WATER SUPPLY AND SEWAGE WORKS

1. GENERAL

SCHOOL	SCHOOL OF ENGINEERING		
ACADEMIC UNIT	DEPARTMENT OF CIVIL ENGINEERING		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	40901	**SEMESTER**	9th
COURSE TITLE	WATER SUPPLY AND SEWAGE WORKS		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**WEEKLY TEACHING HOURS**	**CREDITS**
Lectures (4 hours/week)	4	5
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Scientific area course
PREREQUISITE COURSES:	
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES (In English)
COURSE WEBSITE (URL)	YES in the Open eClass platform (Asynchronous eLearning platform).

2. LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

By the end of the course students are intended to become familiar with:

•calculation of water demand and variation of water demand.

• the basic principles of spatial allocation, and design of drinking water tanks and pressure-adjusting wells.

• the basic principles of design of the delivering and water distribution networks.

• estimation of wastewater and rainwater discharges for hydraulic design.

• the basic principles of design of sewage and rainwater drainage networks.

At the end of the course the student will have developed the following knowledge and skills:

• design of water distribution networks.

• design of sewage and rainwater drainage networks.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology

Adapting to new situations

Decision-making

Working independently

Team work

Working in an international environment

Working in an interdisciplinary environment

Production of new research ideas

Project planning and management

Respect for difference and multiculturalism

Respect for the natural environment

Showing social, professional and ethical responsibility and sensitivity to gender issues

Criticism and self-criticism

Production of free, creative and inductive thinking

……

Others…

…….

• Working independently

• Search for, analysis and synthesis of data and information, with the use of the necessary technology

•Project planning and management

•Respect for the natural environment

3. SYLLABUS

Relations of Water Supply and Sewage Works with the land use.

Drinking water quality parameters. Physicochemical and biologicalfeatures of groundwater and surface water.

Calculation of water demand: water uses, estimation of design population.

Variation of water consumption: seasonal and diurnal variation of water demand, water losses, design flows for the delivering and distribution parts of the network.

Water intake works.Spatial allocation and design of drinking water tanks and pressure-adjusting wells.

Design of water distribution pipes and pumping stations. Hydraulic calculations of pipelines. Water Hammer.

Design of water distribution network: Spatial allocation of water demand based on the spatial distribution of population, regular and emergency scenarios of network operation, methods for hydraulic calculations.

Water distribution pipes, special network devices and components.

Design of sewage and rainwater drainage networks: domestic wastewater, sewage networks, combined sewage and rainwater drainage networks, estimation of wastewater and rainwater discharges for hydraulic design.

Hydraulics of sewers. Design of sewer systems. Hydraulic concepts and approximations for the design of sewage and rainwater drainage networks.

Sewer piping technology, visit wells and sewer appurtenances. Elements of construction and maintenance of sewer systems.

Sewer technology, visiting manholes, sewer components. Elements of sewer construction and maintenance.

4. TEACHING and LEARNING METHODS - EVALUATION

<table>
<tr><td>DELIVERY
Face-to-face, Distance learning, etc.</td><td>Face-to-face.</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY
Use of ICT in teaching, laboratory education, communication with students</td><td>Use of the Information and Communication Technologies (ICT) in Teaching. Support of the learning process through the electronic e-class platform.</td></tr>
<tr><td>TEACHING METHODS

The manner and methods of teaching are described in detail.

Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.

The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Attendance of Lectures (4 hours x 13 weeks)</td><td>52</td></tr>
<tr><td>Independent Study</td><td>73</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td>Course total</td><td>125</td></tr>
<tr><td>25 hours workload per credit</td><td>(5 ECTS x25) = 125</td></tr>
</table>
</td></tr>
<tr><td>STUDENT PERFORMANCE EVALUATION

Description of the evaluation procedure

Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other

Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</td><td>Final written examination (100%), during which solution of problems and answer of questions is required.</td></tr>
</table>

5. ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

Βιβλίο [14502]: Δίκτυα Αποχέτευσης και Επεξεργασία Λυμάτων, Τσόγκας Χρήστος Ε.

