COURSE OUTLINE

1. GENERAL

SCHOOL	ENGINEERING		
DEPARTMENT	PRODUCT AND SYSTEMS DESIGN ENGINEERING		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	**3303**	**SEMESTER**	**6th**
COURSE TITLE	**Computer Integrated Manufacturing – CIM**		

INDEPENDENT TEACHING ACTIVITIES *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*	**WEEKLY TEACHING HOURS**	**CREDITS**
Lectures	**3**	**6**
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Special Background
PREREQUISITE COURSES:	NONE
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK/ENGLISH
COURSE DELIVERED TO ERASMUS STUDENTS	YES
MODULE WEB PAGE (URL)	https://eclass.uowm.gr/

2. LEARNING OUTCOMES

Learning outcomes

The purpose of this course is to introduce the students to the processes and methods for the computer integrated manufacturing. The students are introduced to the subsystems Computer Aided Design (CAD), Computer Aided Process Planning (CAPP), Computer Aided Manufacturing (CAM), Product planning control (PPC), Enterprise Resource Planning (ERP) Computer Aided Quality Assurance (CAQ), Flexible manufacturing systems (FMS), and integration of these components.

On successful completion of this module the learner will be able to:

1. Knows the basic concepts of production systems.
2. knows the operation of the subsystems of an integrated production system.
3. recognizes the dimensions, problems and difficulties of subsystem integration.
4. Implements the design, programming and control of production systems.
5. Knows techniques / methodologies for solving individual problems.

General Skills

Upon successful completion of the program students will:

- have the theoretical and practical background on the field of product and systems design engineering and the corresponding profession.
- utilize scientific knowledge to understand, analyze and solve problems.
- apply a wide range of scientific and technical knowledge concerning the design and development of products and systems.
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3. COURSE CONTENTS

- *Computer Integrated Manufacturing* (CIM): terminology, benefits, difficult, subsystems: Computer Aided Design (CAD), Computer Aided Process Planning (CAPP), Computer Aided Manufacturing (CAM), Product planning control (PPC), Computer Aided Quality Assurance (CAQ), Integration.
- *Product planning control* (PPC): Master Product Scheduling (MPS), Material Requirements Planning (MRP), Scheduling operations.
- Capacity Requirements Planning (CRP), Manufacturing Resource Planning (MRP II), MRP and Just In Time (JIT), Inventory control systems, Enterprise Resource Planning (ERP).
- *Quality control*: source of variation, inspection process, statistical process control methods.
- *Flexible manufacturing systems* (FMS): flexibility, components and structure, schedule and control.

4. TEACHING METHODS - ASSESSMENT

MODE OFDELIVERY	In class, face to face
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	• Video and slide presentations via projector • Support of teaching process via the electronic platform e-class • Communication with students.
TEACHING METHODS	
ASSESSMENT METHODS	Projects (they are counted with 20% each in the final score) Final written exam which includes: i. Short-answer questions ii. Problem solving

Activity	***Semester workload***
Lectures	80
Projects	40
Non-directed study	30
Course total	**150**

5. ATTACHED

- Suggested bibliography:

- R.U. Ayres, W. Haywood, M.E. Merchant, J. Warnecke, Computer Integrated Manufacturing, Publisher Springer Dordrecht
- James A. Rehg, Henry W. Kraebber, Computer Integrated Manufacturing (3rd Edition)