



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



Department of Chemistry

Certificate Course in Instrumentation and Sample Analysis

Course Code - CCISA-01

INTRODUCTION:

Department of Chemistry created the separate Board of Study to frame the syllabus and to monitor the course on Instrumentation and Sample Analysis. The committee met in the meeting at IQAC cell and discussed the issues on GST certificate course. The structure of the committee is

1. Dr. V. S. Ingale, HOD & Vice - Principal - Chairman of the Board of Study
2. Mr. V. N. Patange Associate Professor - Member
3. Dr. V. S. Suryavanshi, Associate Professor - Member
4. Dr. V. S. Shinde, Assistant Professor - Member
5. Dr. A. W. Survase,, BoS Member BAMU - Nominated Member
6. Dr. B. S. More, BoS Member BAMU - Nominated Member

SYLLABUS

30 Lectures (Theory + Lab)

Course objective

Students must be able to-

- -Get hands-on lab experience and further your working knowledge of applications and instrument operation
- Equips with the analytical, preparative and interpretative skills that are critical to those working in a laboratory.
- Mapped to laboratory technician job roles.

Unit I	Introduction of Instrumental Analysis Need of chemical analysis Methods of chemical analysis Various methods of instrumental analysis and their appropriateness Some important applications	(10 Lectures)
Unit II	Introduction of Instruments and Glassware's Chemical Laboratory precautions, Laboratory safety, Handling of Glassware and Chemicals, Calibration of Volumetric Glassware/ Analytical Balances, Pipettes, Micropipettes, Burettes and Analytical balances.	(05 Lectures)
Unit III	Introduction of Instruments 1. Conductometer 2. Colorimeter 3. pH meter 4. Potentiometer	(05 Lectures)



Unit IV	Lab Work (10 Lectures) 1. Measurement of conductance of different electrolytic solutions by conductometry. 2. Measurement of optical density of different coloured solutions by colorimeter. 3. Measurement of unknown concentration in given samples by colorimeter. 4. Measurement of pH of different fruit juices by pH meter. 5. Measurement of dissociation constants of given acid and bases by Potentiometric methods.
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Reference Books:

1. Handbook of Analytical Instruments, Second Edition - Dr R S Khandpur
2. Systematic Experimental Physical chemistry – S.w. Rajbhoj and T.K.Chondekar
3. College Practical Chemistry - Adarsh Gulati, S Dhingra, V K Ahluwalia

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%
Practical	50 Marks	25	B = > 60% A = > 70%

Dr. Sanjay Aswale
IQAC – Coordinator
SCS College, Omerga

PRINCIPAL
Shri Chhatrapati Shivaji College
OMERGA, Dist. Osmanabad.