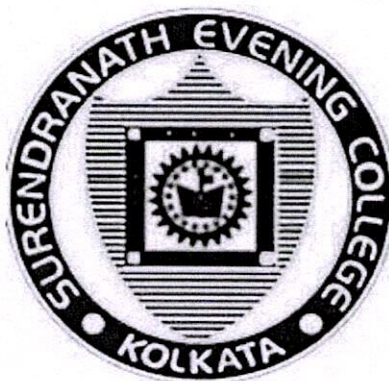


Surendranath Evening College

(Affiliated to Calcutta University)

Department of Physics



A complete report on Add-on Course on

“Household electronics – Basics and Applications”

Session – 2023-2024



SURENDRANATH EVENING COLLEGE

[Established in 1961]

Affiliated to the University of Calcutta

24/2, MAHATMA GANDHI ROAD, KOLKATA - 700 009

Phone : 033 2985-9011, E-mail : snevening@ymail.com

Website : www.surendranatheveningcollege.com

(NAAC Re-accredited in 2016)



NOTICE

We are happy to announce that the department of Physics of our college is going to organize a 30 hours short term add-on course on the topic” household electronics – Basics and Applications” for science under-graduate students from 17/11/2023 onwards. All the interested students are requested to register themselves to the course coordinator on or before 17/11/2023.

Course Coordinator: Dr. Chirashree Lahiri

HOD

(Physics)

HOD
Department of Physics
Surendranath Evening College
24/2, MG Road, Kol-09

Principal 12.11.23

Principal
Surendranath Evening College
Kolkata - 700009

Course Title: Household Electronics – Basics & Applications

Duration: 15 Days (30 hours) [17.11.2023 to 16.12.2023]

Mode: Theory + Practical Sessions

Target Students: Undergraduate Students (Science stream)

Prerequisites: Basic understanding of electricity and circuits

Course Coordinator: Dr. Chirashree Lahiri

Instructor: 1) Mr. Abdul Lahil Safi
2) Dr. Anupam Debangshi
3) Dr. Sanjit Sarkar
4) Dr. Samit Bhowal


Course Objectives:

- Introduce the fundamental working principles of household electronic devices.
- Provide hands-on experience with repair and troubleshooting.
- Enhance awareness of safety precautions and energy efficiency.
- Encourage DIY repair and maintenance skills


H.O.
Department of Physics
Surendranath Evening College
24/2, MG Road, Kol-09

Course Syllabus

- Basics of Household Electronics & Components Introduction to Household Electronics. Overview of electrical and electronic devices at home.AC vs. DC power supply. Understanding voltage, current, resistance, and power
 - Electronic Components & Their Functions. Resistors, capacitors, diodes, transistors, and ICs. Working of transformers, relays, and fuses.
 - Wiring & Power Distribution in Homes. Basics of electrical wiring and circuit breakers .Understanding home electrical panels and grounding
 - Basic Testing & Measurement Tools. MultiMate usage (voltage, resistance, continuity tests). Oscilloscope basics.
 - Safety & Protection Mechanisms. Circuit breakers, fuses, and surge protectors. Earthing and insulation techniques.
 - Household Appliances & Troubleshooting. Lighting Systems & LED Technology. Incandescent, CFL, and LED lamps. Energy-efficient lighting and smart lighting. Fans, Motors & Induction Heating. Working of ceiling fans and induction stoves.
 - Kitchen & Home Appliances – Basics. Electric kettle, microwave oven, Circuit explanation. Refrigerators & Air Conditioners working principle of refrigeration. Washing Machine & Water Heater. Heating elements and thermostat in water heaters
 - Energy Efficiency & Sustainable Electronics. Power-saving techniques for household electronics
 - Final Assessment & Project Presentations
- Quiz/Test on course topics
- Small Electronics project/practical


Principal
Surendranath Evening College
Kolkata - 700009


Department of Physics
Surendranath Evening College
24/2, MG Road, Kol-09

Surendranath Evening College

Sealdah , Kolkata – 700009, WB

Department of Physics


(Add-on Course on household electronics – Basics and Applications)

Session – 2023-2024

Duration – 17/11/2023 to 16/12/2023

List of Registered Students

S.No	Name	C.U. Registration No	Semester
1	ADARSH SHAW	117-1111-0236-22	III
2	SAYAN GANGULY	117-1111-0237-22	III
3	GAURAV KR GOND	117-1113-0238-22	III
4	BRATATI MONDAL	117-1212-0239-22	III
5	ABHISHEK KUMAR JHA	117-1111-0240-22	III
6	PRITAM HALDAR	143-1111-0167-21	III
7	DHIRAJ KUMAR JHA	117-1111-0241-22	III
8	SUPRIYA SANFUI	117-1112-0243-22	III
9	UDAY SHANKAR MAL	117-1111-0245-22	III
10	ROHIT RANJAN	117-1111-0246-22	III
11	BISWAJIT PAUL	117-1114-0185-21	V
12	ZESHAN SALIM	117-1111-0951-21	V
13	KABITA SINGH	117-1211-0192-21	V
14	FAIZAN SALIM	117-1111-0952-21	V
15	MD AFROZ ALAM	117-1111-0956-21	V
16	ZAKI ZUBAIR	117-1111-0149-20	Backlog
17	ZEBA PARVEEN	117-1211-0158-20	Backlog


Principal
Surendranath Evening College
Kolkata - 700009


HOD
Department of Physics
Surendranath Evening College
24/2, MG Road, Kol-09

PICTURES OF INAUGURATION CEREMONY

Date: 17.11.2023

SURENDRANATH EVENING COLLEGE

(Affiliated to Calcutta University)



Add-on Course

"Household electronics – Basics and Applications"

Organized by

Physics department

INAUGURATION CEREMONY


Date: 17/11/2023

Venue: PG



24, Mahatma Gandhi Rd, Baithakkhana,
Kolkata, West Bengal 700009, India
17 Nov 2023 05:22 PM


Principal
Surendranath Evening College
Kolkata - 700009


Department of Physics
Surendranath Evening College
24/2, MG Road, Kol-09

Surendranath Evening College

Sealdah , Kolkata – 700009, WB

Department of Physics

(Add-on Course on household electronics – Basics and Applications)

Session – 2023-2024

Duration – 17/11/2023 to 17/12/2023

Attendance

S.No	Name	Teacher's Signature with Date							
		Atk. 17/11/23	Atk. 18/11/23	Atk. 21/11/23	Atk. 22/11/23	Atk. 24/11/23	Atk. 25/11/23	Atk. 27/11/23	Atk. 28/11/23
1	ADARSH SHAW	P	P	P	P	P	.	P	P
2	SAYAN GANGULY	P	.	P	P	P	P	P	.
3	GAURAV KR GOND	P	P	P	P	.	P	P	P
4	BRATATI MONDAL	P	P	P	.	P	.	P	P
5	ABHISHEK KUMAR JHA	P	P	P	P	P	P	.	.
6	PRITAM HALDAR	P	P	P	P	P	P	P	P
7	DHIRAJ KUMAR JHA	P	P	P	P	P	.	P	P
8	SUPRIYA SANFUI	P	P	P	.	P	.	.	P
9	UDAY SHANKAR MAL	P	.	P	.	P	P	P	.
10	ROHIT RANJAN	P	P	P	.	P	P	P	P
11	BISWAJIT PAUL	P	P	P	P	P	.	.	P
12	ZESHAN SALIM	.	P	P	P	.	P	P	P
13	KABITA SINGH	P	P	.	P	P	P	P	P
14	FAIZAN SALIM	P	P	P	P	P	.	P	P
15	MD AFROZ ALAM	P	P	P	P	P	P	.	P
16	ZAKI ZUBAIR
17	ZEBA PARVEEN	P	P	P	P	P	.	.	P

Principal
Surendranath Evening College
Kolkata - 700009

Department of Physics
Surendranath Evening College
24/2, MG Road, Kol-09

Surendranath Evening College

Sealdah , Kolkata – 700009, WB

Department of Physics

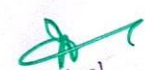
(Add-on Course on household electronics – Basics and Applications)


Session – 2023-2024

Duration – 17/11/2023 to 16/12/2023

Attendance

S.No	Name	Teacher's Signature with Date							
		01/12/23	02/12/23	04/12/23	06/12/23	07/12/23	08/12/23	15/12	
1	ADARSH SHAW	P	P	P	P	P	P	P	
2	SAYAN GANGULY	P	.	P	P	P	P	P	
3	GAURAV KR GOND	.	P	P	P	P	P	P	
4	BRATATI MONDAL	P	P	P	.	P	P	P	
5	ABHISHEK KUMAR JHA	P	P	P	P	.	P	P	
6	PRITAM HALDAR	P	P	P	P	P	P	P	
7	DHIRAJ KUMAR JHA	.	P	P	P	P	P	P	
8	SUPRIYA SANFUI	P	P	P	P	P	P	P	
9	UDAY SHANKAR MAL	P	.	P	P	P	P	.	
10	ROHIT RANJAN	P	P	P	P	.	P	.	
11	BISWAJIT PAUL	.	P	P	P	P	P	P	
12	ZESHAN SALIM	P	P	P	P	P	P	P	
13	KABITA SINGH	P	.	P	P	P	P	P	
14	FAIZAN SALIM	P	P	P	P	P	P	P	
15	MD AFROZ ALAM	P	.	P	P	P	P	P	
16	ZAKI ZUBAIR	.	.	P	P	P	P	P	
17	ZEBA PARVEEN	P	P	P	P	P	P	P	


Principal
Surendranath Evening College
Kolkata - 700009


2023
Department of Physics
Surendranath Evening College
24/2, MG Road, Kol-09

Surendranath Evening College
Department of Physics

MCQ test on

Course : Household Electronics – Basics & Applications

Date: 16.12.2023

Name:.....

Tick the right Answer:

15X2 = 30

1. What is the standard voltage supply in most households?

- A) 110V AC
- B) 220V AC
- C) 440V AC
- D) 12V DC

2. Which of the following is used to measure electrical resistance?

- A) Voltmeter
- B) Ammeter
- C) Multimeter
- D) Wattmeter

3. What is the function of a fuse in household electronics?

- A) To increase voltage
- B) To prevent overcurrent
- C) To convert AC to DC
- D) To store electrical charge

4. Which component is used in LED bulbs for voltage regulation?

- A) Resistor
- B) Capacitor
- C) Diode
- D) Transformer



HOD
Department of Physics
Surendranath Evening College
24/2, MG Road, Kol-09

5. Which appliance uses the principle of induction heating?

- A) Microwave oven
- B) Induction cooktop
- C) Toaster
- D) Hairdryer

6. What does an ELCB (Earth Leakage Circuit Breaker) protect against?

- A) Short circuits
- B) Voltage fluctuations
- C) Electric shocks
- D) Overcurrent

7. What is the typical power consumption of an LED bulb compared to an incandescent bulb of the same brightness?

- A) 10 times more
- B) 50% less
- C) 80-90% less
- D) Same as incandescent

8. Which gas is commonly used in refrigerators for cooling?

- A) Oxygen
- B) Nitrogen
- C) Freon (R-134a)
- D) Hydrogen

9. What does a capacitor do in an electric fan circuit?

- A) Provides resistance
- B) Increases motor speed
- C) Stores and releases charge
- D) Converts AC to DC



10. What is the primary function of a thermostat in a water heater?

- A) Increase heating speed
- B) Control temperature
- C) Reduce energy consumption
- D) Convert electricity to heat

11. Why is earthing necessary in household wiring?

- A) To increase voltage
- B) To prevent electric shock
- C) To stabilize current flow
- D) To reduce electricity bills

12. What type of motor is used in washing machines?

- A) Induction motor
- B) Stepper motor
- C) DC motor
- D) Servo motor

13. Which of the following can be used to check if an appliance is getting power supply?

- A) Soldering iron
- B) Continuity tester
- C) Transformer
- D) Resistor

14. How does a surge protector protect appliances?

- A) By increasing voltage supply
- B) By cutting off excess voltage
- C) By reducing current flow
- D) By converting AC to DC



HOD
Department of Physics
Surendranath Evening College
24/2, MG Road, Kol-09

15. What is the best way to dispose of electronic waste (e-waste)?

- A) Throw in the regular trash
- B) Burn it to reduce waste
- C) Recycle through authorized centers
- D) Bury it underground

16. Which of the following devices is used to step down high voltage to low voltage in household electronics?

- A) Resistor
- B) Transformer
- C) Capacitor
- D) Inductor

17. What is the main function of a diode in a power supply circuit?

- A) To store charge
- B) To amplify signals
- C) To allow current flow in one direction
- D) To step up voltage

18. Which of the following home appliances uses a heating element?

- A) LED TV
- B) Microwave oven
- C) Electric iron
- D) Ceiling fan



Surendranath Evening College

Sealdah , Kolkata – 700009, WB

Department of Physics


(Add-on Course on household electronics – Basics and Applications)


Session – 2023-2024

Duration – 17/11/2023 to 16/12/2023

Result

S.No	Name	Attendance (10)	Theory (30)	Practical (10)	Total (50)
1	ADARSH SHAW	9	26	9	44
2	SAYAN GANGULY	8	26	7	41
3	GAURAV KR GOND	9	20	8	37
4	BRATATI MONDAL	7	28	7	42
5	ABHISHEK KUMAR JHA	8	24	9	41
6	PRITAM HALDAR	6	22	6	34
7	DHIRAJ KUMAR JHA	9	20	5	34
8	SUPRIYA SANFUI	9	22	6	37
9	UDAY SHANKAR MAL	7	18	7	32
10	ROHIT RANJAN	8	22	6	36
11	BISWAJIT PAUL	9	22	5	36
12	ZESHAN SALIM	6	20	6	32
13	KABITA SINGH	5	18	7	33
14	FAIZAN SALIM	7	16	8	31
15	MD AFROZ ALAM	9	24	9	42
16	ZAKI ZUBAIR	2	0	0	2
17	ZEBA PARVEEN	8	22	8	38


Principal
Surendranath Evening College
Kolkata - 700009


HOD
Department of Physics
Surendranath Evening College
24/2, MG Road, Kol-09

Surendranath Evening College

Sealdah , Kolkata – 700009, WB

Department of Physics


(Add-on Course on household electronics – Basics and Applications)


Session – 2023-2024

Duration – 17/11/2023 to 16/12/2023

Certificate distribution

S.No	Name	Signature with date
1	ADARSH SHAW	Adarsh Shaw
2	SAYAN GANGULY	Sayan Ganguly
3	GAURAV KR GOND	Gaurav Kr. Gond
4	BRATATI MONDAL	Bratati Mondal
5	ABHISHEK KUMAR JHA	Abhishek Kumar Jha
6	PRITAM HALDAR	Pritam Halder.
7	DHIRAJ KUMAR JHA	Dhiraj Kumar Jha
8	SUPRIYA SANFUI	Supriya Sanfui
9	UDAY SHANKAR MAL	Uday Shankar Mal
10	ROHIT RANJAN	Rohit Ranjan
11	BISWAJIT PAUL	Biswajit Paul
12	ZESHAN SALIM	Zeshan Salim
13	KABITA SINGH	Kabita Singh.
14	FAIZAN SALIM	Faizan Salim
15	MD AFROZ ALAM	Md. Afroz Alam
16	ZAKI ZUBAIR	Zaki Zubair
17	ZEBA PARVEEN	Zeba Parveen


Principal
Surendranath Evening College
Kolkata - 700009


HOD
Department of Physics
Surendranath Evening College
24/2, MG Road, Kol-09

CERTIFICATE DISTRIBUTION PROGRAM
DATE: 16/12/2023



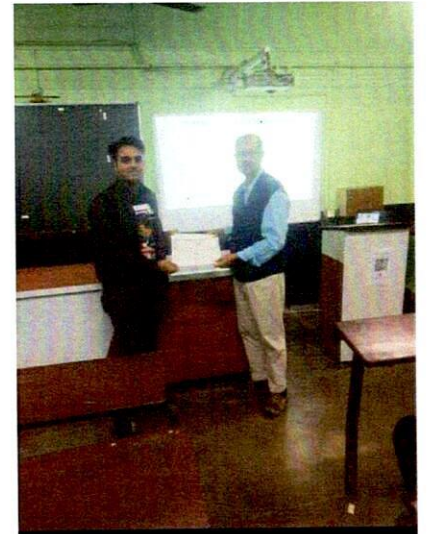
realme 11 5G
2023.12.16 Kolkata



24, Mahatma Gandhi Rd, Baithakkhana,
Kolkata, West Bengal 700009, India
16 Dec 2023 05:19 PM




24, Mahatma Gandhi Rd, Baithakkhana,
Kolkata, West Bengal 700009, India
16 Dec 2023 05:19 PM



24, Mahatma Gandhi Rd, Baithakkhana,
Kolkata, West Bengal 700009, India
16 Dec 2023 05:19 PM


Principal
Surendranath Evening College
Kolkata - 700009


HOD
Department of Physics
Surendranath Evening College
24/2, MG Road, Kol-09



24, Mahatma Gandhi Rd, Baithakkhana, Kolkata, West Bengal 700009, India
16 Dec 2023 05:19 PM




24, Mahatma Gandhi Rd, Baithakkhana, Kolkata, West Bengal 700009, India
16 Dec 2023 05:19 PM



22, Mahatma Gandhi Rd, Sealdah, Baithakkhana, Kolkata, West Bengal 700009, India
16 Dec 2023 05:13 PM


Principal
Surendranath Evening College
Kolkata - 700009


HOD
Department of Physics
Surendranath Evening College
24/2, MG Road, Kol-09



SURENDRANATH EVENING COLLEGE

(Affiliated to Calcutta University)

Certificate of Completion the Course
“household electronics – Basics and Applications”

*This is to certify that Sajjan...Ganguly..... of
..... department has successfully completed the 30 hours Course on
“household electronics – Basics and Applications” organized by Physics department
from 17 / 11 / 2023 to 16 / 12 / 2023.*

Jahiri

Course Co-Ordinator

H.O.D.

(Physics Department)

HOD

Department of Physics
Surendranath Evening College
24/2, MG Road, Kol-09

Principal

Principal
Surendranath Evening College
Kolkata - 700009