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)				Instruire asistată de calculator Computer Assisted Training			
2.2 Course Lecturer				Oprescu Claudia			
2.3 Instructor for practical activities				Oprescu Claudia			
2.4 Year of studies	3	2.5 Semester	1	2.6. Evaluation type	V	2.7 Course regime	F
2.8 Course type		C	2.9 Course code	04.C.05.L.029		2.10 Tipul de notare	Nota

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

3.1 Number of hours per week	2	Out of which: 3.2 course	1	3.3 seminary/laboratory	1
3.4 Total hours in the curricula	28	Out of which: 3.5 course	14	3.6 seminary/laboratory	14
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.					12
Tutoring					5
Examinations					3
Other activities (if any):					2

3.7 Total hours of individual study	22.00
3.8 Total hours per semester	50
3.9 Number of ECTS credit points	2

4. Prerequisites (if applicable) (where applicable)

4.1 Curriculum	Completion of the courses: Educational Psychology, Pedagogy I, Pedagogy II, Didactics of the Specialization
4.2 Results of learning	Acquisition of knowledge regarding: Instructional strategies, Assessment strategies, Design of teaching activities. Possession of basic digital skills in using the computer.

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 and with Internet access.
5.2 Seminary/ Laboratory/Project	The seminar will take place in a room equipped with a video projector and computer and with Internet access.

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)*

The course Computer-Assisted Training is studied within the Psychopedagogical training program for the certification of competencies for the teaching profession, Level I, having an applied character. Thus, the theoretical knowledge acquired by students in previously studied subjects is used: Educational Psychology, Pedagogy I, Pedagogy II, Didactics of the Specialization.

The course addresses the following specific topics, concepts, and principles, all contributing to the development of competencies in using new technologies for organizing, designing, conducting teaching activities, and assessing results: Theoretical foundations of integrating technology into teaching activities; Creating digital resources for teaching; Using new technologies in teaching; Technology-mediated communication; New technologies for creating blended learning contexts; Selection and evaluation of educational software; Codes of conduct regarding the ethical and lawful use of new technologies in education.

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	• Defines the basic concepts of computer-assisted instruction and explains the role of digital technologies in the design, delivery, and assessment of teaching activities. • Identifies and selects appropriate educational tools/software for planning, teaching–learning, assessment, and educational communication (platforms, presentations, virtual classrooms, collaborative documents). • Creates digital resources for lessons and designs learning activities, including blended learning scenarios, integrating pedagogical principles and instructional design models. • Develops and applies assessment tools with the support of digital technologies; critically analyzes presentations and computer-assisted learning activities. • Selects and uses criteria for evaluating the quality of educational software and digital resources; checks the originality of materials and manages citation correctly. • Respects ethical and legal norms regarding the use of technology in education (netiquette, copyright, Creative Commons licenses).

Transversal (General) Competences	• Continuous documentation from scientifically validated sources and autonomous use of new digital tools. • Efficient teamwork in designing and implementing computer-assisted teaching activities (planning, division of tasks, feedback). • Clear professional communication, oral and written, in technology-mediated contexts (presentations, online platforms). • Assuming responsibility for the quality of digital educational products and for organizing one's own learning process.

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.* • Defines the concepts specific to the course. • Identifies types of tools and digital technologies that can be used in planning and organization, in teaching–learning–assessment, in creating blended-learning contexts, as well as in communication with educational stakeholders (students, teachers, parents). • Lists the main rules for creating a presentation and delivering a teaching activity based on a presentation. • Lists criteria for evaluating educational software, tools, and digital technologies. • Identifies relevant and safe sources of documentation. • Identifies educational resources protected by copyright.
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).* • Develops example strategies for integrating digital tools and technologies in relation to learning theories. • Creates digital resources for teaching–learning activities using various online digital tools and technologies. • Uses specific software in a concrete situation of planning teaching activities. • Designs learning activities that integrate various types of digital tools and technologies. • Develops assessment tools using various digital tools and technologies. • Critically analyzes a presentation created for a learning activity. • Designs a blended learning scenario. • Evaluates an educational software application based on an evaluation rubric. • Differentiates between documentation sources protected by copyright and open/free sources. • Checks for plagiarism in various materials using specific websites/technological tools that offer such services for free.

