

COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF SCIENCES		
ACADEMIC UNIT	DEPARTMENT OF MATHEMATICS		
LEVEL OF STUDIES	POSTGRADUATE Studies in Mathematics		
COURSE CODE	A3	SEMESTER	B
COURSE TITLE	OPERATOR THEORY		
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
Operator Theory begins with the geometry of Hilbert space and proceeds to the spectral theory for compact self-adjoint operators with a wide range of applications in mathematics, physics, biology and economics. The goal of this course is to provide an introduction to the methods and the language of operator theory.
General Competences
Working independently Team work Production of free and inductive thinking

(3) SYLLABUS

Vector spaces with a scalar product, pre-Hilbert spaces. Hilbert spaces and their geometry Linear operators and their adjoints. C*-algebras and the spectrum. The spectral theory of self-adjoint and normal operators. Special classes of linear operators.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	Face-to-face	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	Communication with students via e-mail	
TEACHING METHODS	<i>Activity</i>	<i>Semester workload</i>

	Lectures	39
	Independent study	148.5
	Assignments	62.5
	Course total (25 per ECTS)	250
STUDENT PERFORMANCE EVALUATION	<p>Student evaluation is done in Greek through a written examination which includes short-answer equations and problem solving.</p> <p>For students with disabilities, evaluation takes place via oral exams.</p>	

(5) ATTACHED BIBLIOGRAPHY

1. Joachim Weidmann, Linear Operators in Hilbert Spaces Graduate Texts in Mathematics 68, Springer-Verlag, 1980.
2. John B. Conway, A course in operator theory, American Mathematical Society (2000).