

**COURSE DESCRIPTION FORM**

**Academic Unit:** DEPARTMENT OF INFORMATICS

**Department:** Choose

**Laboratory/Reading-Room/Clinic:** Choose

**Course Title:** DECISION SUPPORT THEORY & SYSTEMS

**Course Code:** IM103

**Type of the Course:** Compulsory (Core)

Background / General Knowledge

Scientific Area

Skills Development (i.e. laboratory, new technologies)

Total Hours

Lectures 39

Seminars

Laboratory Work

Fieldwork

Project (ie bibliographical 20 case study)

Tutorial

Internship

Clinical Practice

**Cycle / Level of the Course:** 2nd / Postgraduate

**Study Year:** 1o

**Study Semester:** 1o

**Credits (ECTS):** 6

**Course Leader:** VLAHAVAS IOANNIS

**Teaching Staff:** VLAHAVAS IOANNIS

**Teaching Assistants:**

**Course Objectives and Outcomes:**

a. Describe course objectives / outcomes and competences (knowledge & skills):

Cognitive:

Understanding the basic theory for simple and sequential decisions by an intelligent agent, familiarization with the types of decision support systems, understanding the basic principles of game theory, understanding the theory of decision making with data analysis, understanding the developing decision support systems, familiarization with the use of decision support software.

Skills:

Training on developing decision support systems, training on the use of decision support tools.

b. **Categorize course objectives** (select if applicable):

Cognitive Domain:

- Remembering
- Understanding
- Applying
- Analysing
- Evaluating
- Creating

Affective Domain:

- Reception
- Response
- Valuing
- Organization
- Characterization (internalizing values)

Psychomotor Domain (Skills):

- Imitation
- Manipulation
- Precision
- Articulation
- Naturalization

**Prerequisites:**

Basic knowledge of probability theory.

**Course Content:**

Introduction, Decision Making under Certainty (Multi-criteria Decision Making Methods), Decision Making under Ignorance, Decision Making under Risk (Probability Theory, Bayesian Networks, Utility Theory), Sequential Decisions (Decision Trees, Decision Making in the presence of Competitive Agents (Game Theory), Decision Making with Data Analysis (Machine Learning, Knowledge Discovery in Databases).

**Recommended Reading:**

a. **Recommended bibliography & material** Teaching Notes (transparencies and extra material).

b. **Additional bibliography:**

- Making Hard Decisions: An Introduction to Decision Analysis, 2nd Edition, Robert T. Clemen, Duxbury Press, 1996.
- Essentials of Management Information Systems, 4th Edition, J. Laudon, Prentice Hall, 2001.
- Artificial Intelligence, third Edition, I. Vlahavas, P. Kefalas, N. Vassiliades, F. Kokkoras, I. Sakellariou, Giourdas Publications, 2006.
- Decision support systems: concepts and resources for managers, Power, D. J., Westport, Conn., Quorum Books, 2002.

**Teaching Methods:**

	<input checked="" type="checkbox"/>	Attending lectures	Guided
	<input checked="" type="checkbox"/>	Practising laboratory skills	Individual
	<input type="checkbox"/>	Demonstration (i.e.for fieldwork)	Choose
	<input checked="" type="checkbox"/>	Writing papers	Individual
	<input checked="" type="checkbox"/>	Study for a project	Individual
	<input checked="" type="checkbox"/>	Reading books and papers	
Individual			
	<input checked="" type="checkbox"/>	Critisizing/analyzing others'work	Individual
	<input type="checkbox"/>	Clinical Pracice	Choose
	<input type="checkbox"/>		Choose

**Assessment:**

**a. Description of the procedure:**

Final Exams (at the end of the semester): 80% and Presentation :20% .

Bonus grades from projects.

(i.e. what is consider as important and its weighting. Are there explicitly defined criteria and what are they or where could be found).

**b. Assessment methods:**

	<input checked="" type="checkbox"/>	Multiple Choice Test	
For grading (Summative)			
	<input checked="" type="checkbox"/>	Written Exams	
For grading (Summative)			
	<input checked="" type="checkbox"/>	Written Assignment	
For grading (Summative)			<input type="checkbox"/>
Report for a Laboratory	Choose		
	<input type="checkbox"/>	Report for a Fieldwork	Choose
	<input type="checkbox"/>	Oral Exams	Choose
	<input checked="" type="checkbox"/>	Oral Presentation	
For grading (Summative)			
	<input type="checkbox"/>	Proodos	Choose
	<input type="checkbox"/>	Continuous Evaluation	Choose
	<input type="checkbox"/>	Computer Assisted Assessment	Choose
	<input type="checkbox"/>	Clinical Examination of Patient	Choose
	<input type="checkbox"/>		Choose

**Use of ICT in Course Teaching:**

Slides in electronic format, software tools &

videos.

**Digital Course Content:**

Blackboard Hyperlink:

eClass Hyperlink:

Sakai Hyperlink:

MOODLE (PILEAS) Hyperlink:

<http://pileas.csd.auth.gr>

**Language of Instruction:**

Greek

English

French

German

Italian

## General Competences

The course students, additional to basic general knowledge in the field of study, are educated to:

Apply knowledge in practice.

Retrieve, analyse and synthesise data and information, with the use of necessary technologies.

Adapt to new situations.

Make decisions.

Work autonomously.

Work in teams.

Work in an international context.

Work in an interdisciplinary team.

Generate new research ideas.

Design and manage projects.

Appreciate diversity and multiculturality.

Respect natural environment.

- Demonstrate social, professional and ethical commitment and sensitivity to gender issues.
- Be critical and self-critical.
- Advance free, creative and causative thinking.

### National Qualifications Framework

Select the levels of learning outcomes that are fulfilled by this course, according to the classification of NQF.

#### Knowledge

- Level 8
- Level 7
- Level 6
- Level 5
- Level 4
- Level 3
- Level 2
- Level 1

#### Competence

- Level 8
- Level 7
- Level 6
- Level 5
- Level 4
- Level 3
- Level 2
- Level 1

#### Skills

- Level 8
- Level 7
- Level 6
- Level 5
- Level 4
- Level 3
- Level 2
- Level 1