

## SUBJECT DESCRIPTION

### 1. Data related to the study program

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

### 2. Data related to the subject

2.1 Name of the subject	<b>Advanced management methods</b>						
2.2 Holder of the subject	<b>Assoc.prof. PhD eng.ec. Liliana Doina M gdoiu</b>						
2.3 Holder of the academic seminar/laboratory/project	<b>Assoc.prof. PhD eng.ec. Liliana Doina M gdoiu</b>						
2.4 Year of study	<b>I</b>	2.5 Semester	<b>1</b>	2.6 Type of the evaluation	<b>Ex</b>	2.7 Subject regime	<b>THD</b>

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

3.1 Number of hours per week	<b>4</b>	of which: 3.2 course	<b>2</b>	3.3 academic seminar/laboratory/project	<b>2</b>
3.4 Total of hours from the curriculum	<b>56</b>	Of which: 3.5 course	<b>28</b>	3.6 academic seminar/laboratory/project	<b>28</b>
Distribution of time					68h
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					10
Preparing academic seminars/laboratories/ themes/ reports/ portfolios and essays					20
Tutorials					
Examinations					9
Other activities.					
<b>3.7 Total of hours for individual study</b>	<b>69</b>				
<b>3.9 Total of hours per semester</b>	<b>125</b>				
<b>3.10 Number of credits</b>	<b>5</b>				

### 4. Pre-requisites (where applicable)

4.1 related to the curriculum	Knowledge of the General Management course
4.2 related to skills	

### 5. Conditions (where applicable)

5.1. for the development of the course	- attending at least 50% of the course - the course can be held face to face or online
5.2. for the development of the academic seminar/laboratory/project	- Mandatory attendance at all seminars; - Students come with observed seminar papers - A maximum of 3 seminars can be recovered during the semester (30%); - Attendance at seminar hours below 70% leads to the restoration of the

	discipline - The seminar can be held face to face or online
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## 6. Specific skills acquired

Professional skills	<p><b>C1.</b> Knowledge of the main types of processes and phenomena of economic communication, of the theoretical elements of microeconomics and practical aspects regarding the economic-financial flows at business level</p> <p><b>C4.</b> Development and evaluation of technical, economic and financial flows at business level, advanced management methods</p>
Transversal skills	<p><b>TC3.</b> Identifying opportunities for continuous training and efficient use, for one's own development, of information sources and of communication resources and assisted professional training (Internet portals, specialized software applications, databases, online courses, etc.) both in Romanian, as well as in a language of international circulation.</p>

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

7.1 The general objective of the subject	Familiarization of students with the main management methods in emergency situations
7.2 Specific objectives	<p>The course aims to present the theoretical elements of the emergency situation in case of fire</p> <p>The seminar familiarizes students with practical aspects of operational interactions for change management in a complex context</p>

## 8. Contents\*

8.1 Course	Teaching methods	No. of hours/ Observations
Chapter 1. Fire - phenomenon - event	Free exposure, with the presentation on-line	2 h
Chapter 2. Fire safety performance a constructions	Free exposure, with the presentation on-line	2 h
Chapter 3. Methods for calculating the load and thermal density of fire	Free exposure, with the presentation on-line	2 h
Chapter 4. Technical causes of fire - their establishment and research	Free exposure, with the presentation on-line	4 h
Chapter 5. Technical fire prevention systems	Free exposure, with the presentation on-line	2 h
Chapter 6. Technical fire extinguishing systems	Free exposure, with the presentation on-line	4 h

Chapter 7. Fire risk management	Free exposure, with the presentation on-line	4 h
Chapter 8. Methods of identification and assessment of fire risk	Free exposure, with the presentation on-line	2 h
Chapter 9. Fire defense management in a goal	Free exposure, with the presentation on-line	2 h
Chapter 10. Control of fire prevention and extinguishing installations	Free exposure, with the presentation on-line	2 h
Total		28 h
<b>Bibliography</b> 1. Crăciun, Ionel, <b>Managementul situațiilor de urgență</b> , Vol. II, Editura Bren, București, 2006 2. Crăciun, Ionel; Udor, Aurel, <b>Riscuri generatoare de situații de urgență și managementul riscurilor de incendiu</b> , Editura Stadiform, București, 2009 3. Bălulescu, Pompiliu; Crăciun, Ionel, <b>Agenda pompierului</b> , Ediția a II-a revizuită și adăugită, Editura Imprimeriei de Vest, Oradea, 2009 4. Crăciun, Ionel, <b>Servicii de urgență</b> , Editura Contrast, București, 2009 5. Calotă, Sorin ș.a., <b>Manualul pompierului</b> , Editura Imprimeriei de Vest, Oradea, 2009 6. Crăciun, Ionel; Calotă, Sorin; Lencu, Victor, <b>Stabilirea și prevenirea cauzelor de incendiu</b> , Editura Tehnică, Ediția a II-a, București, 2001 7. Bălulescu, Pompiliu; Crăciun, Ionel, <b>Agenda pompierului</b> , Editura Tehnică, București, 1993 8. Bălulescu, Pompiliu; Călinescu, Vasile, <b>Instalații automate de detectare și stingere a incendiilor</b> , Editura tehnică, București, 1977 9. Udor, Aurel; Nour, Aurel, <b>Securitatea națională și managementul situațiilor de urgență generate de insecuritatea obiectivelor economice importante</b> , Editura Stadiform, București, 2007 10. *** <b>Ghidul serviciilor voluntare și private pentru situații de urgență - SVPSU</b> , Editura Contrast, București, 2009		
8.2 Academic seminar/laboratory/project	Teaching methods	No. of hours/ Observations
1. Report: Emergency situations caused by fire	Students receive homework for the seminar papers or choose their homework at least a week in advance, study, design the papers and present them at the seminar. Appreciations and comments are made under the guidance of the teacher.	4 h
2. Paper: On the combustibility of materials and substances		4 h
3. Paper: Fire resistance and stability		4 h
4. Report: Calculation of load and thermal density of fire		4 h
5. Report: Technical causes of fire		4 h
6. Paper: Technical fire prevention and extinguishing systems		4 h
7. Paper: The concept of fire risk management		4 h
Total:		28 h
Bibliography It is the one indicated for the course		















6. Specific skills acquired
<p><b>CT1.</b> Responsibly apply the principles, norms and values of professional ethics in order to achieve the goals and identify the objectives, the available resources, the steps to be done and time spent for finishing the works, the deadlines, and the risks involved.</p>

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

7.1 The general objective of the subject	Knowledge, understanding, explanation and interpretation of concepts specific to ethics and integrity in scientific research for their application in the development of a responsible professional career.
7.2 Specific objectives	The course aims to familiarize students with the notions of ethics, integrity in scientific research; acquiring the knowledge and skills necessary to apply the rules of ethics in scientific research

**8. 8. Contents**

8.1.Course	Teaching methods	No. of hours/ Observations
The concept of ethics; general aspect of the ethics in scientific research. Regulations on ethics in Romanian universities.	Free exposure, with the presentation of the course with video projector, on the board or online	4h
Integrity in the educational system: integrity standards, promotion of academic integrity, violations of academic integrity, good practices.	Free exposure, with the presentation of the course with video projector, on the board or online	2h
Ethical issues of research and publication: plagiarism, forms of plagiarism. Other forms of academic dishonesty.	Free exposure, with the presentation of the course with video projector, on the board or online	4h
Justice and equity in academic organizations and research teams. Legal provisions applicable to the ethics and integrity of scientific research.	Free exposure, with the presentation of the course with video projector, on the board or online	2h
Elaboration of a scientific paper according to the principles of ethics and academic integrity	Free exposure, with the presentation of the course with video projector, on the board or online	2h







attributes.2.4. Product name and brand 2.4.1. name 2.4.2. mark 2.5. Product life cycle. 2.6.The PLM (Product Lifecycle Management) concept	video projector, on the board or online	
Chapter III. Computer integrated production (CIP) 3.1. The CIP principle 3.2. CIP facilities 3.3. Modeling and simulation in CIP hypersystems 3.4. The control system architecture of a CIP hypersystem 3.5.Advantages and disadvantages of the CIP hypersystem	Free exposure, with the presentation of the course with video projector, on the board or online	1h
Chapter 4.Automated Storage and Retrieval System (ASRS) 4.1. Development of automatic storage and retrieval systems 4.2. Deposit functions 4.3. Classification of deposits 4.4. Retrieval systems. 4.5. Fixed and mobile storage (support) structures 4.6. Shelves	Free exposure, with the presentation of the course with video projector, on the board or online	1h
Chapter. V. Automated Storage and Retrieval System (ASRS) 5.1. Means for serving storage structures 5.2. Automatic warehouse control systems 5.3. ASRS control system architecture 5.4. Strategies for managing automatic deposits 5.5. The advantages of automatic storage systems are as follows 5.6. Cost optimization using ASRS systems	Free exposure, with the presentation of the course with video projector, on the board or online	1h
Chapter 6. AGVS (Automated Guided Vehicles System) 6.1. The structure of a robocar 6.2. Navigation of AGV systems 6.2.1. Navigation using radiofrequency 6.2.2. Navigation using tapes (magnetic or colored) 6.2.3. Laser navigation 6.2.4. Gyroscopic navigation	Free exposure, with the presentation of the course with video projector, on the board or online	1h
Chapter 7. AGVS (Automated Guided Vehicles System) 7.1. Management of the AGV system 7.2. Robot traction system 7.3. Robot steering system 7.4. Kinematics of robot steering 7.5. Precisely stopping the robots 7.6. On-board microcomputer 7.7. Security systems 7.8. The main types of AGV- used in industry	Free exposure, with the presentation of the course with video projector, on the board or online	1h
Chapter 8.Flexible Manufacturing Systems (SFF) 8.1. General structure of manufacturing systems 8.2. Analysis of flexible manufacturing systems 8.3. Synthesis of manufacturing flows in flexible manufacturing systems 8.4. The need to model and simulate the management and operation of flexible manufacturing systems 8.5. Mathematical modeling of flexible manufacturing systemS	Free exposure, with the presentation of the course with video projector, on the board or online	1h
Head. IX. Computer Aided Quality Assurance CAQ, CAT 9.1. Quality assurance system 9.2. Quality management 9.3. Using the computer in testing	Free exposure, with the presentation of the course with video projector, on the board or	1h

	online	
Chapter 10..Computer aided design CAD / CAM 10.1. Definition of CAD / CAM 10.2. CAD / CAM content 10.3. CAD / CAM development history 10.4. Production cycle and CAD / CAM	Free exposure, with the presentation of the course with video projector, on the board or online	1h
Chapter 11.Computer aided design CAD / CAM 11.1. The structure of a design and manufacturing process 11.2. Computer aided design, CAD 11.3. Computer Aided Manufacturing, CAM 11.4. CAD / CAM tools 11.5. Study and design of computer aided electrical devices	Free exposure, with the presentation of the course with video projector, on the board or online	1h
Chapter 12.Computer Aided Engineering, CAE	Free exposure, with the presentation of the course with video projector, on the board or online	1h
Chapter 13.Computer Aided Technology Design, CAPP	Free exposure, with the presentation of the course with video projector, on the board or online	1h
Chapter 14.Computer Aided Production Planning, Preparation and Tracking, CAPS	Free exposure, with the presentation of the course with video projector, on the board or online	1h
<b>Bibliography</b> <ol style="list-style-type: none"> <li>1. Abrudan Ioan, <i>Sisteme flexibile de fabrica ie</i>, Editura Dacia, Cluj-Napoca. 1996.</li> <li>2. Ceașu Iulian: <i>Dic ionar enciclopedic managerial</i>, vol. I, Ed. Academică de management, București 2000.</li> <li>3. Ciobanu Gh., Rada I.C.: <i>Managementul afacerilor economice interna ionale</i>, Casa de Presă și Editură „Anotimp”, Oradea, 2000.</li> <li>4. Drăgoi George, <i>Sisteme integrate de produc ie</i>, Editura Tehnică, Buc., 2000.</li> <li>5. Florian Lungu, <i>Modelarea func ion rii sistemelor flexibile de fabrica ie cu ajutorul teoriei jocurilor</i>, Editura Dacia, Cluj-Napoca, 2006.</li> <li>6. Lucian Ciobanu, <i>Sisteme flexibile de fabrica ie</i>, Univ. Gh. Asachi, Iași 2003.</li> <li>7. Lazar Ioan, Mortan Maria, Vere Vicențiu, Lazar Sorin Paul, <i>Management General</i>, Ed.</li> </ol>		

RISOPRINT, Cluj-Napoca, 2004.

8. Cazimir Bohosievici, *Modelarea i optimizarea proceselor de fabrica ie*, Editura Junimea Iași, 1999.
9. Constantin Alexandru Pop, *Sisteme de fabrica ie*, Editura Universității Tehnice, Cluj-Napoca, 2006.
10. Dănălache Florin, *Management industrial*, Editura PRINTECH, 2004.
11. Florea Dorel Anania, Claudiu Florinel Bâșu, *Concep ie i fabrica ie integrate, Aplica ii*. Editura BREN, 2005.
12. Florin Gheorghe Filip, Boldur Bărbat, *Informatica industrial . Noi paradigme i aplica ii*. Editura Tehnică, 1999.
13. Gabriel Burlacu, *Fiabilitatea, mentenabilitatea i disponibilitatea sistemelor tehnice*, Editura MATRIXROM, 2005.
14. Gheorghe Rădoi, Marius Guran, *Sisteme integrate de produc ie asistate de calculator*, Editura Tehnică, București, 1997.
15. Horia Liviu Popa, *Teoria i ingineria sistemelor. Concepte, modele, metode, competitivitate*, Editura Politehnica Timișoara, 2003.
16. Ioan Gâf-Deac, *Dezvoltarea structural a tehnologiilor moderne*, Editura ALL BECK, 2001.
17. Ispas C., Masala I., Zapciu M., Mohora C., *CIM – Computer Integrated Manufacturing. Indrumar de proiectare*. Editura BREN; București, 1999.
18. Kovacs Francisc ș.a., *Fabrica viitorului. Introducere în productic : integrarea prin calculator a concep iei, fabrica iei i managementului* , Editura Multimedia Internațional, Arad, 1999.
19. Marius Cioca, *Conducerea asistat a unit ilor economice*, Editura Universității „Lucian Blaga” din Sibiu, 2004.
20. Vitriciu Mătieș, *Tehnologie i educa ie mecatronic* , Editura Todesco, Cluj-Napoca, 2001.
21. Șt. Nagy, Ioan C-tin Rada – „Sisteme avansate de produc ie (Note de curs)”, Editura Asociației „Societatea Inginerilor de Petrol și Gaze”, 232 pg., 2008, [ISBN 978-973-88615-7-2], curs format electronic.
22. Șt. Nagy – „Sisteme avansate în procesele de produc ie”, Editura Universității din Oradea, 252 pg., 2011, [ISBN 978-606-10-0486-7].
23. Șt. Nagy, Ioan C-tin Rada – „Sisteme avansate de produc ie. (Aplica ii)”, Editura Asociației „Societatea Inginerilor de Petrol și Gaze”, 232 pg., 2008, [ISBN 978-973-88615-8-9], aplicații format electronic.

8.2 Academic laboratory	Teaching methods	No. of hours/ Observations
1.Product and product life cycle	During the laboratory classes, the aim was to acquire the	4h
Computer integrated production (CIP)		4h
3.Automated Storage and Retrieval System (ASRS)		4h
4.AGVS (Automated Guided Vehicles System)		4h
5.Computer Aided Quality Assurance CAQ, CAT		4h







## SUBJECT DESCRIPTION

### 1. Data related to the study program

1.1 Higher education institution	<b>UNIVERSITY OF ORADEA</b>
1.2 Faculty	<b>Faculty of Electrical Engineering and Information Technology</b>
1.3 Department	<b>Department of Control Systems Engineering and Management</b>
1.4 Field of study	<b>Engineering and management</b>
1.5 Study cycle	<b>Master (2<sup>nd</sup> cycle)</b>
1.6 Study program/Qualification	<b>Management and Communication in Engineering / Master of Science in Engineering</b>

### 2. Data related to the subject

2.1 Name of the subject	<b>Fundamentals of economic communication</b>						
2.2 Holder of the subject	<b>Assoc.prof. PhD eng.ec. Liliana Doina M gdoiu</b>						
2.3 Holder of the academic seminar	<b>Assoc.prof. PhD eng.ec. Liliana Doina M gdoiu</b>						
2.4 Year of study	<b>I</b>	2.5 Semester	<b>1</b>	2.6 Type of the evaluation	<b>Ex</b>	2.7 Subject regime	<b>THD</b>

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

3.1 Number of hours per week	<b>3</b>	of which: 3.2 course	<b>2</b>	3.3 academic laboratory	<b>1</b>
3.4 Total of hours from the curriculum	<b>42</b>	Of which: 3.5 course	<b>28</b>	3.6 academic laboratory	<b>14</b>
Distribution of time					hours
Study using the manual, course support, bibliography and handwritten notes					46
Supplementary documentation using the library, on field-related electronic platforms and in field-related places					24
Preparing academic seminars/laboratories/ themes/ reports/ portfolios and essays					30
Tutorials					2
Examinations					6
Other activities.					
<b>3.7 Total of hours for individual study</b>	<b>108</b>				
<b>3.9 Total of hours per semester</b>	<b>150</b>				
<b>3.10 Number of credits</b>	<b>6</b>				

### 4. Pre-requisites (where applicable)

4.1 related to the curriculum	(Conditions) Knowledge of the Basics of Economics and General Economics
4.2 related to skills	

### 5. Conditions (where applicable)

5.1. for the development of the course	- Attendance at least 50% of the courses - The course can be held face to face or online
5.2. for the development of the academic seminary/laboratory/project	- Mandatory presence at all seminars; - The can be carried out face to face or online - Students come with the observed seminar papers - A maximum of 4 works can be recovered during the semester (30%);



