**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)<br>(en) | | | | Microeconomie<br>Microeconomics | | | |
| 2.2 Course Lecturer | | | | Assoc. Prof. Dr. Corina-Ionela DUMITRESCU | | | |
| 2.3 Instructor for practical activities | | | | NA | | | |
| 2.4 Year of studies | 2 | 2.5 Semester | 1 | 2.6. Evaluation type | V | 2.7 Course regime | Op |
| 2.8 Course type | | C | 2.9 Course code | 04.C.03.A.013 | | 2.10 Tipul de notare | Nota |

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

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|---|---|---|---|---|---|
| 3.1 Number of hours per week | 2 | Out of which: 3.2 course | 2 | 3.3 seminary/laboratory | 0 |
| 3.4 Total hours in the curricula | 28 | Out of which: 3.5 course | 28 | 3.6 seminary/laboratory | 0 |
| Distribution of time: | | | | | hours |
| Study according to the manual, course support, bibliography and hand notes<br>Supplemental documentation (library, electronic access resources, in the field, etc)<br>Preparation for practical activities, homework, essays, portfolios, etc. | | | | | 18 |
| Tutoring | | | | | 2 |
| Examinations | | | | | 4 |
| Other activities (if any): | | | | | 0 |

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| 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)

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| 4.1 Curriculum | Not applicable |
| 4.2 Results of learning | General knowledge of computing indices, absolute and relative changes of certain indicators; interpretation of graphs |

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

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| 5.1 Course | the existence of an adequately equipped room |

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| 5.2 Seminary/ Laboratory/Project | the existence of an adequately equipped room |

**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 aims to familiarize students with the main approaches, models, and explanatory theories in the field, used to solve practical applications and problems, relevant for stimulating the learning process for students, from the perspective of the market economy and current dynamics.

The subject specifically addresses basic notions, concepts, and principles, all contributing to providing students with an overall vision of the methodological and procedural benchmarks of the field.

The general objective of the Microeconomics course is to understand the basic logic and the functioning mechanisms of the market economy, to become familiar with microeconomic fundamentals, to understand how consumers make decisions to maximize utility, and how producers make decisions on different types of markets to maximize their interests.

**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.)*

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| **Specific Competences** | Management and control of companies and processes specific to the study program;<br>Adequate use of standard criteria and evaluation methods to assess the quality, merits, and limitations of processes, programs, projects, concepts, methods, and theories) |
| **Transversal (General) Competences** | Methodical analysis of problems encountered in activity, identifying elements for which established solutions exist, thus ensuring the fulfillment of professional tasks |

**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.)*

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|---|---|
| **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.*<br>At the end of the course, students will:<br>**Explain the fundamental concepts of economic science**, including the basic principles of economics, scarcity, rational choice, opportunity cost, the production possibility curve, and specialization.<br>**Describe market mechanisms** by defining demand and supply, identifying the factors that influence these variables, and explaining how market equilibrium is formed and adjusted.<br>**Explain the concepts of demand and supply elasticity**, analyzing how changes in prices and incomes affect the quantities demanded and supplied on the market.<br>**Identify and evaluate the implications of state intervention on the market**, explaining the concepts of consumer and producer surplus, market efficiency, and the effects of regulated prices, taxes, subsidies, and customs duties.<br>**Explain the economic theory of the consumer** by analyzing preferences, utility, the budget constraint, and determining the consumption optimum.<br>**Describe the theory of the producer**, highlighting cost structure, the production function, and criteria for maximizing profit and profitability.<br>**Characterize the main types of market structures**, such as perfect competition, monopoly, monopolistic competition, and oligopoly, explaining firm behaviors in these contexts.<br>**Explain the functioning of factor markets**, including labor demand and supply, labor market imperfections, and the formation of income from labor, interest, rent, and profit.<br>**Identify and explain market failures**, such as externalities and public goods, as well as the justification for state intervention in the efficient allocation of resources. |
| **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).*<br>Students<br>**Apply basic economic concepts** to analyze real situations of economic choice, using notions such as scarcity, opportunity cost, and the production possibility curve.<br>**Graph and interpret** the relationships between demand, supply, and market equilibrium in various economic contexts.<br>**Calculate and interpret demand and supply elasticities**, assessing the impact of price and income changes on the economic behavior of agents.<br>**Evaluate the effects of public policies** on markets by analyzing the impact of taxes, subsidies, regulated prices, and other interventions on social welfare.<br>**Use simple graphical and mathematical models** to determine the equilibrium of the consumer and the producer under budgetary or technological constraints.<br>**Analyze distinct market structures** (perfect competition, monopoly, monopolistic competition, oligopoly), comparing their outcomes from the perspective of efficiency and welfare.<br>**Solve problems regarding production costs, optimal price and quantity**, using economic functions and logical reasoning to maximize profit or minimize losses.<br>**Examine the functioning of the labor market and other factor markets**, explaining decisions on employment, wages, and the influence of institutions such as trade unions or the state.<br>**Analyze economic situations where market failure occurs,** proposing possible solutions from the perspective of public intervention or property rights.<br>**Develop essays, case studies, and economic assignments**, integrating theoretical knowledge with practical examples and formulating clear and coherent economic arguments. |

