

AEEE450 - IET Wiring Regulations I

Course Title	IET Wiring Regulations I				
Course Code	AEEE450				
Course Type	Technical Elective				
Level	BSc (Level 1)				
Year / Semester	3 or 4 (Fall or Spring)				
Teacher's Name	Dr Nicholas Christofides				
ECTS	6	Lectures / week	3	Laboratories/week	-
Course Purpose	<p>This technical elective subject relates to the requirements and legislation that governs electrical installations in Cyprus. It relies on the current IET wiring regulations according to the British standard 7671. Students are initially acquainted with various safety rules and terminology that govern the wiring regulations. The fundamentals on earthing and its vital importance and role in the design of any electrical installation are initially discussed. This is followed by installation and circuit protection techniques, selection and erection of equipment and circuit design. By the end of the course, students should be in position to carry design electrical installation circuits according to the current BS 7671 standard.</p>				
Learning Outcomes	<p>By the end of the course, students must be able to:</p> <ol style="list-style-type: none"> 1. Realize the purpose and role of the wiring regulations and the national legislation. Relate the dangers to people, livestock and premises with the proper application of the wiring regulations. 2. Appraise the importance of safety in electrical installations. 3. Identify Earthing requirements in electrical installations. 4. Compare and contrast the various types of protection methods and equipment associated with the electrical installations. 5. Analyse the selection and erection requirements of equipment associated with electrical installations. 6. Design electrical installation circuits according to the current BS 7671 standard. 				
Prerequisites	AEEE223	Co-requisites	none		
Course Content	<ol style="list-style-type: none"> 1. Introduction to the IET Wiring regulations: Background Theory: circuit analysis fundamentals, Ohm's Law, Kirchhoff's laws, Complex Impedance, Three phase power, Electric Shock, Electrical Installation Earthing, Introduction to types of earthing systems, definition of terms and concepts used in BS 7671 2. Fundamental requirements for Safety: Realization of dangers associated with low voltage electrical installations, use of approved 				

	<p>and suitable materials and equipment, provision for protection, fundamental requirements for safety, basic and fault protection.</p> <ol style="list-style-type: none"> 3. Earthing: Protective Earthing, the means of earthing, The earthing conductor, System types and earthing arrangements, protective conductors, presence of metallic and conductive parts in electrical installations, equipment classes and IP protection codes. 4. Protection: What is Protection, Protection against electric Shock, Protection against direct contact, protection against indirect contact, Protection against over loads / over voltage / under voltage / short circuit currents / earth fault currents, position of protection devices. 5. Selection and Erection of Equipment: General, selection and erection of equipment, operational conditions and external influences, cable installation methods, sizing of cables, consideration of external influences, categories installation of equipment. <p>The Department, through its Research Policy acknowledges the importance of the synergies between research and teaching. As a result, students can be assigned to investigate further on a topic in order to better interpret something or identify current/new methods and practices. Through such activities, students can enter in the research culture and environment with the overall aim being to make them aware and to trigger ideas for the master thesis and future postgraduate studies. Where just and fit, students are encouraged to participate in research projects that could complement their master thesis requirements.</p>
<p>Teaching Methodology</p>	<p>The course is taught through lectures (3 hours per week) in classrooms or lectures theatres supported by the whiteboard and the overhead projector.</p> <p>Examples on subject delivered during the lectures are solved and open-ended discussion is encouraged. Further exercises can be assigned for practise or as homework.</p> <p>The lecture presentations are available on the e-learning platform for students to download along with other peripheral material such as past tests and exams, links and guides. Students are expected to take in-class hand-written notes. Students are also advised to use the subject's main textbook or reference books for further reading and practice in solving related exercises.</p> <p>Further literature research is encouraged by assigning to students a specific problem related to some issue and they are expected to gather relevant scientific information about how others have addressed the problem and report this information in written or orally.</p>
<p>Bibliography</p>	<ul style="list-style-type: none"> • IET & BSI, BS 7671:2008+A3:2015, IET Wiring Regulations 17th Edition, 3rd amendment: London, IET. • IEE on-site guide to BS 7671:2008: Requirements for electrical Installations 17th edition, IET Publication, 17th, 2008 • BS7671:2008: Requirements for Electrical Installations, Guidance notes 1-8 • 17th edition IEE wiring regulations: explained and illustrated, Brian Scaddan, Newnes, 9th edition, 2011

	<ul style="list-style-type: none"> • IEE Wiring Regulations: Inspection, Testing and Certification (17th Edition IEE Wiring Regulations), Brian Scaddan, Newnes, 7th edition, 2011 • 17th edition IEE Wiring Regulations: Design & Verification of Electrical Installations, Brian Scaddan, Newnes, 7th, 2011 • Wiring Regulations in Brief: A complete guide to the requirements of the 17th edition of the IEE Wiring Regulations, Ray Tricker, Butterworth-Heinemann, 3rd edition, 2012 • Electrical Installation Design Guide: Calculations for Electricians and Designers, Paul Cook, • IET Publication, 2008 Φρίξος Δημητριάδης και Άντης Κωνσταντίνου, Κανονισμοί Εγκαταστάσεων, Λευκωσία, Φρίξος Δημητριάδης, 1981 και 2001 										
<p>Assessment</p>	<p>The assessment is continuously via mid-term tests and mini-assignments with the respective assessment weight, date and time being set at the beginning of the semester via the course outline or aurally discussed.</p> <p>Students are prepared for the final exam by revision and recapitulation and by solving exercises.</p> <p>The final assessment of the students is formative and summative and is in line with the subject's expected learning outcomes and course level. The coursework and the final exam grades are weighted 40% and 60%, respectively, and compose the final grade of the course.</p> <p>Various approaches are used for the continuous assessment of the students, such as mid-term written tests, oral presentations, quizzes, design assignments and design projects. An indicative weighted continuous assessment of the course is shown below:</p> <table data-bbox="635 1182 1145 1357"> <tr> <td>• Assignment</td> <td>10-15%</td> </tr> <tr> <td>• Homework</td> <td>10%</td> </tr> <tr> <td>• Mid-Term written exams</td> <td>60-70%</td> </tr> <tr> <td>• Mini design project</td> <td>15-20%</td> </tr> <tr> <td>• Presentation</td> <td>10-15%</td> </tr> </table> <p>The criteria considered for the assessment of each type of the continuous assessment and the final exam of the course are: (i) the comprehension of the fundamental concepts and theory of each topic, (ii) the application of the theory in solving related problems and (iii) the ability to apply the above knowledge in more complex design problems.</p>	• Assignment	10-15%	• Homework	10%	• Mid-Term written exams	60-70%	• Mini design project	15-20%	• Presentation	10-15%
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<p>Language</p>	<p>English</p>										