



BENHA UNIVERSITY



FACULTY OF ENGINEERING AT SHOUBRA

COURSE SPECIFICATIONS (2014-2015)

Model No.12

Course Specifications: Integrated Design

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: MDP341

Course Title: Integrated Design

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. Provide students with the basics and philosophy of integrated design.
2. Provide students with the concepts of group technology and concurrent design.
3. Teach the students how choose the proper materials for integrated design.

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

- a. **Knowledge and Understanding Skills:** On completing this course, students will be able to demonstrate the knowledge and understanding of:
 - a.1) Basics of integrated design and design philosophy (A.2).
 - a.2) The different characteristics of engineering design alternatives. (A.3).
- b. **Intellectual Skills:** At the end of this course, the students will be able to:
 - b.1) Choice of proper solutions for engineering problems based on integrated design. (B.2).
 - b.2) Assess different ideas about concurrent design from a range of sources. (B.4).
 - b.3) Investigate and determine the source of failure of components. (B.6).
- c. **Practical and Professional Skills:** On completing this course, the students are expected to be able to:
 - c.1) Apply knowledge of materials science, production technology and group technology to solve manufacturing problems. (C.1).
 - c.2) Use group technology techniques and software in manufacturing and assembly. (C.5).
 - c.3) Use a wide range of analytical tools and software packages related to integrated design. (C.6).
- d. **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) Work in stressful environment and within constraints. (D.2).
 - d.3) Communicate effectively (D.3).
 - d.4) Effectively manage tasks, time, and resources (D.6).

**COURSE SPECIFICATIONS (2014-2015)****4- Course Contents**

Week no.	Topics
1	Introduction to Integrated design
2	Design philosophy
3	Group technology
4	Manufacturing alternative
5	Concurrent design and assembly
6	Concurrent design and maintenance
7	Optimal design criteria
8	Materials for integrated design
9	Concurrent design and product inspection
10	Concurrent design and reliability analysis

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. Four Assignments to assess knowledge and intellectual skills.
2. Two quizzes to assess knowledge, intellectual and professional skills.
3. Midterm exam to assess knowledge, intellectual, professional and general skills.

b- Assessment Schedule

NO.	Assessment	Week
1	Assignments	3,6,9,11
2	Quiz	4, 10
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



BENHA UNIVERSITY



FACULTY OF ENGINEERING AT SHOUBRA

COURSE SPECIFICATIONS (2014-2015)

8- List of References

a- Course Notes:

- 1- Course notes prepared by instructor

b- Recommended Books

- 1- David D. Bedworth, Mark R. Henderson, Philip M. Wolfe, "Computer Integrated Design and Manufacturing", McGraw-Hill Inc.

Course Coordinator: Prof. Dr. Mohamed Salah Aldeen Abass Hamed & Dr. Sayed Ali Zayan

Head of Department: Prof. Dr. Osama Ezzat Abdelatif



BENHA UNIVERSITY



FACULTY OF ENGINEERING AT SHOUBRA

COURSE SPECIFICATIONS (2014-2015)

Model No.11A

Course Specifications: Integrated Design

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 Integrated design	1	a1			
2	Design philosophy	1	a2	b1		
3	Group technology	1	a1	b2		
4	Manufacturing alternative	1	a1	b3	c1	
5	Concurrent design and assembly	2		b3		
6	Concurrent design and maintenance	1	a1	b3	c2	d1
7	Optimal design criteria	1	a2	b2	c2	d4
8	Materials for integrated design	1			c1, c3	d2, b3
9	Concurrent design and product inspection	2		b1, b3	c3	d1, d4
10	Concurrent design and reliability analysis	2	a2			d2

Course Coordinator: Prof. Dr. Mohamed Salah Aldeen Abass Hamed & Dr. Sayed Ali Zayan

Head of Department: Prof. Dr. Osama Ezzat Abdelatif



BENHA UNIVERSITY



FACULTY OF ENGINEERING AT SHOUBRA

COURSE SPECIFICATIONS (2014-2015)

Matrix of Course Aims and ILO's

Course Title: Integrated Design

Course Code: MDP341

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

Major or minor element of program: Minor

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	Basic Knowledge	Intellectual skills	Professional skills	General skills
Provide students with the basics and philosophy of integrated design.	a2	b1	c1	d1, d3, d4
Provide students with the concepts of group technology and concurrent design.	a1, a2	b2	c1, c3	
Teach the students how choose the proper materials for integrated design.	a2	b3	c1	d1, d3, d4

Course Coordinator: Prof. Dr. Mohamed Salah Aldeen Abass Hamed & Dr. Sayed Ali Zayan

Head of Department: Prof. Dr. Osama Ezzat Abdelatif