ETE 1003. Documentation and Recording of Monuments and Complexes

COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF ENGINEERING		
ACADEMIC UNIT	DEPARTMENT OF MATERIALS SCIENCE AND ENGINEERING		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	**ETE 1003**	**SEMESTER**	**10**
COURSE TITLE	Documentation and Recording of Monuments and Complexes		

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 organization of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialized general knowledge, skills development*	Specialized general knowledge
PREREQUISITE COURSES:	NO
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No
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 provide students with a comprehensive knowledge and understanding of the following:

1. Collection and classification of data related to materials, decay, and environment, for their integrated documentation, on monuments scale and/or on complexes scale.
2. Development of databases for materials, decay, and environment; their representation in 2D and/or 3D recording, management, and documentation systems, such as Computer-Aided Design (CAD), Geographic Information Systems (GIS), and Building Information Modeling (BIM).
3. Digital twins and monitoring of the preservation state of monuments and historical structures.
4. Management of spatial data for the protection and promotion of monuments and sites.

The course aligns with Level 6 (EQF) and focuses on the enhancement of the analytical and critical

skills of the students in the field of applications for managing documentation data related to materials, decay, environment, construction, and complexes (that is, archaeological sites, historical sites, and traditional settlements).

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…*
	…….

- Search for, analysis and synthesis of data and information,
- Decision making,
- Autonomous work,
- Team work,
- Working in an interdisciplinary environment (Materials-Built Environment-Management of Documentation Data),
- Respect for the natural environment,
- Production of free, creative and inductive thinking

(3) SYLLABUS

- General principles and definitions of the digital documentation of monuments and complexes for their preservation. Institutional framework.
- Methodologies for classifying data of building materials, decay, damage, and environment, as well as methodologies for developing corresponding databases.
- Basic principles of Computer-Aided Design (CAD), Geographic Information Systems (GIS), and Building Information Modeling (BIM).
- Management and correlation of multimodal data in 2D and/or 3D modeling and documentation systems. Understanding the terms of ontology, metadata, semantic enrichment, interoperability, etc. Comparative study of the capabilities of parameterization, documentation, and mapping of multimodal data, depending on the digital documentation model used.
- Digital twins and Internet of Things (IoT) sensors for real-time monitoring of the preservation state of monuments and historical structures.
- Applications of spatial planning for the protection and promotion of monuments and sites.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Lectures, face-to-face in class
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	Use of projection media to aid teaching.
TEACHING METHODS *The manner and methods of teaching are described in detail. Lectures, seminars, laboratory practice,*	

Activity	***Semester workload***
Lectures	39

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*	Team projects on case studies	10
	Self-directed study, preparing for the course final exam	26
	Course total	**75**
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.*	LANGUAGE OF EVALUATION: Greek METHOD OF EVALUATION: With written exams on the contents of the lectures, • multiple-choice questions and • Problem-solving without the use of notes or other aids and/or presenting team projects based on case studies.	

(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

1. Lecture Notes
2. Anna Bentkowska-Kafel, Lindsay MacDonald, (2017). Digital Techniques for Documenting and Preserving Cultural Heritage, Arc Humanities Press, Kalamazoo and Bradford, ISBN: 9781942401346.
3. Stefanakis Emmanouel, (2010). Databases of Geographical Data & Geographical Information Systems, Second Edition, ISBN: 9789607182722, A. PAPASOTHRIOU PUBLICATIONS, (in Greek), Evdoxos Code: 9681.
4. Stylianidis Efstratios, Sylaiou Stella, (2023). Documentation and Promotion of Culture, First Edition, ISBN: 9789604184941, TZIOLA PUBLICATIONS, Evdoxos Code: 112706902.
5. Rafael Sacks, Charles Eastman, Ghang Lee, Paul Teicholz, (2018). BIM handbook: A guide to building information modeling for owners, designers, engineers, contractors, and facility managers (3rd ed.). John Wiley & Sons, ISBN: 978-1119287537.