

COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF SCIENCES		
ACADEMIC UNIT	DEPARTMENT OF MATHEMATICS		
LEVEL OF STUDIES	POSTGRADUATE Studies in Mathematics		
COURSE CODE	C5	SEMESTER	
COURSE TITLE	NEW TECHNOLOGIES IN EDUCATION		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
		3	10
COURSE TYPE	Specialised general knowledge		
PREREQUISITE COURSES:	NO		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	http://www.math.aegean.gr/index.php/en/academics/undergraduate-programs		

(2) LEARNING OUTCOMES

Learning outcomes
<p>After the successful completion of the course the students are expected to understand the basic methodologies of introducing educational software in Mathematics Education (simulations, microcosms, educational games, etc). They will be able to use the Maple software for solving mathematical problems and for visualizing of mathematical concepts. They will be able to develop interactive educational applications for Mathematics with Maple, Geogebra and/or Desmos. They will know and apply basic methods for the evaluation of technological educational environments. They will be aware of the main current research trends in educational technology.</p>
General Competences
<p>Working independently Team work Working in an interdisciplinary environment</p>

(3) SYLLABUS

<p>Introduction to Information and Communication Technologies (ICT) in mathematics education. Basic principles of instructional design (definition of learning objectives, activity design and evaluation). Theoretical underpinnings and methodologies for adopting educational software. Simulations, multimedia in education, games, drill and practice. Introduction to the Mapple mathematical software. Development of educational applications and activities with Mapple, and educational mathematical software: Geogebra, Desmos. Study of integrated educational environments and applications for all levels of mathematics education. Good practice rules for the development of educational applications. Evaluation of educational</p>
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software.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	Face-to-face										
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	<ul style="list-style-type: none">• Use of ICT in teaching• Communication with students via e-mail• Uploading course material on moodle system.										
TEACHING METHODS	<table border="1"><thead><tr><th>Activity</th><th>Semester workload</th></tr></thead><tbody><tr><td>Lectures</td><td>39</td></tr><tr><td>Autonomous Study</td><td>148.5</td></tr><tr><td>Written assignments</td><td>62.5</td></tr><tr><td>Course total (25 per ECTS)</td><td>250</td></tr></tbody></table>	Activity	Semester workload	Lectures	39	Autonomous Study	148.5	Written assignments	62.5	Course total (25 per ECTS)	250
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Course total (25 per ECTS)	250										
STUDENT PERFORMANCE EVALUATION	Student evaluation is done in Greek through a written examination which includes problem solving and laboratory work. For students with disabilities, evaluation takes place via oral exams.										

(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

1. Marian Mureşan, *Introduction to Mathematica with Applications*, Springer, 2017.
2. Seymour Papert, *Mindstorms: Children, Computers, and Powerful Ideas*, Basic Books.
3. Alessi & Trollip. *Multimedia for learning, methods and development*, Pearson, 2001.

- Related academic journals:

- Technology, Knowledge and Learning
- Journal of Science Education and Technology
- Educational Technology Research & Development
- Computers & Education
- Educational Technology & Society