ELE4116 ELECTRICAL INSTALLATION DESIGN

Hours per Semester				Weighted Total Mark	Weighted Exam Mark	Weighted Continuous Assessment Mark	Credit Units
LH	PH	TH	CH	WTM	WEM	WCM	CU
45	30	00	60	100	60	40	4

Rationale
In this course the students will acquire knowledge about the design and implementation of domestic and industrial electrical installations.

Course Objectives
By the end of the course students should be able to:
- Design and implement electrical installation and know the installation standards.
- Design large scale domestic, institutional and industrial electrical installations.

Detailed Course Content:

Electrical Systems: **[16 Hours]**
Students gain knowledge and hands-on experience in design, installation, testing, commissioning, and maintenance of electrical installations in buildings. Students learn the fundamentals in operation, selection and maintenance of vertical transport systems, viz the passenger lifts and escalators, telelifts, etc.
Alternative energy : **[13 Hours]**
Design, Installation and maintenance of standby and alternative energy supply e.g. solar systems and diesel generators.
Design of air-conditioning and ventilation systems: **[16 Hours]**
covers the principles pertaining to human comfort, load estimation, design concepts, installation, operation and maintenance of air-conditioning systems in buildings.

Learning Outcomes
The student will:

- Be able to comfortably check for stability of any system using any criteria.
- Understand the concept of control system engineering, why it is carried out and will appreciate its application in digital control.
- Acquire knowledge of the type of measuring instruments and be able to appreciate why certain instruments are m ore favourable in a particular environment and requirement (accuracy or precision among others);
- Understand the types of errors that occur during measurement and how best they can be minimised during experimental setup.
- Acquire concepts on sensors and their use in design of automated systems.

Method of Teaching /Delivery
The course will be taught by using lectures, tutorials and assignments.

Mode of Assessment
Assignments, tests and final examination. Their relative contributions to the final grade are :

Requirement	**Percentage contribution**
Course work (Assignments, tests)	40%
Final examination	60%

Total **100%**

Recommended Books and References

[1] William L. Brogan, Modern Control Theory, 2nd ed., Prentice-Hall, 1985
[2] Nise, N. S, Control Systems Engineering, 3rd ed., New York, NY: Wiley, 2000.
[3] Allan S. Morris, Measurement and Instrumentation Principles, 3rd ed., Butterworth Heinemann, 2001
[4] K. Ogata, Discrete- Time Control Systems