



# GOVERNMENT GENERAL DEGREE COLLEGE SALBONI

Koyma, Bhimpur, Paschim Medinipur-721516, West Bengal



**Session: 2021-22**

**Tentative Schedule: May' 2022**

**Value Added Course**  
**on**  
**Powering Your World: Exploring Electrical and Electronic Components in Everyday Life**

**Duration: 30 Hours**

### Course Description

This certificate course delves into electrical and electronic components found in daily life, covering principles, functions, and applications. Participants learn through interactive lectures, demonstrations, and hands-on activities to effectively identify, troubleshoot, and utilize these components in household appliances, consumer electronics, and everyday devices.

### Course Objectives

- Understand the fundamental principles of electricity and electronics.
- Identify common electrical and electronic components and their functions.
- Explore applications of components in everyday devices and appliances.
- Learn practical skills for troubleshooting and repairing electrical and electronic systems.
- Enhance awareness of safety precautions and regulations related to electrical components.

### Course Outline

1. Introduction to Electricity and Electronics
2. Passive Electronic Components
3. Active Electronic Components
4. Applications of Components in Daily Life
5. Hands-on Projects and Demonstrations
6. Safety and Regulations

### Mode of assessment

- |                       |              |
|-----------------------|--------------|
| 1. Class attendance   | : 25         |
| 2. Seminar/Assignment | : 25         |
| 3. MCQ Examination    | : 50         |
| <b>Total</b>          | <b>: 100</b> |

**Course offer to: Students of all streams**

**Course Coordinator: Dr. Sk. Anirban**

# Value Added Course on Powering Your World: Exploring Electrical and Electronic Components in Everyday Life



## Course Outline

- 1. Introduction to Electricity and Electronics (4 hours)**
  - Basics of electricity: voltage, current, resistance
  - Overview of electronic components and circuits
- 2. Passive Electronic Components (6 hours)**
  - Resistors: types, color coding, applications
  - Capacitors: types, capacitance, charging and discharging
  - Inductors: properties, inductance, magnetic fields
- 3. Active Electronic Components (6 hours)**
  - Diodes: rectification, zener diodes, light-emitting diodes (LEDs)
  - Transistors: bipolar junction transistors (BJTs), field-effect transistors (FETs)
  - Integrated circuits (ICs): operational amplifiers, microcontrollers
- 4. Applications of Components in Daily Life (6 hours)**
  - Household appliances: refrigerators, washing machines, air conditioners
  - Consumer electronics: televisions, smartphones, audio systems
  - Automotive electronics: sensors, control modules, ignition systems
- 5. Hands-on Projects and Demonstrations (6 hours)**
  - Circuit building and troubleshooting exercises
  - Disassembly and analysis of everyday devices
  - Soldering techniques and PCB assembly
- 6. Safety and Regulations (2 hours)**
  - Electrical safety guidelines and best practices
  - Compliance with industry standards and regulations
  - Environmental considerations and electronic waste management

## Course Delivery

- Interactive lectures with multimedia presentations
- Hands-on activities and demonstrations in a laboratory or workshop setting
- Group discussions and case studies to reinforce learning
- Access to relevant resources, manuals, and reference materials

## Resource Persons

1. Dr. Some Nath Dey, Asst. Professor in Physics, GGDC, Salboni
2. Dr. Sk. Anirban, Asst. Professor in Physics, GGDC, Salboni

## Certification

Participants who successfully complete the course and fulfill assessment criteria will receive a certificate of completion in "Powering Your World: Exploring Electrical and Electronic Components in Everyday Life."

## Prerequisites

No specific prerequisites required. Basic understanding of science and mathematics recommended. Participants should bring a notebook and pen for note-taking during lectures and activities.