

## COURSE OUTLINE

### 1. GENERAL

<b>SCHOOL</b>	ENGINEERING		
<b>DEPARTMENT</b>	PRODUCT AND SYSTEMS DESIGN ENGINEERING		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE		
<b>COURSE CODE</b>	4205	<b>SEMESTER</b>	7 <sup>o</sup>
<b>COURSE TITLE</b>	SPECIAL TOPICS IN COMPUTER AIDED DESIGN		
<b>INDEPENDENT TEACHING ACTIVITIES</b> <i>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</i>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
Lectures		<b>3</b>	<b>6</b>
<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> <i>general background, special background, specialised general knowledge, skills development</i>	Special Background		
<b>PREREQUISITE COURSES:</b>			
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	GREEK/ENGLISH		
<b>COURSE DELIVERED TO ERASMUS STUDENTS</b>	YES		
<b>MODULE WEB PAGE (URL)</b>	<a href="https://eclass.uowm.gr">https://eclass.uowm.gr</a>		

### 2. LEARNING OUTCOMES

<b>Learning outcomes</b>
<p>The purpose of this course is to introduce the students to advanced processes and methods for the computer aided design of products in three dimensions. The students are introduced to the state-of-the-art tools in CAD systems that aid the process of creating new products. They acquire knowledge on modern techniques and processes used in modern CAD systems. Also, they are introduced to product data management systems.</p> <p><b>On successful completion of this module the learner will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Have a deep understanding the structure of a system CAD.</li> <li>2. Apply advanced methods for drawing three-dimensional objects.</li> <li>3. Design complex three-dimensional objects.</li> <li>4. Apply assembly techniques.</li> <li>5. Create detailed construction drawings of 3-D objects.</li> <li>6. Create detailed materials lists of assemblies.</li> <li>7. Know the two-dimensional and three-dimensional transformations.</li> <li>8. Know the mathematical description of curves and surfaces.</li> <li>9. Apply appropriate methods for the design of complex surfaces.</li> </ol>
<b>General Skills</b>
<p><b>Upon successful completion of the program students will:</b></p> <ul style="list-style-type: none"> <li>• have the theoretical and practical background on the field of Industrial Design and the corresponding profession.</li> </ul>

- apply a wide range of scientific and technical knowledge concerning the design and development of industrial products.

### 3. COURSE CONTENTS

- Representation of curves and surfaces with Ferguson, Bezier, B-Splines, Nurbs.
- Assembly methodologies.
- Assembly analysis.
- Support systems for the design process.
- Product Data Management Systems (PDM).
- Management of the Product Life Cycle.
- Data exchange between CAD systems.

### 4. TEACHING METHODS - ASSESSMENT

<b>MODE OF DELIVERY</b>	In class, face to face	
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>	<ul style="list-style-type: none"> <li>• Use of appropriate CAD software</li> <li>• <i>Video and slide presentations via projector</i></li> <li>• Support of teaching process via the electronic platform e-class</li> </ul>	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester workload</b>
	Lectures	70
	Projects	40
	Non-directed study	40
	<b>Course total</b>	<b>150</b>
<b>ASSESSMENT METHODS</b>	<ol style="list-style-type: none"> <li>1. Final written exam which includes: <ol style="list-style-type: none"> <li>a. Short-answer questions</li> <li>b. Multiple choice questions</li> <li>c. Problem solving</li> </ol> </li> <li>2. Projects</li> </ol>	

### 5. ATTACHED

- Suggested bibliography:

- CAD/CAM Theory and Practice, Ibrahim Zeid, McGraw Hill, 1991.
- Mastering CAD/CAM, Ibrahim, Zeid, McGraw-Hill Education – Europe, 2004.
- Συστήματα CAD/CAM και Τρισδιάστατη Μοντελοποίηση, Νικόλαος Μπιλάλης, Εμμανουήλ Μαραβελάκης, Εκδόσεις Κριτική, Αθήνα, 2009.
- Βασικές αρχές συστημάτων CAD/CAM/CAE, Kunwoo Lee, Κλειδάριθμος, 2009.
- Σχεδιασμός με Η-Υ, Παπαδόπουλος Χρήστος, Εκδόσεις Πανεπιστημίου Πατρών, 2000.