Responsability and autonomy	*The student's capacity to autonomously and responsably apply their knowledge and skills.* • Continuously documents from scientifically grounded sources. • Respects the principles of academic ethics in the development of digital content. • Demonstrates receptiveness to new learning contexts. • Shows a collaborative attitude with colleagues in completing tasks. • Demonstrates autonomy in completing tasks and in organizing the learning situation/context or the problem situation to be solved.

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.)*

The instructional methods used will be related to the intended learning outcomes and the topics addressed. The selection of instructional methods will also take into account students' learning characteristics and their specific needs. Thus, the teaching process will explore both expository and conversational–interactive methods, based on discovery learning models facilitated by direct and indirect exploration of reality, as well as action-based methods. These methods include: presentation, lecture–debate, explanation, exercise, conversation, demonstration, case study, problematization, project-based learning, group methods and techniques, role-play, etc.

10. Contents

COURSE		
Chapter	**Content**	**No. hours**
1	1. Introductory notions 1.1. Definitions, terminology. 1.2. Brief history – new technologies in education 1.3. Current trends regarding the use of digital tools and technologies in education	1
2	1. Theoretical foundations of integrating technology into teaching activities 1.1. Integrating technology in relation to learning theories 1.2. Designing computer-assisted teaching activities by applying existing design models 1.3. Models of integrating technology into teaching activities	2
3	1. Creating digital resources for teaching activities 1.1. Software and online digital tools for creating digital resources 1.2. Pedagogical aspects in creating digital resources	2

4	1. Using new technologies in teaching activities 1.1. Use of current digital tools and technologies in planning and organization (Examples. Pedagogical aspects. Advantages and limitations) - The Internet and social media as resources for searching for teaching materials - Current digital tools and technologies used for developing teaching materials 1.2. Use of current digital tools and technologies in teaching–learning. - Educational software: Definition. Classification. Examples. Pedagogical aspects. Advantages and limitations - Developing learning activities based on the use of educational software 1.3. Use of current digital tools and technologies in assessment: Examples, pedagogical aspects, advantages and limitations	4
5	1. Technology-mediated communication 1.1. Web 2.0, web 3.0, web 4.0 technologies. Social media. 1.2. Presentation software used in classroom communication 1.3. Recommendations for delivering a lesson based on a presentation	2
6	1. Current digital tools and technologies for creating blended learning contexts 1.1. Collaborative documents 1.2. Virtual classroom	1
7	1. Selection and evaluation of educational software 1.1. Selection of educational software 1.2. Evaluation criteria	1
8	1. Codes of conduct regarding the ethical and legal use of current digital tools and technologies in education. 1.1. Netiquette – good manners in the online environment 1.2. Copyright 1.3. Alternatives to avoid copyright infringement – Creative Commons (CC) licenses, free Open Sources	1
	Total:	14

Bibliography:

1. Chicioreanu Teodora Daniela- Suport de curs- Online pe platforma Moodle UPB
2. Ianoş Graţiela - Suport de curs- Online pe platforma Moodle UPB
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6. Beckmann, E. A. (2010). Learners on the move: Mobile modalities in development studies. Distance Education, 31(2), 159-173.
7. Chicioreanu,T.D. (2012). Aplicatii web2.0 pentru integrarea hărţilor conceptuale în activitatea didactică”(pag 137-154), Revista Studia doctoralia, psychology and sciences of education, Vol III/no.4, Bucureşti.
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9. IntelTeach. Instruirea în societatea cunoaşterii. CD cu resurse curriculare.
10. Knight,S. (2011) Effective Practice with e-Learning. JISC Devevelopment Group, University of Bristol, www.jisc.ac.uk/elearning_pedagogy.html.
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17. Integrating Educational Technology Into Teaching: Pearson New International Edition, M D Roblyer, Aaron H Doering, Sixth Edition, Pearson Education Limited, 2013
18. Jared Keengwe, Handbook of Research on Digital Content, Mobile Learning, and Technology Integration Models in Teacher Education, A volume in the Advances in Educational Technologies and Instructional Design (AETID) Book Series, IGIGlobal, PA USA, 2018
19. Instructional Design: Concepts, Methodologies, Tools and Applications, Volume 1, edited by Information Resources Management Association, USA, Information Science References, Hersey, New York, 2011

