

Ahmednagar Jilha Maratha Vidya Prasarak Samaj's

**New Arts, Commerce, and Science College
Ahmednagar (Autonomous)**

(Affiliated to Savitribai Phule Pune University, Pune)



**National Education Policy (NEP)
Choice Based Credit System (CBCS)**

**Programme Framework and Syllabus for
Skill Enhancement Courses: Electronic
Science**

कौशल्य वृद्धी अभ्यासक्रम: इलेक्ट्रॉनिक सायन्स

Implemented from

Academic Year 2024-25

Ahmednagar Jilha Maratha Vidya Prasarak Samaj's
New Arts, Commerce and Science College, Ahmednagar
(Autonomous)

Introduction of Skill Enhancement Courses: Electronic Science

The practical course focuses on hands-on experimentation in electronics and instrumentation. Students will learn to use digital multimeters for measuring resistance, current, and voltages, as well as perform continuity, diode, and transistor tests. They will also work with CROs and Function Generators to analyze waveforms and frequencies. Building circuits on breadboards, such as LED displays and voltage dividers, will enhance their understanding of circuit design. Additionally, students will engage in biomedical instrumentation practices, including measuring body temperature, blood pressure, and pulse rates using specialized equipment. The course aims to develop practical skills in electronics, instrumentation, and health monitoring.

Skill Enhancement Courses: Framework and Course Distribution:
Subject: Electronic Science

Sr. No.	Year	Semester	Level	Course Type	Course Code	Title	Credits
1.	I	II	5.0	SEC-01	SEC-ES 01P	Electronics Essential Skill-Building Experiments Lab-I	02
2.	II	III	5.5	SEC-02	SEC-ES 02P	Electronics Essential Skill-Building Experiments Lab-II	02
3.	II	IV	6.0	SEC-03	SEC-ES 03P	Electronics Essential Skill-Building Experiments Lab-III	02
Total							06

Skill Enhancement Courses: Electronic Science

Title of the Course: Electronics Essential Skill-Building Experiments Lab-I								
Year: I				Semester: II				
Course Type	Course Code	Credit Distribution		Credits	Allotted Hours	Allotted Marks		
		Theory	Practical			CIE	ESE	Total
SEC-01	SEC-ES 01P	00	02	02	60	15	35	50

Learning Objectives:

1. Identify and handle various equipment in an Instrumentation or Electronic Laboratory.
2. Understand the construction and operational principles of various instruments.
3. Demonstrate skills in handling, maintenance, and troubleshooting of different instruments.
4. Acquire skills in observing and measuring various electrical and electronic quantities.
5. Perform techniques related to Biomedical Instrumentation and measurement of physiological parameters.

Course Outcomes (Cos)

On successful completion of this practical course, student shall be able to:

1. List out, identify and handle various equipment in Instrumentation Laboratory or Electronic Laboratory.
2. Learn the construction, operational principles of various instruments.
3. Demonstrate skills in handling, Maintenance & troubleshooting of different instruments used in the Labs.
4. Acquire skills in observing and measuring various electrical and electronic quantities.
5. Perform some techniques related to Biomedical Instrumentation And measurement of certain physiological parameters like body temperature, B.P. and sugar levels etc.

Detailed Syllabus:

Practical (Laboratory) Syllabus:

1. Get to Know Your Digital Multimeter: Mastering Measurements & Tests
2. Exploring Voltage and Frequency with CRO: Compare Measurements for Precision
3. Signal Creation Adventure: CRO Waveforms & Frequency Exploration
4. Hands-On Circuit Fun: Explore Prototyping with Breadboard Creations
5. LED Circuit Creation: Dive into Current Flow and Circuit Fundamentals
6. Voltage Divider Circuit Exploration: Unveiling Variable Voltage Level
7. Numerical Magic: Lighting Up Numbers with Seven Segment Display

8. Body Temperature Check: Exploring Digital Thermometer Accuracy
9. Blood Pressure Monitoring: Analyzing Readings with B.P. Meter
10. Fan Circuit Fun: Creating a Temperature-Activated Cooling System
11. Exploring ECG Patterns: Unraveling Heart Health with ECG Machine
12. Pulse Oximeter Exploration: Monitoring Pulse Rates for Health Insights
13. Water Level Sensing: Building a Circuit for Smart Water Monitoring
14. Infrared Sensing Fun: Building a Circuit to Detect Remote Signals
15. Light Control Circuit: Adjusting Brightness with a Potentiometer.