

AEEE451 - IET Wiring Regulations II

Course Title	IET Wiring Regulations II			
Course Code	AEEE451			
Course Type	Technical Elective			
Level	BSc (Level 1)			
Year / Semester	4 (Fall or Spring)			
Teacher's Name	Dr Nicholas Christofides			
ECTS	6	Lectures / week	3	Laboratories/week -
Course Purpose	This course is the second part on the wiring regulations. Particular emphasis is given to the special locations of electrical installations, which according to the standard, require particular selection, erection and design requirements. Such locations include bathrooms, swimming pools, agricultural and horticultural premises, photovoltaic systems, etc. More complicated circuit designs, taking into consideration external influences and other factors are considered. The course also includes the inspection and testing requirements of electrical installations.			
Learning Outcomes	<p>By the end of the course, students must be able to:</p> <ol style="list-style-type: none"> 1. Interpret and apply the IEE wiring regulations related to special locations in an electrical installation such as bathrooms, caravans, photovoltaic systems, UPS systems etc. 2. Design grid-connected and off-grid photovoltaic systems 3. Relate the wiring regulations with the standard practices of inspection and testing of an electrical installation 4. Identify and interpret the procedures for the study and design of an electrical installation 			
Prerequisites	AEEE450	Co-requisites	none	
Course Content	<p>Introduction: earthing systems, protective conductors, basic and fault protection, electric shock, overcurrents and protective devices, voltage drop, circuit design.</p> <p>Special Locations: risks and dangers associated with special locations, characteristics and special considerations. Special locations of given priority are bathrooms, swimming pools and photovoltaic systems.</p> <p>Grid Connected Photovoltaic Systems: azimuth and inclination, weather characteristics, NOCT, PV efficiency and energy output, characteristics of photovoltaic modules, grid-connected and off-grid system design.</p> <p>Special circuits: design considerations of ring and radial socket outlet circuits.</p>			

	<p>Inspection and Testing: continuity of protective conductors, continuity of ring final circuit conductors, insulation resistance, site applied insulation, protection by separation of circuits, protection by barriers or enclosures provided during erection, insulation of non-conducting floors and walls, polarity, earth electrode resistance, earth fault loop impedance, prospective fault current, functional testing</p> <p>Electrical Installation Design Preliminaries: analysis and interpretation of architectural drawings, determination of supply/installation characteristics, separation of circuits and distribution boards, maximum demand and diversity.</p> <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 senior project and future postgraduate studies. Where just and fit, students are encouraged to participate in research projects that could complement their senior project 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 • 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

	<ul style="list-style-type: none"> • 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,
<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 orally 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 (this is indicative and not supposed to add up to 100%):</p> <ul style="list-style-type: none"> • Assignment 10-15% • Homework 10% • Mid-Term written exams 60-70% • Mini design project 15-20% • Presentation 10-15% <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>
<p>Language</p>	<p>English</p>