COURSE DESCRIPTION

1. Program identification information

1.1 Higher education institution	**National University of Science and Technology Politehnica Bucharest**
1.2 Faculty	**Electronics, Telecommunications and Information Technology**
1.3 Department	**Telecommunications**
1.4 Domain of studies	Electronic Engineering, Telecommunications and Information Technology
1.5 Cycle of studies	Masters
1.6 Programme of studies	Advanced Wireless Communications

2. Date despre disciplină

2.1 Course name (ro) (en)				Activitate de cercetare, practică și pregătirea disertației Research Activity, Practical Work and Dissertation Preparation			
2.2 Course Lecturer				Prof. PhD Vlădeanu Călin			
2.3 Instructor for practical activities				Prof. PhD Vlădeanu Călin			
2.4 Year of studies	2	2.5 Semester	II	2.6. Evaluation type	V	2.7 Course regime	Ob
2.8 Course type		DA	2.9 Course code	UPB.04.M4.O.16-99		2.10 Tipul de notare	Nota

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

3.1 Number of hours per week	0	Out of which: 3.2 course	0.00	3.3 seminary/laboratory	0
3.4 Total hours in the curricula	0.00	Out of which: 3.5 course	0	3.6 seminary/laboratory	0
Distribution of time:					hours
Study according to the manual, course support, bibliography and hand notes Supplemental documentation (library, electronic access resources, in the field, etc) Preparation for practical activities, homework, essays, portfolios, etc.					730
Tutoring					6
Examinations					14
Other activities (if any):					0

3.7 Total hours of individual study	750.00
3.8 Total hours per semester	750
3.9 Number of ECTS credit points	30

4. Prerequisites (if applicable) (where applicable)

4.1 Curriculum	This is not the case

4.2 Results of learning	This is not the case

5. Necessary conditions for the optimal development of teaching activities (where applicable)

5.1 Course	This is not the case
5.2 Seminary/ Laboratory/Project	This is not the case (refer to the coordinating teacher)

6. General objective *(Reffering to the teachers' intentions for students and to what the students will be thought during the course. It offers an idea on the position of course in the scientific domain, as well as the role it has for the study programme. The course topics, the justification of including the course in the currcula of the study programme, etc. will be described in a general manner)*

This discipline provides the specific guidance of the research theme coordinator on aspects of carrying out the research activity in order to prepare the graduation thesis. These objectives include:

Completion of a documented dissertation that has elements of theoretical deepening, research bibliography, functional design, hardware and/or software implementation, numerical calculations, experiments, simulations, etc.

Specifying the theme of the dissertation work, choosing the bibliography, establishing the content of the work, planning time budget.

Carrying out the activities of documentation and theoretical and practical research, design, implementation, experimentation and practical testing, elaboration of the manuscript, of the graphic material, of the experimental results, of the conclusions and compilation of the bibliography.

Elaboration of presentation materials (PowerPoint type, practical demonstrations) and preparation of the oral defense for the dissertation work.

Creating the skills to apply fundamental and specialized knowledge in order to solve complex technical problems in the field of information engineering and computer systems. Accomplishing professional tasks, using the precise identification of objectives, available resources and compliance with deadlines.

7. Competences *(Proven capacity to use knowledge, aptitudes and personal, social and/or methodological abilities in work or study situations and for personal and proffesional growth. They refflect the empolyers requirements.)*

Specific Competences	Demonstrates basic/advanced knowledge of the research topic established by mutual agreement with the instructor and their systematization in a final report presented as a graduation thesis (dissertation project). Correlate knowledge. Apply knowledge in practice. Apply standardized methods and tools, specific to the field, for the achievement of the process of evaluating and diagnosing a situation, depending on the problems identified/reported, and identify solutions. Argue and analyze coherently and correctly the context of application of the basic knowledge of the field, using key concepts of the discipline and specific methodology. Oral and written communication in Romanian: uses scientific vocabulary specific to the field, in order to communicate effectively, in writing and orally. Oral and written communication in a foreign language (English): demonstrates understanding the vocabulary related to the field, in a foreign language.
Transversal (General) Competences	Autonomy and critical thinking: the ability to think in scientific terms, search and analyze data independently, and draw and present conclusions / identify solutions. Ability to analyze and synthesize: presents the acquired knowledge in a synthetic way, as a result of a systematic analysis process. Respect the principles of academic ethics: in the documentation activity correctly cite the bibliographic sources used. Put into practice elements of emotional intelligence in the adequate socio-emotional management of real-life/academic/professional situations, demonstrating self-control and objectivity in decision-making or stressful situations.

