COURSE OUTLINE

1. GENERAL

SCHOOL	School of Engineering		
ACADEMIC UNIT	Department of Computer Engineering & Informatics		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	CEID_NE5168	**SEMESTER**	**7th, 9th**
COURSE TITLE	Broadband Technologies		

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*	**WEEKLY TEACHING HOURS**	**CREDITS**
Lectures and tutorial & lab exercises	2(L) 2 (TE) 1(L)	5
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).	TOTAL	5

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	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://bouras.upatras.gr/el/broadbandtechnologies/

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
3. Design broadband networks.
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 information, with the use of the necessary technology	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Team work	*Criticism and self-criticism*
Working in an international environment	*Production of free, creative and inductive thinking*
Working in an interdisciplinary environment	*……*
Production of new research ideas	*Others…*
	…….

- 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.*	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. 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 *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* *Specifically-defined evaluation criteria are given, and if and where they are*	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.

Activity	***Semester workload***
Lectures	26
Recitation sections	26
Laboratory exercises	13
Independent study	39
Study and analysis of bibliography	26
Course total (25-30 hours per credit)	**130**

accessible to students.	

5. ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

- Related academic journals:

Data and Computer Communications, W. Stallings, 7th Edition, Pearson Educational International 2006

Slides that have been posted on the course's website