DISCIPLINE DESCRIPTION

1. Information on the study programme

1.1 Academic institution	**UNIVERSITY OF ORADEA**
1.2 Faculty	**FACULTY OF ENVIRONMENTAL PROTECTION**
1.3 Department	**Forestry and Forestry Engineering**
1.4 Field of study	**Forestry**
1.5 Cycle of study	**BACHELOR**
1.6 Study programme/Qualification	**Forestry / Forestry engineer**

2. Information on the discipline

2.1 Name of discipline	**Biophysics**						
2.2 Course holder	Lecturer Phys. Eng. Alin Cristian TEUŞDEA, PhD						
2.3 Seminar/Laboratory/Project holder	Lecturer Phys. Eng. Alin Cristian TEUŞDEA, PhD						
2.4 Year of study	**1**	2.5 Semester	**1**	2.6 Type of evaluation	**Ex**	2.7 Regime of discipline	**C**

(C) Compulsory; (O) Optional; (E) Elective

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

3.1 Number of hours per week	**2**	out of which: 3.2 course	**1**	out of which 3.3 seminar/laboratory/project	0/ **1**/0
3.4 Total hours in the curriculum	**28**	out of which: 3.5 course	**14**	out of which 3.6 seminar/laboratory/project	0/**14**/0

Time allotment	hours
Study assisted by manual, course support, bibliography and notes	5
Additional documentation in the library/ on specialised electronic platforms and in the field	5
Preparation of seminars/laboratories/ topics/reports, portfolios and essays	6
Tutorship	0
Examinations	6
Other activities.....	0

3.7 Total hours of individual study	**22**
3.9 Total hours per semester	**50**
3.10 Number of credits	**2**

4. Prerequisites (where appropriate)

4.1 curriculum	-
4.2 competences	-

5. Conditions (where appropriate)

5.1. related to course	• The course is based on oral presentation with video projector, notebook with MS PowerPoint software, Adobe Reader, Internet access. Students can ask questions and have the obligation to follow the course schedule. • During the course students will not be present with open mobile phones.
5.2. related to seminar/laboratory/ project	• For practical work, it is mandatory to prepare (study) each practical work a week before. • Each student will conduct an individual activity with the

	equipment and laboratory materials that will be completed by performing the calculations described in the laboratory guide. • During laboratory work, students are not allowed to make telephone calls within the laboratory.

6. Specific competences acquired	
Professional competences	• Identify and appropriately use the main laws and physical principles in a given context: Apply physics principles and laws in solving theoretical or practical problems under qualified assistance. • To develop the ability to explain phenomena in food engineering as a consequence of applying physics laws in the context of the complexity of forestry engineering • To develop the ability to use lab techniques necessary for food engineering designing experimental design, obtaining experimental data, analyzing and interpreting them and formulating conclusions • To apply the knowledge in the physics field of both in concrete situations in related fields and in experiments, using standard laboratory equipment.
Transversal competences	• To demonstrate preoccupation for professional development through the use of practical thinking skills, engineering • To participate in scientific projects • Acquiring / completing the information needed to assimilate the content of disciplines in forestry engineering

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

7.1 General objective	▪ Acquiring specific the language and the notions related to physical phenomena that arise in the field of forestry
7.2 Specific objectives	▪ Acquiring specific language ▪ Acquiring insights regarding the physical phenomena that arise in the field of forestry ▪ Interpretation of physics equations and their correct application in experiments ▪ Performing experimental measurements, processing and interpreting the results ▪ Identifying applications specific to the field of forestry in which the physical phenomena were studied

8. Content*/

8.1 Course	**Methods of teaching**	**No. of hours/Remarks**
Physical sizes and their measurement.	systematic exposure, conversation, problem-solving,	**1**
Errors evaluation, results processing and evaluation.	systematic exposure, conversation, problem-solving,	**1**
Mechanics - general problems. Vector computation.	systematic exposure, conversation, problem-solving,	**1**

