

**EE 546 Electrical Engineering Material**

**COURSE INFORMATION**

Prerequisites	Academic Year &Level		Teaching Methods			Credit Hrs.
	Year	Semester	Lecture	Tutorial	Lab.	
EE 442	5	9 \10	2	2	0	3

**COURSE AIM**

Covering the aspects of electrical materials, which include their classification, properties and applications.

**COURSE WEEKLY CONTENTS**

- 1 Electric materials classification
- 2 Dielectrics Macroscopic & Microscopic approaches
- 3 Types of polarization –frequency response – complex permittivity
- 4 Dielectric losses and their measurements
- 5 Dielectric Breakdown (1)
- 6 Dielectric Breakdown (2)
- 7 Dielectric Breakdown (3) + Midterm Exam
- 8 Applications of Dielectrics
- 9 Magnetic materials: Macroscopic & Microscopic approaches
- 10 Hysteresis, Magnetostriction, Applications. Superconductivity & superconductors
- 11 Polymers and their characteristics
- 12 Ceramics and their characteristics
- 13 Optical fibers and their properties
- 14 Corrosion and cathodic protection of metals
- 15 Revision

**STUDENT GRADING & ASSESSMENT**

Weeks	Exams	Assign.	Quizzes	Reports	Present.	Lab.	Total
1 to 7	20 Midterm	←	1 0	M A R K S		→	30
To be freely distributed among possible assessments							
8 to 12	←		2 0	M A R K S		→	20
13 to 15	←		1 0	M A R K S		→	10
16 or 17	40 Final						40
<b>Total</b>	<b>Exams</b>	<b>Assign.</b>	<b>Quizzes</b>	<b>Reports</b>	<b>Present.</b>	<b>Lab.</b>	100

**REFERENCES**

Textbook	Indulkar, C, "An Introduction to Electrical Engineering Materials" S.Chand
Other	H. Van Vlack, "A Textbook of Materials technology", Addison-Wesley, USA. L. Solmar and D. Walsh, "Lectures on Electrical Properties of Matreials", Clarendon Press, Oxford. Kuffel and W. Zaengle," High Voltage Engineering",,, Pergammon Press, UK. C. S. Inulkar, "Electrical Engineering Materials", S. Chand & Co., New Delhi.