Model No.12
Course Specifications: Computer Application in Design and Manufacturing

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: MDP313

Course Title: Computer Application in Design and Manufacturing

Specialization: Mechanical Production Engineering

Course Type: Compulsory

Study Year: Third Year

Teaching Hours: Lecture: 2   Tutorial: 2   Practical: 0   Total: 4

2- Course Aim

For students undertaking this course, the aims are to:

1. Using computer packages for design and manufacture products.

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

a. **Knowledge and Understanding Skills:** On completing this course, students acquiring the knowledge and understanding of:

a.1) Concepts and theories, appropriate to the computer application in design and manufacturing. (A.1).

a.2) Characteristics of engineering principles related to CAM. (A.3).

a.3) Principles of design including elements, design, and process related to specific computer application in design and manufacturing. (A.4).

a.4) The specifications, programming and range of application of CAD and CAD/CAM facilities. (A15).

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

b.1) Select appropriate solutions for engineering problems based on computer numerical control. (B.1).

b.2) Solve design problems using CAD/CAM interface programs. (B.5).

b.3) Use numerical control software to design and manufacture engineering components. (B.7).

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

c.1) Professionally merge the engineering knowledge, understanding, and feedback to improve design, product and/or services (C.2)

c.2) Use computational facilities and techniques measuring instruments in CAD/CAM workshops and laboratories to manufacture components (C.5).

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) Lead and motivate individuals. (D.3)

4- Course Contents

Week no.	Topics
1	Introduction
2	Concepts of CAD/CAM
3	CAD definitions
4	CAD systems
5	CAD software
6	CAD examples
7	CAD-CAM interface
9	Concepts of computer aided manufacture
10	Numerical control machines
11	Numerical control programming
12	Numerical control examples
13	NC software

5- Teaching and Learning Methods

5.1 Lectures

5.2 Tutorial

5.3 Class activity

5.4 Assignments/homework

5.5 Seminar/workshop

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.
4. Oral exam to assess knowledge, intellectual, professional and general skills.
5. Final exam to assess knowledge, intellectual, professional and general skills.

b- Assessment Schedule

NO.	Assessment	Week
1	Assignments	3-6-9-11
2	Quiz	3,6
3	Midterm exam	8
4	Oral exam	13
5	Final exam	15

c- Weighting of Assessments

Assessment	Weight (%)
Midterm Examination	10
Final Term Examination	60
Oral Examination	20
Semester Work	10
Other Types of Assessment	00
Total	**100**

8- List of References

a- Course Notes: 1- Course notes prepared by instructor
(power point slider

b- Recommended Books

- 1- G.E. thyer "computer numerical control of machine tools NEWES, ISBN 0750601191,1991

Course Coordinator: Prof. Dr. Tamer Samir Mahmoud & Dr. Sameh Shawky Hapip

Head of Department: Prof. Dr. Osama Ezzat Abdelatif

Model No.11A

Course Specifications: Computer Application in Design and Manufacturing)

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	1	a1			d1
2	Concepts of CAD/CAM	2		b2		d1
3	CAD definitions	3			c1	
4	CAD systems	4		b5		d2
5	CAD software	5				
6	CAD examples	6	a2		c2	
7	CAD-CAM interface	7			c1	
8	Concepts of computer aided manufacture	8	a2	b1		d2
9	Numerical control machines	9	a1		c1.c2	
10	Numerical control programming	10	a4		C2	
11	Numerical control examples	11	a3, a4			d2
12	NC software	12		b2		d2
13	CNC	13	a2		c2	

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Matrix of Course Aims and ILO's

Course Title: Computer Application in Design and Manufacturing)

Course Code: MDP313

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

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	Basic Knowledge	Intellectual skills	Professional skills	General skills
Using computer packages for design and manufacture products	a1 a3 a4	b1 b3	c2	d1 d2

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