Universitatea Naţională de Ştiinţă şi Tehnologie Politehnica Bucureşti
Facultatea de Electronică, Telecomunicaţii şi
Tehnologia Informaţiei

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	Bachelor/Undergraduate
1.6 Programme of studies	Technologies and Telecommunications Systems

2. Date despre disciplină

2.1 Course name (ro) (en)				Bazele electrotehnicii 1 Fundamentals of Electrical Engineering 1			
2.2 Course Lecturer				Conf. Dr. Oana Mihaela Drosu			
2.3 Instructor for practical activities				Conf. Dr. Oana Mihaela Drosu			
2.4 Year of studies	1	2.5 Semester	1	2.6. Evaluation type	E	2.7 Course regime	Ob
2.8 Course type		D	2.9 Course code	04.D.01.O.005		2.10 Tipul de notare	Nota

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

3.1 Number of hours per week	5	Out of which: 3.2 course	3	3.3 seminary/laboratory	2
3.4 Total hours in the curricula	70	Out of which: 3.5 course	42	3.6 seminary/laboratory	28
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.					61
Tutoring					0
Examinations					4
Other activities (if any):					0

3.7 Total hours of individual study	55.00
3.8 Total hours per semester	125
3.9 Number of ECTS credit points	5

4. Prerequisites (if applicable) (where applicable)

4.1 Curriculum	
4.2 Results of learning	

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

5.1 Course	

5.2 Seminary/ Laboratory/Project	

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)*

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	
Transversal (General) Competences	

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.*
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).*
Responsability and autonomy	*The student's capacity to autonomously and responsably apply their knowledge and skills.*

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.)*

Starting from the analysis of students' learning characteristics and their specific needs, the teaching process will explore both expository (lecture, presentation) and conversational-interactive teaching methods. Those will be based on discovery learning models facilitated by direct exploration and indirect reality methods (experiment, demonstration, modeling), but also on action-based methods, such as exercise, practical activities and problem solving.

Lectures will be used in the teaching activity and they will be based on writing on the blackboard , Power Point presentations that will be made available to students. Each course will begin with a recapitulation of the chapters already covered and with an emphasis on the notions covered in the last course. Presentations use images and diagrams so that the information presented is easy to understand and assimilate.

This discipline covers information and practical activities designed to support students in their efforts to learn and develop optimal collaborative and communicative relationships in a climate conducive to learning through discovery.

The exercise of active listening and assertive communication skills will be considered, as well as feedback construction mechanisms, as ways of regulating behavior in various situations and adapting the pedagogical approach to the learning needs of students

10. Contents

SEMINARY		
Crt. no.	**Content**	**No. hours**
1	DC circuits	0
2	AC circuits.	0
3	Time-periodic linear circuits.	0
4	Time-varying state of linear circuits	0
	Total:	

Bibliography:

Bibliography:
O.Drosu,-FEE1 (BE1) ”,Applications (pdf, 51 pg), http://etti.curs.pub.ro/2025 /my/index.php
E Cazacu, M. Stanculescu, *Bazele electrotehnicii-Teoria circuitelor electrice-Seminar,* Editura Matrix Rom Bucureşti, 2004.
E. Cazacu, O. Drosu, G. Epureanu, L.Petrescu „Chestiuni speciale de teoria circuitelor electrice – elemente de teorie şi aplicaţiI”, Ed. Matrix-ROM, vol 1, Bucureşti 2005
L. Ochiană, I.F. Hănţilă, I. Nemoianu, A. Anghel, *Bazele electrotehnicii; Culegere de probleme; Partea I – Curent continuu*, Editura Printech, Bucureşti, 2007; *Partea II – Curent alternativ*, Editura Politehnica Press, Bucureşti, 2008

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			

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)

The fundamental nature of the discipline of Electrical Engineering Fundamentals compel the lecturers to keep a close contact with the faculty leadership and with lecturers of the specialized disciplines, as well as profesional associations. In order to complete the content and to choose the teaching / learning methods the lecturers of this discipline have organised specific seminars within the department. During the meetings with relevant personnel from Electronic Engineering field their needs and expectations have been discussed.

Date	Course lecturer	Instructor(s) for practical activities
21.09.2026	Conf. Dr. Oana Mihaela Drosu	Conf. Dr. Ing. Marilena Stanculescu

Date of department approval	Head of department
22.09.2026	Conf. Dr. Serban Georgica Obreja

Date of approval in the Faculty Council	Dean
22.09.2026	Prof. Dr. Mihnea Udrea