

Department of Chemistry, St. John's College Anchal

Certificate Course in Chemical Laboratory analysis and instrumentation methods

The Department of Chemistry, St. John's College Anchal is offering a 50 hour certificate course in Chemical Laboratory analysis and instrumentation methods. This certificate course is industry and research-oriented programme to attract more chemistry-based industries in to our college for campus placements.

Eligibility requirement

Undergraduates with Chemistry as major or optional subject.

Course Start Date: 1st November 2021

Course Content

Chromatographic methods

Spectroscopic methods for chemical analysis

Electrochemical analysis

Analysis of pesticides, soaps, detergents and fertilizers

Food analysis

Pharmaceutical analysis

Hands own practice on

HPLC, TLC, GC, Impedance analysis, Tafel analysis, Cyclic Voltametric analysis, Chronoamperometric analysis, LSV analysis and UV spectroscopic analysis.

Data processing of XPS, TEM, XRD, BET, Electrochemical analysis etc.

Infrastructural Facilities

Worldclass research lab

Classroom with multimedia projection

24x7 wi-fi facilities

Researchlab with HPLC, GC, Electrochemical workstation, AAS, UV –Visible spectroscopy,PH meter, Turbidity meter, Conductimeter, Potentiometer etc.

Central library and INFLIBNET services

Academic Excellence

Experienced and highly qualified teachers

Well equipped laboratories

Ph.D. programmes

Other Facility

Student placement Cell

Student association

Campus placement

Department of Chemistry is interacting to provide placements after successful completion of the course in reputed industries and research organizations

Application and Admission

The application form can download from the college website and filled application is submitted to email chemistry@stjohns.ac.in.

For any queries, please contact Course coordinator:9995767819



ST. JOHN'S
COLLEGE, ANCHAL

Affiliated to the University of Kerala
Re-accredited with A Grade by NAAC
Recognised for STAR College by DBT, Govt. of India

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COURSE SUMMARY REPORT 2021-2022

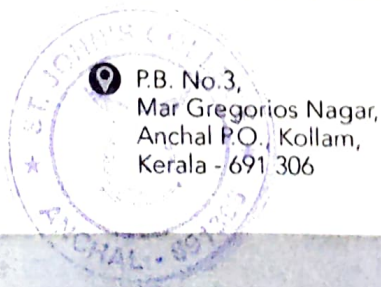
Name of Course	Certificate Course on Chemical laboratory analysis and instrumentation methods(CHE-CLI-21-001)
Course Duration	50 Hours
Department offering the Course	Department of Chemistry
Faculty In Charge	Dr P. S. Arun
Number of Students Enrolled	5
Start Date & End Date	01/11/2021 to 09/04/2022

The certificate course on course on **Chemical laboratory analysis and instrumentation methods (CHE-CLI-21-001)** has been coordinated by the Department of Chemistry, St John's College, Anchal. The course was specially designed to provide the theoretical and hands-on training on course on **Chemical laboratory analysis and instrumentation methods**. The course had a well-defined syllabus and was approved by the IQAC. The certificate course was coordinated by Dr P. S. Arun, Assistant Professor, Department of Chemistry. The course was properly planned and organised to provide maximum support to students during their learning and hands on practice process. The course duration was 50 hours. Five students enrolled for the program. The course started on 01.11.2021 and ended on 09.04.2022. During the end of course, a practical and theory examination was conducted. All students appeared for the examination. Final assessment was done based on the marks secured by them during the written and practical examination. All students passed in the examination. Certificates were also provided to them after the successful completion of the course.

Course Coordinator

Principal
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Chemical laboratory analysis and instrumentation methods

Programme Code : CHE-CLI-21-001
Course level : Level 1
Department : Chemistry
Duration : 50 hours (Under graduate from physics, chemistry and Biology)
College : St. John's College Anchal

Description of the programme

This programme produces highly qualified technicians in the key area of chemical laboratory analysis and instrumentation methods. Graduates will be specialized in the use of modern instrumental techniques to carry out chemical, pharmaceutical, drug, food and environmental analysis. It also constructs and improves on the students' knowledge of Laboratory analysis, instrumentation methods and Laboratory Management. This course provides a well balanced qualification required by industries in the Pharmaceutical, Food and Environmental Industries. Areas of expertise include Chemical Analysis, Environmental Monitoring, and Pharmaceutical Formulation & Quality Management & Control for all laboratory roles. There is an equal emphasis on academic learning and practical hands-on experience, vital for immediate participation in a working environment. The major project component included in this course provides key skills to allow the graduate to participate in Research and Development.

Syllabus

The course components are treated in lectures, exercises, mandatory laboratory sessions and reports.


Modules:

Chromatographic Methods and Validation: The theoretical part of the course includes advanced studies of the following main components: Fundamentals of chromatography(Resolution, Capacity Factor, Selectivity Factor, Dead time, Dead volume)TLC, HPTLC, Ion exchange, Ion chromatography(Working Applications in separation, purification and identification) HPLC, Gas Chromatography (types of columns, packed columns, Capillary columns, Sillanization, Bonded phase columns, Advanced applications)


Course Coordinator



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Spectroscopic and Complementary Methods: Infrared spectroscopy, advantages of Fourier Transform (FTIR), NMR, Mossbauer, ESR, UV-Visible, mass spectroscopy, AAS, X-ray analysis and electron spectroscopy (surface analysis): EDAX, SEM, TEM, XPS.

Chemical & Instrumental Analysis: Electroanalytical Measurements Voltage, Impedance, OCP, Tafel analysis, Cyclic voltametric analysis, Potentiometric titrations of fruit juices, Conductometric titrations of fruit juices/food samples.

Special Topics:

Analysis of pesticides, soaps and detergents, fertilizers

Classification of pesticides. Analysis of different pesticides by classical and instrumental methods. Classification of soaps and detergents with suitable examples. Characterization of soaps and detergents. Types of fertilizers and analysis of different elements like, nitrogen, phosphates, calcium, sodium, potassium and ammonia.

Food Analysis

Introduction to food analysis, regulations and international standards related to food analysis, nutritional labeling, sample and sample preparation. Compositional analysis of foods for moisture, proteins, fat, fiber, ash, vitamins and minerals. Adulteration of fats and oils; milk and milk products

Pharmaceutical Analysis

Instrumental and titrimetric assays for anti-diabetic, anti-cancer, anti-tuberculosis, anti-malarial, anti-hypertensive and anti-HIV drugs based on USP/BP/IP. Heavy metal ion, Dissolution, Loss on drying and Karl fisher analysis in pharmaceuticals. Importance of UV-Visible spectrophotometry, IR spectroscopy and HPLC with UV, fluorescence and photodiode array detection in pharmaceutical industry.

Opportunities

This is valuable bridge course between academics and industry it will help the students to get job in industries as QC Analyst, Analytical Chemist, Laboratory Manager also improve research skills.


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