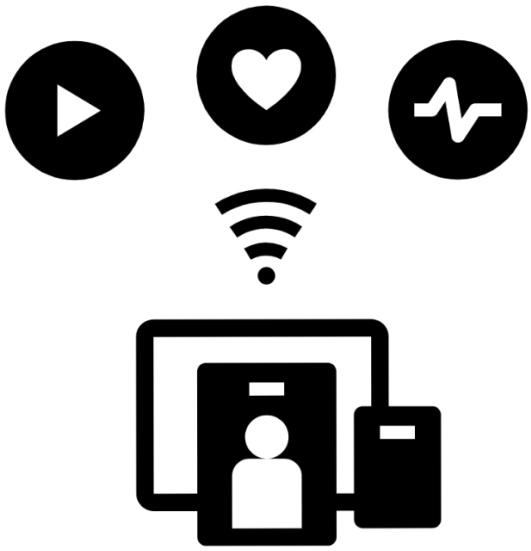
DINABANDHU ANDREWS COLLEGE



30 Hour Certificate Course on "**Home Tech Hub"**
Offered by the Department of Electronics
DINABANDHU ANDREWS COLLEGE (C-11955)
P.O. GARIA, KOLKATA 700 084

Gul Mohammad.

Title of the Certificate Course: "Home Tech Hub"

Course Overview: This comprehensive course series covers essential aspects of electrical and electronic systems, addressing both foundational principles and practical applications. Participants will explore the fundamentals of electrical circuits, safety measures, and electronic components. Specific modules delve into commercial metering, MCBs, and household appliances such as washing machines, microwave ovens, induction cookers, fridges, and inverters. The courses emphasize hands-on learning, covering installation, troubleshooting, and maintenance practices to equip participants with valuable skills applicable in both residential and commercial settings.

Course Duration: 30 hours (6 hrs per week x 5 weeks)
Eligibility criteria for participation: All current students of Dinabandhu Andrews College, interested in household electronics.
Course Coordinator: Prof. Gul Mohammad
Joint Coordinator: Dr. Sudarsan Barui, Prof. Imtiaz Ahammad

Module 1: Fundamentals of Electrical and Electronics
This module serves as the foundation for understanding the principles governing electrical and electronic systems. The course aims to provide a solid grounding in the principles that underpin more advanced topics within the field.

Module 2: Commercial Meter and MCB (Miniature Circuit Breaker)
Focusing on practical applications, this module explores the use of commercial meters for measuring electrical parameters and the importance of MCBs in electrical circuits. Participants will gain insights into different types of meters, their installation, and the role of MCBs in protecting electrical systems from overloads and short circuits.

Module 3: Washing Machine
This module delves into the operational mechanisms and maintenance of washing machines. Participants will learn about the various components, including motors, pumps, and sensors, and their roles in the washing process. The course will cover troubleshooting common issues, understanding different washing machine types, and best practices for ensuring the longevity of these essential household appliances.

Module 4: Microwave Oven and Induction Cooker
Focused on modern kitchen appliances, this module explores the science behind microwave ovens and induction cookers. Participants will gain insights into the electromagnetic principles involved in microwave cooking and the induction heating process. The course also covers safety measures, maintenance tips, and the energy efficiency of these appliances.

Module 5: Refrigerator
Understanding the refrigeration cycle, temperature control, and maintenance practices are the key aspects of this module. Participants will explore the various components of refrigerators, including compressors, condensers, and evaporators. The course also covers defrosting techniques, energy-saving tips, and troubleshooting common refrigerator issues.

Module 6: Inverter

Focusing on power electronics, this module introduces participants to inverters and their applications. The course covers the conversion of DC to AC power, inverter types, and their use in uninterruptible power supply (UPS) systems.

Evolution Process: The fundamental philosophy behind the evaluation policy for this 30-hour add-on course is to objectively assess whether participants (students) have comprehended the concepts and can effectively apply them to solve their daily life problems.

The Evaluation would be done through 2 components –

i) C1 Course-end Assessments (Written Test) [Total Marks: 30]

ii) C2 Practical /LAB [Total Marks: 20]

Total Marks of the Evaluation process would be – 50 Marks

Table for Qualification:

Total Score (Out of 50)	Grade
45-50	O- Outstanding
40-44	E-Excellent
35-39	A- Very Good
30-34	B- Good
25-29	C- Fair
Below 25	F- Faild

General rules and regulations:

1. Students must attend and appear for all the Module-End Assessments. If any student fails to submit any of the Module-End Assignments or fails to attend any of the Module End Assessment examinations, the particular Student would NOT BE ELIGIBLE FOR CERTIFICATE.

2. Students must attend and appear for the Course-End Assessment Examination. If any student fails to submit the Course-End Assessment or fails to attend the Course-End Assessment Examination, the particular Student would NOT BE ELIGIBLE FOR CERTIFICATE.

3. Students must attend and appear for the Course-End Viva. If any student fails to fails to attend

the Course-End Viva, the particular Student would NOT BE ELIGIBLE FOR CERTIFICATE.

4. Total Marks of Course Evaluation will be 50 Marks.

5. Minimum 50% Marks has to be scored to receive any Certificate. There will be only ONE Attempt allowed for each of the Module-End Assessments and the Course-End Assessment.

6. There will be NO PROVISION for Backlog Clearance.

7. General Rules and Regulations of the College must be followed without any exception.

8. Minimum 75% attendance is required to receive the certificate of the course.

Learning resources:

Sl No.	Title of the book	Author(s)	Publisher
1.	Fundamentals of Electrical Engineering and Electronics	BL Theraja	S. Chand
2.	Residential, Commercial and Industrial Electrical Systems: Equipment and Selection	Hemant Joshi	McGraw Hill Education (India) Private Limited
3.	Handbook of Repair and Maintenance of Domestic Electronics Appliances	Shashi Bhushan Sinha	BPB Publications
4.	Water Purifier, Microwave Oven & Mixer Grinde Technician Guide	Shashi Bhushan Sinha	BPB Publications
5.	Troubleshooting and Repairing Major Appliances	Eric Kleinert	McGraw Hill Education

Course outcome:

By the end of this course, participants will have a strong foundation in household electronics, understanding key principles and terminology. They will gain practical skills in identifying and working with electronic components, ensuring safety in handling household electronics. Participants will master basic electrical wiring, troubleshooting techniques, and the integration of smart technologies for home automation. Additionally, the course will empower them to evaluate, choose, and set up consumer electronics while promoting energy efficiency and sustainability. Through the program, students will apply their knowledge, fostering creativity and self-reliance. Ultimately, participants will be well-equipped to navigate the dynamic landscape of household electronics, embracing future trends and contributing to a safer, more efficient, and technologically advanced living environment.