Βιβλίο [12496]: Υδραυλική των Οικισμών - Υδρεύσεις, G. Martz

Βιβλίο [12494]: Υδραυλική των Οικισμών - Αποχετεύσεις, G. Martz

REPAIR AND STRENGTHENING OF STRUCTURES

1. GENERAL

SCHOOL	ENGINEERING		
ACADEMIC UNIT	DEPARTMENT OF CIVIL ENGINEERING		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	40902	**SEMESTER**	9th
COURSE TITLE	REPAIR AND STRENGTHENING OF STRUCTURES		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**WEEKLY TEACHING HOURS**	**CREDITS**
Lectures	4	5
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Specialised general knowledge
PREREQUISITE COURSES:	There are no prerequisite courses. Students must have at least basic knowledge of Statics, Reinforced Concrete, Steel Structures and Masonry Structures.
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes (in English)
COURSE WEBSITE (URL)	

2. LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

The course aims to make students capable of:

• Recognize the pathology of damage to steel structures, reinforced concrete structures and masonry structures.

• Recognize the materials of structural interventions and the methods of intervention.

• Be able to design structural interventions on structural elements, depending on the method of intervention.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking
……
Others…
…….

Search for, analysis and synthesis of data and information, with the use of the necessary technology

Decision-making

Working independently

3. SYLLABUS

- Methods of identifying damage and restoring them in metal structures.
- Methods of identifying damage and restoring them in reinforced concrete structures.
- Strengthening of reinforced concrete structures. Greek Code of Structural Interventions (G.C.S.I).
- Strengthening of reinforced concrete structureswith Fiber Reinforced Polymers (FRP).
- Damage treatment to buildings affected by moisture.
- Repair and strengthening of masonry structures.
- Repair and strengthening of timber structures.

4. TEACHING and LEARNING METHODS - EVALUATION

<table>
<tr><td>DELIVERY
Face-to-face, Distance learning, etc.</td><td>Face-to-face lectures</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY
Use of ICT in teaching, laboratory education, communication with students</td><td>Use of ICT in many lectures.
Support of learning process through e-class electronic platform.</td></tr>
<tr><td>TEACHING METHODS

The manner and methods of teaching are described in detail.

Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.

The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures</td><td>52</td></tr>
<tr><td>Some individual exercises/projects</td><td>16</td></tr>
<tr><td>Independent study</td><td>82</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td>Course Total
(25 hours of workload per ECTS credit)</td><td>150</td></tr>
</table>
</td></tr>
<tr><td>STUDENT PERFORMANCE EVALUATION

Description of the evaluation procedure

Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other

Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</td><td>Students will be evaluated in the following ways:
•Final exam
• Classroom exercises/projects

Exercises/projects are optional, calculated only positively and can receive 20% of the score</td></tr>
</table>

5. ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

- Greek Code of Structural Interventions (G.C.S.I), 2nd Revision 2017. (in Greek)
- Theory of Design and Strengthening, Th. Tassios, Symmetria Publications. (in Greek)
- Pathology of building shell, G. Kalyvas, Tekdotiki Selka 4M Publications. (in Greek)
- Repair and Strengthening of Structures, S. Dritsos. (in Greek)
- Strengthening of structures for seismic loads, K. Spyrakos. (in Greek)

ENERGY EFFICIENT AND BIOCLIMATIC DESIGN

1. GENERAL

SCHOOL	SCHOOL OF ENGINEERING		
ACADEMIC UNIT	DEPARTMENT OF CIVIL ENGINEERING		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	40903	**SEMESTER**	9th
COURSE TITLE	ENERGY EFFICIENT AND BIOCLIMATIC DESIGN		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**WEEKLY TEACHING HOURS**	**CREDITS (ECTS)**
Lectures	**4 hours/week**	5
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Scientific area course
PREREQUISITE COURSES:	No prerequisite courses are need but the students should already have attended, in previous semesters, courses in Physics and Mathematics
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES (In English)
COURSE WEBSITE (URL)	YES in the Open eClass platform (Asynchronous e Learning platform).

2. LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

Upon successful completion of this course, the students should be able to comprehend and calculate:

- Design of building according to bioclimatic and energy efficience consepts

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Team work	*Criticism and self-criticism*
Working in an international environment	*Production of free, creative and inductive thinking*
Working in an interdisciplinary environment	*……*
Production of new research ideas	*Others… …….*

.

- *Working as a team in projects related to construction engineering*
- *Creation of new ideas in problems of civil engineering*
- *Ability to lead the scientific group for the study and construction of small and/or small projects*
- *Working by himself in engineering projects*

3. SYLLABUS

- Environment-thermal comfort
- Urban environment
- Climate change
- Environment - Sustainability-Energy
- Sustainability
- Renewable energy sources
- Environmental problems
- Energy resources
- Thermal comfort
- Climate conditions and comfort
- Change of heat with human body and environment

- Thermal comfort and environment
- Scales of thermal comfort
- Thermal Comfort-Design of buildings
- Regions of thermal comfort
- Bioclimatic Design
- Bioclimatic perception of structured space
- Climatic data
- Solar radiation
- Solar maps
- The proper location of the building - Orientation (the largest face of the house facing SOUTH)
- Shape of the building
- Size of the openings are depended on the orientation of the building
- Interior design according to bioclimatic principles of orientation Protection from cold winds
- Thermal protection – insulation
- Thermal mass - heat capacity Sun protection of the building and its openings
- Color and texture of the outer surfaces
- Sufficiency of thermal mass
- Thermal protection – insulation
- Natural ventilation
- Outgoing heat radiation during night
- Microclimate
-

4. TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Lectures in the class using the black board and/or computer techniques e.g Power Point with the use of video projector.
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	Use of the Information and Communication Technologies (ICT) in Teaching.Support of the learning process through the electronic e-class platform.

TEACHING METHODS *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.* *The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	***Activity***	***Semester workload***
	Attendance of Lectures (4 hours x 13 weeks)	52
	Participation in optional practice exercises that are given in the classroom and focus on Civil Engineering applications	56
	Independent Study	72
	Course total	*180*
	(25 hours workload per credit)	***(5 ECTS x35) = 180***
STUDENT PERFORMANCE EVALUATION *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students.*	The evaluation is done: • 70% of the final grade from the final examination, 15% from homework and 15% from midterms.	

5. BIBLIOGRAPHY

1. ΒΙΟΚΛΙΜΑΤΙΚΗ ΑΡΧΙΤΕΚΤΟΝΙΚΗ & ΕΝΕΡΓΕΙΑΚΟΣ ΣΧΕΔΙΑΣΜΟΣ, ΧΡΙΣΤΙΝΑ ΚΩΝΣΤΑΝΤΙΝΙΔΟΥ

2. ΒΙΟΚΛΙΜΑΤΙΚΟΣ ΣΧΕΔΙΑΣΜΟΣ , 2Η ΕΚΔΟΣΗ, ΑΝΔΡΕΑΔΑΚΗ - ΧΡΟΝΑΚΗ ΕΛΕΝΗ

INTELLIGENT TRANSPORTATION SYSTEMS

1. GENERAL

SCHOOL	ENGINEERING		
ACADEMIC UNIT	DEPARTMENT OF CIVIL ENGINEERING		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	40904	**SEMESTER**	9th
COURSE TITLE	INTELLIGENT TRANSPORTATION SYSTEMS		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**WEEKLY TEACHING HOURS**	**CREDITS**
Lectures	3	3
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Scientific area course
PREREQUISITE COURSES:	There are no prerequisite courses Desired knowledge of Traffic Engineering
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes (in English)
COURSE WEBSITE (URL)	

2. LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

The goal of the course is to introduce the student to the new and modern areas of intelligent transportation systems and the smart city, data collection and algorithms as well as performance indices, accident management and strategies for intelligent transportation.

