FUTURE UNIVERSITY IN EGYPT جامعة المستقبل

Faculty of Engineering & Technology

Industrial Automation (CAD/CAM)

Information :

Course Code :	MAN 350	**Level :**	Undergraduate	**Course Hours :**	2.00- Hours

Department : Specialization of Mechatronics Engineering

Instructor Information :

Title	Name	Office hours
Associate Professor	Hussein Mohamed Abdelmoneam Hussein	1
Assistant Lecturer	Rana Mohamed Abdel Rahman Saleh	4
Teaching Assistant	Donia Waheed Mohamed Abdelmonem Saleem	

Area Of Study :

The course aims to acquire the essential knowledge and understanding for the common CNC machines programming and using CADCAM packages:
- Basics of CAD,
- Basic of CAM,
- G-Code programming,
- Computer assisted part programming.

Description :

The course aims to acquire the essential knowledge and understanding for the common CNC machines programming and using CADCAM packages.

Course outcomes :

a.Knowledge and Understanding: :	
1 -	Demonstrate the basic concepts and theories of how CAD works.
2 -	Classify the different CAD modeling features.
3 -	Identify the principles of G-Code part programing
4 -	Collect data to understand how CNC machines are working
5 -	Use basic Science and engineering fundamentals in mechanical parts process planning
b.Intellectual Skills: :	
1 -	Use analytical thought in choosing 3D features to construct CAD model
2 -	Select suitable parameters for machining operation (Milling and Drilling)
3 -	Select suitable G-code programming parameter to operate CNC machine
4 -	Solve profiling or slotting problems for any given mechanical part
c.Professional and Practical Skills: :	
1 -	Apply solutions for mathematical transformation in CAD modelling
2 -	Select the 3D feature to create any mechanical CAD model

3 -	Create or part programming for mechanical parts
4 -	Apply analytical methods for milling operations
d.General and Transferable Skills: :	
1 -	Communicate effectively
2 -	Effectively manage tasks, time, and resources.
3 -	Acquire entrepreneurial skills.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Introduction	3	2	1
Basics of CAD	3	2	1
Main types of CNC machines	5	4	1
G-code programming	3	2	1
G-code programming for milling	5	4	1
G-code programming for drilling	3	2	1
Cycles in G-codes	5	4	1
Computer assisted part programming	5	4	1
CAD transformation	3	2	1
Boundary representation	3	2	1
Constructive solid geometry	3	2	1
Boolean operation with CAD modeling	3	2	1

Teaching And Learning Methodologies :

Interactive Lecturing
Problem solving
Discussuion
Experiential Learning
Project
Research

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
1st Midterm	15.00	6	
2nd Midterm	15.00	11	
Assignments, Participation, & Quizzes	30.00		
Final Exam	40.00	16	

Course Notes :

Lecture notes on the course Moodle page, FUE website.