

SYLLABUS

Approved,
DEAN

Prof. univ. dr. ing. Gilbert-Rainer GILLICH

1. Program Data

1.1. Institution of Higher Education	Babeş-Bolyai University
1.2. Faculty	Faculty of Engineering
1.3. Department	Department of Engineering Science
1.4. Field of Study	Electrical Engineering
1.5. Course of Study	Bachelor
1.6. Study Programme	Electromecanics

2. Discipline Data

2.1. Discipline Name	Production, transport and distribution of electricity						
2.2. Course Coordinator	Prof.univ.dr.ing. Nicoleta GILLICH						
2.3.1. Seminary Coordinator							
2.3.2. Laboratory Coordinator	Prof.univ.dr.ing. Nicoleta GILLICH						
2.3.3. Project Coordinator							
2.4. Year of Study	IV	2.5. Semester	II	2.6. Evaluation Time	E	2.7. Discipline Regime	Cmp.

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

3.1. Number of Hours per Week	4	from which: 3.2. Course	5	3.3. laboratory	2
3.4. Total Hours from the Curriculum Plan	56	from which: 3.5. Course	28	3.6. laboratory	28
Time Fund Distribution - hours					69
Study of Handbook, Course Materials, Bibliography & Notes					28
Additional Documentation in Library, on Special E-learning Platforms & in the Field					11
Preparation of seminars/laboratories/ projects, topics, reports, portfolios & essays					26
Mentoring					2
Examination					2
Other Activities					0
3.7. Total Time of Individual Study	69				
3.8. Total Hours per Semester	125				
3.9. Number of Credits	5				

4. Pre-condition (where is the case)

4.1. of Curriculum	• Electromagnetic field theory
4.2. of Competences	• PC utilisation

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	• CP1 – Application and adequacy of specific knowledge of mathematics, physics, informatics specific in the field of electrical engineering.
Transversal Competences	• CT3 - Identify roles and responsibilities in a multidisciplinary team and apply effective relationship and work techniques within the team

7. Discipline Objectives (coming out from the Checklist of Acquired Specific Competences)

7.1. General Objective of Discipline	• Transmitting knowledge on the production, transmission and distribution of electricity..
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7.2. Specific Objectives	<ul style="list-style-type: none"> • Transmission of knowledge on plant installations and equipment • Transmission of knowledge on the calculation of electrical networks.
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8. Content

8.1. Course	Teaching methods	Observation
1. Energy sources and resources. Energy carriers.	Presentation; Discussion.	2 hours
2. Energy system. Electric power system. Load curves.	- // -	2 hours
3. Classical methods of electricity production. Thermal power plants	- // -	2 hours
4. Hydroelectric power plants.	- // -	2 hours
5. Nuclear power plants	- // -	2 hours
6. Unconventional methods of producing electricity.	- // -	2 hours
7. The architecture of electrical networks. Standardized voltage levels. Overhead and underground power lines. Diagrams of the primary circuits of the connection installations. Electrical equipment of electrical distribution installations.	- // -	4 hours
8. Electrical parameters and equivalent electrical diagrams of electrical networks. Electrical parameters and equivalent electrical diagrams of network elements: power lines, transformers, consumers	- // -	4 hours
9. Electricity transmission and distribution installations. Electrical calculation elements of electrical networks. Voltage and power drops and losses in electrical networks.	- // -	4 hours
10. Stability of electrical power systems	- // -	4 hours
Bibliography 1. Gillich N., <i>Producerea, transportul și distribuția energiei electrice</i> , Editura AGIR, București, 2003. 2. Gillich N., <i>Producerea, transportul și distribuția energiei electrice, curs, CD</i> , 2014. 3. Gillich N., Piroi I., <i>Producerea, transportul și distribuția energiei electrice</i> , Editura Eftimie Murgu, Reșița, 2009. 4. Velicescu C., <i>Ingineria sistemelor de producere și distribuție a energiei electrice</i> , Editura Politehnica, Timișoara, 2000. 5. Vințan M., <i>Producerea, transportul și distribuția energiei electrice</i> , Editura MATRIX ROM, București, 2009. 6. Vulcu I., <i>Instalații de transport și distribuție a energiei electrice</i> , Editura MATRIX ROM, București, 2006. 7. Pană A., <i>Transportul și distribuția energiei electrice</i> , Editura Politehnica, Timișoara, 2014.		
8.2.2. Laboratory	Teaching methods	Observation
1. Health and safety in laboratory.	Explanation, Discussion	2 hours
2. Analysis of load curves in industrial consumers.	- // -	2 hours
3. Study of thermal power plants.	- // -	2 hours
4. Study of hydroelectric power plants. Technical visit.	- // -	4 hours
5. Study of nuclear power plants	- // -	2 hours
6. Unconventional methods of producing electricity.	- // -	4 hours
7. The study of the constructive elements of the overhead and underground power lines. Electrical parameters.	- // -	2 hours
8. Electrical connection stations. Technical visit.	- // -	4 hours
9. Voltage and power drops and losses in electrical networks.	- // -	4 hours
10. Final evaluation, debt remaining hours.	- // -	2 hours
Bibliography 1. Gillich N., <i>Producerea, transportul și distribuția energiei electrice, Îndrumător de laborator, CD</i> , 2014. 2. Rucareanu C., <i>Linii electrice aeriene și subterane: Îndreptar</i> , Editura Tehnică, București, 1989. 3. Video tutorials		

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		
	Acquired knowledge level	Exam (on paper)	70 %
10.5.1. Seminary	Activity / implication		
	Gained competence level		
10.5.2. Laboratory	Activity / implication	Interventions	10 %

	Gained competence level in practice	Interactive	20 %
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 exams subject by the minimum grade of 5. 			

Completion Date

19.04.2022

Course Coordinator's Signature

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Laboratory / Project Coordinator's Signature

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Department Endorsement Date

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Chief of Department Signature

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