Kinematics. Speed and acceleration. The circular motion. The relative movement of the material point.	systematic exposure, conversation, problem-solving,	**1**
Dynamics and static of the material point. The principles of dynamics. Movement of the material point under the action of forces. The kinetic moment theorem. The Law of Kinetic Moment Conservation. Mechanical work and power. Kinetic energy. Potential energy. Total energy. The Law of Total Energy Conservation.	systematic exposure, conversation, problem-solving,	**4**
Oscillations and waves. Dynamics of harmonic oscillatory motion. Composition of harmonic oscillations. Mechanical waves.	systematic exposure, conversation, problem-solving,	**1**
Thermodynamic elements. The postulates of thermodynamics. The Consequences of Thermodynamics Principles	systematic exposure, conversation, problem-solving,	**1**
Electricity and magnetism. Maxwell's equations. Electromagnetic waves	systematic exposure, conversation, problem-solving,	**1**
Geometric Optics. Spherical diopter, lenses. Optical systems centered, their composition. Optical instruments.	systematic exposure, conversation, problem-solving,	**1**
Wave optics. Interference of light. Light diffraction.	systematic exposure, conversation, problem-solving,	**1**
Electromagnetic Optics. Light polarization. Applications.	systematic exposure, conversation, problem-solving,	**1**
Obs: * Oral exposures, videoprojector presentations, simulations		

Bibliography

1. Creangă Ileana, Fizică (I), Ed. Matrix Rom, București, 2005.
2. Creangă Ileana, Fizică (II), Ed. Matrix Rom, București, 2014.
3. Boer A., Optică, Ed. Matrix Rom, București, 2006.
4. Demşoreanu B., Mecanică teoretică, Tipografia Universităţii Timişoara, 1991.
5. Irina Nicoară, Introducere în optică, Tipografia Universităţii Timişoara, 1990.
6. I. Luminosu, Fizică, Tipografia Universităţii Tehnice "Politehnica" Timişoara, 1991.
7. Alin C. Teuşdea, Fizică generală prin aplicaţii practice, Ed. Universităţii din Oradea, ediţia a 2-a, 2012, ISBN 978-606-10-0778-3; 53(075.8).
8. Alin C. Teuşdea, Elemente de biofizică în tehnică, Curs, 2012.

8.2 Seminar		
8.3 Laboratory	**Methods of teaching**	**No. of hours/Remarks**
Liquids density determination by the pycnometer method.	systematic exposure, conversation, problem-solving,	**2** /experiment
Surface tension coefficient determination with stalagmometer.	systematic exposure, conversation, problem-solving,	**2** /experiment
Measuring viscosity of liquids with Ostwald viscometer.	systematic exposure, conversation, problem-solving,	**2** /experiment
Solids specific heat determination by calorimetric method.	systematic exposure, conversation, problem-solving,	**2** /experiment
The refractive index of liquids determination with Abbe refractometer.	systematic exposure, conversation, problem-solving,	**2** /experiment
Wheatstone Bridge. Measurement of electrical	systematic exposure,	**2**

resistances.	conversation, problem-solving,	/experiment
Light intensity study using photocell (air absorption coefficient).	systematic exposure, conversation, problem-solving,	**2** /experiment
8.4 Project	-	-

Bibliography

1. Creangă Ileana, Fizică (I), Ed. Matrix Rom, București, 2005.
2. Creangă Ileana, Fizică (II), Ed. Matrix Rom, București, 2014.
3. Boer A., Optică, Ed. Matrix Rom, București, 2006.
4. Demşoreanu B., Mecanică teoretică, Tipografia Universităţii Timişoara, 1991.
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* The content, respectively the number of hours allocated to each course / seminar / laboratory / project will be detailed during the 14 weeks of each semester of the academic year.

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

10. Evaluare

Type of activity	**10.1 Evaluation criteria**	**10.2 Evaluation methods**	**10.3 Share in the final grade**
10.4 **Course**	**Written exam**	Written paper	**50%**
10.5 Seminar	**-**	-	-
10.6 **Laboratory**	**Practical colloquium**	Making a practical work/experimet	**50%**
10.7 Project	-	-	-
10.8 Minimum standard of performance: Each of the two components of the final mark must be passed with a minimum grade of 5 (five).			

Date of completion

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Signature of **course** holder**

Alin C. Teuşdea, PhD
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ateusdea@gmail.com,

Signature of ~~seminar~~ **laboratory**/~~project holder~~ **

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Date of approval in the department

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Signature of the Head of Department

Prof. Eng. Ioan Vlad, PhD

Dean signature

Prof. Eng. Ioan Chereji, PhD