

SUBJECT DESCRIPTION

1. Data related to the study program

1.1 Higher education institution	UNIVERSITY OF ORADEA
1.2 Faculty	Faculty of Electrical Engineering and Information Technology
1.3 Department	Department of Computers and Information Technology
1.4 Field of study	Computers and Information Technology
1.5 Study cycle	Master (2nd cycle)
1.6 Study program/Qualification	Management in Information Technology /Master of Science in Engineering

2. Data related to the subject

2.1 Name of the subject	Quality Management in IT						
2.2 Holder of the subject	As. Prof. PhD eng. Ovidiu-Constantin NOVAC						
2.3 Holder of the academic seminar/laboratory/project	As. Prof. PhD eng. Ovidiu-Constantin NOVAC						
2.4 Year of study	I	2.5 Semester	2	2.6 Type of the evaluation	Ex. - Examination	2.7 Subject regime	SYD - Synthesis Disciplines

3. Total estimated time (hours of didactic activities per semester)

3.1 Number of hours per week	3	of which: 3.2 course	1	3.3 academic seminar/laboratory	0/2
3.4 Total of hours from the curriculum	42	Of which: 3.5 course	14	3.6 academic seminar/laboratory	0/28/0
Distribution of time					83 hours
Study using the manual, course support, bibliography and handwritten notes					32
Supplementary documentation using the library, on field-related electronic platforms and in field-related places					11
Preparing academic seminars/laboratories/ themes/ reports/ portfolios and essays					32
Tutorials					
Examinations					8
Other activities.					-
3.7 Total of hours for individual study	83				
3.9 Total of hours per semester	125				
3.10 Number of credits	5				

4. Pre-requisites (where applicable)

4.1 related to the curriculum	-
4.2 related to skills	-

5. Conditions (where applicable)

5.1. for the development of the course	The course can be held face-to-face or online. The course takes place with the modern techniques available: laptop, video projector, whiteboard or on specialized platforms for online courses (Moodle: e.uraea.ro, Microsoft Teams).
5.2. for the development of the academic seminary/laboratory/project	The laboratory can be held face-to-face or online. The laboratory works are performed using the modern means of work existing in the laboratory: Personal computers, software programs, web browsers. Students presence to all laboratory hours is compulsory. Only one laboratory work can be recovered during the semester.

6. Specific skills acquired

Professional skills	C6. Developing skills of financial marketing, quality management and customer relationship management
Transferable skills	

7. The objectives of the discipline (resulting from the grid of the specific competences acquired)

7.1 The general objective of the subject	The main goal is to familiarize students with the basic concepts related to quality management, to understand the current approaches regarding the models of quality management systems, to develop the capacity to use the basic techniques of quality management. The aim of the discipline is to provide students with a set of knowledge on the basic principles and techniques used in quality management in IT.
7.2 Specific objectives	After completing the “ Quality management in IT” discipline, students acquire the following skills: - Knowledge of the areas of applicability of quality management - Understanding and knowing the models of quality management systems. Acquiring the ability to use what they have learned in this discipline in the case of a rigorous and abstract approach to practical problems that may arise in further research (master's, doctorate).

8. Contents*

8.1 Course	Teaching methods	No. of hours/ Observations
1. Approaches to the quality of products and services in the context of economic globalization.	Interactive lecture + video projector / Online	2
2. Theoretical foundations of quality management.	Interactive lecture + video projector / Online	2
3. Defining the quality policy and its relationship with the general policy of the organization.	Interactive lecture + video projector / Online	2
4. Typology of quality strategies: Methods and techniques specific to the continuous improvement strategy.	Interactive lecture + video projector / Online	2
5. Quality planning. The quality planning process.	Interactive lecture + video projector / Online	2
6. Organizing activities related to quality.	Interactive lecture + video projector / Online	2
7. Elements of definition and characteristics of ISO 9000 quality management system models.	Interactive lecture + video projector / Online	2
8. Current state of implementation of ISO 9000 quality management systems.	Interactive lecture + video projector / Online	2
9. Design and implementation of a quality management system.	Interactive lecture + video projector / Online	2
10. Stages of implementing the quality management system.	Interactive lecture + video projector / Online	2
11. Quality audit. The concept of quality audit.	Interactive lecture + video projector / Online	2
12. Evaluation and certification of conformity of quality management systems.	Interactive lecture + video projector / Online	2
13. Quality management related to quality.	Interactive lecture + video projector / Online	2

14. Total quality management. Current approaches to the concept of total quality.	Interactive lecture + video projector / Online	2
Bibliography		
1.M. Olaru, Managementul calității, ed. a II-a revizuită și adăugită, Ed. Economică București, București, 1999, România		
2.Teodor Leuca, Managementul proiectelor de cercetare, 2011, http://www.posdru56287.org/elms/course/view.php?id=12		
3. L. Ilieș, Managementul calității totale, Cluj-Napoca: Editura Dacia, 2003;		
4. E.W. Anderson, C. Fornell, 'Foundations of the American Customer Satisfaction Index', Total Quality Management, 2000, Vol.11, No.7, pp. 869 - 882;		
5. E.W Anderson., M. Sullivan, 'The Antecedents and Consequences of Customer Satisfaction for Firms', 1993, Marketing Science, Spring, pp.125-143		
6. S. Ciurea, N. Drăgulănescu, Managementul calității totale, București: Editura Economică, 1995;		
7. Șraum, Ghe., Merceologie și asigurarea calității, Cluj-Napoca:Editura George Barițiu, 2000;		
8. I. Stanciu, Calitologia - știința calității mărfurilor, București: Editura Oscar Print, 2002;72.		
9. I. Stanciu, MANAGEMENTUL CALITĂȚII TOTALE, București: Cartea Universitară, 2003;		
10. Ovidiu Novac , Managementul calității în IT, Curs https://e.uoradea.ro/course/view.php?id=2062		
8.2 Laboratory	Teaching methods	No. of hours/ Observations
1. Analysis of the clauses of a contract regarding the quality assurance of the delivered products / services.	Introductory lecture; free and individual discussions;	2
2. Analysis of the quality policy of some organizations.	Introductory lecture; free and individual discussions;	2
3. Analysis of the quality objectives of some organizations.	Introductory lecture; free and individual discussions;	2
4. Identifying the processes within an organization - Analysis of the SMC process map.	Introductory lecture; free and individual discussions;	2
5. Stages of implementing a Quality Management System (QMS).	Introductory lecture; free and individual discussions;.	2
6. Analysis of the SMC documentation. Sketching the content of a quality manual.	Introductory lecture; free and individual discussions;	2
7. Analysis of SMC documents: Elaboration of an operational procedure.	Introductory lecture; free and individual discussions;	2
8. Quality audit. Development of an audit program and plan. Develop a checklist.	Introductory lecture; free and individual discussions;	2
9. Quality audit. Writing a report of non-conformities and corrective/preventive actions. Writing an audit report.	Introductory lecture; free and individual discussions;	2
10. Steps of SMC certification.	Introductory lecture; free and individual discussions;	2
11. Quality cost analysis.	Introductory lecture; free and individual discussions;	2
12. Determining costs related to quality.	Introductory lecture; free and individual discussions;	2
13. Application of the Ishikawa diagram to identify the causes of non-conformities.	Introductory lecture; free and individual discussions;	2
14. Applying the PEVA cycle to improve a process.	Introductory lecture; free and individual discussions;	2
Bibliography		
1.M. Olaru, Managementul calității, ed. a II-a revizuită și adăugită, Ed. Economică București, București, 1999, România		
2.Teodor Leuca, 2011, Managementul proiectelor de cercetare, http://www.posdru56287.org/elms/course/view.php?id=12		
3. J. Dahlgaard, K. Kai, K.K. Gopal, Fundamentals of Total Quality Management, New York:Taylor & Francis, 2002;		

4. J. Dahlgaard, K., Kai, K.K.. Goplal, Fundamentals of Total Quality Management – Process analysis and improvement , London: Taylor & Francis, 2002;		
5.Derek, R., Allen, Customer Satisfaction Research Management, Milwaukee (Wisconsin): ASQPress, 2004;		
6.Ovidiu Novac, Managementul calității în IT, https://e.uoradea.ro/course/view.php?id=2062		
8.3 Seminar	Teaching methods	No. of hours/ Observations

9. Corroboration of the discipline content with the expectations of the representatives of epistemological community, professional associations and representative employers in the field related to the program

The content of the subject is in accordance with the one in other national or international universities. In order to provide a better accomodation to the labour market requirements, there have been organized meetings both with representatives of the socio-economic environment and with academic staff with similar professional interest fields.

10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percent from the final mark
10.4 Course	Written or online exam.	Written examination - The assessment can be done face to face or online. The elaboration and presentation of a report on a specific research topic in the field through which the state of the art is deepened, analyzed and presented on certain specific topics.	50 %
10.5 Seminar			
10.6 Laboratory	Laboratory report	Oral evaluation The assessment can be done face to face or online. After the presentation of the report, each student receives a grade for the report. The project is also presented in electronic format	50%
10.7 Project			
10.8 Minimum performance standard: Minimum conditions necessary to pass the exam in accordance with the minimum performance standard: Note 5 - it is necessary to deal extensively with the subject, without detailing the concepts presented, the existence of a minimum bibliography, a short presentation. Note 10: it is necessary the complete, detailed approach of the proposed topic (comparative analyzes / discussions), extended bibliography, extended presentation.			

Completion date:

02.09.2024

Date of endorsement in the department:

05.09.2024

Date of endorsement in the Faculty Board:

10.09.2024

SUBJECT DESCRIPTION

1. Data related to the study program

1.1 Higher education institution	UNIVERSITY OF ORADEA
1.2 Faculty	Faculty of Electrical Engineering and Information Technology
1.3 Department	Department of Computers and Information Technology
1.4 Field of study	Computers and information technology
1.5 Study cycle	Master
1.6 Study program/Qualification	Management in Information Technology / Master of Science in Engineering

2. Data related to the subject

2.1 Name of the subject	Advanced Database Systems						
2.2 Holder of the subject	Prof. dr. ing. Győrödi Cornelia Aurora						
2.3 Holder of the academic seminar/laboratory/project	Prof. dr. ing. Győrödi Cornelia Aurora						
2.4 Year of study	I	2.5 Semester	1	2.6 Type of the evaluation	Ex	2.7 Subject regime	THD

3. Total estimated time (hours of didactic activities per semester)

3.1 Number of hours per week	4	of which: 3.2 course	2	3.3 academic seminar/laboratory/project	0/1/1
3.4 Total of hours from the curriculum	56	Of which: 3.5 course	28	3.6 academic seminar/laboratory/project	0/14/14
Distribution of time					hours
Study using the manual, course support, bibliography and handwritten notes					38
Supplementary documentation using the library, on field-related electronic platforms and in field-related places					22
Preparing academic seminars/laboratories/ themes/ reports/ portfolios and essays					28
Tutorials					4
Examinations					2
Other activities.					
3.7 Total of hours for individual study	94				
3.9 Total of hours per semester	150				
3.10 Number of credits	6				

4. Pre-requisites (where applicable)

4.1 related to the curriculum	(Conditions)
4.2 related to skills	

5. Conditions (where applicable)

5.1. for the development of the course	Classroom equipped with video projector and computer - The course can be held face to face or online
5.2. for the development of the academic seminary/laboratory/project	Laboratory equipped with video projector and computers that are connected to the internet, and they have installed Oracle 12c and Microsoft Azure software. The laboratory can take place face to face or online

6. Specific skills acquired	
Professional skills	<p>C1. Software components design and their management through databases. C2. Advanced hardware and software design for computing systems and networks. C5. Projects preparation and management in the field of Computers and Information Technology and related fields by applying</p> <p>The course contributes to the acquisition of skills in the field of design and programming of database applications</p>
Transversal skills	

7. The objectives of the discipline (resulting from the grid of the specific competences acquired)

7.1 The general objective of the subject	<ul style="list-style-type: none"> This course contributes to the acquisition of skills in the field of designing and programming database applications. The course introduces the principles and concepts of relational and non-relational databases, Azure data services as well as database architectures and systems, object-oriented databases, and XML databases.
7.2 Specific objectives	<ul style="list-style-type: none"> Acquiring knowledge in the field of database application programming, identifying the concepts and services of relational and non-relational databases in different environments (Oracle, Microsoft Azure, etc.).

8. Contents*

8.1 Course	Teaching methods	No. of hours/ Observations
1. Fundamentals of data in Microsoft Azure	Powerpoint presentation with the help of the video projector; free discussions;	2 hours
2. Modeling relational databases		2 hours
3. Relational languages		2 hours
4. Libraries and Database Programming Languages		2 hours
5. Database system architectures		2 hours
6. Azure Services for Relational Databases		2 hours
7. Parallel database systems		4 hours
8. Distributed database systems		2 hours
9. XML databases		2 hours
10. Non-relational (NoSQL) databases		4 hours
11. Fundamentals of non-relational data in Azure		2 hours
12. Fundamentals of data analysis. Visualization of data with Power BI		2 hours
Bibliography		
<ol style="list-style-type: none"> Győrödi Cornelia, Lungu Ion "Sisteme de baze de date avansate", Editura Universității din Oradea, 2011, ISBN 978-606-10-0447-8, nr. pag 350. Weber, P., Gabriel, R., Lux, T. and Menke, K., 2022. Database Systems. In <i>Basics in Business Informatics</i> (pp. 123-150). Wiesbaden: Springer Fachmedien Wiesbaden. Jeffrey A. Hoffer, Mary Prescott, Heikki Topi - " <i>Modern Database Management, 9/E</i>", Prentice Hall, 2009, ISBN: 9780136003915. Kraska, T., Alizadeh, M., Beutel, A., Chi, E.H., Ding, J., Kristo, A., Leclerc, G., Madden, S., Mao, H. and Nathan, V., 2021. Sagedb: A learned database system. Greg Riccardi - " <i>Principles of Database Systems with Internet and Java Applications</i>", Addison Wesley (December 14, 2002), ISBN-13: 978-0321185563. M. Piatini, O. Diaz (editors), " <i>Advanced Database Technology and Design</i>", Artech House, 2000. Ramez Elmasri, Shamkrant Navathe, " <i>Fundamentals of Database Systems</i>" 6th Edition, April 2010, 		

Publisher: Addison Wesley; ISBN: 978-0136086208.

