

# DISCIPLINE SHEET

## 1. Data about program

1.1 Academic institution	1.1 Institution of higher education	<b>UNIVERSITY OF ORADEA</b>
1.2 Faculty	1.2 Faculty	<b>FACULTY OF ENVIRONMENTAL PROTECTION</b>
1.3 Department	1.3 Department	<b>FOOD ENGINEERING</b>
1.4 Field of study	1.4 Field of study	<b>FOOD ENGINEERING</b>
1.5 Cycle of study	1.5 Cycle studies	<b>BACHELOR</b>
1.6 Study programme/Qualification	1.6 Curriculum/Qualifications	<b>TPPA/ ENGINEER</b>

## 2. Data about the disciplines

2.1 Name of discipline	<b>ELEMENTS OF MECHANICAL ENGINEERING</b>						
2.2 Course holder	Lecturer dr.eng. IANCU CARMEN VIOLETA						
2.3 Laboratory holder	Lecturer dr.eng. IANCU CARMEN VIOLETA						
2.4 Year of study	I	2.5 Semester	I	2.6 Type of evaluation	Ex	2.7 Regime of discipline	Ob

Ob – Compulsory; As – associated; Op – Optional.

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

3.1 Number of hours per week	3	3.2 out of which: course	2	3.3 out of which laboratory	1
3.4 Total hours in the curriculum	42	3.5 out of which: course	28	3.6 out of which laboratory	14
Time allotment					hours
Study assisted by manual, course support, bibliography and notes					11
Additional documentation in the library/ on specialised electronic platforms and in the field					11
Preparation of seminars/laboratories/ topics/reports, portfolios and essays					26
Tutorship					-
Examinations					4
Additional documentation in the library/ on specialised electronic platforms and in the field					6
<b>3.7 Total hours of individual study</b>	<b>58</b>				
<b>3.9 Total hours per semester</b>	<b>100</b>				
<b>3.10 Number of credits</b>	<b>4</b>				

## 4. Prerequisites (where appropriate)

<b>4.1 curriculum</b>	Mechanical elements
<b>4.2 competences</b>	Knowledge of laboratory equipment

## 5. Conditions (where appropriate)

<b>5.1. related to course</b>	<ul style="list-style-type: none"> <li>Students will not be present at lectures, seminars/laboratories with mobile phones. It also will not be tolerated during phone calls, nor leaving by the students of the course with a view to taking over personal telephone calls; Nu va fi tolerată întârzierea studenților la curs și laborator întrucât aceasta se dovedește disruptivă la adresa procesului educațional.</li> </ul>
<b>5.2. related to seminar/laboratory/ project</b>	<ul style="list-style-type: none"> <li>The term teaching seminar work shall be established by agreement with the holder of the students. Will not be accepting applications for deferment thereof on grounds other than objective grounds. Also, for the teaching of the late works of seminar/lab work will be depunctate with 1 point per day of delay.</li> </ul>

<b>6. Specific competences acquired</b>	
<b>Professional competences</b>	<ul style="list-style-type: none"> <li>• C2 Coordination of activities and processes on the basis of technical specifications</li> <li>• C3 Analysis of technical solutions necessary to improve the quality of foodstuffs and for reducing costs and developing specific, monitoring and implementation of new technical projects</li> <li>• C4 Planning, organizing and coordinating the activities of commercial and marketing in the food's profile</li> </ul>

### 7. Objectives of discipline (coming from the specific competences acquired)

<b>7.1 General objective</b>	<ul style="list-style-type: none"> <li>• Knowledge of the materials used in the construction of machinery and food plants;</li> <li>• Knowledge in terms of design, functional, operational and maintenance of facilities, equipment, machinery and machinery used in the processes of washing, sieving, transport, shredding, sedimentation, filtering, mixing, heating, fermentation, pasteurization, condensation and drying processes of the food industry.</li> </ul>
<b>7.2 Specific objectives</b>	<ul style="list-style-type: none"> <li>• The application of the basic principles and methods for problem solving, well-defined situations typical domain</li> <li>• Laboratory works are so designed as to provide</li> <li>• The future of food engineers practical skills relating to research, operation, repair and maintenance of the food industry. The contents of the laboratory works presented are based on the need to further examine the issues presented at the course.</li> <li>• Will understand the complexity and usefulness of these outfits and they will treat you as such. Knowledge is useful in the formation of habits relating to addressing specific problems faced by a specialist in the field of food industry.</li> </ul>

### 8. Content \*

<b>8.1 Course</b>	<b>Methods of teaching</b>	<b>No. of hours/Remarks</b>
1. Materials used in the food industry	Interactive lecture with video projector	2
2. Heat treatments applied to materials	Interactive lecture with video projector	2
3. Criteria for choosing materials	Interactive lecture with video projector	2
4. Fe-C diagram	Interactive lecture with video projector	2
5. Study of the structure of alloy steels and gray cast irons	Interactive lecture with video projector	2
6. Machine parts for removable assemblies. Threaded assemblies. bolts	Interactive lecture with video projector	2
7. Feather assemblies. a. transverse penis b. longitudinal penis	Interactive lecture with video projector	2
8. Groove joints - rectangular profile - triangular profile - evolutionary profile	Interactive lecture with video projector	2

9. Machine parts for non-removable assemblies. Rivet assemblies - resistance rivets; - sealing rivets; - resistance and sealing rivets	Interactive lecture with video projector	2
10. Non-removable joints by welding - electric welding; - oxyacetylene welding; - plasma welding; - pressure welding; - laser welding; - electron flux welding - butt welded joints; - corner welded joints; - point joints	Interactive lecture with video projector	2
11. Non-removable joints by gluing - soft bonding - hard bonding - overlapping method; - circular method	Interactive lecture with video projector	2
12. Elastic assembly by means of springs - springs for exerting a permanent elastic force - damping springs - springs to limit forces - springs for measuring forces - springs for energy storage - springs for force	Interactive lecture with video projector	2
13. Bearings - plain friction bearings; - rolling friction bearings; - combined bearings.	Interactive lecture with video projector	2
14. Shafts and axles - straight trees; - crankshafts; - flexible shafts - horizontal trees; - vertical shafts; - inclined shafts - fixed axles; - moving axles	Interactive lecture with video projector	2
<b>8.2. Laboratory</b>		
1. Specific rules for the protection of labour. 2. Analysis of materials used in the food industry	Presentation by the didactic Coordinator of the laboratory works of notions related to specific safety Demonstration, food industria analysis, determination and exposure	2
3. Microscopic research of materials and preparation of metallographic samples	Demonstration, analysis, and exposure	2
4. The criterion of the working environment is characterized by temperature, humidity, electrochemical action and the presence of harmful particles.	Demonstration, analysis, and exposure	2
5. Fe-C diagram analysis	Demonstration, analysis, and exposure	2
6. Analysis and determinations of threaded assemblies Analysis and demonstrations for transverse wedge-longitudinal wedge assemblies	Demonstration, analysis, and exposure	2

