Politehnica University of Bucharest
Faculty of Electronics, Telecommunications and Information Technology

COURSE DESCRIPTION

1. Program identification information

1.1 Higher education institution	University POLITEHNICA of Bucharest
1.2 Faculty	Electronics, Telecommunications and Information Technology
1.3 Department	Telecommunications
1.4 Domain of studies	Electronic Engineering, Telecommunications and Informational Technologies
1.5 Cycle of studies	License
1.6 Program of studies/Qualification	Technologies and Systems of Telecommunications (TSTeng)

2. Course identification information

2.1 Name of the course				Project 2			
2.2 Lecturer				-			
2.3 Instructor for practical activities				Assoc. Prof. PhD. Eng Mihai Stanciu			
2.4 Year of studies	III	2.5 Semester	5	2.6 Evaluation type	Verification	2.7 Course choice type	Mandatory

3. Total estimated time (hours per semester for academic activities)

3.1 Number of hours per week, out of which	1	3.2 course	0	3.3 practical activities	1
3.4 Total hours in the curricula, out of which	14	3.5 course	0	3.6 practical activities	14

Distribution of time	hours
Study according to the manual, course support, bibliography and hand notes	10
Supplemental documentation (library, electronic access resources, in the field, etc)	10
Preparation for practical activities, homework, essays, portfolios, etc.	10
Tutoring	4
Examinations	4
Other activities	0

3.7 Total hours of individual study	38
3.9 Total hours per semester	52
3. 10 Number of ECTS credit points	2

4. Prerequisites (if applicable)

4.1 curricular	Microprocessor Architectures, Data Structure and Algorithms
4.2 competence-based	Knowledge microprocessors and assembler and or C language

5. Requisites (if applicable)

5.1 for running the course	Not the case
5.2 for running of the applications	Mandatory presence in laboratory (accordingly with the university internal rules)

6. Specific competences

Professional competences	Create the ability to apply general knowledge on microcomputers architectures. Ability to evaluate the effectiveness of implementation of a microcomputer application (hardware and software) using performance criteria being analyzed (C1, C2, C3 competences).
Transversal competences	Honorable behavior, responsible, ethical, within the law to ensure the reputation of the profession

7. Course objectives (as implied by the grid of specific competences)

7.1 General objective of the course	Create the ability to design a microcontroller system (both hardware and software). Learn how to use specific tools for system development.
4.2 Specific objectives	Specific application, in which both the software and hardware components is involved, will be made.

8. Content

8.2 Project	Teaching techniques	Remarks
1. Overview of the generic application and tools (CodeVision AVR), assembly of an AVR-based processor board	Oral communication method used is problem-method. Students simulate, implement, test and evaluate independently the same problems with continued use of the computer and software environment. The teaching materials are included in the tutorial lab platforms laboratory.	4 hours
2. The presentation of specific projects		2 hours
3. Hardware and software design for the specific project		4 hours
4. Hardware – software integration		2 hours
Final Evaluation		2 hours
		2 hours
Bibliography - Sorin Zoican, „Microprocesoare si microcontrolere. Aplicatii", Editura Politehnica Press, Bucuresti, 2011 - ham.elcom.pub.ro/proiect2		

9. Bridging the project content with the expectations of the epistemic community representatives, professional associations and employers representatives for the domain of the program

The industry has a demand for qualified engineers with specializations related to microcontroller applications with a solid foundation in electronics and information technology systems so that they can maintain the rate of development of new hardware and software.

The project syllabus answers concretely to these existing development and evolving requirements subscribed to the European economy services in Electronics Engineering. In the context of current technological advancement devices, fields concerned are virtually endless, from the telecommunications, military, the security (surveillance systems), Industrial Automation (product inspection systems), robotics (human interface systems machine) and others.

This provides graduates with the appropriate competences and training needs of current modern scientific and technical quality and competitive skills, enabling rapid employment after graduation. This is perfectly framed in policy Politehnica University of Bucharest, both in terms of content and structure and in terms of skills and international openness for students.

10. Evaluation

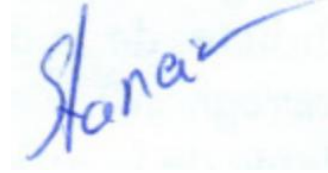| Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Weight in the final mark
10.4 Practical applications	Common part: successful assembly of a working board.	Oral examination	10%
	Use of the oscilloscope in order to view the waveforms associated with the board's inner working		10%
	Design and implementation (by the students) of the specific part of the project: hardware and software, in teams of 2 students (different projects per team)		35%
	Documenting of the project in electronic form (web page)		20%
	Answer to oral questions regarding the project (individual, per student)		25%
	Total		100%
10.5. Minimal performance standard: 50% of total			

Date	Lecturer	Instructor for practical activities
20.09.2017		Assoc. Prof. PhD. Eng. Mihai Stanciu

Date of department approval	Director of Department,
01.10.2017	Assoc. Prof. PhD. Eng. Eduard Popovici