8. Kevin Loney ”Oracle Database 11g The Complete Reference (Osborne ORACLE Press Series)”, Publisher: McGraw-Hill Osborne Media; 1 edition, December 2008, ISBN: 978-0071598750.
9. A. Silberschatz, H. Korth, S. Sudarshan, “Database System Concepts”, Fourth Edition, McGraw Hill, 2004.
10. A. Silberschatz, H. Korth, S. Sudarshan, “Database System Concepts” Sixth Edition, McGraw-Hill, ISBN 0-07-352332-1, January 28, 2010.
11. Paulina Mitrea, "Accesibilitate Web, multimedia, paralelism și arhitecturi distribuite pentru baze de date de înaltă performanță", Editura U.T.Press 2008, Cluj-Napoca.
12. Sanjay Patni - Pro RESTful APIs. APress, 2017. <https://www.apress.com/gp/book/9781484226643>
13. Oracle Berkley DB <http://www.oracle.com/technetwork/database/database-technologies/berkeleydb/overview/index.html>
14. Mongo DB Documentation: www.mongodb.com
15. Neo4J Documentation: www.neo4j.com
16. <https://www.javatpoint.com/rdbms-vs-cassandra>
17. <http://docs.oracle.com/cd/NOSQL/html/index.html>
18. <https://e.uoradea.ro/course/view.php?id=6249> Materials (courses and laboratories)
19. <https://msle.learnondemand.net>

8.2 Academic laboratory	Teaching methods	No. of hours/ Observations
1. Data modeling using Oracle Database Designer	Oral presentation. Students work with the following tools: - Oracle Server (Oracle Database 12, Oracle Developer Suite 12g), MySQL, or SQL Server 2018. The students are assessed by a practical test using computer from laboratory topics.	1 hour
2. SQL language. Data manipulation operations		1 hour
3. Querying a data table. Group functions		1 hour
4. Subqueries		1 hour
5. Setting up and querying an Azure SQL database		1 hour
6. Stored procedures and functions, data collections.		1 hour
7. NoSQL document databases. Case study - Mongo DB.		1 hour
8. NoSQL key-value databases. Case Study - Oracle NoSQL Database		1 hour
9. Column-oriented NoSQL databases (Columnar). Case study - Apache Cassandra.		1 hour
10. Azure Storage. Azure Cosmos DB		1 hour
11. Azure Synapse Analytics		1 hour
12. Visualization data using Power BI		2 hour
13. Final test		1 hour

Bibliography

1. Ion Lungu, Anca Andreescu, Adela Bâra, Anda Belciu, Constanța Bodea, Iuliana Botha, Vlad Diaconița, Alexandra Florea, **Cornelia Györödi**, “Tratat de baze de date. Sisteme de gestiune a bazelor de date”, Volumul 2, Editura ASE, 2015, ISBN 978-606-505-472-1, nr. pag 375.
2. Györödi Cornelia, Lungu Ion “Sisteme de baze de date avansate”, Editura Universității din Oradea, 2011, ISBN 978-606-10-0447-8, nr. pag 350.
3. Weber, P., Gabriel, R., Lux, T. and Menke, K., 2022. Database Systems. In *Basics in Business Informatics* (pp. 123-150). Wiesbaden: Springer Fachmedien Wiesbaden.
4. Oracle Berkley DB <http://www.oracle.com/technetwork/database/database->

technologies/berkeleydb/overview/index.html 5. Mongo DB Documentation: www.mongodb.com 6. Neo4J Documentation: www.neo4j.com 7. https://www.javatpoint.com/rdbms-vs-cassandra 8. http://docs.oracle.com/cd/NOSQL/html/index.html 9. Oracle Application Express (https://iacademy.oracle.com/) 10. https://e.uoradea.ro/course/view.php?id=6249 Materials (courses and laboratories) 11. https://msle.learnondemand.net		
8.3. Project	Teaching methods	No. of hours/ Observations
Implementing a practical application from a list published on the online platform https://e.uoradea.ro/course/view.php?id=6249 The project will be implemented in one of the development environments: Oracle Server (Oracle Database 11g or Oracle12, Oracle Developer Suite 12), MySQL 8, or SQL Server 2018, or in one of the NoSQL databases (MongoDB, Cassandra, etc). For each project, both the practical application and a description in the form of a report will be presented. The report will contain: (a) Analysis and specification of the requirements and operation of the designed application. (b) Description and interpretation of results obtained.	Oral presentation	1 hours/ week 14 hours

9. Corroboration of the discipline content with the expectations of the representatives of epistemological community, professional associations and representative employers in the field related to the program

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10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percent from the final mark
10.4 Course	Minimum required conditions for passing the exam (mark 5): in accordance with the minimum performance standard: 50% of the subjects from the final exam should be correctly solved For 10: 100% of the subjects from the final exam should be correctly solved	Semester exam – written	50%
10.5 Academic seminar	Minimum required conditions for passing the examination (grade 5): in accordance with the minimum performance standard	-	-

	- For 10:		
10.6 Laboratory	Minimum required conditions for promotion (grade 5): in accordance with the minimum performance standard: 50% of the problems from the final laboratory test should be correctly solved - For 10: 100% of the problems from the final laboratory test should be correctly solved	Oral/written	15%
10.7 Project	A practical application project covering the topics mentioned in the course and laboratory list	Project Evaluations - oral presentations	35%
10.8 Minimum performance standard: Course: 50% of the maximum score of the final exam Academic seminar: Laboratory: 50% of the maximum score of the laboratory evaluations Project: 50% of the maximum score of the Project Evaluations			

Course instructor

Head of department

Completion date:

03.09.2024

prof. dr. ing. Cornelia Györödi

E-mail: cgyorodi@uoradea.ro

Conf.univ. dr. Elisa Valentina Moisi

Date of endorsement in the department:

05.09.2024

Date of endorsement in the Faculty Board:

10.09.2024

SUBJECT DESCRIPTION

1. Data related to the study program

1.1 Higher education institution	UNIVERSITY OF ORADEA
1.2 Faculty	Faculty of Electrical Engineering and Information Technology
1.3 Department	Department of Computers and Information Technology
1.4 Field of study	Computers and information technology
1.5 Study cycle	Master
1.6 Study program/Qualification	Management in Information Technology / Master of Science in Engineering

2. Data related to the subject

2.1 Name of the subject	Information systems and decision support						
2.2 Holder of the subject	Prof. dr. ing. Győrödi Robert Ștefan						
2.3 Holder of the academic seminar/laboratory/project	Prof. dr. ing. Győrödi Robert Ștefan						
2.4 Year of study	I	2.5 Semester	1	2.6 Type of the evaluation	Ex	2.7 Subject regime	THD

3. Total estimated time (hours of didactic activities per semester)

3.1 Number of hours per week	3	of which: 3.2 course	2	3.3 academic seminar/laboratory/project	0/1/0
3.4 Total of hours from the curriculum	42	Of which: 3.5 course	28	3.6 academic seminar/laboratory/project	0/14/0
Distribution of time					hours
Study using the manual, course support, bibliography and handwritten notes					20
Supplementary documentation using the library, on field-related electronic platforms and in field-related places					30
Preparing academic seminars/laboratories/ themes/ reports/ portfolios and essays					23
Tutorials					6
Examinations					4
Other activities.					
3.7 Total of hours for individual study	83				
3.9 Total of hours per semester	125				
3.10 Number of credits	5				

4. Pre-requisites (where applicable)

4.1 related to the curriculum	(Conditions) Computer programming and programming languages I Computer programming and programming languages II
4.2 related to skills	Structured programming in the C language or object programming in C ++ / C # / Java

5. Conditions (where applicable)

5.1. for the development of the course	Classroom equipped with video projector and computer. The course can be held face to face or online
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5.2.for the development of the academic seminary/laboratory/project	<p>Laboratory equipped with video projector and computers that are connected to the internet, and they have installed Oracle 12c software.</p> <p>Laboratory equipped with:</p> <ul style="list-style-type: none"> - computers that are connected to the Internet and have installed the following programs: Visual Studio, Eclipse for Java, SQL Business Intelligence Development Studio. - access to the virtual environment in which the Microsoft Dynamics 365 BC / FO & SCM suite is installed (the latest versions) with all the necessary service infrastructure and tools <p>The laboratory can take place face to face or online</p>
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6. Specific skills acquired

Professional skills	<p>C5. Projects preparation and management in the field of Computers and Information Technology and related fields by applying</p> <p>C6. Developing skills of financial marketing, quality management and customer relationship management</p>
Transversal skills	<p>CT1. Applying principles, norms and values of professional ethics in the spirit of the law to ensure the reputation of the profession.</p>

7. The objectives of the discipline (resulting from the grid of the specific competences acquired)

7.1 The general objective of the subject	<ul style="list-style-type: none"> ▪ Learning the concepts underlying the design and implementation of complex information systems in enterprises, as well as the use of knowledge discovery tools for decision support
7.2 Specific objectives	<ul style="list-style-type: none"> ▪ The course presents the concepts used in complex computer systems used in various industries, how to organize enterprises for a more efficient implementation of these systems and how to map the various industrial processes in computer systems.

8. Contents*

8.1 Course	Teaching methods	No. of hours/ Observations
1. Introduction to information systems	Powerpoint presentation with the help of the video projector; free discussions;	2 hours
2. Enterprise, E-business and collaboration		2 hours
3. Information Systems, Organizations and Strategies		2 hours
4. Ethical and social issues related to information systems		2 hours
5. IT Concepts, Infrastructure and Emerging Technologies		2 hours
6. Business Intelligence		2 hours
7. Telecommunications and networks		2 hours
8. Information systems, control and security		2 hours
9. Enterprise applications		2 hours
10. E-commerce		2 hours
11. Decision support systems		2 hours
12. Building information systems		2 hours
13. Project and risk management		2 hours
14. Global systems management		
Bibliography		

1. Ken Laudon, Jane Laudon, Management Information Systems: Managing the Digital Firm (16th Ed), Pearson Education, 2020, ISBN 1292296569
2. Györödi Robert, Lungu Ion, Györödi Cornelia, Sisteme avansate de descoperire a cunoștințelor din bazele de date, Editura Universității din Oradea, Oradea, România, 2012, ISBN 978-606-10-0733-2.
3. Jamie MacLennan, ZhaoHui Tang, Bogdan Crivat, Data Mining with Microsoft SQL Server 2008, Wiley, 2008, ISBN 0470277742
4. Brian Larson, Delivering Business Intelligence with Microsoft SQL Server 2016 4/E, McGraw-Hill, 2016, ISBN 9781259641480
5. Alberto Ferrari, Marco Russo, Microsoft Excel 2013 Building Data Models with PowerPivot, Microsoft Press, 2013, ISBN 0735676348
6. Kasper de Jonge, Dashboarding and Reporting with Power Pivot and Excel: How to Design and Create a Financial Dashboard with PowerPivot – End to End, Holy Macro! Books, 2014, ISBN 1615470271
7. Wayne Winston, Microsoft Excel 2019 Data Analysis and Business Modeling, 6/e, Microsoft Press, 2019, ISBN 1509305882
8. James M. Wahlen, Financial Reporting, Financial Statement Analysis and Valuation, 9th Ed, Cengage Learning, 2018, ISBN 1337614688
9. Michael Alexander, Jared Decker, Bernard Wehbe, Microsoft Business Intelligence Tools for Excel Analysts, For Dummies, 2014, ISBN 1118821521
10. Adam Aspin, High Impact Data Visualization with Power View, Power Map, and Power BI, Apress, 2014, ISBN 1430266163
11. Brian Larson, Mark Davis, Dan English, Visualizing Data with Microsoft Power View, McGraw-Hill, 2012, ISBN 0071780823
12. Pang-Ning Tan, Michael Steinbach, Anuj Karpatne, Vipin Kumar, Introduction to Data Mining, 2/e, Pearson, 2018, ISBN 0133128903
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14. Jiawei Han, Micheline Kamber, Data Mining Concepts and Techniques 3rd Ed, Morgan Kaufmann Publishers, San Francisco, USA, 2011, ISBN 0123814790
15. Margaret H. Dunham, Data Mining Introductory and Advanced Topics, Prentice Hall, New Jersey, 2003, ISBN 0130888923
16. <https://e.uoradea.ro/course/view.php?id=6250> Materials (courses and laboratories)

8.2 Academic laboratory	Teaching methods	No. of hours/ Observations
1. Introduction to the Microsoft Dynamics 365 Business Central / FO & SCM	Powerpoint presentation with the help of the video projector; free discussions;	1 hour
2. Introduction to the SureStep implementation methodology		1 hour
3. Simulation of the implementation of the Dynamics 365 Business Central / FO & SCM in a virtual enterprise - parameterization of Financial Accounting modules		1 hour
4. Simulation of the implementation of the Dynamics 365 Business Central / FO & SCM in a virtual enterprise - parameterization of Management modules		1 hour
5. Simulation of the implementation of the Dynamics 365 Business Central / FO & SCM in a virtual enterprise - parameterization of production modules		1 hour
6. Configuration and extending the Microsoft Dynamics 365 Business Central / FO & SCM		1 hour
7. Configuration and extending the Microsoft Dynamics 365 Business Central / FO & SCM - adapting to specific business processes		1 hour

