MINISTERUL EDUCAŢIEI
UNIVERSITATEA „AUREL VLAICU" DIN ARAD
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Operator de date cu caracter personal nr. 2929

SYLLABUS

1. Study programme

1.1. Higher education institution	**„Aurel Vlaicu" University of Arad**
1.2. Faculty	**of Exact Sciences**
1.3. Department	**Department of Mathematics and Computer Science**
1.4. Field of study	**Informatics**
1.5. Study level	**2024-2025**
1.6. Ciclul de studii	**Bachelor**
1.7. Study programme / Qualification	**Computer Science**
1.8. Form of education	**Full-time study**

2. Course details

2.1. Name of the course	**GlAF3O03 Database**
2.2. Course coordinator	**dr. Nagy Mariana**
2.3. Seminar/laboratory/project coordinator	**specialist Petcuț Lasc Anca Adriana**
2.4. Study year	**2**
2.5. Semester	**1**
2.6. Evaluation type	**ES**
2.7. Course type	**Ob**

3. Estimated total time (hours per semester)

3.1. Hours per week	**4**
3.2. Lecture hours per week	**2**
3.3. Seminar/laboratory/project hours per week	**2**
3.4. Total hours per curriculum	**56**
3.5. Lecture hours per semester	**28**
3.6. Seminar/laboratory/project hours per semester	**28**
	Time division [hrs]
3.4.1. Independent study from textbooks, course support, bibliography and notes	**30**
3.4.2. Additional reading (libraries, specialized electronic platforms and field research)	**30**
3.4.3. Preparing of seminars/laboratories/projects, homework, papers, portfolios and essays	**25**
3.4.4. Tutorial coaching	**5**
3.4.5. Examinations	**4**
3.4.6. Other activities	**0**
3.7. Total individual study hours	**94**
3.8. Total hours per semester	**150**
3.9. Number of ECTS credits	**6**

4. Prerequisites (if applicable)

4.1. Curriculum related	
4.2. Competence related	**Basic knowledge of office work**

5.1. for the lecture	**Lecture room equipped with laptop, projector and proper software: MS Word, Power Point and Database software**
5.2. for the seminar	
5.3. for the laboratory	**Laboratory Room, equipped properly with: computers, computer network, Internetconnection, MS Office, Database software**
5.4. for the project	

6. Specific educational objectives (competences to be acquired)

6.1. Competenţe profesionale	**C1.Programming in high level programming languages;** **C3.Using computer tools in interdisciplynary context;** **C5.Database design and database management.**
6.2. Competenţe transversale	**CT2.Efficient conduct of the activities organized in an inter-disciplynary group and developing the personal communication skills, networking and collaboration with various groups;** **CT3.Using of efficient methods and techniques for learning, informing, research and development of the capacity to value knowledge, adapting to the requirements of a dynamic society and communicating in English and in an Internationally widespread language.**

7. Course outcomes (resulting from the specific educational objectives to be acquired)

7.1. General outcomes	**Training skills for students in order to learn the processing of a big volume of data with the use ofcomputers.** **Strengthen the cooperation of the specialists in various fields with the computer specialist by aninterdisciplinary approach to the databases.**
7.2. Specific outcomes	**Students will be able to demonstrate that they have acquired knowledge on organizing the data,data analysis and creating data models.** **Creating and using relational databases.** **The main methods for automate data processing, queries on databases** **Programing in a DBMS using VBA** **Creating a database for a real example: analysis, design, implementation, use.**

8. Outline (if applicable)

8.1 Lecture Outline	Teaching methods	Remarks
Fundamental concepts □Basic concepts: data, information,databases – evolution. Characteristics, examples. □The advantagesof using a database. The independence of data. Architecture og aDB. □DBMS, Database management □Database models. Normalizing the data.	□interactive lecture □dialog □proof	4 hrs
MS-Access, a relational DBMS: □MS-Access – part of MS Office.User interface, most important windows. □MS-Objects:Presentation, role. Creating, Views. Using: look-up wizard,expression builder, database compacting and repairing.	□lecture □web search □exemplifying	2 hrs
Tables and relationships: □Table structure, data types, fieldproperties, data validation. □Relationships: definition, role,classification, creating, deleting, properties. Examples.	□interactive lecture □problem solving □modeling	2 hrs
Creating user interface: □Forms: data aquisition / data views.Properties. Forms: creating menus. □Reports: design, creating,properties. Interpreting the data. Examples.	□interactive lecture □problem solving □exemplifying	2 hrs
Queries: □Select queries: definition, role, views. Sorting, filtering,parameters, agregate functions, calculate fields. □Action quesries:definition, role, classification, examples. Action queries:application and practicing. □Macros. Examples □The basis ofSQL.	□interactive lecture □questioning □debate	6 hrs
Object oriented programming using VBA □Events. Definition,examples, event sequences when using forms □VBA modules.Role, classification. Commands. Examples of CBF modules. □Objects. Properties and methods. Classes and instances. Container.	□interactive lecture □problem solving □ web search □exemplifying	8 hrs
Creating an application □The steps for creating a functionalapplication. Analysis and design, programming, implementing andtesting. □Creating a relational DBMS for the management of a warehouse.	□interactive lecture □problem solving □modeling □ web search	4 hrs

8.2 Lecture References

1. Nagy M., Suport de laborator, SUMS, 2023
2. Garais E.G., Proiectarea bazelor de date relationale cu Microsoft Access, Ed. Pro Universitaria, 2024

