

EE 521 Special Electrical Machines

COURSE INFORMATION

Prerequisites	Academic Year & Level		Teaching Methods			Credit Hrs.
	Year	Semester	Lecture	Tutorial	Lab.	
EE 422	5	9 or 10	2	2		3

COURSE AIM

To investigate the different aspect of the fractional horse power motors. To study the theory of operation of single phase AC motors. To study the theory of operation of non conventional electrical machines.

COURSE WEEKLY CONTENTS

- 1 Two Phase AC Motors
- 2 Single Phase AC Motors
- 3 Starting of Single Phase AC Motor
- 4 Single phase commutator series motor (Universal Motor)
- 5 Energy conversion in doubly salient machines
- 6 Three phase conventional reluctance machines
- 7 Salient pole synchronous reluctance motor + Midterm Exam
- 8 Operation principles of stepper motors
- 9 Permanent magnet stepper motors
- 10 Variable reluctance stepper motors
- 11 Switched reluctance motors
- 12 12th week Assessment+ Linear induction motor
- 13 Induction Generator
- 14 Operation and performance of permanent magnet DC motors
- 15 Uni and bi-directional brushless DC motors

STUDENT GRADING & ASSESSMENT

Weeks	Exams	Assign.	Quizzes	Reports	Present.	Lab.	Total
1 to 7	20 Midterm	←	10	MARKS		→	30
To be freely distributed among possible assessments							
8 to 12	←		20	MARKS		→	20
13 to 15	←		10	MARKS		→	10
16 or 17	40 Final						40
Total	Exams	Assign.	Quizzes	Reports	Present.	Lab.	100

REFERENCES

- Textbook A. F. Fitzgerald, "Electric Machinery", McGraw-Hill Publishing company.
- Other E. Hamdy, "Design of Small Electrical Machines", Wiley.