8. Ways to configure and extend the Microsoft Dynamics 365 Business Central / FO & SCM - adapt the standard interface		1 hour
9. Ways to configure and extend the Microsoft Dynamics 365 Business Central / FO & SCM - adapt the web interface		1 hour
10. Ways to configure and extend the Microsoft Dynamics 365 Business Central / FO & SCM - the possibility of implementing processes using mobile technologies (iOS, Android, Windows)		1 hour
11. Using and expanding Dynamics 365 Business Central / FO & SCM Business Intelligence facilities - existing data cubes, ways to customize		1 hour
12. Using Excel 2019 and Power BI to analyze data from the Dynamics 365 Business Central / FO & SCM		1 hour
13. Methods of interactive presentation of some KPIs from Dynamics 365 Business Central / FO & SCM using Excel 2019 and Power BI		1 hour
14. Final evaluation		1 hour
Bibliography <ol style="list-style-type: none"> 1. Györödi Robert, Lungu Ion, Györödi Cornelia, Sisteme avansate de descoperire a cunoștințelor din bazele de date, Editura Universității din Oradea, 2012, ISBN 9786061007332. 2. Györödi Robert, Györödi Cornelia, Recunoașterea formelor și Descoperirea cunoștințelor, <i>Editura Mediamira</i>, Cluj, România, 2005, ISBN 973713088X. 3. The Microsoft Dynamics AX Team, Inside Microsoft Dynamics AX 2012 R3, Microsoft Press, 2014, ISBN 073568510X 4. Andreas Luszczak, Using Microsoft Dynamics AX 2012: Updated for Version R2, Springer Vieweg; 3rd ed. 2013, ISBN 3658017082 5. Keith Dunkinson, Andrew Birch, Implementing Microsoft Dynamics AX 2012 with Sure Step 2012, Packt Publishing, 2013, ISBN 1849687048 6. Mohamed Aamer, Microsoft Dynamics AX 2012 Financial Management, Packt Publishing, 2013, ISBN 1782177205 7. Simon Buxton, Microsoft Dynamics AX 2012 R2 Administration Cookbook, Packt Publishing, 2013, ISBN 1849688060 8. Kamalakannan Elangovan, Microsoft Dynamics AX 2012 Reporting Cookbook, Packt Publishing, 2013, ISBN 1849687722 9. Microsoft CustomerSource Portal (https://mbs.microsoft.com/customersource) – Materiale e-Learning 10. https://e.uoradea.ro/course/view.php?id=6250 Materials (courses and laboratories) 		
8.3. Project	Teaching methods	No. of hours/ Observations

9. Corroboration of the discipline content with the expectations of the representatives of epistemological community, professional associations and representative employers in the field related to the program

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10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percent from the final mark
10.4 Course	Minimum required conditions for passing the exam (mark 5): in accordance with the	Semester exam – oral	60%

	<p>minimum performance standard: 50% of the subjects from the final exam should be correctly solved</p> <p>For 10: 100% of the subjects from the final exam should be correctly solved</p>		
10.5 Academic seminar	<p>Minimum required conditions for passing the examination (grade 5): in accordance with the minimum performance standard</p> <p>- For 10:</p>	-	-
10.6 Laboratory	<p>Minimum required conditions for promotion (grade 5): in accordance with the minimum performance standard: 50% of the practical applications should be correctly solved</p> <p>- For 10: 100% of the practical applications should be correctly solved</p>	Practical applications - oral presentation	40%
10.7 Project	-	-	-
<p>10.8 Minimum performance standard: Course: 50% of the maximum score of the final exam Academic seminar: Laboratory: 50% of the maximum score of the laboratory evaluations Project:</p>			

Course instructor

Head of department

Completion date:
03.09.2024

prof. dr. ing. Győrödi Robert
E-mail: rgyorodi@uoradea.ro

Conf.univ. dr. Elisa Valentina Moisi

Date of endorsement in the department:
05.09.2024

Date of endorsement in the Faculty Board:
10.09.2024

SUBJECT DESCRIPTION

1. Data related to the study program

1.1 Higher education institution	UNIVERSITY OF ORADEA
1.2 Faculty	Faculty of Electrical Engineering and Information Technology
1.3 Department	¹⁾ Department of Computers and Information Technology
1.4 Field of study	²⁾ Computers and information technology
1.5 Study cycle	³⁾ Master
1.6 Study program/Qualification	^{4) / 5)} Management in Information Technology / Master of Science in Engineering

2. Data related to the subject

2.1 Name of the subject	⁶⁾ Developing and implementing solutions for cloud						
2.2 Holder of the subject	Conf. univ. dr. inf. Elisa Moisi						
2.3 Holder of the academic seminar/laboratory/project	Conf. univ. dr. inf. Elisa Moisi						
2.4 Year of study	I	2.5 Semester	I	2.6 Type of the evaluation	⁷⁾ Ex	2.7 Subject regime	⁸⁾ THD

3. Total estimated time (hours of didactic activities per semester)

3.1 Number of hours per week	4	of which: 3.2 course	2	3.3 academic seminar/laboratory/project	0/1/0
3.4 Total of hours from the curriculum	42	Of which: 3.5 course	28	3.6 academic seminar/laboratory/project	0/14/0
Distribution of time					hours
Study using the manual, course support, bibliography and handwritten notes					40
Supplementary documentation using the library, on field-related electronic platforms and in field-related places					20
Preparing academic seminars/laboratories/ themes/ reports/ portfolios and essays					38
Tutorials					4
Examinations					10
Other activities.					
3.7 Total of hours for individual study	154				
3.9 Total of hours per semester	112				
3.10 Number of credits	5				

4. Pre-requisites (where applicable)

4.1 related to the curriculum	(Conditions)
4.2 related to skills	<ul style="list-style-type: none"> • a basic level of familiarity with computer technology, and the Internet is assumed • basic level of familiarity with computer technology and cloud computing will make the concepts easier to understand • Some of the concepts covered in the course require a basic understanding of mathematics, such as the ability to interpret charts • knowledge of working online will be helpful

5. Conditions (where applicable)

5.1. for the development of the course	Classroom equipped with video projector - Attendance at least 50% of the courses
5.2. for the development of the academic seminary/laboratory/project	Room equipped with computers and specific programs - Mandatory attendance at all laboratories; - A maximum of 3 works can be recovered during the semester (20%);
6. Specific skills acquired	
Professional skills	<p>595 / 5000 Translation results C3. Problem solving using computer science and engineering tools.</p> <ul style="list-style-type: none"> • Identifying classes of problems and methods of solving characteristic of information systems. • Using interdisciplinary knowledge, solutions and tools, performing experiments and interpreting their results • Hardware design • Comparative evaluation, including experimental, of solving alternatives, to optimize performance • Development and implementation of IT solutions for concrete problems • Effective realization of an application
Transversal skills	CT1. Honorable, responsible, ethical conduct in the spirit of the law to ensure the reputation of the profession

7. The objectives of the discipline (resulting from the grid of the specific competences acquired)

7.1 The general objective of the subject	<ul style="list-style-type: none"> ▪ Describe cloud concepts. ▪ Describe Azure architecture and services. ▪ Describe Azure management and governance. ▪ Developing and implementing solutions for Microsoft Azure
7.2 Specific objectives	<ul style="list-style-type: none"> • Deploy and update apps in Azure App Service, implement App Service authentication and authorization, configuring app settings, scale apps, and how to use deployment slots. • Create and deploy Azure Functions and utilize bindings and triggers to interact with other Azure services. • Create Azure Blob storage resources, manage data through the blob storage lifecycle, and work with containers and items by using the Azure Blob storage client library V12 for .NET. • Develop solutions integrating Azure Cosmos DB resources with the appropriate consistency levels, and perform data operations by using the .NET SDK V3 for Azure Cosmos DB. • Implement authentication and authorization to resources by using the Microsoft identity platform, Microsoft Authentication Library, shared access signatures, and use Microsoft Graph. • Securely deploy apps in Azure by using Azure Key Vault, managed identities, and Azure App Configuration. • Implement the Azure API Management service to transform and secure APIs, and how to create a backend API. • Build applications with event-based architectures by integrating Azure Event Grid and Azure Event Hubs into their solutions. • Build applications with message-based architectures by integrating Azure Service Bus and Azure Queue Storage into their solutions. • Explain how Azure Monitor operates, how Application Insights collects events and metrics, and how to instrument apps to monitor and troubleshoot issues. • Improve the performance and scalability of applications by integrating

	Azure Cache for Redis and Azure Content Delivery Network into solutions.
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8. Contents*

8.1 Course	Teaching methods	No. of hours/ Observations
1. Introduction. Cloud Concepts	<ul style="list-style-type: none"> • Powerpoint presentation; • free discussions; 	2
2. Azure architecture and services		2
3. Azure management and governance		2
4. Implement Azure App Service web apps		4
5. Implement Azure Functions		2
6. Develop solutions that use Blob storage		2
7. Develop solutions that use Azure Cosmos DB		2
8. Implement containerized solutions		2
9. Implement user authentication and authorization		4
10. Implement secure cloud solutions. Implement API Management.		2
11. Develop event-based solutions. Develop message-based solutions		2
12. Troubleshoot solutions by using Application Insights. Implement caching for solutions		2
Bibliography Microsoft AZ-204 – Developing solutions for Microsoft Azure - https://learn.microsoft.com/en-us/credentials/certifications/exams/az-204/ Santiago Fernandez Munoz - Exam Ref AZ-204 Developing Solutions for Microsoft Azure, Microsoft Press PTG, 2021		
8.2 Academic seminar/laboratory/project	Teaching methods	No. of hours/ Observations
Seminar		
Laboratory		
Implementing aspects presented in course	Discussions. Individually work and also in small groups of students.	14
Bibliography Microsoft AZ-204 – Developing solutions for Microsoft Azure Santiago Fernandez Munoz - Exam Ref AZ-204 Developing Solutions for Microsoft Azure, Microsoft Press PTG, 2021		

9. Corroboration of the discipline content with the expectations of the representatives of epistemological community, professional associations and representative employers in the field related to the program

<ul style="list-style-type: none"> ▪ The content of the discipline is adapted to the requirements of specialized companies

10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percent from the final mark
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10.4 Course	Minimum required conditions for passing the Vp (mark 5): in accordance with the minimum performance standard For 10: the correct solving of all the subjects at the Vp, the presence and activity at courses	Final course evaluation and problem solving	60%
10.5 Academic seminar			
10.6 Laboratory	Minimum required conditions for promotion (grade 5): in accordance	Weekly evaluation of the laboratory preparation	40%
	with the minimum performance standard For 10: the presence and activity at seminars,	Tracking the activity along the way, practical applications.	
10.7 Project			
10.8 Minimum performance standard: Course: Know the design methods that are used Academic seminar: Laboratory: Carrying out projects respecting ethical and responsible behavior Project:			

Completion date: 02.09.2024

Date of endorsement in the department: 05.09.2024

Date of endorsement in the Faculty Board: 10.09.2024

SUBJECT DESCRIPTION

1. Data related to the study program

1.1 Higher education institution	UNIVERSITY OF ORADEA
1.2 Faculty	Faculty of Electrical Engineering and Information Technology
1.3 Department	Department of Computers and Information Technology
1.4 Field of study	Computers and information technology
1.5 Study cycle	Master (2nd cycle)
1.6 Study program/Qualification	Management in Information Technology / Master of Science in Engineering

2. Data related to the subject

2.1 Name of the subject		Internet Programming					
2.2 Holder of the subject		Prof.univ.dr.ing. Zmaranda Doina					
2.3 Holder of the academic seminar/laboratory/project		Prof.univ.dr.ing. Zmaranda Doina					
2.4 Year of study	I	2.5 Semester	2	2.6 Type of the evaluation	Ex. - Examination	2.7 Subject regime	THD - Thoroughgoing Discipline

3. Total estimated time (hours of didactic activities per semester)

3.1 Number of hours per week	4	of which: 3.2 course	2	3.3 academic seminar/laboratory/project	2
3.4 Total of hours from the curriculum	56	Of which: 3.5 course	28	3.6 academic seminar/laboratory/project	28
Distribution of time					hours
Study using the manual, course support, bibliography and handwritten notes					21
Supplementary documentation using the library, on field-related electronic platforms and in field-related places					20
Preparing academic seminars/laboratories/ themes/ reports/ portfolios and essays					20
Tutorials					2
Examinations					6
Other activities.					
3.7 Total of hours for individual study	69				
3.9 Total of hours per semester	125				
3.10 Number of credits	5				

4. Pre-requisites (where applicable)

4.1 related to the curriculum	(Conditions)
4.2 related to skills	Object-oriented programming skills and user interface design skills for web applications

5. Conditions (where applicable)

5.1. for the development of the course	- the course can be held face to face (classroom equipped with computer and video projector) or online; slide-based presentation - attendance at least 50% of the course
5.2.for the development of the academic seminary/laboratory/project	- the laboratory can be held face to face (laboratory room equipped with computers and .NET platform / Visual Studio 2019) or online - mandatory presence at all laboratories - a maximum of 4 laboratory works can be recovered during the semester (30%) - the frequency of laboratory hours below 70% leads to the re-done the discipline

