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	**Electronic Devices, Circuits and Architectures**
1.4 Domain of studies	Electronic Engineering, Telecommunications and Information Technology
1.5 Cycle of studies	Bachelor/Undergraduate
1.6 Programme of studies	Microelectronics, Optoelectronics and Nanotechnologies

2. Date despre disciplină

2.1 Course name (ro) (en)				Pedagogie II: - Teoria şi metodologia instruirii - Teoria şi metodologia evaluării Pedagogy II: Instruction Theory and Methodology – Assessment Theory and Methodology			
2.2 Course Lecturer				Balanescu Ramona			
2.3 Instructor for practical activities				Balanescu Ramona			
2.4 Year of studies	2	2.5 Semester	1	2.6. Evaluation type	E	2.7 Course regime	F
2.8 Course type	C	2.9 Course code		04.C.03.L.026		2.10 Tipul de notare	Nota

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

3.1 Number of hours per week	4	Out of which: 3.2 course	2	3.3 seminary/laboratory	2
3.4 Total hours in the curricula	56	Out of which: 3.5 course	28	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.					45
Tutoring					10
Examinations					4
Other activities (if any):					10

3.7 Total hours of individual study	69.00
3.8 Total hours per semester	125
3.9 Number of ECTS credit points	5

4. Prerequisites (if applicable) (where applicable)

4.1 Curriculum	Completion and/or passing of the course Educational Psychology and Pedagogy I (Introduction to Pedagogy. Theory and Methodology of the Curriculum).

4.2 Results of learning	• Describes the fundamental theories of the structure and development of personality; • Identifies temperamental, aptitudinal, and character traits and highlights the relationships between them; • Describes the main theories of learning; identifies types of learning; • Explains how students' affectivity and motivation change and what changes occur in their activities and relationships; • Communicates effectively in conflict situations; • Uses the particularities of effective interaction and communication in different educational situations; • Communicates assertively with students, colleagues, and authorities; • Characterizes the fundamental issues regarding the functions, forms, dimensions, and directions of the development of education; • Argues the role of education in the development of the student's personality; • Highlights the necessity of education as a lifelong process; • Defines domain-specific notions such as educability, purposes of education, ideal, goals, objectives, competencies, school counseling, school and career guidance; • Highlights the applicability of pedagogical research from the perspective of quality assurance in education; • Presents the stages of conducting research based on the principle of logical and chronological succession; • Describes the issues of official school documents through which the content of education is objectified; • Describes models of curriculum analysis and types of curriculum; • Identifies ways of achieving in school the objectives of each dimension of education; • Critically analyzes school documents for technological subjects; • Applies in practice, using appropriate exemplification of concepts, techniques specific to the school counseling process; • Develops the design of educational research for a problem specific to the field; • Develops learning activities that contribute to the development of key competencies; • Selects suitable bibliographic sources and analyzes them; • Respects the principles of academic ethics, correctly citing the bibliographic sources used; • Demonstrates receptivity to new learning contexts; • Shows collaboration with other colleagues and teachers in carrying out teaching activities; • Demonstrates autonomy in organizing the learning situation/context or the problem situation to be solved; • Shows social responsibility through active involvement in student social life/involvement in events of the academic community; • Promotes/contributes with new solutions, related to the field of specialization, to improve the quality of social life; • Demonstrates management skills for real-life situations (time management, collaboration vs. conflict). • Shows a responsible attitude towards professional training for the teaching career and quality assurance in education;

	• Develops a reflective attitude regarding the homeroom teacher's role in school and career guidance.

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

5.1 Course	The course will take place in a room equipped with a video projector and computer. Electronic course support is provided (on the course platform). The lectures are accompanied by diagrams, sketches, and charts presented via video projector.
5.2 Seminary/ Laboratory/Project	Bibliographic resources, worksheets, and curricular documents are provided. Seminar support is provided in electronic format (on the platform).

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 course is studied within the field of educational sciences and aims to familiarize students with the main approaches, models, and explanatory theories of instruction and assessment, in the context of preparation for the teaching career.

The teaching activities within this discipline, part of the initial training program for future teachers, specifically address the following basic notions, concepts, and principles, all of which contribute to transmitting/forming in students an overall vision of the methodological and procedural benchmarks related to instruction and assessment: the learning process, didactic principles, the teaching–learning process, instructional strategies, the school assessment process, functions and models of assessment, forms and operations of assessment, methods, techniques, and tools of evaluation.

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	• Integrating the key concepts of instruction and assessment; describing the components of the teaching process and the teaching–learning–assessment relationship; identifying teaching strategies and the main categories of assessment items. • Didactic design based on didactic principles: formulating operational objectives, selecting content and methods, preparing design documents. • Applying assessment methods and techniques: designing instruments, aligning item types with targeted competencies, arguing the complementarity of traditional and alternative methods. • Analyzing and comparing teaching–learning–assessment strategies and methods; leveraging results obtained to optimize the didactic approach. • Designing educational strategies adapted to the variables of the instructional situation and student characteristics; relating to alternative pedagogies and their applied potential.

