GAU, Faculty of Engineering

Course Unit Title	**Production Systems**
Course Unit Code	IE 312
Type of Course Unit	Compulsory
Level of Course Unit	3rd Year BSc
National Credits	3
Number of ECTS Credits Allocated	6
Theoretical (hour/week)	3
Practice (hour/week)	0
Laboratory (hour/week)	0
Year of Study	3
Semester when the course unit is delivered	6
Mode of Delivery	Face to Face, Class discussions, Lab Support
Language of Instruction	English
Prerequisities and co-requisities	-
Recommended Optional Programme Components	-

Objectives of the Course:

- Introduction and conceptual overview of basic concepts of Manufacturing Systems
- Planning of Manufacturing Systems
- Flexible Manufacturing Systems
- Computer Integrated Manufacturing System Applications
- Overview of Just-in-Time Philosophy
- Production Management Systems

Learning Outcomes

When this course has been completed the student should be able to		Assesment.
1	Explain the basic concepts of manufacturing systems	1,2
2	Compare and contrast types of manufacturing systems	1,2
3	Apply Material Requirements Planning	1,2
4	Explain traditional and automated product cycles	1,2,3
5	Apply the product cycle on a real life project	1,3,4,5

Assesment Methods: 1. Written Exam, 2. Assignment 3. Project/Report, 4.Presentation, 5 Lab. Work

Course's Contribution to Program

		CL
1	Ability to understand and apply knowledge of mathematics, science, and engineering	2
2	Ability to design and conduct experiments as well as to analyze and interpret data	3
3	Ability to work in multidisciplinary teams while exhibiting professional responsibility and ethical conduct	5
4	Ability to apply systems thinking in problem solving and system design	3
5	Knowledge of contemporary issues while continuing to engage in lifelong learning	3
6	Ability to use the techniques, skills and modern engineering tools necessary for engineering practice	5
7	Ability to express their ideas and findings, in written and oral form	5
8	Ability to design and integrate systems, components or processes to meet desired needs within realistic constraints	2
9	Ability to approach engineering problems and effects of their possible solutions within a well structured, ethically responsible and professional manner	4
10	Ability to design systems, processes or products by applying modern methods of work study, ergonomics, production systems and simulation while fulfilling requirements under realistic conditions	5
11	Ability to plan and improve system performance using production planning, quality planning and control, information system design and project planning techniques	4

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate 4: High, 5:Very High)

Course Contents

Week			Exams
1		Overview of Basic Concepts of Manufacturing Systems	
2		Types of Manufacturing Systems	
3		Product Cycle (Traditional)	
4		Product Cycle (Automated)	
5		Computer Integrated Manufacturing (Lab Support)	
6		Computer Integrated Manufacturing (Lab Support)	
7		Computer Integrated Manufacturing (Lab Support)	
8		Flexible Manufacturing Systems (Lab Support)	Midterm
9		Flexible Manufacturing Systems (Lab Support)	
10		Group Technology	
11		Just-in-Time Philosophy	
12		Material Requirements Planning	Quiz
13		Material Requirements Planning	
14		Project Presentations	
15			Final

Recommended Sources

Textbook:

1. Lecture Notes 2. Brown, J., A World Class Production System, 1998

2.Black, J. T. The Design of the Factory with a Future, McGrawHill,1991

Assessment

Attendance&Assignments	5%	
Midterm Exam (Written)	25%	
Quiz (Written)	10%	
Project Report and Presentation (Written and Oral)	20%	
Final Exam (Written)	40%	
Total	100%	

ECTS Allocated Based on the Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including the Exam week)	15	3	45
Labs and Tutorials	-	-	-
Assignments	2	5	10
Project/Presentation/Report Writing	1	30	30
E-learning Activities	-	-	-
Quizzes	1	10	10
Midterm Examination	1	22	22
Final Examination	1	25	25
Self Study & Lab Support	14	4	48
Total Workload			190
Total Workload/30 (h)			6.3
ECTS Credit of the Course			6