

UNIVERSITY OF PLYMOUTH MODULE RECORD

Module Code: ROCO101	Credits: 10	Level : 1
Module Title : ELECTRICAL PRINCIPLES & MACHINES		
Pre-Requisites :		
Co - Requisites :		
If Linked, Module linked to :		
Short Module Descriptor - (Maximum four lines 9pt print):		
<p>This module gives an introduction to units and dimensional analysis, the electrical properties of materials, dc & ac signals, electrostatics and capacitance, electromagnetism and Inductance, basic circuit principles and their application in dc and ac circuit analysis. These principles are then applied to electrical machines and transformers, energy conversion, electromagnetics and network analysis.</p>		
Elements of Assessment		
COURSEWORK 100%		
Module Aims :		
<p>To provide a foundation of core knowledge in electrical engineering and electromagnetic principles and practice in problem solving.</p> <p>To use realistic examples of machines and components in current usage to develop an understanding and ability to apply electrical principles in synthesis and analysis.</p>		
Skills Elements : Skill (engineering benchmark)		
<p>Knowledge & understanding (relevant mathematics & principles), Intellectual abilities (apply knowledge to problem solving in analysis & synthesis, use engineering principles to model and analyse circuits & machines) Practical skills (select and use appropriate mathematical tools and Electronic Workbench for modelling and analysing engineering problems), General transferrable skills (manipulate and interpret data in problem solving, work independently).</p>		
Objectives / Learning Outcomes :		
<p>The expected learning outcome is that the students will be able to:</p> <p>Apply dimensional analysis, phasor diagrams and complex notation to problem solving, analysis and synthesis in electrical engineering.</p> <p>Define, interpret and explain fundamental signal quantities and material properties as relevant to component and circuit operation.</p> <p>Explain the purpose of inductors, capacitors and resistors in electrical circuits</p> <p>Apply knowledge of circuit theorems to calculate currents, voltages, power dissipation, steady state and transient conditions in passive circuits.</p> <p>Analyse magnetic circuits and explain the process of energy conversion in electrical machines</p> <p>Describe & explain a three phase supply</p>		
Indicative Syllabus Content :		
<p>Units, Materials & components DC & ac signal quantities Circuit theorems & application in problem solving Electrostatics and capacitance Electromagnetism, inductance and magnetic circuits Transients in R-L, R-C and R-L-C circuits AC circuits & phasors Three phase</p>		
VALIDATION-: 06/12/04		DATE OF IMPLEMENTATION : Sep 05
FACULTY:TECHNOLOGY	DEPT: DCEE	PARTNER INSTITUTION:
FOR OFFICE USE	MODULE LEADER: Dr G Pan	
ASC:	FEEBAND:	SUBJECT GP: B4L1
		SEMESTER: AY
		RESOURCE UNITS: