



BENHA UNIVERSITY



FACULTY OF ENGINEERING AT SHOUBRA

## Model No.12

### Course Specifications (2014-2015)

### Production Engineering (3)

**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:** MDP211

**Course Title:** Production Engineering (3)

**Specialization:** Mechanical Production Engineering

**Course Type:** Compulsory

**Study Year:** Second Year

**Teaching Hours:** Lecture: 3

Tutorial: 1

Practical: 2

Total: 6

#### 2- Course Aims

For students undertaking this course, the aims are to:

1. Provide the student with basic concepts of casting technology.
2. Help students to perform different casting methods.
3. Help students to suggest design the gating system and design riser.
4. Prepare student to know fundamentals of welding, forging & sheet metal working processes.

#### 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) Characteristics of engineering materials for production engineering. (A.1)
- a.2) Different casting technologies. (A.1)
- a.3) Principles and theories for casting processes and welding processes. (A.4).
- a.4) The effect parameters on welding processes and casting processes (A.5).

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

- b.1) Think in a creative and innovative way in problem solving and design gating system and riser (B4).
- b.2) Evaluate the performances of balanced costs, benefits, safety, quality, reliability for welding (B7).
- b.3) Compare between the different types of costing methods (B9).
- b.4) Analyze and use the principles of engineering science in developing solutions to practical mechanical engineering problems in casting processes (B.11).

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

- c.1) Professionally used the engineering knowledge to improve the product design (C.1).
- c.2) Practice the neatness and aesthetics in mold design and approach (C.2)
- c.3) Apply safe systems at work and observe the appropriate steps to manage risks (C.3).
- c.4) Apply quality assurance procedures and follow codes and standards (C.4).

**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) Work in stressful environment and within constraints (D.2).
- d.3) Communicate effectively (D.3)



#### 4- Course Contents

Week no.	Topics
1	Casting technology
2	Casting technology
3	Casting methods
4	Molding types and its material- molding properties
5	Welding Technology
6	Welding Technology
7	Extrusion technique
9	Extrusion technique
10	Drawing Technique
11	Drawing Technique
12	Forging technique
13	Closed forging molds
14	Open forging molds

#### 5- Teaching and Learning Methods

- 5.1 Lectures
- 5.2 Class activity
- 5.3 Assignments/homework
- 5.4 Seminar / workshop

#### 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. Three 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	2, 3, 5, 7 and 13
2	Quiz	5, 10, 12
3	Midterm exam	8
4	Oral exam	13
5	Final exam	14

##### c- Weighting of Assessments

Assessment	Weight (%)
Midterm Examination	10 %
Final Term Examination	60 %
Oral Examination	20 %
Semester Work	0 %
Other Types of Assessment	10 %
<b>Total</b>	<b>100 %</b>



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**FACULTY OF ENGINEERING AT SHOUBRA**

## **8- List of References**

**a- Course Notes** prepared by instructor

### **b- Recommended Books**

- Schmid, S. "Manufacturing Engineering and Technology", Pearsan Education, Inc., 2006.

**Course Coordinator:** Prof. Dr. Ibrahim Mousa Ibrahim & Dr. Sayed Abdelwanis

**Head of Department:** Prof. Dr. Osama Ezzat Abdelatif



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**FACULTY OF ENGINEERING AT SHOUBRA**

**Model No.11A**

**Course Specifications: Production Engineering (3)**

**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	Casting technology	1		b5	C3	
2	Casting technology	2	a3,a4	b1	C2	
3	Casting methods	3	a2	b1, b2	c4	
4	Molding types and its material-molding properties	4	a2	b1,b5		
5	Welding Technology	5	a1	b1		d1
6	Welding Technology	6	a3		c1	
7	Extrusion technique	7	a3, a4	b3, b4	c2	d2
8	Midterm Exam	8				
9	Extrusion technique	9	a2		c2	
10	Drawing Technique	10	a2	b5	c4	d1, d3
11	Drawing Technique	11	a3	b2, b5		
12	Forging technique	12		b1	c3	d1, d3
13	Closed forging molds	13	a2, a3		c3	
14	Open forging molds	14	a2	b5	c4	d2
15	Final Exam	15				

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**FACULTY OF ENGINEERING AT SHOUBRA**

**Matrix of Course Aims and ILO's**

**Course Title:** Production Engineering (3)

**Course Code:** MDP 211

**Teaching Hours:** Lecture: 3                      Tutorial/Practical: 3                      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 Second Year / First Semester

**Date of specifications approval:** 2014

Course aims	a	b	c	d
1. Provide the student with basic concepts of casting technology.	a1 a3	b1 b2 b5	c1 c2 c6	d1 d3
2. Help students to perform different casting methods.	a1 a2 a3	b2 b4	c1 c4 c7	d2
3. Help students to suggest design the gating system and design riser.	a1 a4	b2 b3	c3 c5 c6	d4
4. Prepare student to know fundamentals of welding, forging & sheet metal working processes.	a3	b3 b5	c3	

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