Transversal (General) Competences	• Selecting and analyzing appropriate bibliographic sources; respecting academic ethics principles and citation rules. • Effective collaboration in academic activities; assertive communication and building useful feedback in teaching contexts. • Autonomy in organizing learning situations and solving problems; time management and managing collaboration vs. conflict. • Responsibility towards professional training for the teaching career and quality assurance in education; a reflective attitude regarding the homeroom teacher's role in school and career guidance.

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.* • Lists the main components of the teaching process as well as the relationships between them; • Defines domain-specific notions: learning, teaching, assessment; • Classifies notions/processes/phenomena/structures of teaching, learning, assessment; • Identifies the main categories of teaching–learning–assessment methods; • Provides examples of assessment methods, in given contexts; • Provides examples of teaching–learning methods, according to already established competencies; • Describes the main dimensions of the teaching process and the interactions between them (objectives, content, time, forms of organization, didactic strategies, assessment); • Formulates examples of didactic strategies according to operational objectives; • Describes the characteristics of educational alternatives; • Defines the main categories of assessment items; • Uses, in various educational contexts, the main specific theoretical concepts: didactic strategy, learning methods, teaching aids, forms of organization, assessment plan, operational objectives, teaching competencies.

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).* • Selects and groups relevant information in a given didactic context; • Uses argued didactic principles for relevant design from the perspective of students' needs; • Prepares an example of didactic design, with arguments regarding the selection of the didactic strategy; • Appropriately interprets causal relationships between the teaching–learning–assessment processes; • Analyzes and compares different teaching–learning–assessment methods, from the perspective of given criteria; • Identifies solutions and prepares plans for resolution, in different given didactic situations; • Argues the identified solutions from the perspective of educational crisis situations; • Designs educational strategies based on concrete strategies and variables of the instructional situation; • Analyzes the advantages and disadvantages of each given educational alternative; • Argues the necessity of complementarity between traditional and alternative methods in assessment; • Values students' school results, collected through different assessment methods, to optimize the instructional process; • Applies, in given contexts, the rules for designing, administering, and grading various categories of assessment items; • Correlates item types with the competencies to be assessed;
Responsability and autonomy	*The student's capacity to autonomously and responsably apply their knowledge and skills.* • Selects suitable bibliographic sources and analyzes them for use; • Respects the principles of academic ethics, correctly citing the bibliographic sources used; • Demonstrates receptivity to new learning contexts; • Shows collaboration with colleagues and teaching staff in carrying out teaching activities; • Demonstrates autonomy in organizing the learning situation/context or the problem situation to be solved; • Promotes/contributes new solutions, related to the field of specialization, to improve the quality of didactic design; • Demonstrates management skills for real-life situations (time management, collaboration vs. conflict); • Shows a responsible attitude towards professional training for the teaching career and quality assurance in education; • Develops a reflective attitude regarding the homeroom teacher's role in school and career guidance.

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 expository methods (lecture, presentation, storytelling, explanation, description, debate) as well as conversational–interactive methods (conversation, problematization), based on discovery learning models facilitated by direct and indirect exploration of reality (experiment, demonstration, modeling), and also action-based methods such as exercises, case studies, practical work, projects, and role-play.

Both expository methods and activities of analysis, case studies, and problem situations will be used, based on presentations or by using various teaching aids that will be made available to students. Each lecture will begin with a review of the chapters already covered, with emphasis on the notions covered in the previous lecture. The presentations use images and diagrams so that the information presented is easy to understand and assimilate.

This course covers information and practical activities designed to support students in their learning efforts and in developing optimal relationships of collaboration and communication in a climate conducive to discovery learning.

Active listening and assertive communication skills will be practiced, as well as feedback construction mechanisms, as means of behavioral regulation in various situations and of adapting the pedagogical approach to students' learning needs.

Teamwork skills will be practiced to solve different learning tasks.