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| **Responsability and autonomy** | *The student's capacity to autonomously and responsably apply their knowledge and skills.*<br>At the end of the course, students will:<br>Demonstrate responsibility in applying economic concepts in practical contexts, showing rigor and logic in analyzing real situations from the economic environment.<br>Assume the role of active participant in learning processes and economic analysis, contributing argued viewpoints in discussions, debates, and individual or group work.<br>Show autonomy in using economic analysis tools, selecting appropriate methods for solving specific microeconomic problems.<br>Evaluate the impact of their own or other actors' economic decisions, demonstrating understanding of their implications for individual and social welfare.<br>Organize their individual and group activity, efficiently managing tasks related to preparing assignments, case studies, and economic applications.<br>Develop a critical and reflective attitude towards economic phenomena and public policies, being able to distinguish between valid economic arguments and opinions lacking scientific foundation.<br>Respect ethical and deontological norms in intellectual and academic activity, avoiding plagiarism and assuming the originality of presented ideas and analyses.<br>Take responsibility for developing their own economic thinking, valuing received feedback and pursuing continuous improvement of academic performance. |

**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.)*

Teaching methods are student-centered and include:

- presentation and discussions;
- debates;
- discussion of case studies;
- critical analyses;
- examples.

Thus, students are active and involved in all teaching activities.

Learning gaps are remedied by scheduling additional classes.

Class discussions and debates are essential in teaching Microeconomics. Through these interactions, students can share different perspectives, argue, and develop their understanding of the complexity of issues related to social responsibility in business. Teachers use case studies, news articles, or videos as starting points for interesting and challenging classroom discussions.

In conclusion, teaching Microeconomics uses a diversified and interactive approach that encourages student engagement and facilitates in-depth understanding of concepts and practices in the contemporary business environment. By using a mix of case studies, simulations, discussions, and other interactive methods, teachers help prepare students to become responsible individuals.

**10. Contents**

| **COURSE** | | |
|---|---|---|
| **Chapter** | **Content** | **No. hours** |
| 1 | 1. What is economic science.<br>1.1. Principles of economics.<br>1.2. Scarcity and choice in economics.<br>1.3. Opportunity cost.<br>1.4. The production possibility curve.<br>1.5. Principles of specialization | 2 |
| 2 | 2. Demand, supply, and market equilibrium<br>2.1. Demand (definition of demand, substitution effect, income effect and the Giffen paradox, determining the demand function, determining market demand, change in demand: factors influencing demand)<br>2.2. Supply (definition of supply, determining the supply function, determining market supply, change in supply: factors influencing supply)<br>2.3. Market equilibrium (definition and graphical representation of equilibrium, change in market equilibrium) | 2 |
| 3 | 3. Elasticities of demand and supply<br>3.1. Demand elasticity (price elasticity of demand, varieties of demand curves, price elasticity of demand and total revenue, factors influencing demand elasticity, income elasticity of demand, cross-price elasticity of demand)<br>3.2. Supply elasticity (price elasticity of supply, varieties of supply curves, factors influencing supply elasticity) | 2 |
| 4 | 4. Applications of demand and supply: welfare economics<br>4.1. Economic welfare and the efficiency of free markets (consumer surplus, producer surplus, total surplus, efficiency of the free market)<br>4.2. Economic welfare and the efficiency of controlled markets (markets with controlled prices: price floors and price ceilings, taxation, subsidies, tariffs: effects of tariffs when there is no domestic industry and when there is a domestic industry) | 4 |
| 5 | 5. The economic theory of the consumer<br>5.1. Preferences and utility<br>5.2. The budget constraint<br>5.3. Equilibrium (consumer optimum) | 2 |
| 6 | 6. The economic theory of the producer<br>6.1. Nature and functions of production cost<br>6.2. The production function and costs<br>6.3. Producer profitability | 4 |
| 7 | 7. The perfectly competitive market<br>7.1. The concept of market structure (types of market structures, descriptive and ideal structures)<br>7.2. Perfect competition and short-run supply (the competitive firm as price-taker, marginal revenue and price, short-run profit maximization, short-run loss minimization, shutting down to minimize short-run losses, a firm’s short-run supply curve, the short-run industry supply curve)<br>7.3. Long-run equilibrium | 2 |

