SYLABUS

Aproved,
DEAN,
Prof. univ. dr. eng. Gillich Rainer Gilbert

1. Program Data

1.1. Institution of Higher Education	**Babeș-Bolyai University**
1.2. Faculty	**Engineering**
1.3.Department	**Engineering Science**
1.4. Field of Study	**Applied Engineering Science**
1.5. Course of Study	**Bachelor**
1.6. Study Programme	**INDUSTRIAL INFORMATICS**

2. Discipline Data

2.1. Discipline name	**Databases in electrical engineering**						
2.2. Course Coordinator	**Lect. dr. eng. Mihaela Dorica Stroia**						
2.3.1. Seminary Coordinator	-						
2.3.2. Laboratory Coordinator	**Lect. dr. eng. Mihaela Dorica Stroia**						
2.3.3. Project Coordinator	-						
2.4. Year of Study	**III**	2.5. Semester	**5**	2.6. Evaluation Type	**C**	2.7. Discipline regime	**Comp**

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

3.1. Number of Hours per Week	**4**	from which: 3.2. course	**2**	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					44
Study of Handbook, Course Materials, Bibliography & Notes					12
Additional Documentation in Library, on Special E-learning Platforms & in the Field					12
Preparation of seminaries/laboratories/ projects, topics, reports, portfolios & essays					12
Mentoring					2
Examination					6
Other Activities					-

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	• Applied informatics, Programming techniques, Computing logic
4.2. of competences	• Computational skills

5. Condition (where is the case)

5.1. of Course Progress	• Video-projector, PC, blackboard, chalk
5.2. of Seminary Progress	• -
5.3. of Laboratory Progress	• Internet, workstations, software for databases (MySQL)
5.4. 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 applied engineering sciences. CP2 - Operating with specialized concepts in the field of computer technology and information technology.
Transversal Competences	CT1 - Identify the objectives to be achieved, the available resources, the conditions for their completion, the work stages, the related deadlines and the related risks. CT3 - Efficient use of information resources and assisted communication and training resources (internet portals, specialized software applications, databases, online courses, etc.) both in Romanian and in a language of international circulation.

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

7.1. General Objective of Discipline	• Application of the basic concepts of database management systems

7.2. Specific Objectives	• Creating a database using different models; • use of a dedicated database language; • Manipulation of data and database.

8. Content

8.1. Course	Teaching methods	Observation
1. Introductory technical concepts (defining notions, classifications, modeling).	Lecture, Explanation Conversation, Exemplification	2 hours
2. Architecture of a database management system (components, structure, models, languages, interface).		2 hours
3. Database design. Relational data structures.		2 hours
4. SQL language. Basic SQL commands for creating and querying databases and tables.		4 hours
5. The entity-relationship model. Normalization of relational databases		2 hours
6. SQL data types. Functions in SQL. Relational algebra operators		4 hours
7. Complex SQL commands for manipulating databases and tables.		4 hours
8. SQL language. Other objects in databases.		2 hours
9. Distributed databases. Non-SQL databases.		4 hours
10. PL / SQL procedures and functions on the server		2 hours
Bibliography 1. Petersen J. „*Baze de date pentru începători*”, Publishing All, 2003. 2. Olteanu A., Anghel M., Pietraru R.N., *Baze de date si utilizarea acestora*,Ministerul educatiei si cercetarii, 2005 . 3. https://www.w3schools.com/sql/ 4. https://www.tutorialspoint.com/mysql/ 5. http://www.mysqltutorial.org/		
8.2.1. Seminary	Teaching methods	Observation
-	-	-
Bibliography -		
8.2.2. Laboratory	Teaching methods	Observation
1. SSM. Hardware and software databases. SQL language presentation.	Interactive participation, problematization, analysis	2 hours
2. MySql. Creating a simple database. Usual commands		4 hours
3. MySQL and the relational database model. Creating a relational database structure		4 hours
4. SQL commands for querying relational databases and tables.		4 hours
5. Complex applications with functions in SQL.		4 hours
6. Complex applications with relational operators in SQL.		4 hours
7. Normalization of databases. Complex SQL commands for standardized databases.		2 hours
8. Granting privileges. Database security and integrity.		2 hours
9. Advanced database management and control commands. End of activity situation		2 hours
Bibliography 1. Petersen J. „Baze de date pentru începători”, Editura All, 2003. 2. Lungu, I., Iorga, M., Velicanu, M. "Baze de Date - Să învăţăm sistemul Oracle în 28 de lecţii", Editura Economică, 2002. 3. Connolly, T., Begg, C., Strachan A., „Baze de date: proiectare, implementare, gestionare”, Editura Teora, București, 2001. 4. Dollinger, R., Andron, L., „Baze de date și gestiunea tranzacțiilor”, Editura Albastră, Cluj-Napoca, 2004. 5. Fotache, M. „Dialecte SQL. DB2, Oracle, Visual FoxPro”, Editura Polirom, 2001		

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	Written examination– theory and applications	70 %
10.5.1. Seminary	Activity / implication	-	-
	Gained competence level	-	-
10.5.2. Laboratory	Activity / implication	Evaluation, thematic debates, case analysis	30 %
	Gained competence level		
10.5.3. Project	Readiness in phrasing the project stages	-	-
	Project quality	-	-
10.6. Performance Minimum Standard			

- Completion of Applicative Activities (laboratory/seminary work accomplishment by the minimum grade of 5).
- Completion of exam by the minimum grade of 5
- When re-contracting the discipline, the course and Applicative Activities from previous years is NOT recognized

Completion Date	Course Coordinator's Signature	Seminary/Laboratory/Project Coordinator's Signature
31.05.2022	**Lect. dr. eng. Mihaela Dorica Stroia**	**Lect dr. eng. Mihaela Dorica Stroia**

Department Endorsement Date	Chief of Department Signature
.....	Lect. dr. fiz. Hațiegan Cornel