Universitatea Națională de Știință și Tehnologie Politehnica București
Facultatea de Electronică, Telecomunicații și
Tehnologia Informației

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	Electric Vehicle Propulsion and Control

2. Date despre disciplină

2.1 Course name (ro) (en)				Activitate de cercetare și practică 1 Research Activity and Practical Work 1			
2.2 Course Lecturer				Conf. dr. ing. Madalin Frunzete			
2.3 Instructor for practical activities				Conf. dr. ing. Madalin Frunzete			
2.4 Year of studies	1	2.5 Semester	I	2.6. Evaluation type	V	2.7 Course regime	Ob
2.8 Course type		DA	2.9 Course code	UPB.04.M1.O.24-91		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.					220
Tutoring					30
Examinations					0
Other activities (if any):					0

3.7 Total hours of individual study	250.00
3.8 Total hours per semester	250
3.9 Number of ECTS credit points	10

4. Prerequisites (if applicable) (where applicable)

4.1 Curriculum	no requirements
4.2 Results of learning	no requirements

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

5.1 Course	no requirements
5.2 Seminary/ Laboratory/Project	no requirements

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)*

Elaboration of a "Research-Development Report", written in the form of an "IEEE Transactions" article, which presents the theme and objectives of the dissertation, the choice and argumentation of the solutions for implementation, the overall design and the component elements (general block diagram, general logic diagram, principle diagrams for component blocks, logic diagrams for algorithms, etc.), establishing and planning experiments.

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	Application of fundamental and specialized knowledge to solve complex technical problems, specific to the field and study program.
Transversal (General) Competences	- Fulfillment of professional tasks with the exact identification of achievement objectives, a potential risk factors, available resources, economic-financial aspects, their completion conditions, work stages, working time and related deadlines. - Responsible execution of tasks in a multidisciplinary team, with assuming roles on different hierarchical levels; - Identifying the need for continuous training and efficient use of information sources and communication resources and assisted professional form (Internet portals, specialized software, databases, online courses, etc.) both in Romanian and in languages of international circulation.

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.* Students: • list the most important stages that marked the development of the field. • define domain-specific notions. • describe/classify notions/processes/phenomena/structures. • highlight the consequences and relationships between them.

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).* Students are able to: • document yourself on the chosen theme in the specialized literature; • choose an appropriate topic for simulation/practice implementation; • propose achievable objectives, to be fulfilled in simulation and/or practical realization; • write in the required format, clear and concise the report that includes the results obtained in their research.
Responsability and autonomy	*The student's capacity to autonomously and responsably apply their knowledge and skills.* Students must: select appropriate bibliographic sources and analyze them. respect the principles of academic ethics, correctly citing the bibliographic sources used. demonstrate responsiveness to new learning contexts. demonstrate collaboration with other colleagues and the teaching staff in carrying out the teaching of activities. demonstrate autonomy in organizing the situation/learning context or the situation/ the problem to be solved. demonstrate social responsibility through active involvement in the social life of students/ involvement in academic community events. promote/contribute new solutions related to area of expertise for improvement the quality of social life. realize the value of its engineering contribution to identifying viable/sustainable solutions. solve problems in social and economic life (social responsibility). apply the principles of professional ethics/deontology in the analysis of the technological impact of solutions proposed in the field of environmental expertise. analyze and capitalize on business/entrepreneurial development opportunities in the specialized field. demonstrate skills in managing real-life situations (collaboration in management time vs. conflict).

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.)*

Students have to organize themselves such that they are able to provide required outcomes at due dates and in imposed templates.

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			

11.6 Passing conditions
• Active participation during the semester in research activities. • The content, complexity, originality, technical solutions used, innovation, practical results of • research activity. • Grading during the semester of the master's student's active participation in research activities • Grading of the research report based on the submitted activity and the oral presentation.

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 activities, students develop their skills in providing solutions to problems and proposing ideas improvement of existing situations in the field of electronic engineering, telecommunications and information technologies, aiming at the development of the content of the discipline, knowledge, aspects and phenomena described by specialized literature. Through laboratory activities and course the management skills of graduates are taken into account, in practical situations that they can face in real life, in order to increase the contribution to the improvement of the socioeconomic environment.

Date	Course lecturer	Instructor(s) for practical activities
10.10.2024	Conf. dr. ing. Madalin Frunzete	Conf. dr. ing. Madalin Frunzete

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