| | | |
|---|---|---|
| 8 | 8. The perfectly competitive market<br>8.1. The concept of market structure (types of market structures, descriptive and ideal structures)<br>8.2. Perfect competition and short-run supply (the competitive firm as price-taker, marginal revenue and price, short-run profit maximization, short-run loss minimization, shutting down to minimize short-run losses, a firm's short-run supply curve, the short-run industry supply curve)<br>8.3. Long-run equilibrium | 2 |
| 9 | 9. The monopolistic competition market<br>9.1. Features of monopolistic competition<br>9.2. Monopolistic competition in the short run<br>9.3. Monopolistic competition in the long run<br>9.4. Monopolistic competition vs. perfect competition<br>9.5. Monopolistic competition and welfare | 2 |
| 10 | 10. Oligopoly<br>10.1. General features of oligopoly<br>10.2. Typology of oligopolies<br>10.3. A brief introduction to game theory (types of games, Nash equilibrium, the prisoner's dilemma)<br>10.4. Non-cooperative oligopoly (quantity strategies, price strategy, the Cournot model)<br>10.5. Cooperative oligopoly | 2 |
| 11 | 11. Factor markets<br>11.1. Demand for a factor (labor demand of a single firm, labor demand of the industry)<br>11.2. Labor supply<br>11.3. Labor market imperfections (hiring policy of a profit-maximizing monopoly, hiring policy of a monopsony in the labor market, the influence of unions and collective bargaining on wages and employment, the case of a bilateral monopoly in the labor market)<br>11.4. Rent, interest, and profit | 2 |
| 12 | 12. The economic theory of the public sector<br>12.1. Market failures and externalities (positive and negative externalities, market solutions to the externalities problem)<br>12.2. Public policies (public goods, common-pool resources, the importance of property rights). | 2 |
| | **Total:** | 28 |

**Bibliography:**

1. Mankiw, G.N. – Principles of Economics, Dryden Press, 2023

2. Oprescu, Gh. (coord.) - Microeconomie, Editura Economică, 2005.

3. Pindyck, R.S., Rubinfeld D.L., - Microeconomics, Prentice Hall Inc., 1995.

**Bibliography:**

**11. Evaluation**

| Activity type | 11.1 Evaluation criteria | 11.2 Evaluation methods | 11.3 Percentage of final grade |
|---|---|---|---|
| 11.4 Course | - knowledge of fundamental theoretical notions;<br>- knowledge of how to apply theory to specific problems;<br>- differential analysis of theoretical techniques and methods. | - homework | 40 |
| | - knowledge of fundamental theoretical notions;<br>- knowledge of how to apply theory to specific problems;<br>- differential analysis of theoretical techniques and methods. | - in-term paper | 40 |
| | - knowledge of fundamental theoretical notions;<br>- knowledge of how to apply theory to specific problems;<br>- differential analysis of theoretical techniques and methods. | - final verification scheduled in the 13th or 14th week of teaching activity, according to the Bachelor study regulations. | 20 |
| 11.5 Seminary/laboratory/project | | | |
| 11.6 Passing conditions | | | |
| obtaining 50% of the maximum 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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The “Microeconomics” course contains chapters aimed at acquiring the basic notions of microeconomics in order to form the economic thinking of Engineering graduates. The accumulated competencies and acquired skills complement the engineer’s knowledge area to adapt to the market economy, in line with the competencies required for possible occupations provided in RNCIS. These will allow the graduate to adapt to real situations in economic life, managing to combine technical knowledge with economic knowledge.

| Date | Course lecturer | Instructor(s) for practical activities |
|---|---|---|
| 25.09.2025 | Assoc. Prof. Dr. Corina-Ionela DUMITRESCU | NA |

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

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