# COURSE OUTLINE

## (1) GENERAL

<table>
<thead>
<tr>
<th>SCHOOL</th>
<th>School of Engineering</th>
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<tbody>
<tr>
<td>ACADEMIC UNIT</td>
<td>Department of Computer Engineering &amp; Informatics</td>
</tr>
<tr>
<td>LEVEL OF STUDIES</td>
<td>Undergraduate</td>
</tr>
<tr>
<td>COURSE CODE</td>
<td>CEID_NES168</td>
</tr>
<tr>
<td>SEMESTER</td>
<td>7th, 9th</td>
</tr>
<tr>
<td>COURSE TITLE</td>
<td>Broadband Technologies</td>
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**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 and tutorial exercises</td>
<td>2(L) 2 (TE) 3</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
</tr>
</tbody>
</table>

**COURSE TYPE**

- Direction / consolidation in the specialty of the subject

**PREREQUISITE COURSES:**

- Recommended prerequisite knowledge on Telecommunications and Networks

**LANGUAGE OF INSTRUCTION and EXAMINATIONS:**

- Greek

**IS THE COURSE OFFERED TO ERASMUS STUDENTS:**

- Yes

**COURSE WEBSITE (URL):**

- [https://eclass.upatras.gr/courses/CEID1063/](https://eclass.upatras.gr/courses/CEID1063/)

## (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 broadband and its social and economic impact.
- Be aware of asymmetric technologies and Ethernet technologies.
- To Familiarize with optical transmission systems
- Understand FTTx architectures.
- Become acquainted with the WIMAX wireless standard
- Becoming acquainted with current generations in mobile telephony (4G LTE) and upcoming (5G)
- Know all the techno-economics of an investment for broadband networks

**Upon completion of the course, students will have developed the following skills:**

1. Be able to choose the right technology for designing a broadband network
2. Have the ability to choose the right broadband technology
4. Be able to manage techno-economic issues of investment in broadband networks.

**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
- Project planning and management
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

Respect for difference and multiculturalism
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking

- Search, analyze and synthesize data and information, using the necessary technologies
- Adjustment to new situations
- Decision making
- Promote free, creative and inductive thinking

(3) SYLLABUS

Broadband Basics
- xDSL technologies
- Ethernet technologies
- Optical Transmission Systems (Optical Fiber, xWDM, SDH / SONET)
- FTTx networks and architectures
- WiMAX standard
- Next Generation Mobile Networks (LTE, LTE-A, 5G)
- Business Models for Utilizing Broadband Infrastructures

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY
Face-to-face, Distance learning, etc.

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. Lectures are also available as Open Courses

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

STUDENT PERFORMANCE EVALUATION

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.
- Suggested bibliography:

- Related academic journals:


Slides that have been posted on the course’s website