8. Learning outcomes *(Synthetic descriptions for what a student will be capable of doing or showing at the completion of a course. The learning outcomes reflect the student's acomplishments and to a lesser extent the teachers' intentions. The learning outcomes inform the students of what is expected from them with respect to performance and to obtain the desired grades and ECTS points. They are defined in concise terms, using verbs similar to the examples below and indicate what will be required for evaluation. The learning outcomes will be formulated so that the correlation with the competences defined in section 7 is highlighted.)*

Knowledge	*The result of knowledge aquisition through learning. The knowledge represents the totality of facts, priciples, theories and practices for a given work or study field. They can be theoretical and/or factual.* Enumerates the most important stages that marked the development of the field. Defines domain-specific notions. Describes/classifies notions/processes/phenomena/structures. Highlights consequences and relationships.

Skills	*The capacity to apply the knowledge and use the know-how for completing tasks and solving problems. The skills are described as being cognitive (requiring the use of logical, intuitive and creative thinking) or practical (implying manual dexterity and the use of methods, materials, tools and intrumentation).* Demonstrates the ability to adequately use subject-specific notions to solve a specific topic. Experimentally verify identified solutions. It solves practical applications by using already existing systems and/or by developing software modules with own contributions. Identifies solutions and develops solution plans based on the tools available within the studied systems. Adequately interprets causal relationships, demonstrating ability to analyze and interpret various possible scenarios. Argue the identified solutions/workarounds.
Responsability and autonomy	*The student's capacity to autonomously and responsably apply their knowledge and skills.* Select suitable bibliographic sources and analyzes them. Respect the principles of academic ethics, correctly citing the bibliographic sources used. Demonstrate responsiveness for new learning contexts. Show collaboration with other colleagues and teaching staff in carrying out teaching activities. Demonstrate autonomy in the organization of the learning situation/context or the problem situation to be solved. Promotes/contributes through new solutions related to the specialized field to improve the quality of social life. He realizes the value of his contribution to the field of engineering to the identification of viable/sustainable solutions to solve problems in social and economic life (social responsibility). Apply principles of professional ethics/deontology in the analysis of the technological impact of the proposed solutions in the specialized field on the environment.

9. Teaching techniques *(Student centric techniques will be considered. The means for students to participate in defining their own study path, the identification of eventual fallbacks and the remedial measures that will be adopted in those cases will be described.)*

Specific to each coordinator of the research theme (dissertation).

Images and diagrams are used so that the information presented is easy to understand and assimilate.

Communication will be encouraged both between students through teamwork, as well as open and direct communication between students and teaching staff to build a climate conducive to learning.

10. Contents

Bibliography:

11. Evaluation

Activity type	11.1 Evaluation criteria	11.2 Evaluation methods	11.3 Percentage of final grade
11.4 Course			

11.5 Seminary/laboratory/project	- the scientific and technical content of the project - demonstration of the operation of the implemented solutions - the quality of the writing of the material (text and graphics) - the informational content, structuring and relevance of the written material	The evaluation is done by the supervisor of the research topic based on the results presented by the student.	80%
	Evidence of a practical activity carried out in order to prepare the dissertation work (practical certificate).	Practice certificate, tutor's note on the graduation portal	20%
11.6 Passing conditions			
In accordance with: - The regulation regarding the organization and functioning of the educational process within the master's university studies in the Politehnica University of Bucharest, from the UNSTPB website; - ETTI regulation regarding the preparation of graduation theses, from the ETTI website.			

12. Corroborate the content of the course with the expectations of representatives of employers and representative professional associations in the field of the program, as well as with the current state of knowledge in the scientific field approached and practices in higher education institutions in the European Higher Education Area (EHEA)

Through the activities carried out under the guidance of the teaching staff coordinating the research theme, the students develop skills regarding the writing and presentation of the results in relation to the fixed objectives of the research theme, in the form of the dissertation project.

Through the research activities and the presentation of the research results, the development of the graduate's skills to manage practical situations that can be faced in real life is considered in order to increase his contribution to the improvement of the socio-economic environment.

In the development of the content of the discipline, knowledge / aspects / phenomena described in the specialized literature / published / presented own research were taken into account.

Date	Course lecturer	Instructor(s) for practical activities
	Prof. dr. ing. Călin VLĂDEANU	Prof. dr. ing. Călin VLĂDEANU

Universitatea Națională de Știință și Tehnologie Politehnica București

Facultatea de Electronică, Telecomunicații și

Tehnologia Informației

Date of department approval	Head of department
27.10.2024	Conf. Dr. Serban Georgica Obreja
Date of approval in the Faculty Council	Dean
25.10.2024	Prof. Dr. Mihnea Udrea