

SYLLABUS

1. Program Data

1.1. Institution of Higher Education	Babeş-Bolyai University
1.2. Faculty	Faculty of Mathematics and Computer Science
1.3. Department	Department of Computer Science
1.4. Field of Study	Computers and Information Technology
1.5. Course of Study	Bachelor
1.6. Study Programme	Information Engineering

2. Discipline Data

2.1. Discipline Name (ro)		Electrotehnică					
2.1. Discipline Name (en)		Electrical Engineering					
2.2. Course Coordinator		Assoc. Prof. PhD. Cristian Paul CHIONCEL					
2.3.1. Seminary Coordinator		Assoc. Prof. PhD. Cristian Paul CHIONCEL					
2.3.2. Laboratory Coordinator		Assoc. Prof. PhD. Cristian Paul CHIONCEL					
2.3.3. Project Coordinator							
2.4. Year of Study	I	2.5. Semester	II	2.6. Evaluation Time	E	2.7. Discipline Regime	Compulsory DD
2.8 Code of the discipline		MLE7027					

3. Estimated Total Time (hours per semester of teaching activities)

3.1. Number of Hours per Week	4	from which: 3.2. Course	3	3.3. seminary&laboratory	1 LP
3.4. Total Hours from the Curriculum Plan	56	from which: 3.5. Course	42	3.6. seminary&laboratory	14
Time Fund Distribution - hours					
Study of Handbook, Course Materials, Bibliography & Notes					26
Additional Documentation in Library, on Special E-learning Platforms & in the Field					4
Preparation of seminars/laboratories/ projects, topics, reports, portfolios & essays					8
Mentoring					2
Examination					2
Other Activities					2
3.7. Total Time of Individual Study		44			
3.8. Total Hours per Semester		100			
3.9. Number of Credits		4			

4. Pre-condition (where is the case)

4.1. of Curriculum	•
4.2. of Competences	•

5. Condition (where is the case)

5.1. of Course Progress	•
5.2.1. of Seminary Progress	•
5.2.2. of Laboratory Progress	•
5.2.3. of Project Progress	•

6. Acquired Specific Competences

Professional Competences	<ul style="list-style-type: none"> Operating with the basics of Mathematical, Engineering and Computer, Science (PC 1) Use of the basic concepts of electronic devices, circuits, and instrumentation (PC 5)
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Transversal Competences	<ul style="list-style-type: none"> Honorable, responsible, ethical behavior, in the spirit of the law, to ensure the professional reputation (TC 1) Demonstrating initiative and pro-active behavior for updating professional, economical and organizational culture knowledge (TC 3)
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7. Discipline Objectives (coming out from the Checklist of Acquired Specific Competences)

7.1. General Objective of Discipline	<ul style="list-style-type: none"> Development of scientific thinking, familiarization of the future specialist with the fundamental notions of electrical engineering, electrical circuits
7.2. Specific Objectives	<ul style="list-style-type: none"> Developing the student's ability to understand the physical phenomena in the field of electrical engineering, notions about the components of electrical circuits. Identification of electromagnetic phenomena and instrumentation required for electrical diagrams. Awareness of the importance of training during the semester for good and lasting results, awareness of the importance of research, own research related to learning, done correctly and on time.

8. Content

8.1. Course	Teaching methods	Observation	
Discipline objectives. Generalities.	Presentation; Discussion.		
1. Active measures of electrical circuits.			
2. Passive electrical circuit elements. Resistors. Symbolization. Classification. Resistor parameters. Ways to connect the resistors. Ohm's law and Joule's law.			
3-4. Passive circuit elements. Capacitors. Symbolization. Classification. Capacitor parameters. Capacitor connection modes.			
5-6. Passive circuit elements. Coils. Kirchoff's theorems.			
7. Three-phase electrical circuits.			
8. The notion of electromagnetic field, the types of field and its characteristic quantities.			
9-10. Electric field. Particular electric fields. Laws of electromagnetism for electric fields.			
11-12. Magnetic field. Particular magnetic fields. Laws of electromagnetism for magnetic fields.			
13-14. Electromagnetic waves.			
Bibliography			
<ul style="list-style-type: none"> Cristian P. Chioncel – Course notes; I. Tătucu; N. Gillich; „Măsurări electromagnetice”, vol. I și II, Editura „Eftimie Murgu”; Reșița, 1997. 			
8.2.2. Laboratory		Teaching methods	Observation
1. Health and safety in laboratory.		Measurements, Discussion, Explanation.	2 hours
2. Notions of measuring instruments.	2 hours		
3. Extension of voltage and current range.	2 hours		
4. Study of active measures in an electrical circuit.	2 hours		
5. Study of RLC series circuits. The resonance phenomenon.	2 hours		
6. The study of the power factor and its improvement.	2 hours		
7. Evaluation, debt remaining hours.	2 hours		
Bibliography			
<ul style="list-style-type: none"> I. Tătucu; N. Gillich; „Electrotehnică”, Editura „Eftimie Murgu”; Reșița, 2001; I. Tătucu; N. Gillich; „Electrotehnică și mașini electrice – Îndrumător de laborator”, Editura „Eftimie Murgu”; Reșița, 1997. 			
8.2.3. Project:-	Teaching methods	Observation	

9. Corroborating Discipline's Contents with the Expectation of the Epistemic Community Representatives, the Professional Associations and the Employers' Representatives from the Programme Corresponding Field

- They have been established with the main employers by previous discussions at the study programme substantiation.

10. Evaluation

Type of activity	10.1. Evaluation criteria	10.2. Evaluation methods	10.3. Weight from the final grade
10.4. Course	Debates participation	Number of interventions	5 %
	Acquired knowledge level	Exam (oral)	60 %
10.5.1. Seminary	Activity / implication	Interventions	5 %
	Gained competence level	Interactive	10 %
10.5.2. Laboratory	Activity / implication	Interventions	10 %
	Gained competence level in practice	Interactive	10 %
10.5.3. Project	Readiness in phrasing the project stages		
	Project quality		
10.6. Performance Minimum Standard			
<ul style="list-style-type: none"> • Completion of Applicative Activities. • Completion of each exam. subject by the minimum grade of 5. 			

Date
May 2022

Signature of course coordinator
Assoc. Prof. PhD. Eng. Cristian
P. CHIONCEL

Signature of seminar coordinator
Assoc. Prof. PhD. Eng. Cristian
P. CHIONCEL

Date of approval
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24.05.2022

Signature of the head of department
Prof. dr. Laura Dioşan