University/Academy: Arab Academy for Science and Technology & Maritime Transport
Faculty/Institute: College of Engineering & Technology
Program: Electrical & Control Engineering

Form no. (12)
Course Specification

1- Course Data

Course Code:	Course Title:	Academic Year/Level:
EE 546	Electrical Engineering Materials	5
Specialization: Electrical & Control Engineering	**No. of Instructional Units:** 3	**Lecture** 2 **Practical** 2

2- Course Aim	-Covering the aspects of electrical materials, which include their classification, properties and applications.
3- Intended Learning Outcome	
a- Knowledge and Understanding	A.1 Concepts and theories of mathematics and sciences, appropriate to the discipline A.3 Characteristics of engineering materials related to the discipline

b- Intellectual Skills	B.5 Assess and evaluate the characteristics and performance of components, systems and processes
c- Professional Skills	C.1 Apply knowledge of mathematics, science, information technology, design, business context and engineering practice integrally to solve engineering problems
d- General Skills	D.3 Communicate effectively D.4 Demonstrate efficient IT capabilities

4- Course Content	Electric materials classification. Dielectrics Macroscopic & Microscopic approaches. Types of polarization – frequency response – complex permitivity. Dielectric losses and their measurements. Dielectric Breakdown (1). Dielectric Breakdown (2). Dielectric Breakdown (3). Applications of Dielectrics. Magnetic materials: Macroscopic & Microscopic approaches. Hysterisis – Magnetostriction –.Applications. Superconductivity and superconductors. Polymers and their characteristics. Ceramics and their characteristics. Optical fibers and their properties. Corrosion and cathodic protection of metals.
5- Teaching and Learning Methods	- Lectures - Tutorials - Reports & sheets - Laboratories - Seminars
6- Teaching and Learning Methods for Students with Special Needs	- Lectures - Tutorials - Reports & sheets - Laboratories - Seminars
7- Student Assessment:	Written Examinations to asses The Intended Learning Outcomes Class Activities (Reports, Discussions, ------) to asses The Intellectual Skills
a- Procedures used:	Written Examinations to asses The Intended Learning Outcomes Class Activities (Reports, Discussions, ------) to asses The Intellectual Skills

b- Schedule:	**Assessment 1**	**7th Week Written Exam**
	Assessment 2	**12th Week Written Exam**
	Assessment 3	**Continuous Assessments**
	Assessment 4	**16th Week Final Written Exam**
c- Weighing of Assessment:	**7th Week Examination**	**30 %**
	12th Week Examination	**20 %**
	Final-term Examination	**40 %**
	Oral Examination	**0 %**
	Practical Examination	**0 %**
	Semester Work	**10 %**
	Total	**100%**
8- List of References:	H. Van Vlack, "A Textbook of Materials technology", Addison-Wesley, USA, 1987. L. Solmar and D. Walsh, "Lectures on Electrical Properties of Matreials", Clarendon Press, Oxford. Kuffel and W. Zaengle," High Voltage Engineering",, Pergammon Press, UK, 1994. C. S. Inulkar, "Electrical Engineering Materials", S. Chand & Co., New Delhi.	
a- Course Notes		
b- Required Books (Textbooks)	Lecturer Notes.	
c- Recommended Books		
d- Periodicals, Web Sites, ..., etc.		

Course Instructor: **Head of Department:**

Program Manager: