

COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF SCIENCES		
ACADEMIC UNIT	DEPARTMENT OF MATHEMATICS		
LEVEL OF STUDIES	POSTGRADUATE Studies in Mathematics		
COURSE CODE	C3	SEMESTER	B
COURSE TITLE	MATHEMATICAL LOGIC		
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>This course covers the basics of applied mathematical logic and an introduction to logic programming languages (Prolog) and logical agents.</p> <ol style="list-style-type: none"> 1) Students will gain expertise in the techniques of mathematical logic, such as logical inductions, constructing models of formulae, formal proof systems, automated reasoning and programming in logic programming languages such as Prolog 2) Getting to know the concepts of knowledge based agents. 3) Understand the unusual effectiveness of logic in computer and web technologies.
General Competences
<p>Working independently Team work Production of free and inductive thinking</p>

(3) SYLLABUS

<ol style="list-style-type: none"> 1. Knowledge Representation. Elements of Propositional and Predicate calculus. (Logical sentence. Chart of the propositional condition. Logical connectives. Tautologies. The rules of proof construction. Semantic tableaux proof system, Other proof systems, Resolution Method. Predicate calculus. Tautologies of the predicate calculus. Examples of applications of tautologies) 2. Introduction to logic programming languages, including Prolog. 3. Introduction to Artificial Intelligence. 4. Intelligent and Logical Agents. 5. Knowledge representation and reasoning.

6. Fuzzy logic and web applications.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	Face-to-face	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	<ul style="list-style-type: none"> • Communication with students via e-mail • Uploading course material on moodle system 	
TEACHING METHODS	Activity	Semester workload
	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. Logic for Mathematics and Computer Science. Stanley N. Burris
2. Artificial Intelligence. Elaine Rich