their ability to carry, to be reconstructed and retrieve their capability by using new materials such as Carbon Fiber Reinforced Polymers (CFRPs). The idea came after seeing a lot of damaged structures with cracks and deformations showed on beams and columns, and most of them were not reconstructed.

The CFRP wraps were applied on the bottom part of the beams, utilizing epoxy resin adhesive. Three reinforced concrete beams were tested in bending to measure flexural resistance. Then the control beam was repaired using CFRP wraps and tested again. The experimental results were compared among each other. It was obtained that the repaired specimen had 38% improvement in load carrying capacity, whereas, the strengthened beam with CFRP, performed 1.62 times better than control specimen in terms of flexural capacity.

As a result, it was seen that CFRP wraps effect on carrying capacity of structures even on the damaged elements.

2. *Jetmir Morina, Structural Assessment of Mehmed Pasha Hammam in Prizren, Kosovo, Dr. Enea Mustafaraj.*

A significant role in the cultural and social heritage of Kosovo, undoubtedly, have historical structures, built through centuries. Majority of these old, monumental structures in Kosovo were designated for religious purposes, mainly mosques, which were built during the Ottoman Empire era. The main material used was, typically, stone masonry. A lot of these buildings are still used nowadays. In time, many of these structures have been subject to various deficiencies, mainly due to aging, seismic activities, improper maintenance, weather conditions, etc. To provide a fundamental identification for reasons and the possible impacts of these structural deficiencies, structural assessment of a representative building related to the case should be carried out. As such, this case study will deal with the assessment of Mehmed Pasha Hammam, which was built during the XVI century, and is located in Prizren. Visual inspection of the structure, as a first step to identify various structural defects, such as cracks, was carried out. From visual inspection, it was clear that the building had many cracks on the domes, as well as structural walls caused by concentrated stresses in critical regions. However, to properly identify its deficiencies and possible impacts, a finite element method (FEM) analysis of the building was done using SAP2000 v16, during which, structural behavior of the undamaged model was observed when subject to static, as well as



dynamic loads. With FEM analysis the identification of structure's critical areas was possible, after which strengthening methods were suggested.

## List of Incoming & Outgoing Students

Outgoing students:

1. Erlado Braka, Epoka University & Gheorge Asachi Technical University, Iasi, Romania, Fall Semester 2018-2019 Academic Year.
2. Lidmir Hyseni, Epoka University & Gheorge Asachi Technical University, Iasi, Romania, Fall Semester 2018-2019 Academic Year.
3. Ormal Lishi, Epoka University & University of Novi Sad, Serbia, Spring Semester 2018-2019 Academic Year.
4. Kevin Zaçe, Epoka University & University of Novi Sad, Serbia, Spring Semester 2018-2019 Academic Year.
5. Andi Gjoka, Epoka University & University of Novi Sad, Serbia, Spring Semester 2018-2019 Academic Year

## Research Areas and Research Groups

### Research Area: Structural/Earthquake Engineering

The goal of our research group in structural/earthquake engineering is to improve the seismic resiliency of societies through improved engineering and management tools for critical infrastructure systems including reinforced concrete, masonry as well as steel structures. Graduates courses are available in static/dynamic analysis and structural design theory.

Failures of structures during severe earthquakes are responsible for losses and casualties in seismic regions around the world including our region. Most of the structural failures can be attributed to poorly detailed/constructed components of the buildings systems (e.g. columns, beam-column joints, masonry walls). Recent research has proven the effectiveness of various innovative strengthening techniques at enhancing the performance of such substandard components, it is still necessary to develop design guidelines that lead to more cost-effective solutions.