6. Specific skills acquired	
Professional skills	<p>C1. Design of software components and their management through databases</p> <p>C4. Advanced design of Internet and multimedia applications</p>
Transversal skills	

7. The objectives of the discipline (resulting from the grid of the specific competences acquired)

7.1 The general objective of the subject	The objective of the course is to provide knowledge on technologies for designing and implementing Internet applications: web application architecture, server-side technologies, client-side technologies, frameworks and tools used for web application development
7.2 Specific objectives	<ul style="list-style-type: none"> ▪ The course aims to present the basic architecture of web applications as well as some of the specific technologies used for the development of Internet applications based on MVC architecture together with existing frameworks for development and other related technologies. Even if the presented implementations are focused on MicroSoft technologies (ASP.NET MVC), this does not restrict the generality of the presented concepts. ▪ The project familiarizes students with practical aspects regarding the design and implementation of an MVC web application

8. Contents*

8.1 Course	Teaching methods	No. of hours/ Observations
Introduction to web programming. Web application categories. Characteristics. Web application architecture. Particularities. Specific components	Presentation of the course concepts and examples on slides, face to face or online	2
Technologies for web applications. Client / server communication technologies.		2
Client-side technologies: browsers, HTML, JavaScript /JavaScript libraries, front-end development frameworks, client-side extensions		2
Server-side technologies. Server-level scripting: PHP and PHP development frameworks; J2EE / JAVA and adjacent development frameworks: Spring Boot (Java); ASP.NET Core and ASP.NET MVC, Ruby on Rails (Ruby), Django (Python), Express (Node.js / JavaScript). Hybrid technologies: GWT (Google Web Toolkit)		4
JavaScript language - advanced concepts. Progressive development of the client side (front-end) of a web application. JavaScript and the DOM. JavaScript objects. JavaScript and data storage		2
Validate customer-level data using JavaScript. JavaScript functions. Events in JavaScript. Using JavaScript and Ajax libraries. Development patterns in JavaScript.		2
ASP.NET MVC. MVC architecture in web applications. MVC and the structure of ASP.NET MVC applications. Development based on the principles of SOLID, DRY		2
Fundamentals of ASP.NET MVC: Routing in MVC. Levels in MVC: Controller, View, Model		4

Controller level. Model validation. Action filters. Authorization and authentication. View level. Syntax Razor. Lambda expressions. Model level.		
Object relational mapper (ORM) template. Entity Framework EF. Repository pattern.		4
Development of MVC Database First, Model First, Code First applications		2
ASP.NET web API. RESTful applications. Customer level optimization.		2
Bibliography 1. D. Zmaranda – Programare Internet – Editura Universității din Oradea, 200 pg., ISBN 978-606-10-1422-4 – format electronic CD, 2014 2. G.Mclean Hall – Adaptive Code via C# - Agile coding with design patterns and SOLID principles, ISBN 978-0-7356-8320-4, MicroSoft Press, 2014 3. Porter Scobey, Pawan Lingras – Web Programming and Internet Technologies – An E-Commerce Approach – Jones&Bartlett Learning LLC, ISBN – 13 978-0-7637-7387-8, 2013 4. Dorin Zaharie, Rodica Doina Zmaranda, Dezvoltarea aplicațiilor software utilizând platforma .NET, Editura ASE, ISBN 978-606-505-547-6, 2012 5. D.Zmaranda et. Al, New Trends in Mobile and Web Development 2012 – A publication of Lahti University of Applied Sciences Series C – ISSN 1457-8328 ISBN 978-951-827-141-6, 2012 6. Tim Wright - A Hands-on Guide to the Fundamentals of Modern JavaScript, ISBN-13:978-0-321-83274-0, Addison Wesley, 2012 7. Jess Chadwick, Todd Snyder, Hrusikesh Panda, Programming ASP.NET MVC 4, O'Reilly Media, ISBN 978-1-449-320031-7, 2012 8. https://www.simform.com/best-frontend-frameworks/ 9. http://javascript-reference.info 10. https://hackr.io/blog/web-development-frameworks 11. http://www.uml.org/ 12. http://www.webratio.com/ 13. http://www.w3.org/TR/wsdl 14. http://en.wikipedia.org/wiki/Universal_Description_Discovery_and_Integration 15. http://jquery.com/ 16. http://tomcat.apache.org 17. http://struts.apache.org 18. https://spring.io/projects/spring-boot 19. http://www.oracle.com/technetwork/java/index.html 20. http://php.net/ 21. http://www.asp.net/ 22. https://www.tutorialspoint.com/jquery/jquery-ajax.htm 23. https://developers.google.com/web-toolkit/ 24. https://dotnet.microsoft.com/apps/aspnet/mvc 25. https://docs.microsoft.com/en-us/aspnet/mvc/overview/getting-started/introduction/getting-started 26. http://www.asp.net/mvc/tutorials/mvc-5/database-first-development/creating-the-web-application 27. https://developer.mozilla.org/en-US/docs/Learn/Server-side/First_steps/Web_frameworks 28. https://uoradea-my.sharepoint.com/personal/rodica_zmaranda_didactic_uoradea_ro/_layouts/15/onedrive.aspx?id=%2Fpersonal%2Frodica%5Fzmaranda%5Fdidactic%5Fuoradea%5Fro%2FDocuments%2FPI%2DMaster&view=0		
8.2 Academic project	Teaching methods	No. of hours/ Observations
Initial elements for the project. General analysis of the project.	Students choose a project theme - an MVC application	4
Familiarization with the development environment / framework / language	and carry out the development stages of the project under the guidance of the teacher, face to face or online.	4
Project application design: structure, functionality, choice of implementation mode: database first, model first, code first		4

Project application implementation: model level, controller level, view level		8
Project application testing and deployment		4
Project evaluation, final assessment		4
Bibliography 1. D. Zmaranda – <i>Programare Internet</i> – Editura Universității din Oradea, 200 pg., ISBN 978-606-10-1422-4 – format electronic CD, 2014 2. Dorin Zaharie, Rodica Doina Zmaranda, <i>Dezvoltarea aplicațiilor software utilizând platforma .NET</i> , Editura ASE, ISBN 978-606-505-547-6, 2012 3. https://uoradea-my.sharepoint.com/personal/rodica_zmaranda_didactic_uoradea_ro/_layouts/15/onedrive.aspx?id=%2Fpersonal%2Frodica%5Fzmaranda%5Fdidactic%5Fuoradea%5Fro%2FDocuments%2FPI%2DMaster&view=0		

9. Corroboration of the discipline content with the expectations of the representatives of epistemological community, professional associations and representative employers in the field related to the program

- The content of the discipline is an important requirement of most employers in the field of software development. The discipline provides the necessary theoretical and practical concepts in this regard.

10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percent from the final mark
10.4 Course	Minimum required conditions for passing the exam (mark 5): in accordance with the minimum performance standard: it is necessary to deal broadly with the approached subjects, without, however, detailing the presented concepts, brief presentation For 10: it is necessary the complete, detailed approach of the proposed subjects (possibly, comparative analyzes/discussions, elaborated presentation	Oral exam - the assessment can be done face to face or online	40 %
10.6 Laboratory	Minimum required conditions for promotion (grade 5): in accordance with the minimum performance standard: broadly knowing the options for approaching the project, going through the design stages, without completing the implementation; functional implementation in proportion of 50% of the project For 10, going through all the design stages, with the completion of the project implementation, 100% functional implementation is required	Practical application – oral evaluation - the assessment can be done face to face or online. After the presentation of the project completed during the semester, each student receives a grade for the project. The project is also presented in electronic format in the form of: PowerPoint presentation, textual description of the project and source code	60 %
10.8 Minimum performance standard: Course: <ul style="list-style-type: none"> • knowledge and understanding the concepts underlying the design and implementation of web applications • familiarization with the most popular design patterns used in web applications • familiarization with the technologies used in the development of Internet applications: client-side technologies, server-side technologies, adjacent technologies Laboratory: <ul style="list-style-type: none"> • acquiring practical skills and knowledge of using the most current frameworks used for web application development • use of the concepts presented in the development and implementation of a practical project 			

Completion date: 02.09.2024

**Date of endorsement in the
department:** 05.09.2024

**Date of endorsement in the Faculty
Board:** 10.09.2024

SUBJECT DESCRIPTION

1. Data related to the study program

1.1 Higher education institution	UNIVERSITY OF ORADEA
1.2 Faculty	Faculty of Electrical Engineering and Information Technology
1.3 Department	Department of Computers and Information Technology
1.4 Field of study	Computers and Information Technology
1.5 Study cycle	Master (2st cycle)
1.6 Study program/Qualification	Management in Information Technology /Master of Science in Engineering

2. Data related to the subject

2.1 Name of the subject	MARKETING ONLINE						
2.2 Holder of the subject	Pater Alexandrina Mirela						
2.3 Holder of the academic seminar/laboratory/project	Pater Alexandrina Mirela						
2.4 Year of study	I	2.5 Semester	2	2.6 Type of the evaluation	Ex	2.7 Subject regime	THD - Thoroughgoing Discipline

3. Total estimated time (hours of didactic activities per semester)

3.1 Number of hours per week	4	of which: 3.2 course	2	3.3 academic seminar/laboratory/project	0/0/1
3.4 Total of hours from the curriculum	42	Of which: 3.5 course	28	3.6 academic seminar/laboratory/project	0/0/14
Distribution of time					hours
Study using the manual, course support, bibliography and handwritten notes					14
Supplementary documentation using the library, on field-related electronic platforms and in field-related places					10
Preparing academic seminars/laboratories/ themes/ reports/ portfolios and essays					10
Tutorials					4
Examinations					4
Other activities.					
3.7 Total of hours for individual study	83				
3.9 Total of hours per semester	125				
3.10 Number of credits	5				

4. Pre-requisites (where applicable)

4.1 related to the curriculum	(Conditions)
4.2 related to skills	

5. Conditions (where applicable)

5.1. for the development of the course	Classroom equipped with video projector and computer. The course can be held face to face or online.
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5.2.for the development of the academic seminary/laboratory/project	Laboratory equipped with computers that are connected to the Internet. The project can be held face to face or online
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6. Specific skills acquired

Professional skills	CP6. Development of financial management skills, quality management and customer relationship management
Transversal skills	

7. The objectives of the discipline (resulting from the grid of the specific competences acquired)

7.1 The general objective of the subject	<ol style="list-style-type: none"> 1. Training the student as a specialist in online marketing; 2. Learning “step by step” the specific terminology from the e-marketing activity, the methods, techniques and specific online marketing tools; 3. Initiation in online marketing research and in the application of the 4 new software components (4C) of the e-marketing mix. 4. Ability to put into practice the knowledge of electronic marketing; 5. Ability to collaborate with specialists from other fields of economics.
7.2 Specific objectives	<p>Theoretical knowledge:</p> <ul style="list-style-type: none"> • Learning the basic concepts and terminology of online marketing • Knowledge and understanding of the online marketing plan • Knowledge and understanding of online business models • Learning and knowledge of online marketing methods and techniques • Knowledge and understanding of the online market • Studies and research of online marketing services <p>Skills acquired:</p> <ul style="list-style-type: none"> • Understand the basic principles of how an online marketing plan works. • Solve various problems using online marketing techniques, services and tools • Understand customer relationships, online buyer behavior • Capitalizing on the potential of each student for online marketing activity; • Cultivating a positive attitude towards training and involvement in rediscovery through experiences. • Explaining how to use Internet services as online marketing tools; • Scientific interpretation of customer awareness through communication in online business development

8. Contents*

8.1 Course	Teaching methods	No. of hours/ Observations
1. The concept of marketing and terminology	Powerpoint presentation with the help of the video projector; free discussions;	2 hours
2. Fundamentals of marketing	Powerpoint presentation with the help of the video projector; free discussions;	2 hours