10. Contents

COURSE		
Chapter	**Content**	**No. hours**
1	Introduction to the issues of instruction and assessment: Key concepts used; The relationship between general didactics and specific didactics; The connection of didactics with other sciences	2
2	The teaching process Components of the teaching process; The teaching process as a teaching–learning–assessment relationship; types and strategies of learning Didactic communication in the teaching process; The teaching process and stimulating students' creativity in teaching activities	6
3	Principles of the teaching process The concept of didactic normativity Functions of didactic principles Principles of classical instruction New principles of instruction	2
4	Didactic design Levels, types, stages Design documents Operationalization models	2

5	Didactic strategy Definition and characterization Typology of didactic strategy Structure of the didactic strategy: ● Didactic methods and procedures ● Teaching aids ● Designing variants of didactic strategies ● The lesson. Types of lessons: - Knowledge acquisition lesson - Skills and habits formation lesson - Mixed lesson - Review lesson - Assessment lesson Alternative pedagogies (Waldorf, Montessori, Step by Step, Freinet): particularities (vision of education, promoted values, specific educational techniques).	10
6	Assessment in the teaching process Concept, types, forms of assessment. Assessment methods and techniques. Subjectivity in assessment	6
	Total:	28

Bibliography:

1. Suport electronic - platforma Moodle
2. Albulescu, I. (2014). Pedagogii alternative. Bucureşti: Editura All.
3. Bernat, S.E. (2003). Metode si tehnici de învăţare eficientă. Cluj-Napoca: Presa Universitară Clujeană.
4. Bocoş, M. (2013). Instruirea interactivă. Iaşi: Editura Polirom
5. Carey, B. (2015). How we learn: The surprising truth about when, where and why it happens. Random House Trade Paperbacks.
6. Cerghit, I. (2006). Metode de învăţământ. Iaşi: Editura Polirom.
7. Cerghit, I. (2002). Sisteme de instruire alternative si complementare. Structuri, stiluri şi strategii. Bucureşti: Aramis.
8. Cerghit, I., Neacşu, I., Negreţ– Dobridor, I., Pânişoară, I.O. (2001). Prelegeri pedagogice. Iaşi: Polirom.
9. Cristea, S. (2000). Dicţionar de pedagogie. Chişinău: Ed. Litera
10. Cucoş, C. (2008). Teoria şi metodologia evaluării. Iaşi: Editura Polirom. Cucoş, C. (2002). Pedagogie. Iaşi: Polirom.

SEMINARY

Crt. no.	Content	No. hours
1	Introductory seminar The teaching profession. Identifying the factors that favor the efficiency of teaching and learning	2
2	The teaching process Teaching styles. Learning styles Forms of didactic communication. Types of feedback Creativity methods used in teaching activity	6

3	Didactic design Preparation of planning documents specific to technical subjects	4
4	Didactic strategy Analysis of the pedagogical potential of active teaching methods with applications to technical subjects Teaching aids – practical relevance Examples of variants of didactic strategies	8
5	Alternative pedagogies: Comparative analysis of the main educational alternatives in the Romanian education system	2
6	Assessment in the teaching process Methods, tools of formative assessment (project, portfolio);	6
	Total:	28

Bibliography:

1. Suport electronic - platforma Moodle
2. Bernat, S.E. (2003). Metode si tehnici de învăţare eficientă. Cluj-Napoca: Presa Universitară Clujeană.
3. Bocoş, M. (2013). Instruirea interactivă. Iaşi: Editura Polirom.
4. Carey, B. (2015). How we learn: The surprising truth about when, where and why it happens. Random House Trade Paperbacks.
5. Ceobanu, C. (2016). Învățarea în mediul virtual. Ghid de utilizare a calculatorului în educație. Iași: Polirom
6. Ceobanu, C., Cucoș, C., Istrate, O., Pânișoară (2020). Educația digitală. Iași: Polirom.
7. Cerghit, I. (2006). Metode de învăţământ. Iaşi: Editura Polirom.
8. Cerghit, I. (2002). Sisteme de instruire alternative si complementare. Structuri, stiluri şi strategii. Bucureşti: Aramis.
9. Cerghit, I., Neacşu, I., Negreţ – Dobridor, I., Pânişoară, I.O. (2001). Prelegeri pedagogice. Bucureşti: Polirom.
10. Cristea, S. (2000). Dicţionar de pedagogie. Chişinău: Ed. Litera.
11. Cucoş, C. (2008). Teoria şi metodologia evaluării. Iaşi: Editura Polirom.

11. Evaluation

Activity type	11.1 Evaluation criteria	11.2 Evaluation methods	11.3 Percentage of final grade
11.4 Course	Active participation in discussions during lectures; Argumentation on course topics and use of specialized language. Ability to apply learned notions.	Oral evaluation	30%
	Exam	Written evaluation	20%

11.5 Seminary/laboratory/project	Active participation in discussions during seminars; Argumentation on seminar topics and use of specialized language. Completion of assignments and applications proposed by the seminar holder. Case studies, projects, portfolio	Formative evaluation Ongoing oral check / Verbal appraisal Alternative evaluation (project)	50%
11.6 Passing conditions			
Obtaining at least 50% of the total score			

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)

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Date	Course lecturer	Instructor(s) for practical activities
25.09.2025	Balanescu Ramona	Balanescu Ramona

Date of department approval	Head of department
26.09.2025	Prof. Dr. Claudius Dan

Date of approval in the Faculty Council	Dean
26.09.2025	Prof. Dr. Mihnea Udrea