

Course Title	Wiring Regulations: Explained and Illustrated				
Course Code	ECE465				
Course Type	Elective				
Level	Bachelor (1st Cycle)				
Year / Semester	4 th Year / 8 th Semester				
Teacher's Name	TBA				
ECTS	6	Lectures / week	3 hours / 14 weeks	Laboratories / week	N/A
Course Purpose and Objectives	The objective of this course is to expose students to the basic principles and regulation concepts summarised in the latest IET (previously called IEE) Edition Wiring Regulations. Students recognise the requirements for safety, earthing, protection, control and circuit design within the scope of electrical installation requirements and regulations.				
Learning Outcomes	<p>Upon successful completion of this course, students should be able to:</p> <ul style="list-style-type: none"> • Describe the basic principles and concepts of the wiring regulations • Identify the format, content and application of the requirements imposed for electrical installations • Interpret the regulations governing installations and electrical designs namely earthing, bonding, protection and circuit design • Explain the importance of safety in electrical installations 				
Prerequisites	ECE320	Co-requisites	None		
Course Content	<p>Introduction: Introduction to the latest IET Wiring Regulations. Electrical circuit fundamentals. Principles and fundamental requirements of safety. Health and safety issues.</p> <p>Earthing: Fundamentals of earthing. Earthing system types, arrangements and definitions. Determination of the Earth fault loop impedance. Use of residual current devices and supplementary bonding principles.</p> <p>Protection: Generic introduction to electrical protection. Protection of live parts (against mechanical damage, corrosion, thermal effects, degradation). Degree of protection coding. Protection against electric shock. Protection against direct and in-direct contact. Protection against overcurrent (overloads and short circuits). Explanation of fuses and circuit breakers operation.</p> <p>Control:</p>				

	<p>Definitions of isolation and switching. Principles of isolation and switching. Functional switching. Switching off for mechanical maintenance. Emergency switching description.</p> <p>Circuit design fundamentals: Outline of circuit design procedure. Determination of the design current. Nominal settings of protection and correction factors. Cable sizing procedure. Estimation of Voltage drop. Shock risk assessment. Thermal constraints. Design problem explanation.</p> <p>Distributed Energy Technologies: Synchronous and induction generators and their control. Power conversion equipment. Distribution Networks: Technical issues such as voltage changes, fault levels and calculations, earthing, power quality, stability and protection. Regulations and Codes of Practice. Finance - Feed-in Tariffs. Smart grids: Network Operations, Energy Management, Information & Control Interoperability and Electrical Energy Storage.</p>								
Teaching Methodology	Face- to- face								
Bibliography	<p>B. Scaddan, Latest Edition of IET Wiring Regulations: Explained and Illustrated, Taylor & Francis.</p> <p>IET & BSI, Requirement of Electrical Installations, Latest Edition of IET Wiring Regulations: London, BS 7671.</p> <p>IET, IET On-site Guide to the Latest BS 7671 Wiring Regulations.</p>								
Assessment	<table border="1"> <tr> <td>Examinations</td> <td>70%</td> </tr> <tr> <td>Assignments/Lab</td> <td>20%</td> </tr> <tr> <td>Class Participation and Attendance</td> <td>10%</td> </tr> <tr> <td></td> <td>100%</td> </tr> </table>	Examinations	70%	Assignments/Lab	20%	Class Participation and Attendance	10%		100%
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Language	English								