EE3002 – Electrical Installations

Subject Code	EE3002	Subject Title	Electrical Installations			
Credits	4.0	Total Hours	Lectures	45 h	Pre-Requisites	none
GPA/NGPA	GPA		Lab/Tutorial/Assignment	30h		

Aims:
The aim of the subject is to provide knowledge of the principles and procedures to design electrical installations for buildings.

Learning Outcomes
On successful completion of this module, students are able to:

1. Demosntrate understanding of the structure of the IEE Wiring Regulations
2. Demonstrate knowledge of different types of earthing systems
3. Assess the safety and protective measures in wiring system and section of cables
4. Design an electrical installation system
5. Demonstrate knowledge of building management systems
6. Demonstrate knowledge of inspection, testing and technical documentation of electrical installations

LO 1.	**Structure of the IEE Wiring Regulations [6 h]** Structure of the 17th Edition of the IEE Wiring Regulations (BS 7671: 2008), its importance and applicability to Sri Lanka; Special installations
LO 2.	**Different types of earthing systems [4 h]** TT, TN and IT systems and their features; commonly used grounding arrangements; Types of earth electrodes, calculation of earth electrode resistance
LO 3.	**Assess the safety and protective measures in wiring sytem and section of cables [15 h]** Protection against electric shock; protective equipment and conductors; Protection systems adopted in Wiring systems; Electrical Safety measures; Lightning and surge protection; Types of cables, thermal characteristics of cables, current carrying capacity and voltage drop of cables, factors effecting the current carrying capacity
LO 4.	**Design electrical installation system [6 h]** Assessment of general characteristics of an electrical installation, Demand calculation and diversity, steps in the design of an electrical installation
LO 5.	**Building management systems [6 h]** Hierarchy of building management systems, sensors for BMS, BMS architectures; lighting and lighting design
LO 6.	**Inspection, testing and technical documentation of electrical installation [8 h]** Preparation and use of:- Tender documents, technical specifications and drawings, bill of quantities, contract documents; Earth resistivity measurements:- ground resistance calculations, continuity and insulation testing, polarity checking; Basic Testing and commissioning of electrical installations, preparation of test reports.

Practical Work: [**5×3 h]**

1. Experiement on different earthing systems
2. Experiment on safety and protection
3. Experiment on lighting
4. Two experiments on inspection and testing

Tutorial Work: **[4×2 h]**
Assignments: [7 h]

Assessment

a	Practical work		15%
b	Assignment **on LO1**	4th week	**5%**
c	Assignment on design of electrical installation	12th week	10%
c	End of semester Written examination: 3 h test		**70%**

Rec. Bks.

1. Institution of Electrical Engineers -Requirements for Electrical Installations: BS 7671:2008 Incorporating Amendment No 1: 2011: IET Wiring Regulations,(1 July 2011), ISBN-10: 1849192693, ISBN-13: 978-1849192699
2. John F. Whitfield, The Electrician's Guide to the 17th Edition of the IEE Wiring Regulations BS 7671:2011 and Part P of the Building Regulations, EPA Press; 3rd edition (17 April 2012) ISBN-10: 0953788571 ISBN-13: 978-0953788576