After the successful completion of the course, the student is expected to:

- Understand the concept of intelligent transportation
- Understand the concept of modern smart city
- Collect traffic data and work with intelligent algorithms
- Work with accident detection algorithms
- Manage accidents and other incidents

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology

Adapting to new situations

Decision-making

Working independently

Team work

Working in an international environment

Working in an interdisciplinary environment

Production of new research ideas

Project planning and management

Respect for difference and multiculturalism

Respect for the natural environment

Showing social, professional and ethical responsibility and sensitivity to gender issues

Criticism and self-criticism

Production of free, creative and inductive thinking

……

Others…

…….

- Decision-making
- Working independently

3. SYLLABUS

Introduction to the concept of the smart city.
Traffic problems in modern cities and trends for coping with them.
Information technology and strategies for intelligent transportation.
Data collection. Algorithms. Performance indices.
Detection algorithms. Accidents. Accident management.

4. TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face-to-face in the classroom
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	Support of learning process through the electronic platform e-class
TEACHING METHODS *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.* *The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	
STUDENT PERFORMANCE EVALUATION *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students.*	Final exam 100%

Activity	*Semester workload*
Lectures	39
Individual study	36
Course total	**75**

5. ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

Robert Gordon, Intelligent Transportation Systems: Functional Design for Effective Traffic, Springer, 2016.

Y.J.Stephanedes, Intelligent Transportation Systems, Chapter 86, The Engineering Handbook, 2nd Edition, R.C.Dorf (Editor), CRC Press, Boca Raton, FL, USA, 2005.

- Related academic journals:

Transportation Research A & B

PREFABRICATED SYSTEMS

1. GENERAL

SCHOOL	ENGINEERING		
ACADEMIC UNIT	DEPARTMENT OF CIVIL ENGINEERING		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	40905	**SEMESTER**	9th
COURSE TITLE	PREFABRICATED SYSTEMS		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**WEEKLY TEACHING HOURS**	**CREDITS**
Lectures	3	3
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Specialised general knowledge
PREREQUISITE COURSES:	There are no prerequisite courses. Students must have knowledge of“Strength of Materials”,“Technology of Structural Materials” and“Reinforced Concrete”.
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes (in English)
COURSE WEBSITE (URL)	

2. LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

The aim of the course is to educatethe students on the basic principles of reinforced concrete prefabricated elements.
Upon successful completion of the course the student will be able to know:
- General knowledge on prefabrication, definitions, disadvantages and advantages over conventional construction.
- The types of prefabricated elements.
- The special requirements and technology of materials used in prefabrication.
- The production methods, storage, transportation and assembly of prefabricated elements.
- The basic principles for the design of projects from prefabricated elements.
- The special requirements for structural elements and connections for proper seismic performance.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking
……
Others…
…….

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Decision-making
Working independently
Project planning and management

3. SYLLABUS

General knowledge on prefabrication. Advantages and disadvantages of prefabrication. Definitions. Types of prefabricated elements. Technology of materials used in prefabrication. Methods of production, storage, transport and assembly. Design of structures from prefabricated elements. General principles. Monolithicity of construction. Diaphragm action of slabs. Structural systems. Connections. Seismic behavior. Detailing.

4. TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face-to-face lectures
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	Use of ICT in teaching (eg. Powerpoint presentations, photographs etc.). Support of learning process through e-class electronic platform.
TEACHING METHODS *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.* *The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	
STUDENT PERFORMANCE EVALUATION *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students.*	Written final exam (100%) of problem-solving exercises with combined content and short-answer questions.

Activity	***Semester workload***
Lectures	39
Independent study	36
Course Total (25 hours of workload per ECTS credit)	75

5. ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

Elliot, K.S., Precastconcretestructures, CrcPress, 2016.