Potential MSc/PhD topics include assessment, retrofit/strengthening of Reinforced Concrete, steel and masonry structures as follows:

- Use of Fiber Reinforced Polymers (FRP) for strengthening,
- Use of hybrid strengthening solutions for rehabilitation,
- Testing techniques for seismic performance assessment,
- Seismic analysis and design of buildings equipped with energy dissipative devices,
- Vulnerability assessment and upgrading of existing infrastructure,
- Fragility based assessment of existing infrastructure,
- Performance based evaluation of the existing infrastructure,

Another research area is related with the stability and dynamics of the historical masonry buildings constructed during the Post-Byzantine period on massive Roman vaulted structures. Using the methods of Heyman's limit analysis approach, load bearing mechanism and collapse analysis of these structures will be investigated. Based on the findings, seismic safety of the theses monumental structures will be explored.

**Team Memebers:** Assoc. Prof. Hüseyin Bilgin, PhD. Enea Mustafaraj, PhD. Erion Luga. PhD (c) Mario Hysenlliu, PhD (c) Marsed Leti, Asisst. Erald Saliasi

### **Research area: Water Resources Engineering**

This research area deals with research and practical applications of hydrology and hydraulics as an integral part of the civil engineering. Water is the key element and a valuable resource for human development which depends on the availability of water resources. It is of great importance a comprehensive understanding of the fundamental force of water to be capable to deal with its consequences—such as flooding—manage the increasing demands for water, managing the water in a sustainable way, and utilize hydraulic energy. Due to climate change impact, population growth and increasing water demand, the importance of research on water issues is going to increase in the future. Hydrology and hydraulics are two of fundamental sciences providing the basic knowledge for the development and controlling of water resources.

Hydraulic structures for flow controls are important elements of application and their designs, involves the interaction between structure and flow. Engineering studies include the analysis of flows, the ways in which the water regime and the flow pattern are affected by the structure and the environment responds to these changes.

The most prominent hydraulic structures are dams for water storage. They are indispensable structures for the watershed-based development. The planning, design, construction and operation of dams are vital parts of a variety of water uses: water supply for domestic, irrigation and industrial uses; protection of life and property from flooding; hydro-electric energy generation and storage of large amounts of energy for economic growth, etc. But all these uses involve systems of other structures as well and all these elements comprise structural analysis, materials science and the technology of structures. The types of structures and their design have evolved, and new challenges come from applying new construction technologies and from the application of value engineering and probabilistic design to provide economically balanced solutions.

The research of hydraulic engineering group will contribute to these challenges not just to give an understanding of the processes but recommending effective measures for practical solutions.

**Team Members:** Assoc. Prof. Miriam Ndini, Assoc. Prof. Hüseyin Bilgin, PhD Enea Mustafaraj, PhD Erion Luga, PhD Julinda Keci, PhD (c) Kujtim Zena.

### 3. Research Area: Sustainability in Civil Engineering

This research area deals with the contribution of civil engineering and related disciplines in the creation of a sustainable living environment. Sustainability in civil engineering means, performing construction and management activities without any reduction of resources or causing any harmful effect to the environment. In this context the Department of Civil Engineering at Epoka University is dedicated to work and contribute for building a better future for the next generations by conducting research on:

- **Assessing the structural integrity of civil engineering structures and develop retrofitting methods and techniques for a more secure built environment.**

Old buildings, bridges or historical monuments are part of people's daily life. In many countries hundreds of casualties are reported because of lack of assessment and maintenance of these structures. For that reason they need to be assessed for structural integrity and retrofitted in case of improper conditions.

- **Solutions related to the reuse of underused facilities or reuse of structural members of these facilities.**

In Albania there are many industrial sites or buildings which for the moment are underused. On the other hand many infrastructure projects cannot be implemented or people cannot afford the cost of brand new houses. These underused facilities may be totally or partially reused to construct low budget infrastructure or houses.

- **Recycling of industrial and demolition wastes in the production of construction materials.**

The production of many construction materials is responsible for the release of high amounts of wastes and consumption of unbelievably large amounts of natural resources. On the other hand, industrial by products such as slag, fly ash, silica fume etc. or demolition wastes are becoming serious problems for occupying large areas of land and causing serious environmental problems, for that reason the reuse and recycling of these wastes has become an emergency for many

countries including Albania. So, by developing efficient and sustainable techniques we aim to offer to our society a cleaner and more livable environment.