<b>4. Written communication</b>	Free exposure, with the presentation of the course with video projector, on the board or online	2h
<b>5. Negotiation. The concept of negotiation</b>	Free exposure, with the presentation of the course with video projector, on the board or online	3h
<b>6. Basic principles in the negotiation process</b>	Free exposure, with the presentation of the course with video projector, on the board or online	3h
<b>7. The function of negotiation - the profile of the negotiator</b>	Free exposure, with the presentation of the course with video projector, on the board or online	3h
<b>8. Contract negotiation</b>	Free exposure, with the presentation of the course with video projector, on the board or online	3h
<b>9. Selling techniques. The concept of sale</b>	Free exposure, with the presentation of the course with video projector, on the board or online	3h
<b>10. Product presentation and the art of negotiation</b>	Free exposure, with the presentation of the course with video projector, on the board or online	3h
<p><b>Bibliography</b></p> <p>1. Rada, Ioan Constantin; Măgdoiu, Liliana Doina, <b>Management general</b>, Editura Asociației „Societatea Inginerilor de Petrol și Gaze”, București, 2009, CD-ROM</p> <p>2. Rada, Ioan Constantin; Rica, Ivan; Măgdoiu, Liliana Doina, <b>Tehnici de negociere</b>, Editura Universității din Oradea, 2011, CD-ROM</p> <p>4. Măgdoiu, Liliana Doina, <b>Management și Comunicare în Ingineria Economică</b>, Ed. CA Publishing, Cluj-Napoca, 2012</p> <p>5. Rada, Ioan Constantin, <b>Economie generală I</b>, Editura Asociației „Societatea Inginerilor de Petrol și Gaze”, București, 2009, CD-ROM</p> <p>6. Rada, Ioan Constantin, <b>Economie generală II</b>, Editura Asociației „Societatea Inginerilor de Petrol și Gaze”, București, 2009, CD-ROM</p> <p>7. Rada, Ioan Constantin <b>Microeconomie. Idei moderne. Vol. I</b>, Editura Asociației „Societatea Inginerilor</p>		





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### 1. Data related to the study program

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1.3 Department	<b>Department of Control Systems Engineering and Management</b>
1.4 Field of study	<b>Engineering and management</b>
1.5 Study cycle	<b>Master (2<sup>nd</sup> cycle)</b>
1.6 Study program/Qualification	<b>Management and Communication in Engineering / Master of Science in Engineering</b>

### 2. Data related to the subject

2.1 Name of the subject	<b>Managerial informatics</b>						
2.2 Holder of the subject	<b>Assoc.prof. PhD eng.ec. Dragos Spoiala</b>						
2.3 Holder of the academic laboratory	<b>Assoc.prof. PhD eng.ec. Dragos Spoiala</b>						
2.4 Year of study	<b>I</b>	2.5 Semester	<b>2</b>	2.6 Type of the evaluation	<b>Ex</b>	2.7 Subject regime	<b>THD</b>

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

3.1 Number of hours per week	<b>3</b>	of which: 3.2 course	<b>2</b>	3.3 academic laboratory	<b>1</b>
3.4 Total of hours from the curriculum	<b>42</b>	Of which: 3.5 course	<b>28</b>	3.6 academic laboratory	<b>14</b>
Distribution of time					hours
Study using the manual, course support, bibliography and handwritten notes					36
Supplementary documentation using the library, on field-related electronic platforms and in field-related places					17
Preparing academic seminars/laboratories/ themes/ reports/ portfolios and essays					24
Tutorials					
Examinations					6
Other activities.					
<b>3.7 Total of hours for individual study</b>	<b>83</b>				
<b>3.9 Total of hours per semester</b>	<b>125</b>				
<b>3.10 Number of credits</b>	<b>5</b>				

### 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	<ul style="list-style-type: none"> <li>- Attendance at least 50% of the courses</li> <li>- The course can be held face to face or online</li> </ul>
5.2. for the development of the academic seminary/laboratory/project	<ul style="list-style-type: none"> <li>- The computer network in the laboratory to work, with the Linux program installed</li> <li>- Mandatory presence at all laboratories</li> <li>- Students come with laboratory papers theoretically known</li> </ul>



	<ul style="list-style-type: none"> <li>- A maximum of 2 works can be recovered during the semester (30%)</li> <li>- The laboratory can be carried out face to face or online</li> <li>- The frequency at project hours below 70% leads to the restoration of the discipline</li> </ul>
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### 6. Specific skills acquired

Professional skills	<p><b>C2.</b> Knowledge of electrical power sources, knowledge of business software, computer management, drafting and interpreting technical documentation.</p> <p><b>C4.</b> Development and evaluation of technical flows, financial economic and business level, advanced management methods.</p> <p><b>C5.</b> Project management and enterprise of electrical, electronic and energy marketing and economic agreements.</p> <p><b>C6.</b> Knowledge of key issues in the field of communication and management in engineering and from the interference of fields</p>
Transversal skills	<p><b>TC2.</b> Identify the roles and responsibilities of each member of a pluri-disciplinary team and apply efficient work and relational techniques inside the team</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"> <li>• The discipline has as objective the reasoned use of concepts in informatics and computer technology in solving well-defined problems in engineering and management and in applications that require the use of hardware and software in industrial systems or computer systems.</li> </ul>
7.2 Specific objectives	<ul style="list-style-type: none"> <li>• Application of basic principles and methods for planning, programming and management of enterprises in conditions of qualified assistance</li> </ul>

### 8. Contents\*

8.1 Course	Teaching methods	No. of hours/ Observations
1. Informatics in economics	Free exposure, with the presentation of the course with video projector, on the board or online	2h
2. General aspects regarding operating systems	Free exposure, with the presentation of the course with video projector, on the board or online	4h
3. Alternative operating systems	Free exposure, with the presentation of the course with video projector, on the board or online	2h