SEMINARY

Crt. no.	Content	No. hours
1	Developing example strategies for integrating technology in relation to learning theories. Analyzing a model for integrating technology into teaching activities.	2

2	Identifying software and online digital tools for creating digital resources for instructional activities. Creating digital resources for teaching–learning using various software/online digital tools.	2
3	Identifying useful software/tools for organizing and planning teaching activities, as well as for designing teaching activities (For example: software/tools for creating concept maps such as smartdraw, Inspiration; software/tools for planning teaching activities such as planboard, planbook; time management software, etc.) Using the identified software in a concrete situation of planning or designing teaching activities	1
4	Designing learning activities that integrate various types of software and technological tools. Developing assessment tools using specific technological software/tools (e.g., Google Drive and Flubaroo, Hot Potatoes). Analyzing the pedagogical aspects related to integrating software/technological tools into assessment activities (e.g., Google Drive, Hot Potatoes).	3
5	Translating a learning activity into a presentation and critical self-analysis of the presentation made. Delivering a learning activity supported by a presentation and critical self-analysis of the delivery.	2
6	Designing a blended learning scenario.	2
7	Analyzing an evaluation rubric for an educational software application. Evaluating an educational software application based on an evaluation rubric.	1
8	Identifying educational resources under CC license. Checking plagiarism for a material using a dedicated website that offers such services for free.	1
	Total:	14

Bibliography:

1. Tudorică, B.,Chicioreanu, T.D., Sava, B. (2012), Tehnologii informaţionale în sprijinul afacerii tale, Bucureşti, Editura Politehnica Press.
2. Chicioreanu T.D. (2011) „Computerul în activitatea educaţională dincolo de ora de curs”, Bucureşti, Editura Politehnica Press.
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6. www.e-learningcentre.co.uk/eclipse/Resources/mlearning.htm.
7. http://creately.com/diagram-products.
8. http://www.gliffy.com/
9. https://catalyst.mindjet.com/.
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11. Instructional Design: Concepts, Methodologies, Tools and Applications, Volume 1, edited by Information Resources Management Association, USA, Information Science References, Hersey, New York, 2011

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 course activities; Argumentation on course-related topics and use of specialized terminology. Ability to apply learned concepts.	Oral evaluation	20%
	Final verification	Written evaluation / Oral evaluation	20%
11.5 Seminary/laboratory/project	Active participation in discussions during seminar activities; Argumentation on seminar-related topics and use of specialized terminology. Completion of assignments/applications proposed by the seminar holder. Case studies, projects, portfolio	Formative assessment Ongoing oral check / Verbal appraisal Alternative assessment (project)	60%
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)

The course aligns with current requirements of educational institutions, training organizations, and the EdTech sector, which require teachers capable of integrating digital technologies into the design, teaching, and assessment of learning. The topics regarding reference to learning theories, computer-assisted design, the use of collaborative platforms and virtual classrooms, digital assessment, and technology-mediated communication reflect good practices used in universities and schools in the EHEA.

Additionally, the inclusion of components regarding the selection and evaluation of educational software, copyright, Creative Commons licenses, and originality checking directly meets employers' expectations regarding academic ethics, quality, and security of digital educational resources.

Date	Course lecturer	Instructor(s) for practical activities
25.09.2025	Oprescu Claudia	Oprescu Claudia

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Facultatea de Electronică, Telecomunicații și

Tehnologia Informației

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