

MODULE DESCRIPTION

General

School	Geotechnical Sciences
Department	Forest and Natural Environment Sciences

Module Information

Title	Digital Photogrammetry
Course Code	OPT.7
Level of Studies	Undergraduate Studies
Teaching Period	Winter
Attendance Type	Elective
Prerequisites	Not applied

Orientation	Weekly Hours		Year	Semester	ECTS
	Lectures	Laboratory work			
Landscape Architecture & Restoration	2	1	3	5	3

Faculty Instructor

Dr. Lazaros Sechidis

Type of Module

- General Foundation
- Specific Foundation / Core
- Knowledge Deepening / Consolidation

Mode of Delivery

- Face to face
- Distance learning

Digital Module availability

- E-Study Guide
- Departments Website
- E-Learning

Language

	Teaching	Examination
Greek	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

English	<input type="checkbox"/>	<input type="checkbox"/>
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Erasmus



The course is not offered to exchange programme students

Learning Outcomes

At the end of this course students will be able to:

- recognize basic principles of 3D graphics and mixed reality technology.
- determine the basic parameters of photogrammetry techniques.
- know the basic remote sensing techniques.
- know the basic processing techniques of 3D Graphics and point clouds that derived from photogrammetry or remote sensing.
- know the new technologies for capturing monuments (small and/or large scale).
- prepare the necessary steps for capturing large-scale monuments through suitable equipment (terrestrial scanners, UAV/drones, portable scanners).
- manage multiple point cloud data
- produce digital environments using open source software and available libraries.
- transmit the acquired knowledge within the course in a creative way to their colleagues in order to create cultural informatics applications.

List of General Competences



Apply knowledge in practice



Work autonomously



Work in teams



Work in an international context



Work in an interdisciplinary team



Respect natural environment



Advance free, creative and causative thinking

Module Content (Syllabus)

The course will analyze applications of Digital Culture with an emphasis on Visualization of digital data for later use in contexts Mixed Reality (Augmented and Virtual Reality) as well as in 3D printing applications. The first part of the course is about 3D visualization data through photogrammetry and in their processing through appropriate softwares. In the second part of the course, new 3D data visualization technologies are examined and presented using terrestrial, aerial (UAV/drones) and portable 3D scanners (3Dscanners), as well as suitable software for the composition of 3D graphics (3D graphics) and point clouds (point-clouds) that arise through remote sensing. In the context of the course, issues that implement with safe and efficient way to record, save, document and display Monuments culture (small and large scale), as well as the production of Digital Environments for Mixed Reality applications. The laboratory part is framed with advanced technologies to assist the above, such

as: 1) use of appropriate software for photogrammetry and point cloud management objects of cultural interest and 2) display and use of the necessary equipment

Educational Material Types

- Book
- Notes
- Slide presentations
- Video lectures
- Multimedia
- Interactive exercises
- Other:

Use of Information and Communication Technologies

- Use of ICT in Course Teaching
- Use of ICT in Laboratory Teaching
- Use of ICT in Communication with Students
- Use of ICT in Student Assessment

Module Organization

Course Activity	Workload (hours)
Lectures	26
Laboratory work	13
Field Trip/Short Individual Assignments	11
Independent Study	25
Total	75

Student Assessment Methods

- Written Exam with Multiple Choice Questions
- Written Exam with Short Answer Questions
- Written Exam with Extended Answer Questions
- Written Assignment
- Report
- Oral Exams
- Laboratory Assignment

Suggested Bibliography (Eudoxus and additional bibliography)

Introduction to photogrammetry, (Eudoxos Book Code: 11255), Type: Syngram, Patias Petros, 1993, Ziti, ISBN: 960-431-021-6