Faculty of Engineering & Technology

Graduation Project I

Information :

Course Code :	MKT 500	**Level**	**:**	Undergraduate	**Course Hours :** 2.00- Hours

Department : Specialization of Mechatronics Engineering

Instructor Information :

Title	Name	Office hours
Professor	Hassan Ahmed Ahmed Mohamed Metered	
Associate Professor	Mohamed Ali Mohamed Elsayed Torad	
Associate Professor	Hassan Mohamed Shams Eldin Elsayed Eleashy	
Lecturer	SAMAH ELSAYED ELMETWALLY ELKHATIB	
Lecturer	MOHAMED ABDELBAR SHAMSELDIN ALY	5
Lecturer	Sameh Abdelhaleem Mohamed Abdelsalam	
Lecturer	Amr Mohamed Metwally Ismaiel	
Lecturer	Zakaria Mostafa Abdo Salim Marouf	
Assistant Lecturer	Moustafa Raafat Aziz Shousha	
Assistant Lecturer	Amira Khaled Hasan Mohamed Elkodama	
Teaching Assistant	Rim Mohamed Osman Ibrahim	
Teaching Assistant	Donia Waheed Mohamed Abdelmonem Saleem	
Teaching Assistant	Raouf Mahmoud Mourad Naguib	
Teaching Assistant	Mohamed Samir Ahmed Mohamed	2
Teaching Assistant	Saleh Abdelrahman Ali Mostafa	

Area Of Study :

Introduce critical thinking and scientific methodology in problem solving.
Focusing on problem objective, make wide review of previous art, evaluate
and compare previous solutions.
Train students to design and simulate a new Mechatronics system.

Description :

Conceptual Design: Students follow systematic design approach, apply project planning
and scheduling techniques, devise analytical, computational and/or experimental
solutions, and design and build their own test-rig. Students attend technical seminars
and learn to interact with speakers and at the end of the semester; they are required to
present a seminar on the project status, progress and future work.

Course outcomes :

a.Knowledge and Understanding: :

1 -	Describe the control algorithm for the operation of new mechatronics project
2 -	Know different previous and possible solutions to solve the project needs.
3 -	Apply the mechatronics design approach and elements to the design of new project system
4 -	Define and defend the society need of project idea based on search and statistics locally and internationally.
5 -	Knowledge of the details and practices of critical thinking and brain storming.

b.Intellectual Skills: :

1 -	Analyse the results of simulation models for the project mechanical, electrical, and control systems.
2 -	Select the proper actuators and sensors in the project
3 -	Calculate the suitable motor size in terms of speed and torque for a given application.
4 -	Analyse the different computing devices and architectures.

c.Professional and Practical Skills: :

1 -	Prepare technical report and poster describing project details
2 -	Prepare a technical presentation report for a given task.
3 -	Ability to program computing device such as arduino or Rasberry Pi for mechatronics project.
4 -	Make decision for component or process selection based on rich information from searching the internet.
5 -	Use the suitable hardware components and software for implementing a mechatronics system.

d.General and Transferable Skills: :

1 -	Search for information and engage in life-long self-learning discipline through answering the list of questions arising during brain storming sessions.
2 -	Effectively manage tasks, time, and resources
3 -	Work inside a team.
4 -	Work in stressful environment and within constraints of time and resources.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Critical thinking and brain storming practices	4	0	4
Mechatronics design process	4	0	4
Defining the need of society to project	8	0	8
Feasibility study of the product from project	8	0	8
Literature survey of previous work (brain storming)	8	0	8
Alternative solution evaluation	8	0	8
Communication skill fundamentals (Report preparation)	8	0	8
Preparation of presentation and poster design	8	0	8
Rehearsal on presentation skills	4	0	4

Teaching And Learning Methodologies :

Interactive Lecturing
Problem solving

http://www.fue.edu.eg

| Discussion (Brain storming) |
| Experiential learning |
| Project |
| Collaborative Research |

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
1st mid term	10.00	6	
2nd mid term	10.00	11	
Final Exam	40.00	16	
Oral Exam	25.00	16	
Participation and presentations	15.00		

Course Notes :

Lecture notes on the course Moodle page, FUE website

Recommended books :

1. Text Book:
MIT Guide for Science and Engineering Communication, Zimmerman
and Paradise, MIT press. Second edition.
2- Recommended Readings:
Critical Thinking and Innovation
Mechatronics Handbook.