3. Strategic online marketing (e-marketing plan, strategies and online business models)	Powerpoint presentation with the help of the video projector; free discussions;	6 hours
4. Operational online marketing (e-marketing program, methods, techniques and tools)	Powerpoint presentation with the help of the video projector; free discussions;	8 hours
5. Online market - segmentation and positioning	Powerpoint presentation with the help of the video projector; free discussions;	2 hours
6. Online marketing studies and research (Database management)	Powerpoint presentation with the help of the video projector; free discussions;	2 hours
7. Online Buyer Behavior (Customer Relationship Management)	Powerpoint presentation with the help of the video projector; free discussions;	2 hours
8. The traditional e-marketing mix - HARD components (product, price, placement and promotion)	Powerpoint presentation with the help of the video projector; free discussions;	2 hours
9. Unconventional e-marketing mix - SOFT components (awareness, temperance, customization and direct communication)	Powerpoint presentation with the help of the video projector; free discussions;	2 hours
10. Web service-as an online marketing tool	Powerpoint presentation with the help of the video projector; free discussions;	2 hours
11. E-mail service - as an online marketing tool	Powerpoint presentation with the help of the video projector; free discussions;	2 hours
12. E-chat service (forum, blog and socialization) - as an online marketing tool	Powerpoint presentation with the help of the video projector; free discussions;	2 hours
13. E-com service - as an online marketing tool	Powerpoint presentation with the help of the video projector; free discussions;	2 hours
14. Legal elements and ethics in online marketing in Romania	Powerpoint presentation with the	2 hours

	help of the video projector; free discussions;	
Bibliography 1. Gay R., ș.a., <i>Marketing on-line</i> , Editura All, București, 2009 2. Haig M., <i>Manual de e-marketing</i> , Editura Rentrop & Straton, București, 2005 3. Kotler Ph., <i>Marketing Management</i> , Editura Pearson Educațion, Paris, Franța, 2006 4. Popovici Gh. <i>E-marketing</i> , Editura EDP, București, 2009 5. Xeuxet L., <i>Regurile de aur ale marketingului direct</i> , Editura CH Beck, București, 2008 6. Orzan, Gh., Orzan, M., <i>Sisteme informatice de marketing</i> , Ed. a II-a, Editura Uranus, București, 2010 7. Funk, T., <i>Web 2.0 and Beyond: Understanding the New Business Online Business Models, Trends, and Technologies</i> , Editura Praeger, Westport, CT, S.U.A., 2008		
8.2 Academic seminar/laboratory/project	Teaching methods	No. of hours/ Observations
Labor protection training 1. Presentation of project themes	Powerpoint presentation with the help of the video projector; free discussions;	1 hours
2. The Internet as a new online marketing technology	Powerpoint presentation with the help of the video projector; free discussions;	1 hours
3. Creating a database for customer management	Powerpoint presentation with the help of the video projector; free discussions;	1 hours
4. Creating an electronic online research form	Powerpoint presentation with the help of the video projector; free discussions;	1 hours
5. Online search engine marketing	Powerpoint presentation with the help of the video projector; free discussions;	1 hours
6. Online marketing through the website	Powerpoint presentation with the help of the video projector; free discussions;	1 hours
7. Online email marketing	Powerpoint presentation with the help of the video projector; free discussions;	1 hours
8. Online marketing through forum, blog and socializing	Powerpoint presentation with the help of the video projector; free discussions;	1 hours
9. Online marketing through e-com. - online shopping	Powerpoint presentation with the	1 hours

	help of the video projector; free discussions;	
10. Online purchases	Powerpoint presentation with the help of the video projector; free discussions;	1 hours
11. Online sales	Powerpoint presentation with the help of the video projector; free discussions;	1 hours
12. Online advertising	Powerpoint presentation with the help of the video projector; free discussions;	1 hours
13. Electronic information security	Powerpoint presentation with the help of the video projector; free discussions;	1 hours
14. Teaching and supporting the project and final discussions	Powerpoint presentation with the help of the video projector; free discussions;	1 hours
<p>Bibliography</p> <p>1. Gay R., ș.a., <i>Marketing on-line</i>, Editura All, București, 2009</p> <p>2. Popovici Gh. <i>E-marketing</i>, Editura EDP, București, 2009</p> <p>3. Orzan, Gh., Orzan, M., <i>Sisteme informatice de marketing</i>, Ed. a II-a, Editura Uranus, București, 2010</p> <p>4. Funk, T., <i>Web 2.0 and Beyond: Understanding the New Business Online Business Models, Trends, and Technologies</i>, Editura Praeger, Westport, CT, S.U.A., 2008</p> <p>5. Online Marketing Tutorial https://www.tutorialspoint.com/online_marketing/index.htm</p> <p>6. Online Marketing https://www.quicksprout.com/the-beginners-guide-to-online-marketing/</p> <p>7. How to use google analytics? Tutorial for beginnings! https://www.socialtools.me/blog/en/how-to-use-google-analytics-tutorial/</p>		

9. Corroboration of the discipline content with the expectations of the representatives of epistemological community, professional associations and representative employers in the field related to the program

The content of the discipline is found in the curriculum of Management in Information Technology from other university centers ("Politehnica" University of Bucharest), and knowledge of the basic principles of online marketing are current requirements in the operation of any company being also requirements of employers in domain (Qubiz, DecIT, Access, Fortech, Diosoft, IT Maniax, etc.).

10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percent from the final mark
10.4 Course	Minimum required conditions for passing the exam (mark 5): in accordance with the minimum performance standard	Oral exam The evaluation can be done face to face or online	70%

	For 10: KnowledgeUnderstanding		
10.5 Academic seminar	-		
10.6 Laboratory			
10.7 Project	Minimum required conditions for promotion (grade 5): in accordance with the minimum performance standard For 10:Knowledge and understanding;Ability to explain and interpret;Complete and correct solution of the requirements.	- Practical works The evaluation can be done face to face or online	30%
10.8 Minimum performance standard: Course: 1.To solve well a minimum of topics -questions and applications 2.Minimum grade 5 in the project Academic seminar:- Laboratory: Project:- 1.The student knows the main concepts, recognizes them, defines them correctly and builds a simple application; 2. To use of the concepts presented in the development and implementation of a practical project			

Completion date: 2.09.2024

Cours instructor Conf.dr.ing. Mirela Pater

Date of endorsement in the department: 5.09.2024

Dean: Conf.dr.ing. Eugen Gergely

Date of endorsement in the Faculty Board: 10.09.2024

SUBJECT DESCRIPTION

1. Data related to the study program

1.1 Higher education institution	UNIVERSITY OF ORADEA
1.2 Faculty	Faculty of Electrical Engineering and Information Technology
1.3 Department	<i>Computers and Information Technology</i>
1.4 Field of study	<i>Computers and Information Technology</i>
1.5 Study cycle	Master (2 st cycle)
1.6 Study program/Qualification	<i>Management in Information Technology</i> / Master of Science in Engineering

2. Data related to the subject

2.1 Name of the subject	<i>Data Protection and Monitoring</i>						
2.2 Holder of the subject	Prof.dr.habil.eng. Daniela Elena Popescu						
2.3 Holder of the academic seminar/laboratory/project	Prof.dr.habil.eng. Daniela Elena Popescu						
2.4 Year of study I		2.5 Semester 1		2.6 Type of the evaluation	Ex	2.7 Subject regime	DS

3. Total estimated time (hours of didactic activities per semester)

3.1 Number of hours per week	4	of which: 3.2 course	2	3.3 academic seminar/laboratory/project	1/1
3.4 Total of hours from the curriculum	56	Of which: 3.5 course	28	3.6 academic seminar/laboratory/project	14/14
Distribution of time					hours
Study using the manual, course support, bibliography and handwritten notes					28
Supplementary documentation using the library, on field-related electronic platforms and in field-related places					8
Preparing academic seminars/laboratories/ themes/ reports/ portfolios and essays					14
Tutorials					2
Examinations					4
Other activities.					
3.7 Total of hours for individual study	56				
3.9 Total of hours per semester	112				
3.10 Number of credits	4				

4. Pre-requisites (where applicable)

4.1 related to the curriculum	(Conditions) Operating Systems
4.2 related to skills	Computer Systems Architecture

5. Conditions (where applicable)

5.1. for the development of the course	- The course can be held face to face or online " - attendance at least 50% of the courses
5.2.for the development of the academic seminary/laboratory/project	- The seminar / laboratory / project can be held face to face or online - Mandatory presence at all laboratories; - Students must have completed the theoretical part of the paper; - A maximum of 4 works can be recovered during the semester (30%);

	- The frequency at laboratory hours below 70% leads to the restoration of the discipline
6. Specific skills acquired	
Professional skills	<p>CP3. Problem solving using Computer Science and engineering tools</p> <p>CP5. Design, life cycle management, integration and integrity of hardware, software and communications systems in order to increase the security of systems</p>
Transversal skills	<p>CT1. Applying, in the context of compliance with the law, intellectual property rights (including technology transfer), product certification methodology, principles, norms and values of the code of professional ethics within its own rigorous, efficient and responsible work strategy</p> <ul style="list-style-type: none"> • Defining the basic managerial concepts necessary to implement a high security operating environment at the level of organizations • Scientific substantiation of management decisions regarding the preservation and increase of process security as well as the implementation and monitoring of their effects within the organization <p>CT2. Identify roles and responsibilities in a multi-specialized team decision-making and assigning tasks, with the application of relationship techniques and efficient work within the team</p> <ul style="list-style-type: none"> • Assuming the specific roles and responsibilities of leading teams engaged in development activities for high security infrastructures / systems • Increasing the interest for the correct realization of a scientific research and for the pursuit of a career in research.

7. The objectives of the discipline (resulting from the grid of the specific competences acquired)

7.1 The general objective of the subject	<ul style="list-style-type: none"> ▪ Familiarizing students with the defining elements for implementing and increasing the level of information security at the organizational level as well as identifying healthy strategies for institutional development in this regard
7.2 Specific objectives	<ul style="list-style-type: none"> • The course aims to familiarize students with information security issues, with understanding and identifying what vulnerabilities are, with how the issue of protection of both the unconnected system and those connected in an internal network / Internet. Therefore, it proposes to present the basic characteristics of information security issues and to develop the capacities to develop security policies at organizational level in order to protect data. • Project: Follow-up of the risks and vulnerabilities to which the structures of an institution are exposed, considered as a case study with identification of the protection measures that are required

8. Contents*

8.1 Course	Teaching methods	No. of hours/ Observations
<p>1. Information processing security, protection of values, Characteristics of computer intrusion, Attacks, Significance of computer security, Security purposes, Privacy, Integrity, Availability, Vulnerabilities - hardware, software, Data vulnerabilities, Computer offenders, Methods Defense, Controls, The Future in the Field</p> <p>2. Protection of non-networked computers, User authentication, Password systems, Advantages of password systems, Disadvantage, Rules to increase the security provided by the password system, Encryption protection, Authentication based on</p>	<p>Free course presentation with video projector / overhead projector and blackboard in an interactive way: punctuate from time to time questions for students in order to increase the degree of interactivity</p> <ul style="list-style-type: none"> • Indication of topics for documentation and individual study 	28 ore

<p>encrypted keys, Authentication based on what the user is, Biometric authentication systems, Use of fingerprints in authentication</p> <p>1. Access control: • Identification • Authentication Three factors • Single login • Single conviction • Access control with subjects and objects • Access control mode (DAC, non-DAC, MAC and RBAC) • Bell-LaPadula, Biba, Clark -Wilson, and Chinese Wall architecture • Identity management • Cloud computing</p> <p>2. Advanced communication and network elements: Open Systems Interconnection (OSI) and Transmission Control Protocol / Internet Protocol (TCP / IP) models • Bus, star and token ring network configurations • Common protocols in TCP / IP suite • Ports used with common protocols • Different network architectures such as Internet, intranet, and extranet • Demilitarized zones (DMZ) • Wireless security protocols such as Wired Equivalent Privacy (WEP), Wi-Fi Protected Access (WPA) and WPA2 • Wireless technologies such as Bluetooth, RFID, 802.11, WiMax, GSM, 3G and NFC</p> <p>3. Communication and network elements: • Telecommunication methods used to access the Internet • Securing the Voice over Internet Protocol (VoIP) with Secure Real-Time • Transport Protocol (SRTP) • Filtering packets, firewalls and firewalls application • Protects diversity with firewalls • Differentiates between network and host based firewalls • Risks and vulnerabilities related to remote access solutions • Different tunneling protocols using remote access • Authentication methods using remote access • Control network access</p> <p>4. Differences between hackers and crackers • Differences between whitehats, blackhats, and grayhats • Denial-of-service and distributed denial-of-service attacks • Zero-day exploits • Threats Advanced Persistence • Social Engineering Tactics • The Importance of Tools to Reduce Social Engineering Attacks</p> <p>5. Code and Malware: Different types of viruses • Differences between viruses, worms, Trojans and logic bombs • Sets of roots, hatches, back doors and spyware • Differences between signature-based detection and heuristic-based detection • for antivirus software • The importance of keeping antivirus signature definitions up to date • Using spam filters and content filtering devices • The principle of least privilege and how it can help prevent infections • Educating users about practices</p> <p>6. Malicious code and activity: • Different types of viruses • Differences between viruses, worms, Trojans and logic bombs • Root sets, hatches, backdoors and spyware • Differences between signature-based detection and detection-based of antivirus heuristics • The importance of keeping antivirus signature definitions up to date • Using spam filters and content filtering devices • The least privilege principle and how it can help prevent infections • Educating users about safe computer practices • Common vulnerabilities and exposures</p> <p>7. Risk, responses and recovery: • Definition of risk, threats, vulnerabilities and impact • Four main</p>		
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<p>methods of risk management: mitigation (mitigation), avoidance, transfer and acceptance • Definition of residual risk • Steps used in risk assessment • Differences between analyzes quantitative and qualitative • Steps in response to the incident: preparation, detection, analysis, retention, eradication, • recovery and post-incident activities</p> <p>8. Monitoring and analysis: • Security alert and false positive • Network-based and host-based intrusion detection systems • Intrusion prevention systems • Method of detection and prevention of attacks • File integration verifiers • Honeypots, plas honeycomb and lined cells • Event And Incident Managers, such as SIMs, System Event Managers (SEMs) and SIEMs • Types of vulnerability assessment tests • Tools</p>		
<p>Bibliography</p> <ul style="list-style-type: none"> • Course notes (slides) made available to students in electronic format on the Office 365 platform • Deborah Russel and. mul 1 CISCOMaterialului course comprin in Mprotection that se impuncareamilor specific search IA general notions legaG.T. Gangemi Sr, Computer security basics, Editura O'Reilly & Assoc, ISBN: 0-937175-71-4, 1993 • Stallings W, Cryptography and Network Security Principles and Practice, Ththird Edition, Prentice Hall, 2003, • K.Hwang, F.A.Briggs, Computer Architecture and Parallel processing, Mc Graw - Hill Book company 1987 • Artech House, Fundamentals of Network Security, Artech House • D.E.Popescu, Information Security Management, University of Oradea Publishing House, 2012 • ITIL 		
<p>8.2 Laboratory</p>	<p>Teaching methods</p>	<p>No. of hours/ Observations</p>
<p>1. Presentation of project activities, the laboratory, labor protection norms and conventional signs specific to the field of computer systems - general, general information on Protection and data monitoring. Presentation of the required design specifications</p> <p>2. Analysis of existing vulnerabilities for the case study considered</p> <p>3. Analysis of the existing risks for the case study considered</p> <p>4. Classification of the information with the establishment of the security policies for the considered case</p> <p>5. Identifying the solutions for increasing the security with establishing the concrete security policies for the considered case</p> <p>6. Tracing the audit techniques for maintaining the security at the level of the analyzed objective</p> <p>7. Teaching the project with knowledge verification</p>	<p>Students receive laboratory papers at least one week in advance, study them, inspect them, and take a theoretical test at the beginning of the laboratory. Then, the students carry out the practical part of the work under the guidance of the teacher.</p>	<ul style="list-style-type: none"> • 4 hours are allocated for each of the 7 detailed points of the laboratory activity. • The results of the project activities are presented in plenary at group level
<p>Bibliography</p> <ol style="list-style-type: none"> 1. D.E.Popescu, Information Security Management, University of Oradea Publishing House, 2012 2. Moodle module with project works 3. Webography recommended during project hours 		

9. Corroboration of the discipline content with the expectations of the representatives of epistemological community, professional associations and representative employers in the field related to the program

- The content of the discipline is found in the curriculum of Computer and Information Technology specializations and other university centers that have accredited these specializations (Technical University of Cluj-Napoca, University of Craiova, "Politehnica" University of Timisoara, Gh. Asachi University of

Iasi, etc.), and knowledge of the architecture and organization of computer systems as well as their operation and design is a stringent requirement of employers in the field (Rds & Rcs, Plexus, Neologic, Celestica, Keysys, etc.).

