Course plan

week	Date	Contents	Requirements	Laboratory	References	Marks
1	28-9	Introduction Syllable/Course specs Modeling (mechanical-hydraulic)			Ref-01	
2	5-10	Modeling and block diagram(motors and combined systems)		DC-Motor control		
3	12-10	Transfer function and State space	Quiz			5/3 quizes
4	19-10	Time Response (2nd order), steady state Error, Stability analysis		Electrical-mechanical analogy		
5	26-10	Frequency Response Bode Plot	Quiz	Filters		5/3 quizes
6	2-11	Design Controller and system compensation				
7	9-11	Midterm				15
8	16-11	PID / Design	Reports (Quadcopter)	DC- motor Kit	Ref-01	5

9	23-11	Optimal and LQR control	Quiz	Operational amplifier circuits		5/3 quizes
10	30-11	Fuzzy Logic Control			Ref-02	
11	7-12	Neural Network (Case study)				
12	14-12	Project Hybrid (Neuro-Fuzzy)				
13	21-12	Corrective exam and Receive project				10 for exam 20 for project

Report Contents

- Research plane
- Aim
- Tools/facilities
- Methodology/control strategy
- Experimental works
- Result/ conclusions

References

- Dorf, R. C., & Bishop, R. H. (2001). Modern control systems. Upper Saddle River, NJ: Prentice Hall. (Ref-01)
- Burns, R. S. (2001). Advanced control engineering. Oxford: Butterworth-Heinemann. (Ref-02)

Projects

- Inverted pendulum (Proj-01)
- Seg-way robot (Proj-02)
- PID- line follower (Proj-03)
- Magnetic levitation (Proj-04)

Marks distribution

Marks \ assesments	Assessments		Final Exam	Total
	• MidTerm	15	80	
	• Projects	20		
	• Report	5		
	• quizes	5		
TOTAL		45	80	125

Staff boarder

- Prof. Dr. Mostafa Z. Zahran
- Dr. Mostafa elsayed abdelmonem

Instructor

- Eng. Ahmed Allam