COURSE: INNOVATION IN CIRCUIT ENGINEERING

OBJECTIVE OF COURSE:

Innovations in circuit engineering is the course planned to skill students in circuit design. Its focus is also on introducing the concepts of Arduino and Node MCU which will help students in designing various project in the field of Electrical and Electronics. The hand on practice followed by theoretical concepts is the complete package through which one can understand, apply, execute and analyze circuitary. This training for first year students will strengthen the base for their rest of B.Tech course.

DURATION OF COURSE: 60 HOURS (4 WEEKS)

MINIMUM ELIGIBILITY CRITERIA AND PRE-REQUISITE:

Knowledge of 'Basic Electrical' and 'Basic Electronics' subjects. Anyone who completed B.Tech or Diploma 1st year can apply for this course.

Course Content

Module 1 (Week 1- 16 hours):

STUDY OF ELECTRICAL AND ELECTRONICS COMPONENTS: Study of electronic components and equipments, Basic knowledge of Electrical components: Identification & connection of Electrical equipment/components, Study of Rectangular waveform using 555 Timer IC & CRO, Measurement of Energy using single phase Energy meter, Estimate energy consumption of houses, commercial places, buildings on day/monthly basis.

HANDS ON PRACTICE: Hands on design and fabrication of half wave rectifier, hands on design and fabrication of full wave rectifier, hands on design and fabrication of small power supply, hands on small power bank for mobile using Li-ion battery.

Module 2 (Week 2 - 14 hours):

LOGIC GATES: Verification of logic gates: OR & AND Gates, Verification of logic gates: NAND and XOR Gates.

HANDS ON WIRING: Hands on different types of wiring systems - Godown wiring, Hostel wiring, Hospital wiring, Hotel wiring, Electrical house wiring, Staircase wiring. Hands on Electric Extension Board, IR Sensor based hand sanitizer

Module 3 (Week 3 - 16 hours):

INTRODUCTION: Introduction to Arduino Uno and Arduino IDE software

HANDS ON ARDUINO UNO: Blinking of an LED & LED sequential control , Interfacing with LCD Display, Fading of an LED, measure Temperature & Humidity using DHT11 sensor, Measure distance using Ultrasonic sensor, Controlling of DC motor, Water level detection using Arduino UNO

Module 4 (Week 4 - 14 hours):

INTRODUCTION: Introduction to NodeMCU.

HANDS ON NODE MCU: Hands on circuits using Node MCU, Voice control using Google Assistant, Blynk App, Project exercise.