10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percent from the final mark
10.4 Course	<p>Minimum required conditions for passing the exam (mark 5) in accordance with the minimum performance standard:</p> <ul style="list-style-type: none"> - it is necessary to know the fundamental notions required in the subjects, without presenting details on them <p>For 10:</p> <ul style="list-style-type: none"> - for grade 10, a thorough knowledge of all is required 	<p>The evaluation can be done face to face or online depending on the situation imposed</p>	70%
10.6 Laboratory	<ul style="list-style-type: none"> - for mark 5 it is necessary to solve the corresponding number of requirements, depending on the test scale. - for mark 10, all requirements on the test sheet must be correctly resolved. 	<p>Tests during the semester The evaluation of students is done through two tests, taken during the semester. The arithmetic mean of the marks of these tests represents the mark with which they enter the exam. Students can also get extra points, depending on their participation in the laboratory and solving exercises with a higher degree of difficulty. These points can be used to calculate the test score.</p>	30%
<p>10.8 Minimum performance standard: Assimilation of detailed knowledge about vulnerabilities, risks and security solutions in managing and conveying information in a company The timely solution, in individual activities and activities carried out in groups, in conditions of qualified assistance, of the problems that require the application of principles and rules respecting the norms of professional deontology. Responsible assumption of specific tasks in multi-specialized teams and efficient communication at institutional level.</p> <ul style="list-style-type: none"> • Development of team spirit, spirit of mutual help, awareness of the importance of training during the semester for good and sustainable results, awareness of the importance of research, own research related to learning (library, internet), cultivating a work discipline, done correctly and time 			

Completion date:

02.09.2024

Date of endorsement in the department:

05.09.2024

Date of endorsement in the Faculty Board:

10.09.2024

SUBJECT DESCRIPTION

1. Data related to the study program

1.1 Higher education institution	UNIVERSITY OF ORADEA
1.2 Faculty	Faculty of Electrical Engineering and Information Technology
1.3 Department	Department of Computers and Information Technology
1.4 Field of study	Computers and Information Technology
1.5 Study cycle	Master (2nd cycle)
1.6 Study program/Qualification	Management in Information Technology / Master of Science in Engineering

2. Data related to the subject

2.1 Name of the subject	Data Acquisition, Processing and Management						
2.2 Holder of the subject	Assistant Professor dr. Otto Poszet						
2.3 Holder of the academic seminar/laboratory/project	Assistant Professor dr. Otto Poszet						
2.4 Year of study	II	2.5 Semester	3	2.6 Type of the evaluation	Ex.	2.7 Subject regime	THD

3. Total estimated time (hours of didactic activities per semester)

3.1 Number of hours per week	4	of which: 3.2 course	2	3.3 academic seminar/laboratory/project	0/2/0
3.4 Total of hours from the curriculum	5 6	Of which: 3.5 course	28	3.6 academic seminar/laboratory/project	0/28/0
Distribution of time					hours
Study using the manual, course support, bibliography and handwritten notes					30
Supplementary documentation using the library, on field-related electronic platforms and in field-related places					26
Preparing academic seminars/laboratories/ themes/ reports/ portfolios and essays					32
Tutorials					0
Examinations					6
Other activities.					
3.7 Total of hours for individual study					94
3.9 Total of hours per semester					150
3.10 Number of credits					6

4. Pre-requisites (where applicable)

4.1 related to the curriculum	(Conditions)
4.2 related to skills	

5. Conditions (where applicable)

5.1. for the development of the course	The course can be held face to face or online.
5.2. for the development of the academic seminary/laboratory/project	The laboratory can be carried out face to face or online

6. Specific skills acquired	
Professional skills	<input type="checkbox"/> CP2 Advanced hardware and software design of computer systems and networks. <input type="checkbox"/> CP3 Design and management of secure computer systems..
Transversal skills	<input type="checkbox"/> CT3 Identifying opportunities for continuous training and efficient use of learning resources and techniques for their own development.

7. The objectives of the discipline (resulting from the grid of the specific competences acquired)

7.1 The general objective of the subject	The course aims to present advanced knowledge used in data acquisition techniques, process control, digital signal processing, with a special focus on hardware and highlighting the principles found in most industrial acquisition systems.
7.2 Specific objectives	<p>In each chapter, after the presentation of the theoretical principles, concrete examples of realization are studied (National Instruments acquisition systems, microcontrollers, digital signal processing systems).</p> <p>The laboratory aims to familiarize students with the technique of data acquisition and control (hardware and software) and to develop their own data acquisition programs, using the notions learned in the course.</p>

8. Contents*

8.1 Course	Teaching methods	No. of hours/ Observations
1. Definition of a data acquisition and control system. Introductory notions, definition of an DAQS, block diagram, data acquisition terminology	lecture / debate	2
2. Signal conditioning circuits 1. Passive conditioning circuits, dividers, bridges, filters	lecture / debate	2
3. Signal conditioning circuits 2. Active conditioning circuits, instrumental operational amplifiers. Digital signal processing.	lecture / debate	2
4. Digital encodings used in data acquisition systems. Introduction to code theory. Error correcting codes used in data acquisition.	lecture / debate	2
5. Digital-to-analog converters 1. Characteristics. Construction and architecture of DAC. DAC for unipolar codes	lecture / debate	2
6. Digital-to-analog converters 2. DAC for bipolar codes. Voltage-frequency converters. Frequency-voltage converters.	lecture / debate	2
7. Analog-to-digital converters 1. Characteristics, ADC with parallel type comparison. ADC with serial-parallel comparison, ADC with serial comparison, ADC with integration.	lecture / debate	2
8. Sampling and hold circuits 1. SH characteristics, Architecture of SH. Control of a SH-DAC assembly	lecture / debate	2
9. Mono and multi-channel data acquisition systems. Construction and control of DAQS single channel, multi-channel. Different types.	lecture / debate	2
10. Mono and multi-channel data distribution systems. Architecture and control of single-channel, multi-channel DDS. Different types.	lecture / debate	2
11. Use of microcontrollers in data acquisition and processing.	lecture / debate	2
12. Acquisition, processing, analysis and generation of audio signals.	lecture / debate	2
13. Acquisition, processing, analysis and generation of video signals.	lecture / debate	2
14. Fault tolerant data acquisition systems. Use of error correcting codes in SADC. Security of a SADC.	lecture / debate	2
Bibliography		
1. Poszet O., Muț M, "Sisteme de achiziție și de prelucrare a datelor", Course, Updated in 2023, Available at: https://e.uoradea.ro/course/view.php?id=61330 , Universitatea din Oradea, 2023		

2. Gacsádi Alexandru, Tiponuş Virgil, Sisteme de achizitii de date, Editura Universităţii din Oradea, 2005, ISBN: 973-613-868-2
3. Vlad-Cristian Georgescu, Bazele sistemelor de achizitie de date, Universitatea Politehnica din Bucuresti, 2021, <https://www.studocu.com/ro/document/universitatea-politehnica-din-bucuresti/bazele-sistemelor-de-achizitii-de-date/curs-1-bazele-sistemelor-de-achizitie-de-date/14360313>
4. http://physweb.bgu.ac.il/COURSES/SignalNoise/data_aquisition_fundamental.pdf
5. Biswajit Ray, “An Instrumentation and Data Acquisition Course for Electronics Engineering Technology Students”, Dept. of Physics & Engineering Technology, Bloomsburg University of Pennsylvania, Bloomsburg, PA 17815, http://www.ni.com/pdf/academic/us/journals/An_Instrumentation.pdf
6. Vetterli, „Foundations of Signal Processing”, 31/07/2014, ISBN 13 – 9781107038608
7. Muş M., Poszet O., “Sisteme de achiziție și control”, Îndrumător de laborator, Universitatea din Oradea, Updated in 2022, Available on the platform e.uoradea.ro
8. Muş M., Poszet O., “Sisteme de achiziție și control”, Îndrumător de proiectare, Universitatea din Oradea, Updated in 2019, Available on the platform e.uoradea.ro e.uoradea.ro
9. Veljko Potkonjak, Michael Gardner, Victor Callaghan, Pasi Mattila, Christian Guetl, Vladimir M. Petrovic, Kosta Jovanovic, „Virtual laboratories for education in science, technology, and engineering: A review”, Computers & Education, Vol. 95, Issue C, pp. 309-327, April 2016.
10. Peter Tiernan, „Enhancing the learning experience of undergraduate technology students with LabVIEW software”, Computers & Education, Vol. 55, Issue 4, pp. 1579-1588, December 2010.
11. Xie Bing, Chen Chang-xin, Zheng Bin, „Design of Data Acquisition and Signal Processing System Based on LabVIEW”, Modern Electronics Technique, Issue 14, pp. 173-175, 2011.
12. Wei Zhan, Jay R. Porter, Joseph A. Morgan, „Experiential Learning of Digital Communication Using LabVIEW”, IEEE Transactions on Education, Vol. 57, No. 1, pp. 34-41, February 2014
13. Gilbert-Rainer Gillich, Doina Frunzaverde, Nicoleta Gillich, Daniel Amariei, „The use of virtual instruments in engineering education”, WCES-2010, Procedia Social and Behavioral Sciences, Vol. 2, Issue 2, pp. 3806-3810, 2010.
14. Linggang Liu, Junhui Li, Luhua Deng, „Design of Data Acquisition System Based on LabVIEW”, Advanced Materials Research, Vol. 569, pp. 808-813, 2012.
15. Hong min Wang, Dan dan Li, Ping Xue, Jie Zhu, Hai bo Li, „LabVIEW-based data acquisition system design”, IEEE 2012 International Conference on Measurement, Information and Control (MIC), pp. 689-692, May 18-20, 2012.

8.2 Academic seminar/laboratory/project	Teaching methods	No. of hours/ Observations
1. Overview of LabPC + and myDAQ acquisition board. Familiarization of students with the acquisition systems of the laboratory. Testing the acquisition system and performing some measurements with the oscilloscope. NI Elvis, NI MAX.	Experimental study, practical activity	4
2. LabView programming environment. Introduction. Block diagram and Front Panel user interface. Configuration-based virtual tools. Creating applications in LabView.	Experimental study, practical activity	4
3. Data structures in LabView. Boolean, numerical indicators and controls, strings, matrices. Basic operations with these structures. View results, virtual tool library to create a user interface as intuitive as possible. Complex mathematical operations in LabView. Library of mathematical functions. String operations. Operations with composite structures (matrices, records). LabView applications, exercises.	Experimental study, practical activity	4
4. Programming and control structures in LabView. Decision structures, ramifications, repetitive structures, loops. Programming exercises in LabView.	Experimental study, practical activity	4
5. Acquisition and generation of signals in LabView. Simulation of waveforms, setting parameters by configuring VIs and then from the application program in real time. Capture and display waveforms using configuration-based VIs. Exercises and measurements.	Experimental study, practical activity	4
6. Analysis and generation of audio signals in LabView using the computer's sound card. Generation of frequencies corresponding to musical notes and spectral analysis of different waveforms. LabView Signal Analysis and Processing Library. Exercises in LabView.	Experimental study, practical activity	4
7. Image processing in LabView. 2D and 3D graphics in LabView. Exercises. Checking and concluding the situation at the laboratory.	Experimental study, practical	4