4. UNIX – LINUX files system	Free exposure, with the presentation of the course with video projector, on the board or online	2h
5. File and directory management in UNIX-LINUX	Free exposure, with the presentation of the course with video projector, on the board or online	4h
6. UNIX-LINUX text editors	Free exposure, with the presentation of the course with video projector, on the board or online	2h
7. UNIX shells	Free exposure, with the presentation of the course with video projector, on the board or online	2h
8. Elements of networking	Free exposure, with the presentation of the course with video projector, on the board or online	2h
9. Internet and WEB technologies	Free exposure, with the presentation of the course with video projector, on the board or online	4h
10. Elements of programming and calculation in the economic field	Free exposure, with the presentation of the course with video projector, on the board or online	4h
<b>Bibliography</b> 1 Dragoş Cristian Spoială, Viorica Spoială, <i>Utilizarea calculatoarelor</i> , Editura Universităţii din Oradea, 2010, ISBN 978-606-10-0221-4, 200 pag 1. Spoială Dragoş-Cristian , <i>Sisteme de operare. Curs pentru uzul studentilor</i> , <a href="http://dspoiala.webhost.uroadea.ro">http://dspoiala.webhost.uroadea.ro</a> . 2. D. Acostăchioaie, <i>Administrarea și Configurarea Sistemelor Linux</i> , ediția a 3-a, Editura Polirom 2005 3. D. Acostăchioaie, Sabin Buraga, <i>Utilizare Linux. Noțiuni de bază și practică</i> , Editura Polirom, 2004 4. T. Ionescu, Daniela Saru, J. Floroiu, <i>Sisteme de operare. Principii și funcționare</i> , Editura Tehnică, București, 1997 5. Pălivan, H. Pălivan, <i>Linux pentru avansați</i> , Editura Tehnică, București, 2001 6. A. Tanenbaum, <i>Sisteme de operare moderne</i> , ediția 2-a, Ed. Biblos, București, 2004 7. UNIX – Tutorial - Internet		







	<ul style="list-style-type: none"> <li>- The frequency at seminar hours below 70% leads to the restoration of the discipline</li> <li>- The seminar can be held face to face or online</li> </ul>
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<b>6. Specific skills acquired</b>	
Professional skills	<p><b>C1.</b> Knowing the main types of economic processes and phenomena of communication, elements of microeconomic theory and practical aspects of financial and economic flows at business</p> <p><b>C2.</b> Knowledge of electrical power sources, knowledge of business software, computer management, drafting and interpreting technical documentation.</p>
Transversal skills	<p><b>TC2.</b> Identify the roles and responsibilities of each member of a pluri-disciplinary team and apply efficient work and relational techniques inside the team</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"> <li>• Familiarization of students with the main types of processes and economic phenomena at the microeconomic level</li> </ul>
7.2 Specific objectives	<ul style="list-style-type: none"> <li>• The course aims to present the theoretical elements of microeconomics</li> <li>• The seminar acquaints the students with practical aspects regarding the economic-financial flows at business level, the management of the economic and financial phenomenon</li> </ul>

**8. Contents\***

8.1 Course	Teaching methods	No. of hours/ Observations
<b>1. Consumer behavior</b>	Free exposure, with the presentation of the course with video projector, on the board or online	2h
<b>2. Consumer behavior</b>	Free exposure, with the presentation of the course with video projector, on the board or online	2h
<b>3. Market</b>	Free exposure, with the presentation of the course with video projector, on the board or online	2h

<b>4. Economic competition</b>	Free exposure, with the presentation of the course with video projector, on the board or online	2h
<b>5. The company</b>	Free exposure, with the presentation of the course with video projector, on the board or online	2h
<b>6. Producers behavior</b>	Free exposure, with the presentation of the course with video projector, on the board or online	2h
<b>7. Producers behavior</b>	Free exposure, with the presentation of the course with video projector, on the board or online	2h
8. Production costs	Free exposure, with the presentation of the course with video projector, on the board or online	2h
9. Selling prices	Free exposure, with the presentation of the course with video projector, on the board or online	8h
<b>10. Entrepreneurial profit</b>	Free exposure, with the presentation of the course with video projector, on the board or online	4h
<p>Bibliography</p> <ol style="list-style-type: none"> <li>1. Rada, Ioan Constantin, <b>Economie</b>, Ed. Anotimp, 2002</li> <li>2. Rada, Ioan Constantin; Rada, Ioana Carmen, <b>Economie. Caiet de lucru ri</b>, Ed. Anotimp &amp; Adsumus, 2002</li> <li>3. Rada, Ioan Constantin; Bodog, Simona; Rada, Ioana Carmen; Lăzurean, Elena Nicoleta, <b>Economie general , Marketing industrial (note de curs)</b>, Ed. Universității Oradea, 2006</li> <li>4. Rada, Ioan Constantin; Bodog, Simona; Rada, Ioana Carmen; Lăzurean, Elena Nicoleta, <b>Economie general , Marketing industrial (aplicații pentru seminar)</b>, Ed. Universității Oradea, 2006</li> <li>5. Rada, Ioan Constantin, <b>Economie general I</b>, Editura Asociației „Societatea Inginerilor de Petrol și Gaze”, București, 2009, CD-ROM</li> <li>6. Rada, Ioan Constantin, <b>Economie general II</b>, Editura Asociației „Societatea Inginerilor de Petrol și Gaze”, București, 2009, CD-ROM</li> <li>7. Rada, Ioan Constantin, <b>Microeconomie. Idei moderne. Vol. I</b>, Editura Asociației „Societatea Inginerilor</li> </ol>		









<b>6. Specific skills acquired</b>	
Professional skills	<p><b>C4. Development and evaluation of technical flows, financial economic and business level, advanced management methods.</b></p> <p><b>C5. Project management and enterprise of electrical, electronic and energy marketing and economic agreements.</b></p> <p><b>C6. Knowledge of key issues in the field of communication and management in engineering and from the interference of fields</b></p>
Transversal skills	<p><b>CT2. Identify the roles and responsibilities of each member of a pluri-disciplinary team and apply efficient work and relational techniques inside the team.</b></p> <p><b>CT3. Identify the long-life training opportunities and the efficient use (for self development) of informational sources, as well as communication and assisted professional training resources (Internet websites, dedicated software applications, databases, on-line courses etc.) both in Romanian language and some other international spoken language.</b></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"> <li>The discipline has as objective the familiarization of the students from the master's specialization Management and Communication in Engineering, with the Project Management</li> </ul>
7.2 Specific objectives	<ul style="list-style-type: none"> <li>The course aims to present the theoretical elements of the Project Management.</li> <li>The project provides the necessary knowledge to the students about Project manager techniques and tools.</li> </ul>

### 8. Contents\*

8.1 Course	Teaching methods	No. of hours/ Observations
1. Introduction. Construction of the project proposal	Free exposure, with the presentation of the course with video projector, on the board or online	4h
2. Organizing projects on project phases. The internal organizational structure of the projects.	Free exposure, with the presentation of the course with video projector, on the board or online	4h
3. Project management tasks Project marketing Risk management	Free exposure, with the presentation of the course with video projector, on the board or online	6h
4. Controlul și asigurarea calității Raportarea rezultatelor proiectelor	Free exposure, with the presentation of the course with video projector, on the board or online	4h