7. Analysis and demonstration of groove assemblies - rectangular profile - triangular profile - evolutionary profile	Demonstration, analysis, and exposure	2
8. Analysis and demonstrations of non-removable assemblies. Rivet assemblies - resistance rivets; - sealing rivets; - resistance and sealing rivets	Demonstration, analysis, and exposure	2
9. Analysis and demonstrations of non-removable welded assemblies - electric welding; - oxyacetylene welding; - plasma welding; - pressure welding; - laser welding; - electron flux welding - butt welded joints; - corner welded joints; - point joints	Demonstration, analysis, and exposure	2
10. Analysis and demonstration of non-removable joints by gluing - soft bonding - hard bonding - overlapping method; - circular method	Demonstration, analysis, and exposure	2
11. Analysis and demonstration of spring-loaded elastic assembly - springs for exerting a permanent elastic force - damping springs - springs to limit forces - springs for measuring forces - springs for energy storage - springs for force regulation	Demonstration, analysis, and exposure	2
12. Bearing system analysis and demonstrations - plain friction bearings; - rolling friction bearings; - combined bearings	Demonstration, analysis, and exposure	2
13. Analysis and demonstrations on shafts and axles - straight trees; - crankshafts; - flexible shafts - horizontal trees; - vertical shafts; - inclined shafts - fixed axles; - moving axles	Demonstration, analysis, and exposure	2
14. Analysis and determinations regarding threaded assemblies Analysis and demonstrations for transverse wedge-longitudinal wedge assemblies	Demonstration, analysis, and exposure	2
<p><b>Bibliography</b></p> <ol style="list-style-type: none"> <li>1. Iancu Carmen, Utilaje în industria alimentară, suport curs, Edit. Universității din Oradea, 2011</li> <li>2. Îndrumar de lucrări practice de laborator, Gheorghe Ailoaie, Galați, 1995</li> <li>3. Măsurări electrice, vol. I, Metrologie, aparate de măsură analogice, Antoniu M., Editura Gheorge Asachi, Iași, 1995</li> <li>4. Contorul ALPHA ® Power+ MANUAL TEHNIC - Elster Rometrics, Timișoara,</li> </ol>		

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6. Mașini electrice II, Aurel Câmpeanu, Ion Vlad, Tipografia Universității din Craiova, 2003

7. ELECTROTEHNICĂ, Dumitrescu Mariana, Munteanu Toader - Editura Europlus Galați, 2006, ISBN (10) 973-7845-26-9, ISBN (13) 978-973-7845-26-9

8. Electrotehnică și electronică, Grigore Fetecău, - Editura Academica Galați, 2006, ISBN 973-8316-96-0

9. Măsurări electrice și electronice, Grigore Fetecău, Editura Didactică și Pedagogică, București, 2003, ISBN 973-30-2667-0

10. Mașini și acționari electrice – elemente de execuție, Alexandru Fransua, Răzvan Măgureanu, Editura Tehnică, București, 1986

### 9. Corroboration of discipline content with the expectations of the epistemic community, professional associations and representative employers from the field corresponding to the study programme

The content is adapted to discipline and meet the requirements of the labour market, being agreed by social partners, professional associations and employers in the field of licensing programme. The content of the discipline can be found in the curricula of the specialisation of CEPA and other universities from Romania who approved these specializations, so knowledge of the basic concepts is a critical requirement of the employers in the field of industry food

### 10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Share in the final grade
10.4 Course	for note 5– knowledge of material 50% for note 10 – knowledge of material 100%	Summative assessment- sample exam-written or oral	80%
10.5 Seminar	-	-	-
10.6 Laboratory	Test with 5 questions at the end of the laboratory works	Continuous evaluation in the laboratory; knowledge verification laboratory	10% 10%
10.7 Project	-	-	-
<b>10.8 Minimum standard of performance</b>			
<ul style="list-style-type: none"><li>• Elaboration of a project or process specific food industry equipment, using concepts, theories and methods in the field</li><li>• The development of a technological project</li><li>• Preparation of a technical study by the efficient use of resources and sources of relevant and current documentation (including internet, databases, online courses).</li></ul>			

Date of completion  
01.06.2023

Signature of course holder  
Lecturer dr.eng. Iancu Carmen  
E-mail: ([ciancu@uoradea.ro](mailto:ciancu@uoradea.ro))  
E-mail: ([ciancu2000@yahoo.com](mailto:ciancu2000@yahoo.com))

Signature of laboratory holder  
Lecturer dr.eng. Iancu Carmen Violeta  
E-mail: ([ciancu@uoradea.ro](mailto:ciancu@uoradea.ro))  
E-mail: ([ciancu2000@yahoo.com](mailto:ciancu2000@yahoo.com))

Date of approval in the department

Signature of the Head of Department  
Assoc.Prof.PHD.Eng.Timar Adrian  
[atimar@uoradea.ro](mailto:atimar@uoradea.ro)

Dean signature  
Assoc.Prof.PHD.Eng.MAERESCU Cristina Maria