

SYLLABUS

1. Data about the program of study

1.1 Institution	The Technical University of Cluj-Napoca
1.2 Faculty	Faculty of Automation and Computer Science
1.3 Department	Computer Science
1.4 Field of study	Computer Science and Information Technology
1.5 Cycle of study	Bachelor of Science
1.6 Program of study / Qualification	Computer science / Engineer
1.7 Form of education	Full time

2. Data about the subject

2.1 Subject name	Practical Work in the Domain of Study			Subject code	43
2.2 Course responsible / lecturer	-				
2.3 Teachers in charge of seminars / Laboratory / project	Internship supervisors: Assoc. prof. dr. eng. Marița Tiberiu - Tiberiu.Marita@cs.utcluj.ro Assoc. prof. dr. eng. Tiberiu Marița - Tiberiu.Marita@cs.utcluj.ro Prof.dr.eng. Lemnaru Camelia - Camelia.LEMNARU@cs.utcluj.ro Prof.dr.eng. Hangan Anca - Anca.HANGAN@cs.utcluj.ro Assoc. prof. dr. eng. - Victor.BACU@cs.utcluj.ro Assoc. prof. dr. eng. Itu Răzvan - Razvan.Itu@cs.utcluj.ro S.L. dr.ing. Antal Marcel - marcel.antal@cs.utcluj.ro S.L. dr.ing. Cristina Feier - Cristina.Feier@cs.utcluj.ro Assist. dr. ing. Dan Mitrea - Dan.Mitrea@cs.utcluj.ro				
2.4 Year of study	III	2.5 Semester	6	2.6 Type of assessment (E - exam, C - colloquium, V – verification)	V
2.7 Subject category	Formative category: DF – fundamental, DS – speciality, DC – complementary				DF
	Optionality: DOB – mandatory, DOP – optional (alternative), DFA – optional (free choice)				DOB

3. Estimated total time

3.1 Number of hours per week	15	of which:	Course	-	Seminars	-	Laboratory	-	Project	15
3.2 Number of hours per semester	90	of which:	Course	-	Seminars	-	Laboratory	-	Project	90
3.3 Individual study:										
(a) Manual, lecture material and notes, bibliography										-
(b) Supplementary study in the library, online and in the field										-
(c) Preparation for seminars/laboratory works, homework, reports, portfolios, essays										-
(d) Tutoring										-
(e) Exams and tests										-
(f) Other activities:										10
3.4 Total hours of individual study (suma (3.3(a)...3.3(f)))					10					
3.5 Total hours per semester (3.2+3.4)					100					
3.6 Number of credit points					4					

4. Pre-requisites (where appropriate)

4.1 Curriculum	N/A
4.2 Competence	N/A

5. Requirements (where appropriate)

5.1. For the course	N/A
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5.2. For the applications	N/A
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6. Specific competence

6.1 Professional competences	C2 Designing hardware, software and communication components (2 credits) C2.1 Describing the structure and functioning of computational, communication and software components and systems C2.2 Explaining the role, interaction and operation of hardware, software and communication components C3 Problems solving using specific Computer Science and Computer Engineering tools (2 credits) C3.1 Identifying classes of problems and solving methods that are specific to computing systems C3.2 Using interdisciplinary knowledge, solution patterns and tools, making experiments and interpreting their results C5 Designing, managing the lifetime cycle, integrating and ensuring the integrity of hardware, software and communication systems (2 credits) C5.1 Specifying the relevant criteria regarding the lifetime cycle, quality, security and computing system's interaction with the environment and human operator C5.2 Using interdisciplinary knowledge for adapting an information system to application domain requirements C5.3 Using fundamental principles and methods for security, reliability and usability assurance of computing systems C5.4 Adequate utilization of quality, safety and security standards in information processing
6.2 Cross competences	CT1 - Honorable, responsible, ethical behavior in the spirit of the law to ensure the reputation of the profession CT2 Identifying, describing and conducting processes in the projects management field, assuming different roles inside the team and clearly and concisely describing, verbally or in writing, in Romanian and in an international language, the results from the activity field. (2 credits)

7. Expected Learning Outcomes

Knowledge	Describes, identifies, summarizes elementary concepts and methods regarding the design and testing of microcontroller or processor systems, operating systems, graphics processing systems, data acquisition systems, programming languages, programming environments, programming techniques, databases, artificial intelligence and software engineering and their application to concrete problems.
Skills	Chooses and explains own concepts specific to algorithm design, object-oriented programming, logical and functional programming, acquisition systems, graphic processing, data processing and display. Specifies requirements, analyzes, elaborates, develops and tests programs in general-purpose programming languages (C, etc.) and/or object-oriented (C++, Java, etc.), applying the specific elements of software engineering
Responsibilities and autonomy	Shows a spirit of initiative and action to update professional, economic and organizational culture knowledge. Has honorable, responsible, ethical behavior, in the spirit of the law to ensure the reputation of the profession.

8. Discipline objective (as results from the *key competences gained*)

8.1 General objective	Application of fundamental and applied knowledge gained in the projects development within a specialized company or research team (theme set by the tutor or project manager)
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8.2 Specific objectives	Acquaintance of the students with the methodologies and technologies specific to the design and implementation activities and involve the students in carrying out simple hardware / software / communications projects for educational purposes: - participation in training courses and activities organized by the company or the research group to which the practice is carried out - analysis and documentation - the study and familiarization with the specific design and implementation tools - designing, implementing, testing and validating some simple projects / modules with educational role
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9. Contents

9.1 Lectures	Hours	Teaching methods	Notes
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Bibliography			
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9.2 Applications - Seminars / Laboratory / Project	Hours	Teaching methods	Notes
• study and documentation • study of methodologies and / or technologies used • implementation, testing and validation of some simple components / modules for educational purposes • documentation of the implemented components		N/A	
Bibliography:			
For the project development, the draft bibliography is the one recommended by the project leader from the company or by the research team at which the implementation is performed and the one resulted in the documenting phase.			

Se vor preciza, după caz: tematica seminarilor, lucrările de laborator, tematica și etapele proiectului.

10. Bridging course contents with the expectations of the representatives of the community, professional associations and employers in the field

This discipline provides education and training of the students at the workplace site, with benefits for both sides. Students are familiarized with the working and professional requirements needed to work in a company, and companies have the opportunity to shape students to facilitate their employment after graduation (to reduce training expenses / training). Also it aims to increase cohesion between academia and employment in a priority area in terms of national and European level in order to improve the skills of employees and to prepare and maintain them in the labor market in a particularly dynamic and competitive domain (mainly existing competition with Eastern European countries and Asia - India and China).

11. Evaluation

Activity type	Assessment criteria	Assessment methods	Weight in the final grade
Course	N/A	N/A	N/A
Project	Attendance (min 100 h), activity, tutor assessment, internship notebook	Oral colloquy. In the case that the face to face examination is not possible, the colloquy will be organized using specific e-learning platforms (MS Teams, Moodle)	100%
Minimum standard of performance:			
Development of a hardware / software / communication engineering project.			

Date of filling in: 30.04.2026	Responsible	Title First name Last name	Signature
	Course	-	
	Applications	Assoc.prof.dr.eng. Tiberiu MARIȚA	

Date of approval in the department	Head of department, Prof.dr.eng. Rodica Potolea
Date of approval in the Faculty Council	Dean, Prof.dr.eng. Vlad Mureșan