	activity
Bibliography	
<ol style="list-style-type: none"> 1. Poszet O., Muț M, “Sisteme de achiziție și de prelucrare a datelor”, Course, Updated in 2023, Available at: https://e.uoradea.ro/course/view.php?id=61330, Universitatea din Oradea, 2023 2. Gacsádi Alexandru, Tiponuț Virgil, Sisteme de achizitii de date, Editura Universității din Oradea, 2005, ISBN: 973-613-868-2 3. Vlad-Cristian Georgescu, Bazele sistemelor de achizitie de date, Universitatea Politehnica din Bucuresti, 2021, https://www.studocu.com/ro/document/universitatea-politehnica-din-bucuresti/bazele-sistemelor-de-achizitii-de-date/curs-1-bazele-sistemelor-de-achizitie-de-date/14360313 4. http://physweb.bgu.ac.il/COURSES/SignalNoise/data_aquisition_fundamental.pdf 5. Biswajit Ray, “An Instrumentation and Data Acquisition Course for Electronics Engineering Technology Students”, Dept. of Physics & Engineering Technology, Bloomsburg University of Pennsylvania, Bloomsburg, PA 17815, http://www.ni.com/pdf/academic/us/journals/An_Instrumentation.pdf 6. Vetterli, „Foundations of Signal Processing”, 31/07/2014, ISBN 13 – 9781107038608 7. Muț M., Poszet O., “Sisteme de achiziție și control”, Îndrumător de laborator, Universitatea din Oradea, Updated in 2022, Available on the platform e.uoradea.ro 8. Muț M, Poszet O., “Sisteme de achiziție și control”, Îndrumător de proiectare, Universitatea din Oradea, Updated in 2019, Available on the platform e.uoradea.ro e.uoradea.ro 9. Veljko Potkonjak, Michael Gardner, Victor Callaghan, Pasi Mattila, Christian Guetl, Vladimir M. Petrovic, Kosta Jovanovic, „Virtual laboratories for education in science, technology, and engineering: A review”, Computers & Education, Vol. 95, Issue C, pp. 309-327, April 2016. 10. Peter Tiernan, „Enhancing the learning experience of undergraduate technology students with LabVIEW software”, Computers & Education, Vol. 55, Issue 4, pp. 1579-1588, December 2010. 11. Xie Bing, Chen Chang-xin, Zheng Bin, „Design of Data Acquisition and Signal Processing System Based on LabVIEW”, Modern Electronics Technique, Issue 14, pp. 173-175, 2011. 12. Wei Zhan, Jay R. Porter, Joseph A. Morgan, „Experiential Learning of Digital Communication Using LabVIEW”, IEEE Transactions on Education, Vol. 57, No. 1, pp. 34-41, February 2014 13. Gilbert-Rainer Gillich, Doina Frunzaverde, Nicoleta Gillich, Daniel Amariei, „The use of virtual instruments in engineering education”, WCES-2010, Procedia Social and Behavioral Sciences, Vol. 2, Issue 2, pp. 3806-3810, 2010. 14. Linggang Liu, Junhui Li, Luhua Deng, „Design of Data Acquisition System Based on LabVIEW”, Advanced Materials Research, Vol. 569, pp. 808-813, 2012. 15. Hong min Wang, Dan dan Li, Ping Xue, Jie Zhu, Hai bo Li, „LabVIEW-based data acquisition system design”, IEEE 2012 International Conference on Measurement, Information and Control (MIC), pp. 689-692, May 18-20, 2012.. 	

9. Corroboration of the discipline content with the expectations of the representatives of epistemological community, professional associations and representative employers in the field related to the program

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10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percent from the final mark
10.4 Course	Minimum required conditions for passing the exam (mark 5): in accordance with the minimum performance standard For 10: Exam	Exam. The evaluation can be done face to face or online.	50%
10.5 Academic seminar	Minimum required conditions for passing the examination (grade 5): in accordance with		

	the minimum performance standard For 10: -		
10.6 Laboratory	Minimum required conditions for promotion (grade 5): in accordance with the minimum performance standard For 10: All laboratory assignments finalized with activity reports	Reports. The evaluation can be done face to face or online.	50%
10.7 Project			
10.8 Minimum performance standard: 50%			
Course:			
Academic seminar:			
Laboratory:			
Project:			

Completion date:
02.09.2024

Signature of the course owner
Ș.L.Dr.Ing. Otto POSZET
poszet@uoradea.ro

Signature of the seminar/
laboratory/project owner
Ș.L.Dr.Ing. Otto POSZET
poszet@uoradea.ro

Date of endorsement in the
department:
05.09.2024.

Signature of Department Director
Conf.Dr.Inf. Elisa Valentina MOISI
emoisi@uoradea.ro

Date of endorsement in the
Faculty Board:
10.09.2024.

Signature of Dean
Conf.Dr. Ing. Eugen Ioan GERGELY
egergely@uoradea.ro

SUBJECT DESCRIPTION

1. Data related to the study program

1.1 Higher education institution	UNIVERSITY OF ORADEA
1.2 Faculty	Faculty of Electrical Engineering and Information Technology
1.3 Department	Department of Computers and Information Technology
1.4 Field of study	Computers and Information Technology
1.5 Study cycle	Master
1.6 Study program/Qualification	Management in Information Technology / Master of Science in Engineering

2. Data related to the subject

2.1 Name of the subject	I.T. Project Management						
2.2 Holder of the subject	Prof. dr. ing. Győrödi Robert Ștefan						
2.3 Holder of the academic seminar/laboratory/project	Prof. dr. ing. Győrödi Robert Ștefan						
2.4 Year of study	II	2.5 Semester	1	2.6 Type of the evaluation	Ex	2.7 Subject regime	SYD

3. Total estimated time (hours of didactic activities per semester)

3.1 Number of hours per week	3	of which: 3.2 course	1	3.3 academic seminar/laboratory/project	0/0/2
3.4 Total of hours from the curriculum	42	Of which: 3.5 course	14	3.6 academic seminar/laboratory/project	0/0/28
Distribution of time					hours
Study using the manual, course support, bibliography and handwritten notes					20
Supplementary documentation using the library, on field-related electronic platforms and in field-related places					30
Preparing academic seminars/laboratories/ themes/ reports/ portfolios and essays					23
Tutorials					6
Examinations					4
Other activities.					
3.7 Total of hours for individual study	83				
3.9 Total of hours per semester	125				
3.10 Number of credits	5				

4. Pre-requisites (where applicable)

4.1 related to the curriculum	(Conditions) Computer programming and programming languages I Computer programming and programming languages II
4.2 related to skills	Structured programming in the C language or object programming in C ++ / C # / Java

5. Conditions (where applicable)

5.1. for the development of the course	Classroom equipped with video projector and computer. The course can be held face to face or online
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5.2.for the development of the academic seminary/laboratory/project	<p>Laboratory equipped with video projector and computers that are connected to the internet, and they have installed Oracle 12c software.</p> <p>Laboratory equipped with:</p> <ul style="list-style-type: none"> - computers that are connected to the Internet and have installed the following programs: Visual Studio, Eclipse for Java, SQL Business Intelligence Development Studio, Microsoft Project - access to the virtual environment in which the Microsoft Dynamics 365 BC / FO & SCM suite is installed (the latest versions) with all the necessary service infrastructure and tools <p>The laboratory can take place face to face or online</p>
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6. Specific skills acquired

Professional skills	<p>C5. Projects preparation and management in the field of Computers and Information Technology and related fields by applying</p> <p>C6. Developing skills of financial marketing, quality management and customer relationship management</p>
Transversal skills	<p>CT1. Applying principles, norms and values of professional ethics in the spirit of the law to ensure the reputation of the profession.</p>

7. The objectives of the discipline (resulting from the grid of the specific competences acquired)

7.1 The general objective of the subject	<ul style="list-style-type: none"> ▪ Learning the main concepts of IT project management and how they are used by organizations (both in the private and public sector) as well as the tools and techniques needed to manage IT projects.
7.2 Specific objectives	<ul style="list-style-type: none"> ▪ This course introduces key principles of IT project management, including an introduction to Agile and Scrum approaches. At the same time, tools and techniques will be presented to initiate, plan and successfully manage IT projects and programs. Through a combined learning approach to courses, labs, and case studies, students will be able to understand all the essentials of good project management.

8. Contents*

8.1 Course	Teaching methods	No. of hours/ Observations
1. Introduction to project management	Powerpoint presentation with the help of the video projector; free discussions;	1 hour
2. Business strategy and project business cases		1 hour
3. Introduction to Agile Predictive and Development Life Cycle		1 hour
4. Breakdown structures (work, product, cost)		1 hour
5. Key planning tools - planning, estimating and managing resources		1 hour
6. Stakeholder identification, analysis and management		1 hour
7. Management skills in project management - influence, leadership, team building and conflict management		1 hour
8. Managing the risk and the problems of a project		1 hour
9. Project planning. Applications and tools used in industry		2 hours

10. Project monitoring and control techniques.		4 hours
Bibliography		
1. Ken Laudon, Jane Laudon, Management Information Systems: Managing the Digital Firm (13th Ed), Prentice Hall, 2013, ISBN 0133050696		
1. Information Technology Project Management, 9th Edition - Kathy Schwalbe, ISBN-10: 1-337-10135-4, ISBN-13: 978-1-337-10135-6		
2. The APM Project Management Body of Knowledge, 6th Edition,(2012), Association for Project Management		
3. J Cadle and D Yeates; Project Management for Information Systems (2008) Pearson Education Limited		
4. Györödi Robert, Lungu Ion, Györödi Cornelia, Sisteme avansate de descoperire a cunoștințelor din bazele de date, Editura Universității din Oradea, Oradea, România, 2012, ISBN 978-606-10-0733-2.		
5. Brian Larson, Delivering Business Intelligence with Microsoft SQL Server 2012 3/E, McGraw-Hill, 2012, ISBN 0071759387		
6. James M. Wahlen, Financial Reporting, Financial Statement Analysis and Valuation, 8th Ed, Cengage Learning, 2014, ISBN 1285190904		
7. Michael Alexander, Jared Decker, Bernard Wehbe, Microsoft Business Intelligence Tools for Excel Analysts, For Dummies, 2014, ISBN 1118821521		
8. Adam Aspin, High Impact Data Visualization with Power View, Power Map, and Power BI, Apress, 2014, ISBN 1430266163		
9. Brian Larson, Mark Davis, Dan English, Visualizing Data with Microsoft Power View, McGraw-Hill, 2012, ISBN 0071780823		
10. https://e.uoradea.ro/course/view.php?id=6252 Materials (courses and project)		
8.2 Academic laboratory	Teaching methods	No. of hours/ Observations
8.3. Project	Teaching methods	No. of hours/ Observations
1. General concepts used in project management	Powerpoint presentation with the help of the video projector; free discussions;	2 hours
2. Business strategy		2 hours
3. The life cycle of a project. Agile strategy		4 hours
4. Breakdown structures (work, product, cost)		2 hours
5. Planning tools - planning, estimating and managing resources		4 hours
6. Project team management - influence, leadership, team building, conflict management		2 hours
7. Risk and problem management in a project. Identification of risk elements in a project		2 hours
8. Project planning. Analysis, planning, and elaboration of the structure of a project		4 hours
9. Project monitoring and control techniques		4 hours
10. Final evaluation		2 hours
Bibliography		
1. The APM Project Management Body of Knowledge, 6th Edition,(2012), Association for Project Management. E. book available.		
2. J Cadle and D Yeates; Project Management for Information Systems (2008) Pearson Education Limited. E book available.		
3. The Microsoft Dynamics AX Team, Inside Microsoft Dynamics AX 2012 R3, Microsoft Press, 2014, ISBN 073568510X		
4. Andreas Luszczak, Using Microsoft Dynamics AX 2012: Updated for Version R2, Springer Vieweg; 3rd ed. 2013, ISBN 3658017082		
5. Keith Dunkinson, Andrew Birch, Implementing Microsoft Dynamics AX 2012 with Sure Step 2012, Packt Publishing, 2013, ISBN 1849687048		

6. Mohamed Aamer, Microsoft Dynamics AX 2012 Financial Management, Packt Publishing, 2013, ISBN 1782177205
7. Simon Buxton, Microsoft Dynamics AX 2012 R2 Administration Cookbook, Packt Publishing, 2013, ISBN 1849688060
8. Kamalakannan Elangovan, Microsoft Dynamics AX 2012 Reporting Cookbook, Packt Publishing, 2013, ISBN 1849687722
9. Microsoft CustomerSource Portal (<https://mbs.microsoft.com/customersource>) – Materiale e-Learning
10. <https://e.uoradea.ro/course/view.php?id=6252> Materials (courses and project)

9. Corroboration of the discipline content with the expectations of the representatives of epistemological community, professional associations and representative employers in the field related to the program

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10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percent from the final mark
10.4 Course	<p>Minimum required conditions for passing the exam (mark 5): in accordance with the minimum performance standard: 50% of the subjects from the final exam should be correctly solved</p> <p>For 10: 100% of the subjects from the final exam should be correctly solved</p>	Semester exam – oral	60%
10.5 Academic seminar	-	-	-
10.6 Laboratory	-	-	-
10.7 Project	<p>Minimum required conditions for promotion (grade 5): in accordance with the minimum performance standard: 50% of the practical application should be correctly solved</p> <p>- For 10: 100% of the practical application should be correctly solved</p>	Practical applications - oral presentation	40%
<p>10.8 Minimum performance standard: Course: 50% of the maximum score of the final exam Academic seminar: Laboratory: Project: 50% of the maximum score of the project evaluation</p>			

Course instructor

Head of department

Completion date:
03.09.2024

prof. dr. ing. Győrödi Robert
E-mail: rgyorodi@uoradea.ro

Conf.univ. dr. Elisa Valentina Moisi

**Date of endorsement in the
department:**
05.09.2024

**Date of endorsement in the Faculty
Board:**
10.09.2024

SUBJECT DESCRIPTION

1. Data related to the study program

1.1 Higher education institution	UNIVERSITY OF ORADEA
1.2 Faculty	Faculty of Electrical Engineering and Information Technology
1.3 Department	Department of Computers and Information Technology
1.4 Field of study	Computers and Information Technology
1.5 Study cycle	Master (2nd cycle)
1.6 Study program/Qualification	Management in Information Technology / Master of Science in Engineering

2. Data related to the subject

2.1 Name of the subject	Critical Systems Management						
2.2 Holder of the subject	assistant professor dr. ing. Poszet Otto						
2.3 Holder of the academic seminar/laboratory/project	assistant professor dr. ing. Poszet Otto						
2.4 Year of study	2	2.5 Semester	1	2.6 Type of the evaluation	Ex.	2.7 Subject regime	THD

3. Total estimated time (hours of didactic activities per semester)

3.1 Number of hours per week	3	of which: 3.2 course	2	3.3 academic seminar/laboratory/project	0/1/0
3.4 Total of hours from the curriculum	42	Of which: 3.5 course	24	3.6 academic seminar/laboratory/project	0/14/0
Distribution of time					hours
Study using the manual, course support, bibliography, and handwritten notes					42
Supplementary documentation using the library, on field-related electronic platforms and in field-related places					7
Preparing academic seminars/laboratories/ themes/ reports/ portfolios and essays					28
Tutorials					3
Examinations					3
Other activities.					
3.7 Total of hours for individual study	83				
3.9 Total of hours per semester	125				
3.10 Number of credits	5				

4. Pre-requisites (where applicable)

4.1 related to the curriculum	
4.2 related to skills	

5. Conditions (where applicable)

5.1. for the development of the course	The course can be conducted face to face with a projector or online.
5.2. for the development of the academic seminary/laboratory/project	The laboratory can be carried out face to face or online, using personal computers.

