Department offering the program: Electronics and Electrical Communications
Department offering the course: Physics and Engineering Mathematics

Course Specification

1- Course basic information :		
Course Code: PME 025 Department requirement	**Course Title: Production Engineering**	**Academic years:2015-2016 Level (0) – Semester : 2nd**
Field: Practical and projects	**Teaching hours: Lecture: 2**	**Tutorial: 0 Lab: 2**

2- Course Objectives	1. To give students a simple introduction and general knowledge about the engineering materials. 2. To provide students with the primary processes for producing semi finished products. 3. To introduce students to measuring Instruments. 4. To give students an idea about industrial organization and safety. 5. To acquire students the basic practical workshop skills such as measurements, wood working, sheet-metal working, bench working, forging, casting, machining and welding techniques.

3- Intended Learning Outcomes: ARS		**Course ILOs**
A- Knowledge and Understanding:	A.3. Define Characteristics of engineering materials related to production engineering.	A.3.1 Define the characteristics of engineering materials; ferrous, non-ferrous metals and woods.
	A.6. State quality assurance systems, codes of practice and standards, health and safety requirements and environmental issues.	A6.1 State quality assurance systems, health and safety requirements and environmental issues related to the processes for producing semi finished products. A6.2 State quality assurance systems, health and safety requirements for Cutting and non-cutting processes for producing final products. A6.3 State safety requirements for Industrial organization. A6.4 State quality assurance systems, health, and safety requirements and environmental issues related to wood working, sheet-metal working, bench working, forging, casting, machining and welding techniques.
	A.7. List business and management principles relevant to production engineering.	A7.1 List business and management principles relevant to the processes for producing semi finished products. A7.2 List business and management principles relevant to wood working, sheet-metal working, bench working, forging, casting, machining and welding techniques.
	A.8. Describe current engineering technologies as related to production engineering.	A8.1 Describe current engineering technologies relevant to Cutting processes for producing final products. A8.2 Describe current engineering technologies relevant to different measuring equipment.

		A8.3 Describe current engineering technologies relevant to metal and wood forming. A.8-4 Describe current engineering technologies relevant to forging, casting, machining and welding techniques.
B- Intellectual Skills	B.5. Assess and evaluate the characteristics and performance of components, systems and processes.	B5.1 Assess and evaluate the characteristics and performance of engineering materials. B5.2 Assess and evaluate the characteristics and performance workshop measuring equipment. B5.3 Assess and evaluate the characteristics and performance of metal forming and wood forming. B5.4 Assess and evaluate the characteristics and performance of forging, casting, machining and welding techniques.
	B.9 Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact.	B9.1 Judge engineering decisions considering balanced costs, safety, and quality for processes for producing semi finished products. B9.2 Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact for wood working, sheet-metal working, and bench working. B9.3 Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact for forging, casting, machining and welding techniques.
C- Professional Skills	C.8. Apply safe systems at work and observe the appropriate steps to manage risks.	C8.1. Apply safe systems at work and observe the appropriate steps to manage risks during the Cutting process. C8.2. Apply safe systems at work and observe the appropriate steps to manage risks that can be arising in wood working, sheet-metal working, and bench working forging, casting, machining and welding techniques.
	C.12. Prepare and present technical reports.	C.12.1 Prepare and present technical reports on Industrial organization and safety. C.12.2 Prepare and present technical reports on the process of metal and wood forming, forging, casting, machining and welding techniques.
D- General Skills	D.1. Collaborate effectively within multidisciplinary team.	D.1-1 Collaborate effectively within multidisciplinary team while doing tasks in mechanical workshops.
	D.2. Work in stressful environment and within constraints.	D.2-1 Work in stressful environment and within constraints to finish workshop tasks on time.
	D.3. Communicate effectively.	D.3-1 Communicate effectively with his colleagues in workshop times.
	D.6. Effectively manage tasks, time, and resources.	D.6-1 Effectively manages tasks, time, and resources while practicing some workshop tasks.

