## Electrical Systems Engineering – EE2ESE

Module Type		Taught				
Level		5	Credit Value	20		
Programme(s) in which module is available		BEng: Electrical and Electronic Engineering; Communication Engineering;				
Involvement of Other Schools		None				
Resource Split		N/A				
Name of Module Co-ordinator		Dr Igor Khrushchev, Prof Toby Norris				
Related Modules	Pre-requisites	EE1ESE; EE1DAE, EE1EPC or equivalent				
	Co-requisites	EE2ESA or equivalent				
	Prohibited Combinations	None				
Minimum and Maximum Intake Sizes		None				

#### Aims of the Module

To provide students with:

- An understanding of the fundamentals laws of electromagnetism and their applications. Ability to deal with basic theoretical problems of electromagnetism.
- An understanding of the generation of electricity and operation of power electronics. Hands-on experience in basic power electronics circuitry.

#### Summary of Content

- Electromagnetism: Revision of Biot-Savart, Ampere, Faraday, Lenz laws. Maxwell's Equations. Simple applications. Magnetic circuits.
- Machines and Drives: Generation of electricity, synchronous rotating machines, , induction machines, d.c. machines, transformers.
- Power Electronics: Rectifiers, inverters, linear and switched mode power supplies.

### Summary of Methods and Frequency of Teaching

Contact hours spread over teaching periods 1 and 2:

Lectures: 24 x1 hour Tutorials: 26 x 1 hour

Laboratory and Design Case Studies: 20 hours total supervised laboratory work

Private study: 130 hours

Summary of Methods of Assessment and Feedback (including formative feedback):

The module will be assessed by:

Continuous assessment (60 %) comprising online assessment and laboratory reports (deadlines throughout the teaching periods 1 and 2, as announced via Blackboard).

Formal written examination (40%) (May/June)

Feedback will be provided according to School guidelines. 1-to-1 feedback will be provided orally in the laboratory, in presentations and demonstrations, and by written comments on written reports. Generic feedback will be provided orally in class and via Blackboard.

GFC V3.1 27.7.09 PAGE 1 of 2

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Module Outcomes – what the student sho	ould gain from	successful completion of the module:	Learning and Teaching and Assessment Strategies to enable outcomes to be achieved and demonstrated		
			Learning and Teaching Methods	Assessment Methods	
Knowledge and Understanding of	nics, simple mot	Lectures, recommended reading, design case studies, tutorial problems, simulation	Examination and design case studies		
Intellectual Skills	ems	Lectures, recommended reading, design case studies, tutorial problems, simulation	Examination and design case studies		
Professional/Subject Specific Skills Propose solutions to engineering pro Plan and execute safely a series of r Prepare a technical report or present	neasurements	Design case studies, tutorial problems	Design case studies, laboratory reports and examination		
Transferable Skills	-	Lectures, laboratory exercises, design case studies, tutorial problems	Design case studies, and examination		
The ability to use ICT Independent learning skills to facilita Introductory Learning Resources		k will be available on Blackboard			
Core Texts To be dete					
Specification completed by: Date		Geof Carpenter 27.7.09			

GFC V3.1 27.7.09 PAGE 2 of 2