



# Christ College (Autonomous) Irinjalakuda

Certificate Course On

## Basic Electric and Electronic Equipment Maintenance Course (BE<sup>3</sup>MC)

### Course Highlights

- Acquire basic Knowledge on electric and electronic devices
- Energy consumption Survey
- Household wiring
- Computer Hardware training (Basics)
- Mini Project

Course Fee  
1200/-

Offered by Department of Physics (self)

Starts on November 9, 2023

Last date for Registration : November 8

Registration Link

<https://forms.gle/yU5ak5hw9Brp5cCq9>

Contact

Prof. V P Anto : 7907132445

Ms. Simmy Jose : 9447996064

4 Months Duration

Geotag Photo:

# **Electromagnetic Metamaterials and Their Applications - BE<sup>3</sup>MC**

## **Value Added Certificate Course**

### **Teacher Coordinator Report 2023-24**

Number of students	37
Date of examination	19/2/2024
Total students who passed exam	37
Total course duration	30 Hrs.

#### **Feedback analysis:**

- ✓ Students appreciated the initiative to introduce advanced topics and techniques, especially the hands-on training sessions.
- ✓ The practical training was highly valued for its applicability to future research endeavors.
- ✓ Teamwork during the sessions enhanced collaborative learning and engagement.
- ✓ 100% of the students reported enjoying the course and found the classes informative and interactive.
- ✓ There is a strong demand for similar courses to further develop practical and research-oriented skills.

**Course Coordinators : Ms. Simmy Jose (Asst. Professor, Department of Physics (SF))**

## Syllabus of Certificate Course offered By Department of Physics(Self)

**BE<sup>3</sup>MC**

### Basic Electric & Electronic Equipment Maintenance Course

1. Basic circuit concepts – passive components: Resistance, Inductor, capacitor – active components – series and parallel connections and circuits – Kirchhoff's law and applications – Familiarization of different types of cells: primary, secondary, fuel, reserve, Daniel, Lech langi cell – batteries – Advantages and drawbacks of Cells / batteries.(3 hours)
2. Different types of measuring instruments in electronics: ammeter, voltmeter, galvanometer and multimeter – uses – repairing of measuring instruments – advantages and drawbacks.(2 hours)
3. Design and analysis of different basic electronic circuits – rectifier, amplifier etc. Basics of Transformer, different types – Step up, step down, Distribution, isolation, auto, power transformer – working – construction, uses and advantages – basics of transformer winding – winding methods.(2 hours)
4. Basics of P N junction diodes – V I characteristics – different types: Diode, Zener, Schottky, Rectifier, LED, Photodiode, Tunnel, Varactor Diode – working – uses and advantages.(2 hours)
5. Study of DSO – Waveform analysis – study of voltage, frequency. Phase of a given waveform – working of DSO – function generator basics – Hardware training: SMPS, UPS etc.(3 hours)

6. Basic household wiring – ELCB – working of different home appliances: LED TV, solar panel.( 3 hours)

7. Practical session - 15 hours

8. Energy survey

# Certificate course inauguration- 2nd UG

## Program Objectives:

### Enhanced Knowledge:

- A deeper understanding of fundamental physics concepts, principles, and theories.
- Exposure to advanced topics that may not be covered in a standard curriculum.

### Practical Skills:

- Hands-on experience with laboratory equipment and techniques.
- Development of experimental and analytical skills.

### Problem-Solving Abilities:

- Improved ability to apply physics concepts to solve complex problems.
- Enhanced critical thinking and logical reasoning skills.

### Career Advancement:

- Better preparation for careers in research, academia, or industry.
- Increased qualifications that can make you more skills in physics, which can be added to your resume.

### Personal Growth:

- Increased confidence in your abilities and knowledge.
- A sense of accomplishment and motivation to pursue further studies or career goals.competitive in the job market.

### Preparation for Further Studies:

- A solid foundation for pursuing higher education, such as a master's or PhD in physics or related fields.
- Readiness for competitive exams like JAM or GATE for entry into prestigious institutions.

### Networking Opportunities:

- Connections with peers, instructors, and professionals in the field of physics.
- Opportunities for collaboration on projects and research.

### Certification:

- An official certificate that validates your knowledge and skills in physics, which can be added to your resume.

### **Personal Growth:**

- Increased confidence in your abilities and knowledge.
- A sense of accomplishment and motivation to pursue further studies or career goals.

