

## Faculty of Engineering & Technology

### Production Technology

**Information :**

**Course Code :** MAN 121

**Level :** Undergraduate

**Course Hours :** 2.00- Hours

**Department :** Faculty of Engineering & Technology

**Instructor Information :**

Title	Name	Office hours
Professor	Maher Mohamed Aboelhassan Nofal	1
technician	Ahmed Hassan Fares Fargaly	
technician	Essam Mostafa Mohamed Hamed	
technician	Abdel Samad Taha Mahmoud Ahmed Abdelkarim	
technician	Mohamed Mounir Mohamed Mousa Al wakeel	
technician	Bayomi Abul Sabae Mohamed Bayomi	
technician	Saleh Mostafa El Sayed Ali Youssif	

**Area Of Study :**

understand the basic concepts of all bulk production processes.  
 calculate the loads & energy or power required for machining & forming processes.  
 determine the effect of each process parameter & material properties on stress & strain distributions in the deformed material during the forming process.  
 select the appropriate production technique for the production specific product.  
 understand the basic concepts of all metal welding processes.  
 assist & select a metal cutting process for specific components & products.  
 select the proper cutting process parameters to obtain the metal removal rate.

**Description :**

Engineering materials: material structure and properties, metallic alloys and equilibrium diagrams, Metal forming: casting, forging, rolling, drawing, extrusion and spinning, Welding and riveting: soldering, brazing, electric arc welding, cold pressure and friction welding, electric resistance welding, spot, seam and projection welding, Metal cutting: hand tools and machining processes, centre lathe, shaper and drill, Measuring instruments, lengths and angles, specifications and standardization, Elements of production management systems and cost of production.

**Course outcomes :**

**a. Knowledge and Understanding: :**

1 -	know the advantages & disadvantages of all production & forming processes.
2 -	know the concept & operation of equipment used in metal forming, cutting, welding processes.
3 -	understand the effects of friction & lubrication in metal forming process.
4 -	know how to choose the suitable material for a specific application.
5 -	Understand the origin of common type of defects encountered during forming and to know the methods of elimination of such defect to manufacture sound products

6 -	Understand the origin and to know the methods of elimination of
<b>b.Intellectual Skills: :</b>	
1 -	- Calculate the machining load, torque, power, and time using simple methods
2 -	Know the importance of hot and cold forming processes
3 -	Explain the equipment used for metal forming processes and cutting processes and its functions.
4 -	- Determine the process parameters to give the optimal machining and forming condition
<b>c.Professional and Practical Skills: :</b>	
1 -	Suggest an appropriate production technique for a specific application
2 -	Identify the defects in formed parts, and to suggest the method of elimination
3 -	Adjust process variables to achieve specific results
<b>d.General and Transferable Skills: :</b>	
1 -	Use the internet to know new topics
2 -	Correlate the quality with the method of production

<b>Course Topic And Contents :</b>			
<b>Topic</b>	<b>No. of hours</b>	<b>Lecture</b>	<b>Tutorial / Practical</b>
The nature of materials,	4	2	2
Mechanical behavior and properties of materials	4	2	2
Alloys, phase diagrams	4	2	2
Metal casting processes	4	2	2
Metal forming processes (rolling, forging, extrusion)	4	2	2
Metal forming processes (drawing, sheet metal working)	4	2	2
First midterm exam			
Welding and riveting (soldering, brazing, electric arc welding)	4	2	2
Welding and riveting (cold pressure and friction welding, electric resistance welding, spot, seam and projection welding)	4	2	2
Metal cutting (turning)	4	2	2
Second midterm exam			
Metal cutting (milling)	4	2	2
Metal cutting (shaping, drilling)	4	2	2
Measuring instruments, lengths and angles , specifications and standardization	4	2	2
Final exam			

<b>Teaching And Learning Methodologies :</b>
Whiteboard and coloured markers
Power point data show
Workshop training and a field excursions

Library visits and research papers using the internet

**Course Assessment :**

Methods of assessment	Relative weight %	Week No	Assess What
Final exam	60.00	15	Intellectual skills, Professional skills, General
First midterm	15.00	7	Knowledge and understanding, Intellectual
Second Mid-term	15.00	11	Knowledge and understanding, Intellectual
Workshop exam	10.00	1	Professional skills, Knowledge and

**Course Notes :**

notes & handouts

**Recommended books :**

Fundamental of Modern Manufacturing ,  
Mikell P. Groover  
Prentice Hall ,2010