COURSE OUTLINE

(1) GENERAL

<table>
<thead>
<tr>
<th>SCHOOLS</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>Post graduate</td>
</tr>
<tr>
<td>COURSE CODE</td>
<td>DDCD109</td>
</tr>
<tr>
<td>COURSE TITLE</td>
<td>Quality of Service in Networks</td>
</tr>
</tbody>
</table>

INDEPENDENT TEACHING ACTIVITIES

if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits

<table>
<thead>
<tr>
<th>WEEKLY TEACHING HOURS</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>3</td>
</tr>
<tr>
<td>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>7.5</td>
</tr>
</tbody>
</table>

COURSE TYPE

general background, special background, specialised general knowledge, skills development

Specialised general knowledge,

PREREQUISITE COURSES:

Recommended prerequisite knowledge on Telecommunications and Networks such as, Networks, Broadband Technologies, Public Networks and Internetworking

LANGUAGE OF INSTRUCTION and EXAMINATIONS:

Greek

IS THE COURSE OFFERED TO ERASMUS STUDENTS:

No

COURSE WEBSITE (URL)

e-class: https://eclass.upatras.gr/courses/CEID1103/

(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

Upon completion of the course, students will be able to:

- Be aware of the concept of quality of service
- Be aware of quality service mechanisms.
- Familiarize yourself with SLAs
- Be able to design quality service mechanisms
- Know all the techno-economic and legal issues of a SLA

**Upon completion of the course the students will have developed the following skills:**
1. Be able to choose the appropriate service quality mechanism
2. Have the ability to design a quality service mechanism
3. Be able to design and manage SLA

**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 international environment
- Working in an interdisciplinary environment
- Production of new research ideas

**Project planning and management**
- Respect for difference and multiculturalism
- Respect for the natural environment
- Showing social, professional and ethical responsibility and sensitivity to gender issues
- Criticism and self-criticism
- Production of free, creative and inductive thinking

**SYLLABUS**

**Introduction to Quality of Service**
Quality of service at the physical and data interconnection level
Network Service Quality
The IntServ Architecture
Description of architecture and its mechanisms
The DiffServ Architecture
Description of architecture and its mechanisms
Developed QoS services
IP Premium service
Service Less than Best effort
Managed Capacity Service
Introduction to Bandwidth Brokers
Applications adaptable to transmission according to network status
Introduction to Service Charges
Analysis and description of service costs
Existing billing models and their critical approach
Description of Service Quality Assurance Contracts (SLAs)
Introduction to the topic and methodology of developing such contracts
SLA types and performance metrics
SLA connection description for debit issues in QoS services

**TEACHING and LEARNING METHODS - EVALUATION**

**DELIVERY**
Face-to-face, Distance learning

Face-to-face
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY
Use of ICT in teaching, laboratory education, communication with students

The slides of the course and additional auxiliary material are available from the website to the enrolled students

TEACHING METHODS
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.

The student’s study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS

<table>
<thead>
<tr>
<th>Activity</th>
<th>Semester workload</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>13 X 3 =39</td>
</tr>
<tr>
<td>Self-study</td>
<td>13 X 3 = 39</td>
</tr>
<tr>
<td>Study Weekends</td>
<td>13 X 5 = 75</td>
</tr>
<tr>
<td>Exam preparation week</td>
<td>3 X 11 = 33</td>
</tr>
<tr>
<td>+ 2 weeks of vacation</td>
<td></td>
</tr>
<tr>
<td>Course total</td>
<td>186</td>
</tr>
</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, etc.

Specifically-defined evaluation criteria are given, and if and where they are accessible to students.

Language of evaluation: Greek

Final examination (100% of total score).

Written, graduated difficulty, covering all matter

There is the possibility of optional bibliographic work as a technical reference. All papers are posted on the course’s website. They contribute 10% to the final score.

(4) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:
  PRINCIPLES AND APPLICATIONS OF ELECTRICAL ENGINEERING, G. Rizzoni and J. Kearns SIXTH EDITION, McGraw-Hill Education
  MICROELECTRONIC CIRCUITS, A.S. Sedra and K.C. Smith, SEVENTH EDITION, Oxford University Press

- Related academic journals:

Books
- IP Quality of Service: the complete resource for understanding and deploying IP Vegesna S.