

## COURSE OUTLINE

### 1. GENERAL

<b>SCOOOL</b>	ENVIRONMENT AND AGRICULTURAL ENGINEERING		
<b>DEPARTMENT</b>	NATURAL RESOURCES MANAGEMENT AND AGRICULTURAL ENGINEERING		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE		
<b>COURSE CODE</b>	<b>52</b>	<b>SEMESTER</b>	7 <sup>o</sup>
<b>COURSE TITLE</b>	MACHINE ELEMENTS		
<b>INDEPENDENT TEACHING ACTIVITIES</b> if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
LECTURES		3	3
LABORATORY PRACTICES		2	2
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
<b>COURSE TYPE</b> general background, special background, specialised general knowledge, skills development	SPECIAL BACKGROUND		
<b>PREREQUISITE COURSES:</b>			
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	GREEK		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	NO		
<b>COURSE WEBSITE (URL)</b>	ELECTRONIC NOTES AND PRESENTATIONS OF THE COURSE ARE AVAILABLE FOR THE STUDENTS OF THE SEMESTER AT THE ADDRESS, <a href="https://oeclass.aua.gr/eclass">https://oeclass.aua.gr/eclass</a>		

### 2. LEARNING OUTCOMES

*The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.*

*Consult Appendix A*

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*

- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*

- *Guidelines for writing Learning Outcomes*

#### **General Competences**

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and Project planning and management information, with the use of the necessary technology  
Respect for difference and

Search for, analysis and synthesis of data and Project planning and management information, with the use of the necessary technology  
Respect for difference and multiculturalism

multiculturalism Adapting to new situations Respect for the natural environment	Adapting to new situations Respect for the natural environment
<ul style="list-style-type: none"> <li>- Searching, analysing and synthesising data and information, using the necessary technologies</li> <li>- Autonomous work</li> <li>- Project planning and management</li> <li>- Teamwork</li> <li>- Decision-making</li> <li>- Promoting free, creative and deductive thinking</li> <li>- Design and management of related units.</li> </ul>	

### 3. SYLLABUS

<ul style="list-style-type: none"> <li>• Fatigue of metals or dynamic loading of machine elements, operating conditions of machine elements, stress-life cycle (S-N) curve, fatigue curve, cost, and lifespan</li> <li>• Connecting elements, non-detachable connections (rivets, calculation of rivets, welds), detachable connections, screws, screw gears, gears, gear ratios, efficiency of gear transmission, wedges/ multi-wedges, elements of rotational motion.</li> <li>• Mechanical power transmission elements, belts, chains, springs, toothed wheels, planetary gear systems, cross-joint transmission, transmission ratio, transfer mechanisms, hydraulic power transmission, hydraulic motors, hydraulic transmission fluids, categories, and types of hydraulic valves.</li> <li>• Frictional power transmission.</li> <li>• Rotational motion elements, shafts, rotating shaft, critical speed of shafts, detachable couplings and clutches, bearings, sliding bearings, calculation of thrust bearings, rolling bearings, construction and types, calculation of rolling bearings, lubrication of bearings.</li> <li>• Eccentrics, bearings, mechanical reducers, technical measurements, limits, and fits.</li> <li>• Mechanisms, basic four-bar linkages, chain mechanisms, planetary mechanisms.</li> </ul>
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### 4. TEACHING and LEARNING METHODS - EVALUATION

<b>DELIVERY</b> Face-to-face, Distance learning, etc.	Face – to -face	
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b> Use of ICT in teaching, laboratory education, Communication with students	Use of ICT in teaching and communication with students	
<b>TEACHING METHODS</b> The manner and methods of teaching are described in detail. Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as	<b>Activities</b>	<b>Semester workload</b>
	Lectures	75
	Laboratories	50
	<b>Course total</b>	<b>125</b>

<p>the hours of non- directed study according to the principles of the ECTS</p>	
<p><b>STUDENT PERFORMANCE EVALUATION</b>  Description of the evaluation procedure  Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open- ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</p>	<p>I. Written examination in the <b>theory</b> of the course, including:  - Multiple-choice questions on the semester's syllabus.  - A solution to an exercise if applicable.</p> <p>II. Written examination in the <b>laboratory part</b> of the course, including:  - Development, judgment and multiple-choice questions on the semester syllabus.</p>

**5. ATTACHED BIBLIOGRAPHY**

<p>- E-NOTES</p>
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