COURSE OUTLINE

1. GENERAL

SCHOOL	Of Engineering
DEPARTMENT	of Environmental Engineering
LEVEL OF STUDIES	First cycle, General Education
COURSE CODE	TMC163

COURSE CODE	TMC163	**SEMESTER** **2nd**
COURSE TITLE	**Mathematics II**	

TEACHING ACTIVITIES	TEACHING HOURS PER WEEK	ECTS CREDITS
	6	5

COURSE TYPE	Compulsory
PREREQUISITES:	Mathematics I
TEACHING & EXAMINATION LANGUAGE:	Greek
COURSE OFFERED TO ERASMUS STUDENTS:	No
COURSE URL:	https://eclass.duth.gr/courses/TMC299/

2. LEARNING OUTCOMES

Learning Outcomes

The scopus of the course is to introduce the students to basic concepts concerning Double Iintegrals, Triple integrals, Line Integrals (Integration Methods and Applications), Ordinary Differential Equations and Partial Differential Equations (Methods and Applications) which are necessary for all students of School of Engineering.

General Skills

Search, analysis and synthesis of data and information,
Critical thinking
Promoting free, creative and inductive reasoning

3. COURSE CONTENT

Line Integral. Applications to Geometry and Physics. Surface Equations. Double Integral. Applications to Geometry and Physics.

Green's Theorem. Triple Integral. Application to Geometry and Physics. Evaluation of a Flow of a Vector Map through a Surface. First Order Differential Equations. First Order Linear Differential Equations. Separable Differential Equations. Exact Differential Equations. Integrating Factors. Linear Differential Equations of Higher Order. Wronskian Determinant. Linear Differential Equations with Constant coefficients. Homogenous Linear Differential Equations. Nonhomogenous Linear Differential Equations. Method of Undetermined Coefficients. Method of Variation of Parameter. Systems of Differential Equations. Applications to Populations Problems, Physics, e.t.c.

Partial Differential Equations. Linear homogenous and nonhomogenous partial differential equations. Separation of variables. Initial and boundary value problems: The wave equation, The heat equation

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD	Face to face
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT)	The lectures are uploaded on the e-class platform in the form of pdf files. Use of ICT in Teaching (power point, Geogebra, Excel etch.) . Communication with students through the platform e-class.
TEACHING ORGANIZATION	Lectures
STUDENT EVALUATION	Written examination at the end of the semester

5. SUGGESTED BIBLIOGRAPHY

1. General Mathematics, (Schaum's Outline Series), F. Ayres, Translation S. Persides, X. Terzides, 1983, ISBN 07-0022653-X.
2. Exercises of Differential and Integral Calculus of Functions of Several Variables, B. Fragou, Ziti, ISBN 960-431-336-3.
3. Ordinary Differential Equations, M. Kesoglides, Ziti, ISBN 978-960-456-176-6.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	Garyfallos Papaschinopoulos / Gesthimani Stefanidou
Contact details:	gstefani@env.duth.gr
Supervisors:	
Evaluation methods:	Written (60%) and oral (40%) examinations at the end of the semester
Implementation Instructions: (3)	➤ The student ought • to enroll in platform eclass in the course " Mathematics II ", • to use exclusively his/her institutional account for his/her participation in the video conferencing platform and for his entry in eclass, • to shows his / her student ID before the start of the examination or whenever requested. ➤ Digital platforms to be used: • simultaneous use of Microsoft Teams and platform eclass ➤ Required technological equipment: • Ability to connect to the internet, • use of camera, speakers, microphone, • ability to scan / photograph the manuscript and create a PDF file, • ability to read a GIF (photo) file. ➤ Throughout the exam, the students are connected to Microsoft Teams with an open camera and microphone so that there is seamless visual and audio contact between examiner and examinee. At the same time, they must be able to connect to the eclass to read the exam questions and upload the answers. ➤ For the written examination the examinees have • To read the examination test that will be posted in eclass in the "Tasks" or in the "Exercises" of the course, • To write their answers on an A4 paper, to digitize it (scan / photograph), to create a PDF file and to upload it to eclass ➤ For the oral examination • the students initially are waiting in the lobby, • the students are inserted into the virtual room (Microsoft Teams) one by one. • 3-4 questions will be asked. • The examination will take about 5 minutes (for each one).