3. Kovacs S., Implementarea bazelor de date, Ed.Albastră, Cluj-Napoca, 2003
4. Nagy M., Vizental M., Baze de date. Material de studiu pentru învăţământul la distanţă., UAV, 2010
5. Nagy M., Vizental M., Sisteme de gestiune a bazelor de date, Note de curs şi aplicaţii, Ed. Mirton, Timişoara, 2007
6. Năstase P. şi colectivul, Baze de date Microsoft Access 2000, Ed. Teora, Bucureşti, 2000
7. Sfetcu N., Lucrul cu baze de date, Ed. Multimedia, 2021
8. Ulrich L.A., Cook K., Access 2019 For Dummies, Ed. Wiley, 2019

8.3 Seminar Outline	Teaching methods	Remarks

8.4 Seminar References

8.5 Laboratory Outline	Teaching methods	Remarks
Fundamental concepts ☐Basic concepts: data, information,databases – evolution. Characteristics, examples. ☐The advantagesof using a database. The independence of data. Architecture og aDB. ☐DBMS, Database management ☐Database models.Normalizing the data.	☐interactive lecture ☐dialog ☐proof	4 hrs
MS-Access, a relational DBMS: ☐MS-Access – part of MS Office.User interface, most important windows. ☐MS-Objects:Presentation, role. Creating, Views. Using: look-up wizard,expression builder, database compacting and repairing.	☐lecture ☐ web search ☐exemplifying	2 hrs
Tables and relationships: ☐Table structure, data types, fieldproperties, data validation. ☐Relationships: definition, role,classification, creating, deleting, properties. Examples.	☐interactive lecture ☐problem solving ☐modeling	2 hrs
Creating user interface: ☐Forms: data aquisition / data views.Properties. Forms: creating menus. ☐Reports: design, creating,properties. Interpreting the data. Examples.	☐interactive lecture ☐problem solving ☐exemplifying	2 hrs
Queries: ☐Select queries: definition, role, views. Sorting, filtering,parameters, agregate functions, calculate fields. ☐Action quesries:definition, role, classification, examples. Action queries:application and practicing. ☐Macros. Examples ☐The basis ofSQL.	☐interactive lecture ☐questioning ☐debate	6 hrs
Object oriented programming using VBA ☐Events. Definition,examples, event sequences when using forms ☐VBA modules.Role, classification. Commands. Examples of CBF modules. ☐Objects. Properties and methods. Classes and instances. Conteiner.	☐interactive lecture ☐problem solving ☐ web search ☐exemplifying	8 hrs
Creating an application ☐The steps for creating a functionalapplication. Analysis and design, programming, implementing andtesting. ☐Creating a relational DBMS for the management of awarehouse.	☐interactive lecture ☐problem solving ☐modeling ☐ web search	4 hrs

8.6 Laboratory References

1. Nagy M., Suport de laborator, SUMS, 2023
2. Garais E.G., Proiectarea bazelor de date relationale cu Microsoft Access, Ed. Pro Universitaria, 2024
3. Kovacs S., Implementarea bazelor de date, Ed.Albastră, Cluj-Napoca, 2003
4. Nagy M., Vizental M., Baze de date. Material de studiu pentru învăţământul la distanţă., UAV, 2010
5. Nagy M., Vizental M., Sisteme de gestiune a bazelor de date, Note de curs şi aplicaţii, Ed. Mirton, Timişoara, 2007
6. Năstase P. şi colectivul, Baze de date Microsoft Access 2000, Ed. Teora, Bucureşti, 2000
7. Sfetcu N., Lucrul cu baze de date, Ed. Multimedia, 2021
8. Ulrich L.A., Cook K., Access 2019 For Dummies, Ed. Wiley, 2019

8.7 Project Outline	Teaching methods	Remarks

8.8 Project References

9. Correlation of course outline with the expectations of the epistemic community, professional associations and representative employers within the field of the program

This course is taught in similar programs at many universities, both in Romania and abroad. For a better matching with the demands of the labor market, meetings with employers' representatives and specialty teachers from the pre-university education system have been organized. Using English brings and added value to the program, raising the graduates chance to be hired by multinational companies (both abroad and in Romania).

10. Evaluation / Grading (if applicable)

Activity type	Evaluation criteria	Evaluation methods	Percentage of the final grade
10.1. Lecture	☐**correctness and completeness ofknowledge** ☐**logical consistency** ☐**the degree of assimilation** ☐**conscientiousness, interest in study**	Oral assessment (final exam): ☐presentation oft he project ☐conversation evaluation ☐Free Exposure ☐Oral Questioning active participation in courses	30% 10%
10.2. Seminar			
10.3. Laboratory	☐**ability to apply the acquired knowledge** ☐**ability to apply the acquired knowledge** ☐**conscientiousness, interest in study**	☐finalization of the required project Homework and projects done during the semester active participation in laboratories	30% 10% 20%

10.4. Project			

10.5 Minimal performance standard

The appropriate acquirement of basic theoretical concepts and the capability to apply them for building a basic application.

Course coordinator	Seminar/laboratory/	Head of the Department	Dean
Prof. dr. Nagy Mariana	project coordinator	Lecturer dr. Lorena POPA	Prof. dr. Sorin NĂDĂBAN
	dr. Deac Dan-Stelian		