### **Program Report:**

Inauguration of the certificate course “Basics Electric and Electronic Equipment Maintenance Course” offered by the Department of Physics(Unaided) to the students of first year physics was held on 9/11/2023 at Room number SC 15. The event began with a prayer. Ms Simmy Jose(Certificate course coordinator)delivered the welcome address and highlighted the importance and objectives of the course. Prof. V P Anto (Head of the Department of Physics(self) delivered the presidential address and also emphasized the significance of acquiring new skills and knowledge in today's competitive world.Following the presidential address, Dr. Vivekanandhan(Coordinator of Self Finance section Christ college), the chief guest for the event, inaugurated the course. He spoke about the relevance of the course to the industry and its potential impact on the participants' careers.The event also included a felicitation by Dr. Shinto K G( IQAC Coordinator), who shared insights and experiences related to the course topics.The inauguration ceremony concluded with a vote of thanks by Alfred Solvin(student representative), who expressed gratitude to all the dignitaries, participants, and organizers for their contributions to making the event a success.Overall, the inauguration ceremony was well-received, setting a positive tone for the course and inspiring the participants to make the most of the learning opportunities ahead.

### **Brochure:**



Attendance:

### II DC BSc.Physics( SF)

SL NO	STUDENT NAME	FN
1	ADITHYAN K R	
2	AKASH PIMY	
3	AKSHAYA P ANIL	<i>AK</i>
4	AKSHITH K S	
5	ALFRED SONVIN	<i>AS</i>
6	ALIYA DENNY	<i>AD</i>
7	ALTHAFUDHEEN M S	
8	ANAND - B	<i>AN</i>
9	ANASWARA DAS M J	
10	ANJANA A B	<i>AN</i>
11	ANN MARY GLEESON	
12	ARUNDHATHY DEVI M	<i>Arundhathy Devi</i>
13	ARYA ANILA	<i>Ar</i>
14	ATHIRA V M	<i>Ar</i>
15	ATHUL P S	<i>Ar</i>
16	AVINASH K A	<i>AV</i>
17	DEVIMOL M S	
18	DINU DENNY	<i>DD</i>
19	DIYA NOURIN M A	
20	FATHIMATHUL HAAIFA V S	<i>FA</i>
21	GLADIYA DIXON	<i>GD</i>
22	JANEETA ELIZABATH K J	
23	JESSE RAJUMON	<i>Jesse Raju</i>
24	JOLNA PRAKASH	
25	KRISHNA SUDHEER	
26	KRISHNAPRASAD K B	<i>KP</i>
27	MARIYA ROSE K J	<i>MR</i>
28	NANDHANA P S	
29	NIBH V B	<i>NV</i>
30	RIYA SHAJU	<i>RS</i>
31	RIZWAN RAFFEOUE	<i>Rizwan</i>
32	SACHITHANAND C S	
33	SAFA P S	
34	SAM CHIRIYANKANDATH	<i>Sam</i>
35	SURYAPRIYA C S	
36	TINTO SHAJU	
37	VAISHNAVI V G	



**CHRIST COLLEGE (AUTONOMOUS), IRINJALAKUDA**

**DEPARTMENT OF PHYSICS (UNAIDED)**

**VALUE ADDED CERTIFICATE COURSE:**

**BASIC ELECTRIC AND ELECTRONIC EQUIPMENT MAINTANANCE COURSE**

**Time:1 hr**

**Max.mark:30**

**Section A** (answer all)

1. State Kirchoff's laws.
2. What is the use of a galvanometer?
3. What is a rectifier?
4. What you mean by SMPS?
5. What is an ELCB?

**5 x 2 =10**

**Section B** (answer any two)

6. Write a short note on transformers.
7. What is a Zener diode? Draw its reverse V-I characteristics.
8. Differentiate between passive and active components with examples.

**2 x 5 =10**

**Section C**(answer any one)

9. Explain in detail different types of cells and batteries.
10. Explain the construction, working, uses and advantage of transformer.

**1 x 10=10**

# Basic Electric & Electronic Equipment Maintenance Course

## Value Added Certificate Course

### Summary Report 2023-24

The course started on November 9th, 2023. There were 37 students and all of them completed the course. The course was 30 Hrs. duration, which combined lectures, discussions, and hands-on training sessions. Students actively participated in the sessions and appreciated the opportunity to work collaboratively during hands-on activities. The practical sessions, in particular, were highlighted as a valuable and enjoyable part of the course.

### **Course Outcome:**

The course provided students with:

- A thorough understanding of the fundamental concepts and properties of electric and electronic equipment..
- Practical expertise in Household wiring .
- Energy survey

The students were highly satisfied with the course structure and delivery. They found the hands-on training sessions highly beneficial for future research purposes. All participants enjoyed the course and expressed interest in attending more such skill-oriented programs to enhance their practical knowledge.

### **Conclusion:**

The course achieved its objectives, successfully blending theory with practical application. Based on student feedback, similar courses should be organized to promote advanced learning and research skill development.

**Course Coordinators: : Ms. Simmy Jose (Asst. Professor, Department of Physics (SF))**