



**BENHA UNIVERSITY**



**FACULTY OF ENGINEERING AT SHOUBRA**

**COURSE SPECIFICATIONS (2014-2015)**

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**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  
Engineering

Production

**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) Work together effectively within a team. (D.1).
- d- 2) Examine for information and engage in life-long self-learning modeling (D.7).

**COURSE SPECIFICATIONS (2014-2015)****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
<b>Total</b>	<b>100</b>

**8- List of References**

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



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**b- Recommended Books**

1. Mikell P. Groover, 2008, *Automation, Production Systems, and Computer-Integrated Manufacturing*, 3<sup>rd</sup> 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 systems simulation)

**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

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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
1- Understanding the basic concepts of different manufacturing systems.	a1			
2- Analysis and measure the performances of the manufacturing systems		b1,b2	c1,c2	d1
3- Modeling and simulate the different manufacturing systems	a2	b1,b2	c1,c2	d1,d2

**Course Coordinator:** Dr. Sayed Ali Zayan

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