6. Specific skills acquired

Professional skills	<ul style="list-style-type: none"> ▪ Learning advanced methods for error control and fault tolerance in critical fault computing systems ▪ Comparative analysis of constructive solutions for safety critical systems ▪ Use of methods and tools for assessing the reliability and risk of critical systems ▪ Modeling safety critical systems ▪ Application of fault tolerance techniques to the design of failure critical systems
Transversal skills	<ul style="list-style-type: none"> ▪ Honorable, responsible, ethical conduct in the spirit of the law to ensure the reputation of the profession ▪ Clear and concise written description of the results in the field of activity, including by consulting documentation in a language of international circulation

7. The objectives of the discipline (resulting from the grid of the specific competences acquired)

7.1 The general objective of the subject	<ul style="list-style-type: none"> ▪ Knowledge of the main concepts and techniques of fault tolerance and analysis in critical systems
7.2 Specific objectives	<ul style="list-style-type: none"> ▪ Deepening the theoretical notions of designing critical calculation systems for defects through examples and concrete exercises ▪ Knowledge of methods for assessing the dependability

8. Contents*

8.1 Course	Teaching methods	No. of hours/ Observations
Embedded systems. Examples of critical systems.	Lecture	2
Functional safety.	Lecture	2
Dependability.	Lecture	2
Risk analysis.	Lecture	2
Design of critical systems.	Lecture	2
Critical systems architecture.	Lecture	2
Design of fail-safe systems.	Lecture	2
Design of fail-operate systems (I).	Lecture	2
Design of fail-operate systems (II).	Lecture	2
The influence of the human factor.	Lecture	2
Integrated testing.	Lecture	2
Anomaly detection.	Lecture	2
Coverage indicators.	Lecture	2
Verification by simulation.	Lecture	2
Bibliography 1. M. Borzano, A. Willafiorita: Design and Safety Assessment of Critical Systems, CRC Press, 2011. 2. N. G. Leveson: Safeware, Addison-Wesley, 1995. 3. N. Storey: Safety-Critical Computing Systems, 1996. 4. Hobbs, Chris: Embedded software development for safety-critical systems, CRC Press, 2016. 5. W. R. Dunn, Practical Design of Safety-Critical Computer Systems, Reliability Press, 2002. 6. Birman, Kenneth P.: Reliable Distributed Systems. Technologies, Web Services and Applications, Springer Science and Business Media, Inc., 2005.		
8.2 Laboratory	Teaching methods	No. of hours/ Observations
Defining the requirements of critical systems. Standards.	Exemplification, debate	2

Case study (I).	Exemplification, debate	2
FMEA method.	Exemplification, debate	2
Fault tree.	Exemplification, debate	2
Case study (II).	Exemplification, debate	2
The risk matrix.	Exemplification, debate	2
Conclusions and closure of the situation.	Reports presentation, questions	2
Bibliography 1. Software tools for safety design: http://www.safeware-eng.com ; https://www.weibull.com/		

9. Corroboration of the discipline content with the expectations of the representatives of epistemological community, professional associations and representative employers in the field related to the program

- The discipline provides theoretical and practical knowledge directly applicable in the computer industry and in the field of information technology services.

10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percent from the final mark
10.4 Course	Minimum required conditions for passing the exam (mark 5): in accordance with the minimum performance standard	Exam.	70%
10.5 Academic seminar			
10.6 Laboratory	Minimum required conditions for promotion (grade 5): in accordance with the minimum performance standard	Report. Defence.	Condition + 30%
10.7 Project			
10.8 Minimum performance standard: Course: Pass mark from 50% of the requirements met. Academic seminar: Laboratory: Pass. Project:			

Completion date:
02.09.2024

Signature of the course owner
Ș.L.Dr.Ing. Otto POSZET
poszet@uoradea.ro

Signature of the seminar/
laboratory/project owner
Ș.L.Dr.Ing. Otto POSZET
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Date of endorsement in the
department:
05.09.2024.

Signature of Department Director
Conf.Dr. Inf. Elisa Valentina MOISI
emoisi@uoradea.ro

Date of endorsement in the
Faculty Board:
10.09.2024.

Signature of Dean
Conf.Dr. Ing. Eugen Ioan GERGELY
egergely@uoradea.ro

SUBJECT DESCRIPTION

1. Data related to the study program

1.1 Higher education institution	UNIVERSITY OF ORADEA
1.2 Faculty	Faculty of Electrical Engineering and Information Technology
1.3 Department	Department of Computers and Information Technology
1.4 Field of study	Computers and information technology
1.5 Study cycle	Master (2 nd cycle)
1.6 Study program/Qualification	Management in Information Technology / Master Engineer

2. Data related to the subject

2.1 Name of the subject		Information management and multimedia					
2.2 Holder of the subject		Assoc. Prof. Eng.PhD. Gabor Gianina Adela					
2.3 Holder of the academic seminar/laboratory/project		Assoc.Prof. Eng.PhD. Gabor Gianina Adela					
2.4 Year of study	2 nd	2.5 Semester	2 nd	2.6 Type of the evaluation	Examination	2.7 Subject regime	Synthesis Discipline

3. Total estimated time (hours of didactic activities per semester)

3.1 Number of hours per week	4	of which: 3.2 course	2	3.3 laboratory	2
3.4 Total of hours from the curriculum	42	of which: 3.5 course	28	3.6 laboratory	28
Distribution of time					hours
Study using the manual, course support, bibliography and handwritten notes					20
Supplementary documentation using the library, on field-related electronic platforms and in field-related places					32
Preparing academic seminars/laboratories/ themes/ reports/ portfolios and essays					32
Tutorials					4
Examinations					6
Other activities.					
3.7 Total of hours for individual study	94				
3.9 Total of hours per semester	150				
3.10 Number of credits	6				

4. Pre-requisites (where applicable)

4.1 related to the curriculum	(Conditions)
4.2 related to skills	

5. Conditions (where applicable)

5.1. for the development of the course	face to face or online projector and access to Internet
5.2.for the development of the academic seminary/laboratory/project	face to face or online every student has access to a computer connected to Internet and with access to the applications/software used during the labs
6. Specific skills acquired	

Professional skills	<p>CP1. Software components design and their management through databases</p> <p>CP3. Design and management of secure computing systems.</p>
Transversal skills	

7. The objectives of the discipline (resulting from the grid of the specific competences acquired)

7.1 The general objective of the subject	<ul style="list-style-type: none"> ▪ Know and understand the information management concept in multimedia systems, how to use and develop multimedia applications and presentations, use the acquired knowledge to develop a multimedia web presentations using XHTML+TIME, SMILE, HTML5+CSS3 and Javascript
7.2 Specific objectives	

8. Contents*

8.1 Course	Teaching methods	No. of hours/ Observations
Characteristic elements of XHTML+Time, XHTML+Time document structure, timing attributes	lecture & debate	2
Association of XHTML + Time elements and methods used to insert multimedia objects	lecture & debate	2
HTML+Time support for synchronized execution and methods used to add animation effects	lecture & debate	2
Transition effects associated to XHTML+Time elements, multimedia elements display modes	lecture & debate	2
Document Object Model for XHTML+Time & define pattern presentation	lecture & debate	2
SMIL (Synchronized Multimedia Integration Language) - basic concepts, main modules, the structure of a SMIL document	lecture & debate	4
SMIL methods used to include multimedia objects, multimedia file types	lecture & debate	2
Animating SMIL elements and adaptive alternative presentation	lecture & debate	2
SMIL - hyperlinks and element synchronization	lecture & debate	2
SMIL - transition effects and document processing	lecture & debate	2
The structure of a multimedia web presentation, HTML5 multimedia elements used to develop and implement a web presentation	lecture & debate	2
CSS3 and Javascript elements used in an interactive multimedia presentation	lecture & debate	2
Information management of multimedia systems, the quality of multimedia systems, Information management in distributed multimedia systems	lecture & debate	2
Bibliography Julie C. Meloni, HTML, CSS, and JavaScript All in One, 3rd edition, Editura SAMS, 2019, ISBN 32372186 Jon Duckett, Web Design with HTML, CSS, JavaScript and jQuery Set, John Wiley and Sons Inc., 2014, ISBN10 1118907442, ISBN13 9781118907443 http://homepages.cwi.nl/~media/SMIL/Tutorial/SMILTut.html/ accessed 1.09.2012 J.C. Teague, <i>DHTML și CSS</i> , Editura Teora, București, 2007		

<p>Sabin Buraga, <i>Tehnologii XML</i>, Editura Polirom, Iași, 2006 M.Brut, S.Buraga, <i>Prezentări multimedia pe Web</i>, Editura Polirom, 2004 Ștefan Trausan-Matu, <i>Prelucrarea documentelor XML</i>, Editura Teora, București, 2003 Bogdan Ghilic, Marian Stoica, <i>eActivitățile în societatea informațională</i>, Editura Economica, București, 2002</p>		
8.3 Laboratory	Teaching methods	No. of hours/ Observations
HTML, XHTML, CSS	discuss examples and assign problems to solve	2
XHTML + Time document structure , XHTML+ Time timing attributes, methods used to asociate actions to elements	discuss examples and assign problems to solve	2
XHTML + Time - methods used to insert multimedia objects	discuss examples and assign problems to solve	2
XHTML + Time - methods used for temporal containers and special animation elements	discuss examples and assign problems to solve	2
XHTML + Time – methods used to assign transition attributes, multimedia display and properties	discuss examples and assign problems to solve	2
XHTML + Time - events, special objects and case studies	discuss examples and assign problems to solve	2
SMIL – specific modules, document structure	discuss examples and assign problems to solve	2
SMIL – presentation patterns, methods used to insert multimedia objects	discuss examples and assign problems to solve	2
SMIL – asociere animație elemente & sincronizare elemente	discuss examples and assign problems to solve	2
SMIL – establish links and synchronize elements	discuss examples and assign problems to solve	2
HTML5 - define the structure of a web multimedia presentation, develop and implement a web presentation using HTML5 multimedia elements	discuss examples and assign problems to solve	2
CSS3 - include CSS3 elements in the developed and implemented web presentation	discuss examples and assign problems to solve	2
Include Javascript multimedia elements in the implemented web presentation	discuss examples and assign problems to solve	2
Show the web multimedia presentation developed and implemented with HTML5, CSS3 and Javascript	discuss examples and assign problems to solve	2
<p>Bibliography Julie C. Meloni, HTML, CSS, and JavaScript All in One, 3rd edition, Editura SAMS, 2019, ISBN 32372186 Jon Duckett, Web Design with HTML, CSS, JavaScript and jQuery Set, John Wiley and Sons Inc., 2014, ISBN10 1118907442, ISBN13 9781118907443 http://homepages.cwi.nl/~media/SMIL/Tutorial/SMILTut.html/ accessed 1.09.2012 T.Gugoiu, <i>HTML, XHTML, CSS si XML prin exemple</i>, Editura Teora, Bucuresti, 2005 Adrian Vasilescu, <i>Tehnologiile XML</i>, Editura Economica, Bucureș ti, 2005 M.Brut, S.Buraga, <i>Prezentări multimedia pe Web</i>, Editura Polirom, Iași, 2004</p>		

9. Corroboration of the discipline content with the expectations of the representatives of epistemological community, professional associations and representative employers in the field related to the program

<ul style="list-style-type: none"> through the information contained in the lecture and labs the students gain consistent knowledge matching with the required skills
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10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percent from the final mark
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10.4 Course	Minimum required conditions for passing the exam (mark 5): in accordance with the minimum performance standard For 10: in accordance with the maximum performance standard	face to face or online oral based on assignments and the implementation of a web presentation	50%
10.6. Laboratory	Minimum required conditions for promotion (grade 5): in accordance with the minimum performance standard For 10: in accordance with the maximum performance standard	face to face or online oral based on assignments and laboratory work	50%
10.8 Minimum performance standard: Course: 5 Laboratory: 5			

Completion date: 2.09.2024

Date of endorsement in the department: 5.09.2024

Date of endorsement in the Faculty Board: 10.09.2024