- **Development of innovative and high-performance materials for safer and more comfortable structures.**

Traditional materials used in the construction offer many advantages to the construction industry, but beside these advantages there are also some deficiencies of these materials which need to be improved or sometimes even produce innovative materials to withstand better their conditions of service. The development of innovative and high performance materials for safer and more comfortable environment rises as a necessity for a more sustainable living.

- **Integration of sustainability principles in the design and management of construction projects.**

Construction projects involve activities such as: use of materials from various sources, machineries, demolition of existing structures, use of green fields, cutting down of trees etc. All of these processes affect the environment in different ways like: generation of waste materials, emissions from vehicles, machineries, noise pollution due to use of heavy vehicles and construction machineries, consumption of natural resources etc. Sustainability assessment of construction projects is essential to the fact that it does not create any harmful effects on the living ecosystem while optimizing the cost of construction. In order to ensure the availability of resources for the future generations and build affordable and manageable structures, it is very important to integrate the sustainability principles in the design and management of construction projects.

**Team Members:** Assoc. Prof. Miriam Ndini, Assoc. Prof. Hüseyin Bilgin, PhD Enea Mustafaraj, PhD Erion Luga, PhD Julinda Keci, PhD. Endrit Hoxha, PhD (c) Marsed Leti

## List of Publications

No	Name Surname	Scientific Publications and Academic Activities
1	Enea Mustafaraj & Yavuz Yardim.	Retrofitting damaged unreinforced masonry using external shear strengthening techniques.
2	Hüseyin Bilgin and Ahmet H. Deringöl	Effects of the isolation parameters on the seismic response of steel frames.

## Participation of Academic Staff in Academic Events

1. On June 17-21, Dr. Julinda Keçi participated in a 5-day teaching mobility in the framework of Erasmus + Bilateral Agreement, at Polytechnic University of Bari, Italy. During this time, she carried out teaching activities for undergraduate students, in the topic of Construction Project Management and Risk Management. The activities and meetings were very fruitful and enhanced collaboration between two institutions.
2. Dr. Julinda Keçi participated in the training mobility held at Ss. Cyril and Methodius University in Skopje as part of the Special Mobility Strand (SMS) program of the KFORCE Erasmus+ project. The training was organized by Faculty of Civil Engineering and Institute for Earthquake Engineering and Seismology, during 5 May - 19 May 2019. The main aim of the training was to provide the trainees with international experience on the education system and teaching methods, to create links between HEIs, and to promote exchange of experience and expertise. The main activities of the training visit included lecture presentations, participation in laboratory experiments, self-study and group work, visit to the laboratory for dynamic testing of structures in IZIIS, visit to the geotechnical laboratory and laboratories for testing of structures at Faculty of Civil Engineering, as well as visit to the Protection and Rescue Directorate of Northern Macedonia. The training visit was very fruitful in achieving the main goals of improving teaching skills and gaining international teaching experience, gaining knowledge on experimental-based teaching and lab instruments, and improving collaboration and group work in an international environment.
3. Assoc. Prof. Dr. Miriam Ndini and Dr. Enea Mustafaraj participated in IPA DRAM Workshop Disaster Risk Assessment and Mapping, held in Tirana, during 23-24 April 2019. This workshop was organized in the framework of revision and development of Risk Assessment scenarios of working groups on Floods, Earthquakes and Forest Fires. They will be the core instruments to make the risk assessment against natural hazards for Albanian territory.
4. On April 1-5, Dr. Enea Mustafaraj participated in a 5-day teaching mobility in the framework of Erasmus + KA2 K-FORCE Project, at University of Tuzla, Faculty of Mining, Geology and Civil Engineering in Bosnia and Herzegovina. During this time, he presented his lecture entitled “Structural Assessment of Historical Constructions and Selected Retrofitting Techniques”. The students and staff of the Disaster Risk Management and Fire Safety Engineering study program of the Department of Safety and Health participated in this event. The activity and meetings were very fruitful and enhanced collaboration between two institutions.