## 10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods The evaluation can be done face-to-face or online	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 know the fundamental notions required in the subjects, without presenting details on them For 10: thorough knowledge of all subjects is required	<b>Oral examination</b> Students sustain an oral exam	60 %
10.5 Project	- for grade 6, going through the design stages, without deepening the calculations - for grade 10, completion of all design stages, with completion of calculations and power supply and control diagrams	<b>Oral support</b> Following the presentation of the project made during the semester, each master student receives a grade, separate from the exam.	40%
<p>10.6 Minimum performance standard:</p> <ul style="list-style-type: none"> <li>- Critical evaluation of the strategic performance of the teams.</li> <li>- Manifesting autonomy in choosing a learning route and demonstrating understanding of learning processes.</li> <li>- Communicating project results, methods and key principles to an audience of specialists and non-specialists, using appropriate techniques.</li> <li>- Careful observation, reflection and decision-making in order to change social norms and interpersonal relationships.</li> <li>- Problem solving by integrating complex, sometimes incomplete, sources of information in new and unfamiliar contexts.</li> <li>- Demonstration of experience in operational interactions for change management in a complex context.</li> <li>- Manifestation of an active behavior towards a series of social, scientific and ethical aspects that appear in work or study.</li> </ul>			

**Completion date:**

01.09.2023

**Date of endorsement in the department:**

18.09.2023

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

29.09.2023

## SUBJECT DESCRIPTION

### 1. Data related to the study program

1.1 Higher education institution	<b>UNIVERSITY OF ORADEA</b>
1.2 Faculty	<b>Faculty of Electrical Engineering and Information Technology</b>
1.3 Department	<b>Department of Control Systems Engineering and Management</b>
1.4 Field of study	<b>Engineering and management</b>
1.5 Study cycle	<b>Master (2<sup>nd</sup> cycle)</b>
1.6 Study program/Qualification	<b>Management and Communication in Engineering / Master of Science in Engineering</b>

### 2. Data related to the subject

2.1 Name of the subject	<b>Economy of the Enterprise</b>						
2.2 Holder of the subject	<b>Assoc.prof. PhD eng.ec. Liliana Doina M gdoiu</b>						
2.3 Holder of the academic seminar	<b>Assoc.prof. PhD eng.ec. Liliana Doina M gdoiu</b>						
2.4 Year of study	<b>I</b>	2.5 Semester	<b>1</b>	2.6 Type of the evaluation	<b>Ex</b>	2.7 Subject regime	<b>THD</b>

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

3.1 Number of hours per week	<b>4</b>	of which: 3.2 course	<b>2</b>	3.3 academic laboratory	<b>2</b>
3.4 Total of hours from the curriculum	<b>56</b>	Of which: 3.5 course	<b>28</b>	3.6 academic laboratory	<b>28</b>
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					10
Preparing academic seminars/laboratories/ themes/ reports/ portfolios and essays					20
Tutorials					0
Examinations					9
Other activities.					
<b>3.7 Total of hours for individual study</b>	<b>69</b>				
<b>3.9 Total of hours per semester</b>	<b>125</b>				
<b>3.10 Number of credits</b>	<b>5</b>				

### 4. Pre-requisites (where applicable)

4.1 related to the curriculum	(Conditions) Knowledge of the Basics of Economics and General Economics
4.2 related to skills	

### 5. Conditions (where applicable)

5.1. for the development of the course	- Attendance at least 50% of the courses - The course can be held face to face or online
5.2. for the development of the academic seminary/laboratory/project	- Mandatory presence at all seminars; - The can be carried out face to face or online - Students come with the observed seminar papers - A maximum of 4 works can be recovered during the semester (30%);

	<ul style="list-style-type: none"> <li>- The frequency at seminar hours below 70% leads to the restoration of the discipline</li> <li>- The seminar can be held face to face or online</li> </ul>
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<b>6. Specific skills acquired</b>	
Professional skills	<p><b>C1.</b> Knowing the main types of economic processes and phenomena of communication, elements of microeconomic theory and practical aspects of financial and economic flows at business</p> <p><b>C2.</b> Knowledge of electrical power sources, knowledge of business software, computer management, drafting and interpreting technical documentation.</p>
Transversal skills	<p><b>TC2.</b> Identify the roles and responsibilities of each member of a pluri-disciplinary team and apply efficient work and relational techniques inside the team</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"> <li>● Familiarization of students with the main types of processes and economic phenomena at the microeconomic level</li> </ul>
7.2 Specific objectives	<ul style="list-style-type: none"> <li>● The course aims to present the theoretical elements of microeconomics</li> <li>● The seminar acquaints the students with practical aspects regarding the economic-financial flows at business level, the management of the economic and financial phenomenon</li> </ul>

### 8. Contents\*

8.1 Course	Teaching methods	No. of hours/ Observations
<b>1. Consumer behavior</b>	Free exposure, with the presentation of the course with video projector, on the board or online	2h
<b>2. Consumer behavior</b>	Free exposure, with the presentation of the course with video projector, on the board or online	2h
<b>3. Market</b>	Free exposure, with the presentation of the course with video projector, on the board or online	2h

<b>4. Economic competition</b>	Free exposure, with the presentation of the course with video projector, on the board or online	2h
<b>5. The company</b>	Free exposure, with the presentation of the course with video projector, on the board or online	2h
<b>6. Producers behavior</b>	Free exposure, with the presentation of the course with video projector, on the board or online	2h
<b>7. Producers behavior</b>	Free exposure, with the presentation of the course with video projector, on the board or online	2h
8. Production costs	Free exposure, with the presentation of the course with video projector, on the board or online	2h
9. Selling prices	Free exposure, with the presentation of the course with video projector, on the board or online	8h
<b>10. Entrepreneurial profit</b>	Free exposure, with the presentation of the course with video projector, on the board or online	4h
<p>Bibliography</p> <ol style="list-style-type: none"> <li>1. Rada, Ioan Constantin, <b>Economie</b>, Ed. Anotimp, 2002</li> <li>2. Rada, Ioan Constantin; Rada, Ioana Carmen, <b>Economie. Caiet de lucru ri</b>, Ed. Anotimp &amp; Adsumus, 2002</li> <li>3. Rada, Ioan Constantin; Bodog, Simona; Rada, Ioana Carmen; Lăzurean, Elena Nicoleta, <b>Economie general , Marketing industrial (note de curs)</b>, Ed. Universității Oradea, 2006</li> <li>4. Rada, Ioan Constantin; Bodog, Simona; Rada, Ioana Carmen; Lăzurean, Elena Nicoleta, <b>Economie general , Marketing industrial (aplicații pentru seminar)</b>, Ed. Universității Oradea, 2006</li> <li>5. Rada, Ioan Constantin, <b>Economie general I</b>, Editura Asociației „Societatea Inginerilor de Petrol și Gaze”, București, 2009, CD-ROM</li> <li>6. Rada, Ioan Constantin, <b>Economie general II</b>, Editura Asociației „Societatea Inginerilor de Petrol și Gaze”, București, 2009, CD-ROM</li> <li>7. Rada, Ioan Constantin, <b>Microeconomie. Idei moderne. Vol. I</b>, Editura Asociației „Societatea Inginerilor</li> </ol>		

