FUTURE UNIVERSITY IN EGYPT
جامعة المستقبل

Faculty of Engineering & Technology

Production Engineering 1

Information :

Course Code :	MAN 221	**Level :**	Undergraduate	**Course Hours :**	2.00- Hours

Department : Department of Mechanical Engineering

Instructor Information :

Title	Name	Office hours
Lecturer	SAMAH ELSAYED ELMETWALLY ELKHATIB	3
Lecturer	SAMAH ELSAYED ELMETWALLY ELKHATIB	3
Teaching Assistant	Ahmed Ibrahim Sadek Mostafa Elgindy	
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Area Of Study :

By the end of the course the students will be able to:
Get a basic idea of solidification and casting, alloys, structure and properties, casting products and applications,
know about the different casting processes, mould and core-making, sand properties and testing, behaviour of liquid metals, melting and melt treatment,
Make design for a sound casting using basic equations and to specify the required moulding materials,
Deal with casting quality control methods,

Description :

Introduction to machining processes, Cutting elements, Cutting with single edge cutting tools, Cutting tool materials and its characteristics, Cutting velocity and feed, Machining time, Power consumption in cutting, Practical machining operations: turning, shaping, drilling, Cutting with multi-edge, Cutting tools: milling, grinding, lapping, Simple dividing and dividing head, Basic elements of machine tools and specifications, Work fixation,
Tool fixation, Process sheet, Machining time allowances, Cost elements, Break-even point.

Course outcomes :

a.Knowledge and Understanding: :

1 -	Get a basic idea of solidification and casting, alloys, structure and properties, casting products and applications.
2 -	Explain different casting processes, mold and core-making, sand properties and testing, behavior of liquid metals, melting and melt treatment.
3 -	State the design basics for a sound casting using basic equations, and to specify the required molding materials.

b.Intellectual Skills: :

1 -	To be able to design for a sound casting using basic equations.
2 -	Design weld-joints for safe constructions.

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c.Professional and Practical Skills: :	
1 -	Identify different casting processes, mould and core-making, sand properties and testing, behaviour of liquid metals, melting and melt treatment.
2 -	Deal with design of casting mold, and cores.
3 -	Analyse the casting and predict the various casting defects.
d.General and Transferable Skills: :	
1 -	Know and make scientific Presentation by the casting project.
2 -	Write technical reports about the casting processes.
3 -	Practice working in team in the casting project.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Introduction to machining processes	6	4	2
Fundamentals of Machining: Cutting Elements, Cutting With single Edge Cutting Tools, Chip Formation, Mechanics of Cutting and Power Consumption	9	6	3
Cutting-Tool s: Materials and Characteristics and Tool Wear Cutting Fluids	9	6	3
Machining Processes: Turing, Shaping and Hole Making	9	6	3
Machining Processes: Milling, Broaching, Sawing, Filling, and Gear Manufacturing	6	4	2
Machining Time, and Machining Economics Break-even point	6	4	2

Teaching And Learning Methodologies :

Interactive Lecturing
Problem solving
Experiential learning
Discussion
Collaborative Research

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Assignments, Participation, & Quizzes	20.00		
Final Exam	40.00	16	
First Midterm Exam	20.00	5	
Second Midterm Exam	20.00	5	

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Recommended books :

-M. Lal ï O. P. Khanna, 1979, Text Book of Foundry Technology,
-John Campell, Casting, 2nd edition, Butterworth-Heinemann 2003----

Periodicals :

Journal of Metals, ASM, USA

Web Sites :

Websites on casting and websites on casting.

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