



BENHA UNIVERSITY



FACULTY OF ENGINEERING AT SHOUBRA

Model No.12
Course Specifications (2014-2015)
Mechanical Drawing & Machine Construction I

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: MDP112

Course Title: Mechanical Drawing & Machine Construction I

Specialization: Mechanical Production Engineering

Course Type: Compulsory

Study Year: First Year

Teaching Hours: Lecture: 1

Tutorial: 4

Practical: 0

Total: 5

2- Course Aims

For students undertaking this course, the aims are to:

1. The necessary knowledge and skills required to construct assembly and production drawings using manual techniques as well as SolidWorks CAD Software.
2. The basic theory and application of (dimensional and geometrical) tolerances.
3. The basic principles of mechanical drawing conventions including: surface texture symbols, welding symbols...etc.

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) The principals of machine drawing appropriate to the mechanical production engineering. (A.4)
 - a.2) The principles of design and construction including elements drawing. (A.4)
- b. **Intellectual Skills:** At the end of this course, the students will be able to:
 - b.1) Select appropriate computer-based methods for drawing and modeling. (B.1)
 - b.2) Investigate the failure of machine element components. (B.6)
 - b.3) Solve engineering drawing problems. (B.7)
- c. **Practical and Professional Skills:** On completing this course, the students are expected to be able to:
 - c.1) Apply knowledge of design and machine drawing practice to solve engineering problems. (C.1)
 - c.2) Create assembly and working drawings. (C.3)
- 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)



4- Course Contents

Week no.	Topics
1	Introduction to the Course
2	Assembly & Working Drawings
3	Threaded Fasteners I
4	Threaded Fasteners II
5	Dimensional Tolerances
6	Fits I
7	Fits II
9	Surface Texture I
10	Surface Texture II
11	Geometrical Tolerances I
12	Geometrical Tolerances II
13	Welding Symbols I
14	Welding Symbols II

5- Teaching and Learning Methods

- 5.1 Lectures.
- 5.2 Class activity.
- 5.3 Practical work/Laboratory.
- 5.4 Project.
- 5.5 Assignments/homework.

6- Teaching and Learning Methods of Disables

- Nothing.

7- Student Assessment

a- Student Assessment Methods

1. Eleven Assignments to assess knowledge and intellectual skills.
2. Midterm exam to assess knowledge, intellectual, professional and general skills.
3. Project to assess knowledge, intellectual, professional and general skills.

b- Assessment Schedule

NO.	Assessment	Week
1	Assignments	2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13
2	Midterm exam	8

c- Weighting of Assessments

Assessment	Weight (%)
Midterm Examination	50
Semester Work	40
SolidWorks Project	10
Total	100

8- List of References

a- Course Notes prepared by instructor

b- Recommended Books

- Colin Simmons, Dennis E. Maguire, Neil Phelps, "Manual of Engineering Drawing", Elsevier, 2009.



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- James D. Bethune, "Engineering Design and Graphics with SolidWorks", Prentice Hall, 2010.
- K. C. John, "Textbook of Machine Drawing", PHI Learning Pvt. Ltd., 2009.

Course Coordinator: Prof. Dr. Tamer Samir & Dr. Tamer Abdelfattah

Head of Department: Prof. Dr. Osama Ezzat Abdelatif



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FACULTY OF ENGINEERING AT SHOUBRA

Model No.11A

Course Specifications: Mechanical Drawing & Machine Construction I

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	Intellectual Skills	Practical and Professional Skills	General and Transferable Skills
1	Introduction to the Course	1	a1	b1		d2
2	Assembly & Working Drawings	2	a1	b2		d1
3	Threaded Fasteners I	3	a2	b2		
4	Threaded Fasteners II	4	a2	b2		
5	Dimensional Tolerances	5		b1, b2, b3		
6	Fits I	6		b1	c2	
7	Fits II	7		b3	c1	
8	Midterm Exam	8				
9	Surface Texture I	9		b3	c1	d1
10	Surface Texture II	10		b2	c2	d1
11	Geometrical Tolerances I	11		b2	c1	d1
12	Geometrical Tolerances II	12	a2		c1	
13	Welding Symbols I	13	a2		c1	
14	Welding Symbols II	14	a2		c2	
15	Project	15				

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FACULTY OF ENGINEERING AT SHOUBRA

Matrix of Course Content and ILO's

Course Title: Mechanical Drawing & Machine Construction I

Course Code: MDP112

Teaching Hours: Lecture: 1 Tutorial: 4 Total: 5

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 First Year / First Semester

Date of specifications approval: 16/3/2010

Course contents	a1	a2	b1	b2	b3	c1	c2	d1	d2
Introduction to the Course	✓		✓						✓
Assembly & Working Drawings	✓			✓				✓	
Threaded Fasteners I		✓		✓					
Threaded Fasteners II		✓		✓					
Dimensional Tolerances			✓	✓	✓				
Fits I			✓				✓		
Fits II					✓	✓			
Surface Texture I					✓	✓		✓	
Surface Texture II				✓				✓	
Geometrical Tolerances I				✓		✓		✓	
Geometrical Tolerances II		✓				✓			
Welding Symbols I		✓				✓	✓		
Welding Symbols II		✓							

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FACULTY OF ENGINEERING AT SHOUBRA

Course Curriculum Map

Course Title: Mechanical Drawing & Machine Construction I

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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 First Year / First Semester

Date of specifications approval: 16/3/2010

Course contents	a1	a2	b1	b2	b3	c1	c2	d1	d2	Teaching Methods	Assessment Methods
Introduction to the Course	✓		✓						✓	<ul style="list-style-type: none"> • Lecture • Class activity. • Assignments/homework 	Assignment, midterm exam, and Project
Assembly & Working Drawings	✓			✓				✓			
Threaded Fasteners I		✓		✓							
Threaded Fasteners II		✓		✓							
Dimensional Tolerances			✓	✓	✓						
Fits I			✓				✓				
Fits II					✓	✓					
Surface Texture I					✓	✓		✓			
Surface Texture II				✓				✓			
Geometrical Tolerances I				✓		✓		✓			
Geometrical Tolerances II		✓				✓					
Welding Symbols I		✓				✓	✓				
Welding Symbols II		✓									

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Matrix of Course Aims and ILO's

Course Title: Mechanical Drawing & Machine Construction I

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Department offering the program: Mechanical Engineering Department

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

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Course aims	a1	a2	b1	b2	b3	c1	c2	d1	d2
1. The necessary knowledge and skills required to construct assembly and production drawings using manual techniques as well as SolidWorks CAD Software.	✓	✓		✓			✓	✓	✓
2. The basic theory and application of (dimensional and geometrical) tolerances.	✓				✓	✓			
3. The basic principles of mechanical drawing conventions including: surface texture symbols, welding symbols...etc.			✓	✓	✓	✓	✓	✓	

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