Course Title	Code	Credit Hours
Electrical Engineering	EE-103	2-1

Textbooks:

- James W. Nilsson, Susan Riedel, "Electric Circuits", Pearson

Reference Books/Materials:

- William Hart Hayt, Jack Ellsworth Kemmerly, "Engineering Circuit Analysis", McGraw-Hill
- EASA Part-66 Category B1 Maintenance License Module 3, "Electrical Fundamentals"
- EASA Part-66 Category B1 Maintenance License Module 4, "Electronic Fundamentals"

Course Objectives:

This course aims to lay a solid foundation of electrical engineering for the students by introducing them to:

- Electric circuit elements, electronic devices and circuits containing such devices.
- Sources and circuit parameters of electrical systems, circuit laws, theorems governing electric circuits, AC fundamentals, and operational amplifiers are also included in the course to

Course Outline:

- System of Units, Energy, Electric Charge and Current.
- Electric Potential and Potential Difference
- Ohm's Law and Resistors
- Static Electricity and Distribution of Electrostatic Charges.
- Series and Parallel Circuit Characteristics (Current, Voltage, Power)
- Voltage and Current Relationships: References, KVL, KCL, Voltage and Current Dividers
- Max Power Transfer
- Series and Parallel Connected Voltage Sources
- Introduction to Capacitors and Inductors
- Source Free RC and RL Circuits

- Driven RC and RL Circuits
- Simple RLC Circuits Analysis
- Production of Electricity by the following Methods: Light, Heat, Friction, Pressure, Chemical Action, Magnetism and Motion.
- Op-Amp Operation Overview; Differential Amplifiers and Op-Amp Specifications; Inverting & Noninverting Amplifiers; Op-Amp Circuits
- Basic Motor and Generator Theory; Construction and Purpose of Components in DC Generator; Operation of and Factors Affecting Output and Direction of Current Flow in DC Generators
- Concept of AC Generators and Motors and Construction, Principles of Operation and Characteristics of: AC Synchronous and Induction Motors both Single and Polyphaser; Methods of Speed Control and Direction of Rotation