4- (a) Course Contents	Engineering materials- The primary processes for producing semi finished products- Cutting and non-cutting processes for producing final products- The inspection by using different measuring equipment - Industrial organization and safety- Basic operations in workshop such as measurements, wood working, sheet-metal working, bench working, forging, casting, machining and welding techniques.
4- (b) Workshop practicing Contents	١- تمارين ونماذج عملية على تشكيل الخشب بورشة النجارة ٢- تمارين ونماذج عملية على تشكيل المعادن بورش الخراطة والبرادة واللحام
5- Teaching and Learning Methods	- Lectures with data show, white board and markers and some video films. - Workshop training. - Reports about some selected topics.
6- Teaching and Learning Methods for disable students	- Assign a portion of the office hours for those students. - Arrange meetings for more discussion and declaration. - Repeat the explanation in case of enquire for some of the material in lecture and workshop times.
7- Student Assessment:	
a. Assessment Methods	- Weekly attendance at workshop and Reports - Quizzes - Oral and practical exam at workshop - Midterm, and final exams
b- Assessment Schedule	- Workshop exercises: Weekly - Quizz-1: Week no 4 - Mid-Term exam: Week no 8 - Oral and practical exam at workshop: Week no 15 - Final – term examination: Week no 16
c- Weighting of Assessment	- Workshop exercises and quizzes: 10 % - Mid-term examination: 10 % - Oral and Practical exam: 20 % - Final – term examination: 60 % Total 100 %
1- List of text books and references	
a- Course notes	There are lectures notes prepared in the form of a book authorized by the department
b- Text books	1. M. Eissa: Production Engineering. 3th edition. Eitrac for publishing books (2005). 2. H. El-Houfy: Nontraditional machining techniques. Taylor & Francis (2007).
c- Recommended books	1. Chapman: Workshop technology. Volumes 1, 2 and 3. Routledge (1972).
d- Periodicals, Web sites …etc	All Web sites related to the course.

Course contents - ILOs Matrix

Content Topics	Week	A- Knowledge & Understanding	B- Intellectual skills	C- Professional and practical skills	D- General and transferable skills
Engineering materials	1-2	A.3.1	B5.1		D1,D2,D3,D6
The primary processes for producing semi finished products	3-4	A6.1, A7.1	B9.1		D1,D2,D3,D6
Cutting and non-cutting processes for producing final products	5-6	A6.2,A8.1		C8.1	D1,D2,D3,D6
The inspection by using different measuring equipment.	7	A8.2	B5.2		D1,D2,D3,D6
Industrial organization and safety	9-10	A6.3		C12.1	D1,D2,D3,D6
Basic operations in work-shop such as measurements, wood working, sheet-metal working, bench working, forging, casting, machining and welding techniques	11-14	A3.1, A6.4, A7.2, A8.3 A8.4	B5.3, B5.4, B9.2, B9.3	C8.2, C12.2	D1,D2,D3,D6

Teaching and Learning Methods - ILOs Matrix

Teaching and Learning Methods	A- Knowledge & Understanding	B- Intellectual skills	C- Professional and practical skills	D- General and transferable skills
Lectures	A.3,A.6,A.7,A.8	B.5		
Workshop training	A.3,A.6,A.7,A.8	B.5	C.8	D.1,D.2,D.3,D.6
Reports	A.3,A.6,A.7,A.8	B.5	C.12	

Assessment Methods - ILOs Matrix

Assessment Methods	A- Knowledge & Understanding	B- Intellectual skills	C- Professional and practical skills	D- General and transferable skills
Workshop exercises/ Reports	A.3,A.6,A.7,A.8	B.5	C.8	D.1,D.2,D.3,D.6
Oral and practical exam at workshop	A.3,A.6,A.7,A.8	B.5	C.8	D.2,D.6
Quizzes, Midterm, and Final Written exams	A.3,A.6,A.7,A.8	B.5		D.2,D.6

Authorized from department board at 15/05/2016
Authorized from college board at 05/06/2016

Course coordinator: Prof. Dr. Mustafa H. Eissa

Head of Department: Prof. Fathi El-Sayed Abd El-Samie

Department offering the program: Electronics and Electrical Communications
Department offering the course: Electronics and Electrical Communications Engineering