UNIVERSITY OF TECHNOLOGY, JAMAICA

SYLLABUS OUTLINE

FACULTY: Engineering and Computing SCHOOL/DEPT: Engineering

COURSE OF STUDY: Diploma in Electrical Engineering YEAR: 1

MODULE TITILE: Electrical Workshop

MODULE CODE: ELE - 1003

DURATION (HOURS): 60

CREDIT VALUE: 2

PRE-REQUISITES: Successful completion of Electrical Engineering Principles

1.0 MODULE DESCRIPTION

Introduce the student to the regulations governing the generation supply and distribution of Electrical Energy. Students will also do the necessary craft practice for the installation of domestic, commercial and industrial systems.

2.0 MODULE OBJECTIVES/LEARNING OUTCOMES

Upon completion of the module, the student should:

1. Know how to apply the relevant electrical regulations of Jamaica
2. Understands the principles of associated with electrical wiring, layout and service connections
3. Show competence in the correct use of common electrical and electronic equipment
4. Know how to install, test and commission equipment and installation

3.0 MODULE CONTENT AND CONTEXT

UNIT I SAFETY

Content

1. Explain the importance and need for safe electrical practices
2. Explain the results (effects) of electrical accidents, shocks, burns and fire
3. State the procedure to be followed when someone make contact with live line
4. Describe the procedure and equipment in the case of electrical fires

UNIT II ELECTRICAL COMPONENTS AND SYSTEMS

Content

1. Describe the principle of generating, transmitting and distributing electrical energy
2. Identify materials, accessories and equipment used in electrical installation
3. Apply basic electrical theorems (laws) to the analysis of circuits containing resistors, capacitors and inductors
4. Determine the value of resistance, capacitance and inductance using instruments or given their physical parameters
5. Design and implement electromagnetic control systems
6. Design and repair power transformers

UNIT III CONDUCTORS AND CABLES

Content

1. Identify and select conductors/cables for specific applications
2. Describe the characteristics of good electrical conductors /cables
3. Explain the need for and describe the principles of making sound electrical join
4. Perform basic soldering exercise on joints and components

5. Know the importance and how to use heat sinks
6. Fabricate joints on a range of cable including solid copper, fibre optic and coaxial

UNIT IV TESTING AND MEASUREMENT

Content

1. Test electrical components to establish their condition, example resistors, capacitors, Inductors, diodes etc
2. Use Insulation tester to carry out test on installations and equipment
3. Explain the construction and operation of basic instruments example Multi-meters, Meggers, Am probe
4. Convert milli-meters to multi range volt, Current and Resistance instruments
5. Explain the construction and principle of operation of the Oscilloscope

UNIT V ELECTRICAL INSTALLATION PRACTICE

Content

1. Describe the procedure to follow as regards new and/or addition to an Electrical Installation
2. Describe and demonstrate different system of wiring
3. Design layout and schematic diagrams for various wiring schemes
4. Perform the required tests on installations earth continuity, polarity and insulation
5. Explain the importance of earthing and the design of earth protective systems
6. Install wiring accessories according to given circuit diagrams

UNIT VI PROJECTS AND WORKSHOP EXERCISES

Actual workshop practice and projects in the areas of:

Content

- Wiring for domestic, commercial and industrial installations
- Preparation and testing of printed circuit boards
- Electrical and Electronic assembly and testing
- Preparation of installation diagrams and drawing
- Fault detection
- Earthing of systems shall have to be completed and reports submitted.
- The lecturer will specify the particular projects for each group consisting of 2 or 3 students.

4.0 LEARNING AND TEACHING APPROACHES

Lecturers

Demonstrations

Practical

5.0 ASSESSMENT PROCEDURES

Test	15%
Labs	20%
Assignment	15%
Final Examination	50%

6.0 BREAKDOWN OF HOURS

Activities	**Hours**
In-class Test	
Tutorials	
Lecturers	

Demonstration

Field Trip

Course Review

Labs experiment

7.0 TEXTBOOKS AND REFERENCES

1. Hyde, J. Electrical installation principles and practices**,**
   ISBN: 0 - 333 - 60160 -2
2. Jamaica Standard for Electrical Installation, ISBN

8.0 NAME OF SYLLABUS WRITER:

Noel A. Sinclair ……..……..……..

Lecturer'/Course writer's signature

9.0 DATE OF PRESENTATION OR REVISION:

June 10, 2002

10.0 DATE OF ACCEPTANCE

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Programme Director OCDE