



Bharat Shikshan Sanstha's
Shri Chhatrapati Shivaji College, Omerga

Tq. Omerga Dist. Osmanabad - 413606 (MS), India

(Affiliated to Dr. Babasaheb Ambedkar Marathwada University, Aurangabad) | NAAC Reaccredited 'B' Grade



Dept. of Physics and Electronics

CERTIFICATE COURSE ON

USE AND MAINTENANCE OF LABORATORY INSTRUMENTS IN PHYSICS AND ELECTRONICS

COURSE CODE – CCUMLIPE001

30 Lectures (Theory + Lab)

INTRODUCTION:

Department of Physics and Electronic created the separate Board of Study to frame the syllabus and to monitor the course on Use and Maintenance of Laboratory Instruments in Physics and Electronics. The committee met in the meeting at IQAC cell and discussed the issues on GST certificate course. The structure of the committee is

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|--|----------------------------------|
| 1. Dr. G. H. Jadhav, Principal | - Chairman of the Board of Study |
| 2. Mr. V. M. Nawarkhele, HOD | - Member |
| 3. Dr. A. S. Padampalle, Assistant Professor | - Member |
| 4. Dr S. S. Sawant, Assistant Professor | - Member |
| 5. Dr. R. K. Alange,, BoS Member BAMU | - Nominated Member |
| 6. Dr. R. S. Kamshetty, BoS Member BAMU | - Nominated Member |

SYLLABUS

30 Lectures (Theory + Lab)

OBJECTIVES:

The objectives of the certificate course are is to familiarize the students with use and maintenance of laboratory Instruments in Physics and Electronics that helps them to the science practical and also to do research in Physics and Electronics.

UNIT-I: Measurement Skill:

(10 Lectures)

Measuring units, conversion to SI and CGS units. Familiarization with meter scale, vernier calliper, micrometer screw gauge, traveling microscope, spectrometer and their utility. Measure the dimension of solid bulk, volume of cylindrical beaker / glass, diameter of thin wire, thickness of metal sheet etc.

UNIT-II: Electric and Electronic Skill:

(10 Lectures)



Use of ammeter, voltmeter, galvanometer and multimeter etc., soldering of electrical circuits having discrete components (R, L, C, diode) and ICS on PCB. Operation of oscilloscope, AF and RF generator. Making regulated power supply. Timer circuit, electronic switch using transistor and relay.

UNIT III: Lab Work

(10 Lectures)

1. Measurement of ac and dc voltages/ currents by using analogue multimeter
2. Measurement of ac and dc voltages / currents by using digital multimeter
3. Testing of electronic components by using multimeter such as diodes, transistors, FETs etc.
4. Measurement of voltage, time period and frequency using CRO.
5. Measurement of rise and fall time using CRO.
6. Study wave forms generated by AF and RF generators.

Reference Books:

1. A text book in Electrical technology – B L Theraja – S. Chand and Company.
2. Principles of Electronics- V K Mehta
3. Basic Electronics- A P Malvino

Structure of Evaluation

Total Marks = 100

1. Question Paper –I

MCQ type – 25 questions each 02 marks = 50

2. Practical

02 Practical's each 25 marks = 50

Evaluation	Total Marks	Passing Marks	Grade
Theory	50 Marks	25	D = < 40% =Failed C = > 50% B = > 60% A = > 70%
Practical	50 Marks	25	

Dr. Sachin Aswale
Dr. Sachin Aswale
 IQAC Co-ordinator
 SCS College, Omerga

[Signature]
PRINCIPAL
 Sri Chhatrapati Shivaji College
 OMERGA, Dist. Osmanabad