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

COURSE DESCRIPTION (SYLLABUS)

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	Undergraduate
1.6 Program of studies/Qualification	TST-en

2. Course identification information

2.1 Name of the course	Project 3						
2.2 Lecturer							
2.3 Instructor for practical activities	Conf. Udrea Mihnea						
2.4 Year of studies	4	2.5 Semester	1	2.6 Evaluation type	Verify	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	14
Supplemental documentation (library, electronic access resources, in the field, etc)	20
Preparation for practical activities, homeworks, essays, portfolios, etc.	18
Tutoring	0
Examinations	7
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, Digital Signal Processing
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. Application, in typical situations the basic methods of acquisition and signal processing. Implement average complex procedures on signal processors. 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	Adapting to new technologies, professional and personal development through training using printed documentation sources, specialized software and electronic resources in Romanian and at least one foreign language

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

7.1 General objective of the course	Create the ability to design a digital signal processing system (both hardware and software). Learn how to use specific tools for digital signal processing 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 (Matlab, CodeWarriro)	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.	2 hours
2. Developing of C projects for DSP SC140		2 hours
3. Testing the project using MATLAB test program		2 hours
4. Specific algorithms implementation		6 hours
Final Evaluation		2 hours

Bibliography
***, SC140 DSP Core, Reference Manual, Revision 4.1, September 2005, Freescale Semiconductor
***, StarCore® C Compiler User Guide for CodeWarrior™ Development Studio, 2003-2008, Freescale Semiconductor
***, Digital Sine-Wave Synthesis Using the DSP56001/DSP56002, Freescale, APR1/D.
***, Implementation of Fast Fourier Transforms on Freescale's DSP56000/DSP56001, Freescale, APR4/D.
- www.comm.pub.ro/proiect3

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	Verifying the MATLAB algorithms implementation	Oral examination	30%
	Verifying the C project implemented in CodeWarrior		30%
	Documenting of the project in electronic form (web page)		10%
	Answer to oral questions regarding the project (individual, per student)		30%
	Total		100%
10.5. Minimal performance standard: 50% of total			

Date	Lecturer	Instructor for practical activities
25.09.2017		conf.dr.ing. Udrea Mihnea

Date of department approval   Director of Department,

01.10.2017   Conf. Dr. Ing. Eduard Popovici