de Petrol și Gaze”, București, 2007		
8. Rada, Ioan Constantin, <b>Microeconomie. Idei moderne. Vol. II</b> , Editura Asociației „Societatea Inginerilor de Petrol și Gaze”, București, 2008		
9. Rada, Ioan Constantin; Rica, Ivan; Măgdoi, Liliana Doina, <b>Finanțe și credit (note de curs)</b> , Editura Universității din Oradea, 2011, CD-ROM		
10. Rada, Ioan Constantin; Rica, Ivan; Măgdoi, Liliana Doina, <b>Finanțe și credit (aplicații pentru seminar)</b> , Editura Universității din Oradea, 2011, CD-ROM		
8.2 Academic seminar	Teaching methods	No. of hours/ Observations
1. Paper: Consumer concepts 2. Paper: About resources 3. Paper: The concept of competition 4. Paper: The role of the environment in obtaining production factors 5. Report: The information system of the enterprise 6. Paper: Substantiation of production cost decisions 7. Report: The production price and the profit of the entrepreneur	Students receive laboratory reports at least one week in advance, study them, and are randomly tested throughout the laboratory. Students implement the work under the guidance of the teacher.	4h 4h 4h 4h 4h 4h 4h
Bibliography It is the one indicated for the course		

**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 can be found in the curriculum of Management and Communication in Engineering from other university centers that have accredited similar specializations (Technical University of Cluj-Napoca, University of Craiova, "Politehnica" University of Timisoara, Gh. Asachi University of Iasi, etc.) and knowledge of the types of electric drives and their operation and design is a stringent requirement of employers in the field (Comau, Faist Mekatronics, Celestica, GMAB, etc.).

**10. Evaluation**

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods The evaluation can be done face-to-face or online	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 know the fundamental notions required in the subjects, without presenting details on them For 10: thorough knowledge of all subjects is required	<b>Oral examination</b> - Students are given two topics to solve	70 %
10.5 Academic seminar	- for grade 5, it is necessary to know the structure of the paper and one or two concepts	At each seminar, the students draw up a report, which can be collective, which they	30%

	in the paper - for grade 10, in-depth knowledge of the topic of the paper and its support during the seminar	support and which is submitted to the debates during the seminars. Each student also receives a grade for the seminar activity during the semester	
<p>10.5 Minimum performance standard:  Course: Solving and explaining complex problems, associated with the discipline of microeconomics or general economics, specific to the field of engineering and management  Academic seminar: - browsing the content of seminar works  The timely solution, in individual activities and group activities, in conditions of qualified assistance, of the problems that require the application of principles and rules respecting the norms of professional deontology.</p>			

**Completion date:**

01.09.2023

**Date of endorsement in the department:**

18.09.2023

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

29.09.2023

## 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 ELECTRICAL ENGINEERING
1.4 Field of study	ELECTRICAL ENGINEERING
1.5 Study cycle	Master (2 <sup>nd</sup> cycle)
1.6 Study program/Qualification	MANAGEMENT AND COMMUNICATION IN ENGINEERING / ENGINEER

### 2. Data related to the subject

2.1 Name of the subject	ELECTRIC POWER SOURCES						
2.2 Holder of the subject	Conf.dr.ing. BANDICI LIVIA						
2.3 Holder of the academic project	Conf.dr.ing. BANDICI LIVIA						
2.4 Year of study	I	2.5 Semester	1	2.6 Type of the evaluation	Ex	2.7 Subject regime	I

### 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	1
3.4 Total of hours from the curriculum	42	Of which: 3.5 course	28	3.6 academic seminar/laboratory/project	14
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					44
Preparing academic seminars/laboratories/ themes/ reports/ portfolios and essays					43
Tutorials					3
Examinations					3
Other activities.					-
<b>3.7 Total of hours for individual study</b>	<b>133</b>				
<b>3.9 Total of hours per semester</b>	<b>175</b>				
<b>3.10 Number of credits</b>	<b>7</b>				

### 4. Pre-requisites (where applicable)

4.1 related to the curriculum	Special issues of electrical engineering, new energy sources, electrical installations
4.2 related to skills	Knowledge of how energy sources work

### 5. Conditions (where applicable)

5.1. for the development of the course	- Video projector, computer. - The course can be held face to face or online platform <a href="https://e.uoradea.ro/">https://e.uoradea.ro/</a> .
5.2. for the development of the academic project	- Elaboration of the project after choosing a theme - The project can be presented face to face or online on the platform <a href="https://e.uoradea.ro/">https://e.uoradea.ro/</a> .

### 6. Specific skills acquired

Professional skills	<b>C4.</b> Development and evaluation of technical, economic, and financial flows at business level, advanced management methods
Transversal skills	<b>CT1.</b> The responsible application of the principles, norms, and values of professional ethics in the accomplishment of professional tasks and identifying the objectives to be achieved, the available resources, the work stages, the execution durations, the accomplishment terms, and the related risks.

### 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 “Power Sources” aims to familiarize students with the study and usefulness of power sources. Master students have the opportunity to get acquainted with various modern facilities, learn practical skills in the design, construction, sizing, and operation of facilities, with the possibilities of execution, maintenance, operation, and repair.
7.2 Specific objectives	The project themes are designed to provide future master engineers with practical skills in designing, conducting, researching, operating, repairing, and maintaining power sources.

