



BENHA UNIVERSITY



FACULTY OF ENGINEERING AT SHOUBRA

COURSE SPECIFICATIONS (2014-2015)

Model No.12

Course Specifications: Modeling and Analysis of Manufacturing Systems

University: Benha University

Faculty: Faculty of Engineering at Shoubra

Department offering the program: Mechanical Engineering Department

Department offering the course: Mechanical Engineering Department

1- Course Data

Course Code: MDP343

Course Title: Modeling and Analysis of Manufacturing Systems

Specialization: Mechanical Production Engineering

Course Type: Elective

Study Year: Third Year

Teaching Hours: Lecture: 4

Tutorial: 2

Practical: 0

Total: 6

2- Course Aim

For students undertaking this course, the aims are to:

1. Understanding the basic concepts of different manufacturing systems.
2. Analysis and measure the performances of the manufacturing systems
3. Modeling and simulate the different manufacturing systems

3- Intended Learning Outcomes of Course (ILO's)

Knowledge and Understanding Skills: On completing this course, students will be able to demonstrate the knowledge and understanding of:

- a-1. The fundamentals and specialized knowledge in the manufacturing systems. (A13)
- a-2. The principles and fundamentals of the modeling and simulation systems. (A18)

a. Intellectual Skills: At the end of this course, the students will be able to:

- b-1. Analyze the performance measures in the manufacturing systems. (B5)
- b-2. Apply the modeling and simulation methods to solve problems. (B12)

b. Practical and Professional Skills: On completing this course, the students are expected to be able to:

- c-1. Assess methods and current tools in the manufacturing systems. (C19)
- c-2. Write and evaluate professional reports about simulation results. (C16)

c. General and Transferable Skills: At the end of this course, the students will be able to:

- d- 1) Collaborate effectively within multidisciplinary team. (D.1).
- d- 2) Search for information and engage in life-long self-learning (D.7).



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4- Course Contents

Week no.	Topics
1	Introduction to Manufacturing systems
2	Performance measures for manufacturing systems
3	Process Planning and group technology
4	Facility layout
5	Scheduling of manufacturing systems
6	Concepts of modeling and simulation
7	Modeling and analysis of Cellular manufacturing systems
8	Modeling and analysis of Flexible manufacturing systems

5- Teaching and Learning Methods

- 5.1- Lectures
- 5.2- Class activity
- 5.3- Case study
- 5.4- Assignments / homework

6- Teaching and Learning Methods of Disables

- Nothing.

7- Student Assessment

a- Student Assessment Methods

1. Five Assignments to assess knowledge and intellectual skills.
2. One Quizzes to assess knowledge, intellectual and professional skills.
3. Midterm exam to assess knowledge, intellectual, professional and general skills.
4. Final exam to assess knowledge, intellectual, professional and general skills.

b- Assessment Schedule

NO.	Assessment	Week
1	Assignments	3,5,7,9,11
2	Quiz	12
3	Midterm exam	8
4	Oral exam	-
5	Final exam	15

c- Weighting of Assessments

Assessment	Weight (%)
Midterm Examination	20
Final Term Examination	67
Oral Examination	00
Practical Examination	00
Semester Work	8
Other Types of Assessment	5
Total	100



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8- List of References

a- Course Notes: 1- Course notes prepared by instructor.

b- Recommended Books

1. Mikell P. Groover, 2008, Automation, Production Systems, and Computer-Integrated Manufacturing, 3rd ed., Pearson/Prentice Hall, ISBN: 0-13-239321
2. Banks J. (ed.) "Handbook of Simulation" Wiley, 1998.

b. Web Sites

- [www.google.com/manufacturing systems simulation](http://www.google.com/manufacturing%20systems%20simulation)

Course Coordinator: Dr. / Sayed Ali Zayan

Head of Department: Prof. Dr. Osama Ezzat Abdelatif



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FACULTY OF ENGINEERING AT SHOUBRA

COURSE SPECIFICATIONS (2014-2015)

Model No.11A

Course Specifications: Modeling and Analysis of Manufacturing Systems

University: Benha University

Faculty: Faculty of Engineering at Shoubra

Department offering the program: Mechanical Engineering Department

Department offering the course: Mechanical Engineering Department

Matrix of Knowledge and Skills of the Course

no.	Topics	Week no.	Knowledge and Understanding Skills	Intellectual Skills	Practical and Professional Skills	General and Transferable Skills
1	Introduction to Manufacturing systems	1	a1			
2	Performance measures for manufacturing systems	2,3		b1	c1	
3	Process Planning and group technology	4,5		b1	c1	
4	Facility layout	6	a1			
5	Scheduling of manufacturing systems	7	a2	b1		
6	Concepts of modeling and simulation	9,10	a2			d1
7	Modeling and analysis of Cellular manufacturing	11,12		b2	c1,c2	d2
8	Modeling and analysis of Flexible manufacturing	13,14		b2	c1,c2	d2

Course Coordinator: Dr. Sayed Ali Zayan

Head of Department: Prof. Dr. Osama Ezzat Abdelatif



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COURSE SPECIFICATIONS (2014-2015)

Matrix of Course Aims and ILO's

Course Title: Modeling and Analysis of Manufacturing Systems

Course Code: MDP343

Teaching Hours: Lecture: 4 Tutorial: 2 Total: 6

Major or minor element of program: Major

Program on which the course is given: B.Sc. Mechanical Production Engineering

Department offering the program: Mechanical Engineering Department

Department offering the course: Mechanical Engineering Department

Academic year / level: 2014-2015 Third Year / First Semester

Date of specifications approval: 2014

Course aims	Knowledge and Understanding Skills	Intellectual Skills	Practical and Professional Skills	General and Transferable Skills
Understanding the basic concepts of different manufacturing systems.	a1			
Analysis and measure the performances of the manufacturing systems		b1,b2	c1,c2	d1
Modeling and simulate the different manufacturing systems	a2	b1,b2	c1,c2	d1,d2

Course Coordinator: Dr. Sayed Ali Zayan

Head of Department: Prof. Dr. Osama Ezzat Abdelatif