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	Networks and Telecommunications Software

2. Date despre disciplină

2.1 Course name (ro) (en)				Management şi reglementări în comunicaţii şi electronică			
2.2 Course Lecturer				Conf. Dr. Eduard-Cristian Popovici			
2.3 Instructor for practical activities				Conf. Dr. Eduard-Cristian Popovici			
2.4 Year of studies	4	2.5 Semester	2	2.6. Evaluation type	V	2.7 Course regime	Op
2.8 Course type		C	2.9 Course code	04.S.08.A.515		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.					41
Tutoring					4
Examinations					2
Other activities (if any):					0

3.7 Total hours of individual study	47.00
3.8 Total hours per semester	75
3.9 Number of ECTS credit points	3

4. Prerequisites (if applicable) (where applicable)

4.1 Curriculum	Not Applicable
4.2 Results of learning	Not Applicable

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 video projector and computer. • Students will have access to course materials in electronic format on UPB's online course platform
5.2 Seminary/ Laboratory/Project	The laboratory will take place in a room equipped with video projector, computer and blackboard • Students will have access to laboratory materials in electronic format on UPB's online course 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 discipline is studied within the field of Electronic Engineering and Telecommunications and Information Technologies, specializing in Networks and Software for Telecommunications, and aims to familiarize students with the main approaches, models and explanatory theories of the field, used in solving practical applications and problems, with relevance for stimulating the learning process in students.

The discipline addresses the life cycle for a telecommunications software product as a specific topic and is essential in the conditions where in the labor market an engineer must understand and to whom a certain product is addressed before starting to develop it. These skills contribute to conveying to students an overview of the methodological and procedural milestones related to a telecommunications product.

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 advanced knowledge of telecommunications product life cycle. It correlates the knowledge acquired in this course with that acquired in previous years of study. Apply in practice the knowledge about the development of a telecommunications product and its life cycle. It argues and analyzes coherently and correctly the context of application of the basic knowledge of the field, using key concepts of the discipline and the specific methodology. Oral and written communication in Romanian: uses the scientific vocabulary specific to the field, in order to communicate effectively, in writing and orally.
Transversal (General) Competences	Works in a team and communicates effectively, coordinating efforts with others to solve problem situations of medium complexity. 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 process of systematic analysis. Respect the principles of academic ethics: correctly cite the bibliographic sources used in the documentation activity. Puts elements of emotional intelligence into practice in the appropriate social-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.* • Lists 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).* • Select and group information relevant to the management of a telecommunications product. • Reasonably uses specific principles in order to develop a telecommunications product • Work productively in a team. • Solve practical applications. • Adequately interpret causal relationships. • Identifies solutions and develops solution/project plans. • Argue the identified solutions/solutions.
Responsability and autonomy	*The student's capacity to autonomously and responsably apply their knowledge and skills.* • Select appropriate bibliographic sources and analyze them. • Respect the principles of academic ethics, correctly citing the bibliographic sources used. • Demonstrates responsiveness to new learning contexts. • Demonstrates collaboration with other colleagues and teaching staff in carrying out teaching activities • Demonstrates autonomy in organizing the learning situation/context or the problem situation to be solved • Realizes the value of his contribution in the field of engineering to the identification of viable/sustainable solutions to solve problems in social and economic life (social responsibility). • Analyzes and capitalizes on business/entrepreneurial development opportunities in the specialized field. • Demonstrates real-life situation management skills (collaborative vs. conflict time management).

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, exposition) and conversational-interactive teaching methods, based on discovery learning models facilitated by direct exploration and indirect of reality (modeling, simulation), but also on action-based methods, such as exercise, practical activities and problem solving.

In the teaching activity, lectures will be used, based on Power Point presentations or different videos that will be made available to the students. Each course will start with a recap of the chapters already covered, with an emphasis on the concepts 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 learning efforts and the development of optimal collaborative and communicative relationships in a climate conducive to discovery learning.

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

Industry experts will be invited to the course and/or lab to detail how they solved a particular problem or developed a particular course product.

Teamwork skills will be practiced to solve different learning tasks.

10. Contents

COURSE		
Chapter	**Content**	**No. hours**
1	Market, supply and demand, telecommunications from monopoly to competition The national context	2
2	Needs analysis for the development of a telecommunications product	2
3	Development of a telecommunications product – Case study: Telecommunications Operator, a commercial company	4
4	Development of a business plan for a product in the electronics and telecommunications industry	4
5	Regulations for the development of a communications and electronics product	2
	Total:	14

Bibliography:
Razvan Craciunescu, MRCE, Moodle
2. Value Proposition Design: How to Create Products and Services Customers Want (The Strategyzer Series) by Alexander Osterwalder, 2014
3. Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers (The Strategyzer series) by Alexander Osterwalder, 2010
4. Testing Business Ideas: A Field Guide for Rapid Experimentation (The Strategyzer Series) by David J. Bland 2019

LABORATORY

Crt. no.	Content	No. hours
1	Case study - market analysis	2
2	Case study – needs analysis for a telecommunications product	2
3	Case study – businss plan	4
4	Case study – life cycle of a telecom product	4
5	Case study – M&A role in the inception of cable operators in Romania	2
	Total:	14

Bibliography:
Razvan Craciunescu, MRCE, Moodle
Value Proposition Design: How to Create Products and Services Customers Want (The Strategyzer Series) by Alexander Osterwalder, 2014
Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers (The Strategyzer series) by Alexander Osterwalder, 2010
Testing Business Ideas: A Field Guide for Rapid Experimentation (The Strategyzer Series) by David J. Bland 2019

11. Evaluation

Activity type	11.1 Evaluation criteria	11.2 Evaluation methods	11.3 Percentage of final grade
11.4 Course	- acquisition of fundamental theoretical notions - knowing how to use the theoretical basis for specific applications;	Active participation at the course thematic	50%
11.5 Seminary/laboratory/project	Elaboration of a work – market analysis or business plan or development plan of a telecommunications product	Presentation of the work and debate	50%
11.6 Passing conditions			
50% from the total number of available points			

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, students develop skills to offer solutions to problems and to propose ideas to improve the situation of existence for the launch of a telecommunications product or for the improvement of existing products

• In the development of the content of the discipline, knowledge described by the specialized literature was taken into account, but also related to the guests/experts from the industry who will present the case studies

Through the practical life cycle development activities for a telecommunications product, the development of the graduate's skills to manage practical situations that he may face in real life is considered in order to increase his contribution to the improvement of the socio-economic environment.

Date	Course lecturer	Instructor(s) for practical activities
25.09.2025	Conf. Dr. Eduard-Cristian Popovici	Conf. Dr. Eduard-Cristian Popovici

Date of department approval	Head of department
26.09.2025	Conf. Dr. Serban Georgica Obreja

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