5. Dr. Endrit HOXHA, Lecturer of the Department of Civil Engineering, participated in a 5 days teaching mobility at University of Banja Luka, Bosnia-Hezegovina in the framework of K-Force Erasmus + CBHE project to which Epoka University is a consortium member. In the framework of this activity Dr. Hoxha held his Lectures on the “Influence of design parameter in fire safety of structural steel beams where more than 20 students and staff of the Department of Civil Engineering and Geodesy from the University of Banja Luka participated in the lectures. The activity lectures and meeting were very fruitful regarding the collaboration between the two institutions.
  
6. Assist. Prof. Dr. Erion Luga, Lecturer of the Department of Civil Engineering, participated in a 5 days teaching mobility at University of Novi Sad, Serbia in the framework of K-Force Erasmus + CBHE project to which Epoka University is a consortium member. In the framework of this activity Dr. Luga held his Lectures on the “Importance of durability of Reinforced Concrete structures where more than 50 students and staff of the Department of Civil Engineering and Geodesy from the University of Novi Sad participated in the lectures. The activity lectures and meeting were very fruitful regarding the collaboration between the two institutions.
  
7. Dr. Julinda Keçi, applied to join the COST Action CA17125- Public Value Capture of Increasing Property Values, as a Management Committee member. The project, funded by the European Cooperation in Science and Technology, represents a unique network for European researchers to jointly develop their ideas and new initiatives across different scientific disciplines relevant to public value capture, through trans-European networking of multinational and multi-disciplinary research activities. The network of proposers includes high quality researchers and stakeholders with great contribution in this scientific area. The Action Participants bridge separate scientific fields such as engineering, environmental, planning, land management, law and economics. As from November 2018, Dr. Julinda Keçi is the representative of Albania in the COST Action 17125 Management Committee and Working Group. COST Action CA17125 has participants from 32 countries and a life span of four years 2018-2022

## **Projects**

## **E. Support, Resources & Representation**



## List of Students' Internships

1. Jurgun Sina- Name of the institution: Kontakt sh.p.k
2. Jurgun Mema- Name of the institution: Vëllezërit Hysa
3. Elvis Brunga- Name of the institution: HAID Sh.p.k
4. Danjel Pjetto- Name of the institution: Gener 2

## Participation in Academic Events

For each research publication provide the full reference associated by a short summary of 100 words max.

For participation in Academic Events, include international/ national conferences, workshops, trainings, roundtables etc. Similarly, provide full references and a short summary (100 words max) of each activity.

### Research Projects

(Write a paragraph for each project applied and/ or awarded highlighting the area of the project, members, targeted group, grant used, expected outcomes). Associate the text with at least one picture.

#### Industry Projects

(Write a paragraph for each project highlighting the area of the project, members, targeted group, grant used, expected outcomes). Associate the text with at least one picture.

#### Community Projects

(Write a paragraph for each project highlighting the area of the project, members, targeted group, grant used, expected outcomes). Associate the text with at least one picture.

#### Student Club Projects

(Write a paragraph for each project highlighting the area of the project, members, targeted group, grant used, expected outcomes). Associate the text with at least one picture.

## **Student Best Success Stories**

(Choose up to five best student success stories and write one to two paragraphs for each.  
Associate the text with a picture of the student)

## Office Holders

The department would like to thank the following for their valuable contribution to teaching, administration and management over the past year:

Assoc. Prof. Dr. Miriam Ndini

Assoc. Prof. Dr. Hüseyin Bilgin

Assist. Prof. Dr. Erion Luga

Dr. Enea Mustafaraj

Dr. Julinda Keçi

Dr. Endrit Hoxha

MSc. Armando Demaj

MSc. Marsed Leti

Mr. Erald Saliasi

Department Coordinator Bevli Hoxha

## Acknowledgements

In addition to the Office Holders listed above, the department would like to thank the following for their collaboration to make this department offer all the facilities needed for the students.

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