## COURSE OUTLINE

### (1) GENERAL

<table>
<thead>
<tr>
<th>SCHOOL</th>
<th>ENGINEERING, NATURAL SCIENCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACADEMIC UNIT/UNITS</td>
<td>COMPUTER ENGINEERING AND INFORMATICS DEPARTMENT, DEPARTMENT OF MATHEMATICS</td>
</tr>
<tr>
<td>TITLE OF MASTER'S DEGREE</td>
<td>MSc in Data Driven Computing and Decision Making</td>
</tr>
<tr>
<td>LEVEL OF STUDIES</td>
<td>Postgraduate</td>
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<tr>
<td>COURSE CODE</td>
<td>DDCD112</td>
</tr>
<tr>
<td>COURSE TITLE</td>
<td>Intelligent Decision Systems</td>
</tr>
</tbody>
</table>

### INDEPENDENT TEACHING ACTIVITIES

<table>
<thead>
<tr>
<th>WEEKLY TEACHING HOURS</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>2</td>
</tr>
<tr>
<td>Recitation sections</td>
<td>1</td>
</tr>
</tbody>
</table>

Total 7.5

### COURSE TYPE

Specialised general knowledge, skills development

### PREREQUISITE COURSES:

No prerequisites

### LANGUAGE OF INSTRUCTION and EXAMINATIONS:

Greek. Instruction may be given in English if foreign students attend the course.

### IS THE COURSE OFFERED TO ERASMUS STUDENTS:

Yes (in English)

### COURSE WEBSITE (URL)

https://eclass.upatras.gr/courses/CEID1099/

### (2) LEARNING OUTCOMES

**Learning outcomes**

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area
- Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B
- Guidelines for writing Learning Outcomes

After the successful completion of the course, the student:

- Will be able to represent knowledge with first-order symbolic rules and produce conclusions.
- Will be able to distinguish between different conflict resolution strategies in a rule-based reasoning system.
- Will be able to represent knowledge with fuzzy rules.
- Will be able to design and implement rule-based systems for decision making.
- Will be able to design and implement fuzzy rule-based systems for decision making.
- Will be able to compare and apply machine learning algorithms to data sets for rule extraction.
- Will be able to experiment with different feed-forward neural network architectures for classification models production.
- Will be able to evaluate performance of classification systems based on specific metrics.
- Will be able to represent knowledge with hybrid representation schemes, like
In general, the student will have obtained advanced skills for the design and implementation of reasoning and decision-making rule-based systems.

General Competences
Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an interdisciplinary environment
Production of new research ideas

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Decision-making
Working independently
Production of new research ideas
Production of free, creative and inductive thinking

(3) SYLLABUS

TEACHING and LEARNING METHODS - EVALUATION

<table>
<thead>
<tr>
<th>DELIVERY</th>
<th>Face-to-face, Distance learning, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</td>
<td>Use of ICT in teaching, laboratory education, communication with students</td>
</tr>
<tr>
<td>TEACHING METHODS</td>
<td>The manner and methods of teaching are described in detail. Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.</td>
</tr>
<tr>
<td>Activity</td>
<td>Semester workload</td>
</tr>
<tr>
<td>Lectures</td>
<td>26</td>
</tr>
<tr>
<td>Recitation sections</td>
<td>13</td>
</tr>
<tr>
<td>Use of tools</td>
<td>39</td>
</tr>
<tr>
<td>Project implementation</td>
<td>110</td>
</tr>
<tr>
<td>Course total</td>
<td>188</td>
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</tbody>
</table>

STUDENT PERFORMANCE EVALUATION
Description of the evaluation procedure
Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other


Project will be presented in the class and will be assessed.
(4) ATTACHED BIBLIOGRAPHY

Suggested bibliography:


Internet resources will be also given for each thematic section.