PRODUCTION & MAINTENANCE MANAGEMENT

COURSE OUTLINE

(1) GENERAL

SCHOOL	ENGINEERING SCHOOL			
ACADEMIC UNIT	MECHANICAL ENGINEERING DEPARTMENT			
LEVEL OF STUDIES	UNDER GRADUATE			
COURSE CODE	270 612	**SEMESTER**	6	
COURSE TITLE	PRODUCTION & MAINTENANCE MANAGEMENT			
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			2	
Tutorial			2	
				4.5 (total)
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*	Specialized Knowledge, skills development			
PREREQUISITE COURSES:	No			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek (official)- English (optional)			
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES			
COURSE WEBSITE (URL)	http://ikaros.teipir.gr/OPS/prodman_en.html			

(2) LEARNING OUTCOMES

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*

Upon completion of the course, students will:

- Have acquired the necessary knowledge and experience in order to recognize the production management and planning problems
- be able to select and use the most appropriate methods and tools for the solution of problems related to materials management, production planning, shop floor scheduling, inventory control
- be able to use the very useful MRP algorithm for the organization of the production
- be able to develop the cost function for materials management
- be able to use simple MRP software and building on that to proceed to more complicated production systems such as planning and control methods, inventory and stock control etc. as well as the most modern production planning and management systems such as ERPs.
- Know and be able to work on the basic concepts of maintenance, the parameters affecting the maintenance cost and its identification, the concepts of preventive and predictive maintenance, as well as acknowledgment of the most widely applied maintenance management software tools.

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 information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking
……
Others…
…….

Search for, analysis and synthesis of data and information, with the use of the necessary technology concerning the production and maintenance management
Adapting to new situations since the students acquire knowledge for technologies and projects they have never heard before.
Decision-making for the selection of the most appropriate production management system
Working independently as well as in teams for the completion of the Laboratory's Assignments
Production of new research ideas for innovation in the dynamic field of the production management
Production of free, creative and inductive thinking in the accomplishment of the relevant assigned projects.

(3) SYLLABUS

- Introduction to the industrial systems, the efficiency and productivity concepts.
- Various production structures.
- Continuous production, Job Shop, Batch Production, Line or Flow Production.
- Production Capacity. Production Resources.
- Basic parameters of the Production Planning Problems.
- Production Systems' Organisation. Material Requirement Planning (MRP).
- Bill of Materials. Master Production Schedule.
- Suitability of the MRP Systems.
- Manufacturing Resource Planning (MRP II)
- Case studies.
- Detailed Production Scheduling.
- Materials Management.
- The importance of materials in the competitiveness of industries.
- Deterministic and stochastic Materials Management Models.
- Fixed Order Quantity System.
- Periodic Order Quantity Systems.
- Discount Systems.
- Suitability of various Materials Management Systems.
- Case studies and applications.
- Basic concepts of Maintenance Management.
- Maintenance planning and cost.
- Preventive and predictive management.
- Case studies and software tools.

(4) TEACHING and LEARNING METHODS - EVALUATION

<table>
<tr><td>DELIVERY
Face-to-face, Distance learning, etc.</td><td>Lectures, laboratories</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY
Use of ICT in teaching, laboratory education, communication with students</td><td>In the processing of their two module assignments they will need to use possibly production management software</td></tr>
<tr><td>TEACHING METHODS
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 the hours of non-directed study according to the principles of the ECTS</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures</td><td>26</td></tr>
<tr><td>Case studies – Tutorial</td><td>26</td></tr>
<tr><td>Essay writing</td><td>25.5</td></tr>
<tr><td>Study</td><td>35</td></tr>
<tr><td>Course total</td><td>112.5</td></tr>
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</td></tr>
<tr><td>STUDENT PERFORMANCE EVALUATION
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.</td><td>Written examination, case studies and team work assignment

Written examination: 60%
Laboratory exercise: 40%</td></tr>
</table>

(5) ATTACHED BIBLIOGRAPHY

1. Gaither, N. (1996). *Production and operations management*. Belmont, Calif.: Duxbury Press.