

<b>Session: 2023-24</b>			
<b>Part A - Introduction</b>			
Subject	ELECTRONICS		
Semester	FIRST		
Name of the Course	Electronics in Daily Life		
Course Code	B23-ELE-104		
Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/VAC)	<b>MDC-1</b>		
Level of the course	100-199		
Pre-requisite for the course (if any)	Any Arts, Commerce Subject at 4.0 Level (Class XII)		
Course Learning Outcomes (CLO):	After completing this course, the learner will be able to: <ol style="list-style-type: none"> <li>1. Understand about various electronic components</li> <li>2. Learn about the use of AC and DC voltages and transformers etc</li> <li>3. Understand the concept of assembling and disassembling of various home appliances.</li> <li>4. Learn the concept and importance of earthing</li> <li>5. To get practical exposure of various electronics components and appliances</li> </ol>		
Credits	Theory	Practical	Total
	2	1	3
Contact Hours	30	30	60
Max. Marks: 75 (50 Theory + 25 Practical) Internal Assessment Marks: 15 Theory + 5 Practical End Term Exam Marks: 35 Theory + 20 Practical		Exam Time: 3 Hours each for Theory & Practical	
<b>Part B- Contents of the Course</b>			
<b><u>Instructions for Paper- Setter</u></b> <ol style="list-style-type: none"> <li>1. Nine questions will be set in all. All questions will carry equal marks.</li> <li>2. Question No. 1, which will be short answer type covering the entire syllabus, will be compulsory. The remaining eight questions will be set unit wise selecting two questions from each Unit I to IV. The candidate will be required to attempt question No. 1 and four more questions selecting one question from each unit.</li> <li>3. Medium of examination may be Hindi/English.</li> </ol>			

Unit	Topics	Contact Hours
I	<p><b>Introduction to basic Electronics components and Devices:</b> Resistor, Color code, Inductor, Capacitor, basic Potentiometer circuit, Multiple range Potentiometer</p> <p>Classification of Instruments, Analog and Digital Mode of operations, Basics of CRO, Multimeter</p>	7
II	AC - DC Voltage, Domestic Electric supply, Transformer, Power consumption, wire, electric tester, clamp meter, Fuse, circuit breaker, Inverter, Electric consumption meter reading, BEE rating, Soldering techniques, LED, Display HD, Full HD and UHD.	8
III	Repair and Maintenance of Home Appliances(Basic idea of Internal Circuit and working): Inverters and UPS, Switch Mode Power Supply, washing Machine , Electric Iron, Microwave Oven, Rice Cooker	9
IV	Measurement of Earth Resistance: Necessity of Earth Electrode, Necessity of measurement of Earth Electrode, Factors effecting Earth Electrodes, Methods of measuring Earth Resistance	6
V*	<p><b>Note:</b> A candidate is required to perform minimum 4 experiments out of the list provided during course of study in this semester.</p> <ol style="list-style-type: none"> <li>1. Measurement of alternating voltage using multimeter.</li> <li>2. Measurement of voltage and Time period and using CRO.</li> <li>3. Measurement of resistance value using colour codes and multimeter.</li> <li>4. Design and verify the potential divider arrangement using resistances.</li> <li>5. Testing of wire, measuring voltage, current and frequency using multimeter</li> <li>6. Demonstrate soldering of basic electronics components using soldering iron.</li> <li>7. Understanding the role of transformer.</li> </ol>	30
<b>Suggested Evaluation Methods</b>		
<p><b>Internal Assessment:</b></p> <ul style="list-style-type: none"> <li>➤ <b>Theory 15 Marks</b> <ul style="list-style-type: none"> <li>• Class Participation: <b>4 Marks</b></li> <li>• Seminar/presentation/assignment/quiz/class test etc.: <b>4 Marks</b></li> <li>• Mid-Term Exam: <b>7 Marks</b></li> </ul> </li> <li>➤ <b>Practicum 5 Marks</b> <ul style="list-style-type: none"> <li>• Class Participation:</li> <li>• Seminar/Demonstration/Viva-voce/Lab records etc.: <b>5 Marks</b></li> <li>• Mid-Term Exam:</li> </ul> </li> </ul>		<p><b>End Term Examination:</b> <b>35 Marks</b></p> <p><b>20 Marks</b></p>
<b>Part C-Learning Resources</b>		

**Recommended Books/e-resources/LMS:**

1. A course in Electrical and Electronic Measurements and Instrumentation by A K Sawhney.
2. Electronics Instrumentation and Measurement Techniques by W D Cooper
3. Handbook of Repair and Maintenance of Domestic Electronics Appliances, Shashi Bhushan Sinha, BPB Publications
4. Getting Down to Earth: A practical guide to earth resistance testing, Megger