### 8. Contents\*

8.1 Course	Teaching methods	No. of hours/ Observations
<b>Chapter I. General notions regarding the evolution in time of the electric power sources.</b>	Projector. Intercalated student contributions are requested on subject-specific topics. Some courses take place by teaching subjects and student debates.	4
<b>Chapter II. Electric power systems. Supply and distribution of electrical energy.</b>	Idem	2
<b>Chapter III. Hydroelectric power.</b>	Idem	4
<b>Chapter IV. Wind energy.</b>	Idem	6
<b>Chapter V. Solar energy.</b>	Idem	8
<b>Chapter VI. Biomass</b>	Idem	2
<b>Chapter VII. Hydrogen energy.</b>	Idem	2
Bibliography		
<ol style="list-style-type: none"> <li>Livia Bandici, “<i>Surse electroenergetice</i>”. Note de curs, suport CD, 2018.</li> <li>V. Alexandrescu, “<i>Sisteme electroenergetice I</i>”. Editura Universității Tehnice Iași, 1997.</li> <li>Gh. Cârțină, “<i>Optimizarea și dispecerizarea sistemelor electroenergetice</i>”. Editura Universității Tehnice Iași, 1989.</li> <li>Gh. Cârțină, Gh. Grigoraș, “<i>Inteligența artificială. Optimizări în energetică</i>”. Editura Venus, Iași, 2001.</li> <li>I. Chiuță, “<i>Energetică generală și conversia energiei. Sisteme de conversie directă</i>”. Editura Institutului Politehnic, București, 1986.</li> <li>M. Gavrilaș, “<i>Inteligența artificială și aplicații în energetică</i>”. Ed. Gh. Asachi, Iași, 2002.</li> <li>Gh. Georgescu, M. Istrate, V. Varvara, ș.a. “<i>Transportul și distribuția energiei electrice</i>”. Ed. Gh. Asachi, Iași, 2001</li> <li>V. Nitu, Lucia Pantelimon, C. Ionescu, “<i>Energetică generală și conversia energiei</i>”. Editura Didactică și Pedagogică, București, 1980.</li> </ol>		
<b>8.4 Project</b>		
<b>Proposed topics:</b>		
<b>1. Sizing of a solar installation with flat collector without forced circulation for domestic hot water preparation</b>	Video projector, in case of online courses, the E-learning platform of the University of Oradea will be used	2
<b>2. Sizing of a wind installation necessary for servicing an</b>		



isolated house.	( <a href="https://e.uoradea.ro">https://e.uoradea.ro</a> ), and in „video-audio conferencing” mode, the Microsoft Teams or Zoom communication platform will be used. Discussions on how to write the project.	
Chapter. I. General notions.	Brief approach to the main problems related to solar installations.	2
Chapter II. Materials used in the construction of the installation.	Explanations on how to choose the materials used for the construction of the installation.	2
Chapter III. Theoretical bases of equipment calculation.	Presentation of the notions related to the calculation of electrical parameters.	2
Chapter IV. Determination of equipment parameters.	Presentation of the calculation method of the equivalent parameters.	2
4.1. Methods for calculating the electrical parameters of the equipment.		
4.2. Determination of thermal parameters.	Presentation of the calculation method of the thermal parameters.	2
Presentation of the project	Presenting and handing in the elaborated project.	2
<b>Bibliography</b> <ol style="list-style-type: none"> <li>Livia Bandici, ‘‘ Surse electroenergetice’’. Note de curs, suport CD, 2019.</li> <li>Livia Bandici, ‘‘ Surse electroenergetice. Indrumator de proiectare’’, suport CD, 2018.</li> <li>V. Alexandrescu, ‘‘Sisteme electroenergetice I’’. Editura Universității Tehnice Iași, 1997.</li> <li>Livia Bandici, D. Hoble, ‘‘Utilizări ale energiei electrice. Editura Universității din Oradea, 2006.</li> <li>Gh. Cârțină, ‘‘Optimizarea și dispecerizarea sistemelor electroenergetice’’. Editura Universității Tehnice Iași, 1989.</li> <li>Gh. Cârțină, Gh. Grigoraș, ‘‘Inteligența artificială. Optimizări în energetică’’. Editura Venus, Iași, 2001.</li> <li>I. Chiuță, ‘‘Energetică generală și conversia energiei. Sisteme de conversie directă’’. Editura Institutului Politehnic, București, 1986.</li> <li>M. Gavrițaș, ‘‘Inteligența artificială și aplicații în energetică’’. Ed. Gh. Asachi, Iași, 2002.</li> <li>Gh. Georgescu, M. Istrate, V. Varvara, ș.a. ‘‘Transportul și distribuția energiei electrice’’. Ed. Gh. Asachi, Iași, 2001</li> <li>V. Nitu, Lucia Pantelimon, C. Ionescu, ‘‘Energetică generală și conversia energiei’’. Editura Didactică și Pedagogică, București, 1980.</li> <li>I. Șora, V. Conta, D. Popovici, ‘‘Utilizări ale energiei electrice’’. Editura Facla, 1983.</li> <li>M. Ungureanu, M. Chindriș, I. Lungu, ‘‘Utilizări ale energiei electrice’’. Editura Didactică și Pedagogică București, 1999.</li> </ol>		

### 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 adapted and satisfies the requirements imposed by the labor market, being agreed by the social partners, professional associations, and employers in the field related to the master's degree program. Knowledge of the basics is a stringent requirement of employers in the field such as: Faist Mekatronics, Comau, S.C. Stimin Industries S.A., S.C. Electrica.

### 10. Evaluation

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

	standard		
10.2. Project	Minimum required conditions for promotion (grade 5): in accordance with the minimum performance standard		
<p>10.3. Minimum performance standard:  Carrying out a work/ project, as a leader in a multidisciplinary team and responsibly distributing specific tasks to subordinates.  Grade components: exam (Ex), independent activity (Ai)  Final grade calculation formula: <math>N = 0.60 Ex + 0.30Pr + 0.1Ai</math>;  - Condition for obtaining credits: <math>N \geq 5</math>.</p>			

**Completion date:**

01.09.2023

**Date of endorsement in the department:**

18.09.2023

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

29.09.2023