ST ALOYSIUS
(DEEMED TO BE UNIVERSITY)
(MANGALURU 575003 – INDIA)
ESTD : 1880

Postgraduate Studies & Research in Food Science

offers

Certificate course on

"Food Analysis and Instrumentation"

Duration: 30 hrs
Online Mode

Open to all Students
Life Science Students

For Registration
Kindly login to
https://lms.staloysius .edu.in

Course Highlights:

- Introduction to Food Analysis
- Different methods of Analysis
- Basic Regulations Followed in Food Industries

Course Coordinator/Instructor
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Proposal for Certificate Program

on

Food Analysis and Instrumentation

Submitted to

The Principal

&

Coordinator certificate programs

St Aloysius College (Autonomous)

Submitted by

Department of Postgraduate studies and Research in Food science

Certificate program Co-ordinator

Dr. S N Raghavendra

Preamble

Science graduates and post graduates do not get job in industry easily. Industry finds fresh graduates inadequately prepared to work in industrial scenario. Students lack knowledge and practical training in the use of high-end instruments.

Certificate program on Food analysis and Instrumentation is designed to bridge this gap between industry and academics. The program aims to impart in depth knowledge with hands on training of different instruments along with theoretical background.

The objective of this course is to give students a conceptual introduction to the various modern instrumental techniques in food analysis and understand the applications, strengths and limitations of different methods. Analysis of foods is incessantly demanding the development of more robust, efficient, sensitive, and cost-effective analytical methodologies to guarantee the safety, quality, and traceability of foods in compliance with legislation and consumer demands. The traditional methods used at the beginning of 20^{th} century based on wet chemistry have evolved into modern powerful instrumental techniques used in food laboratories. This improvement in technology has led to significant enhancements in analytical accuracy, precision, detection limits, and sample throughput, thereby expanding the practical range of food applications.

At St Aloysius College (Autonomous), the PGSR in Food Science team has come up with this certificate program on Food analysis and Instrumentation to cater individuals who want to acquire knowledge and skill in the field of instrumentation analysis of food. Modern analytical equipment's including nitrogen analyser, spray dryer, Texture analyser, Hunter lab colour spectrophotometer are some of instruments in which training will be provided. The participants will get to learn basics of instruments including Viscosity and Consistency Measurements of Food. The course content gives overview of instrumental analysis with respect to safety as well as regulatory perspective.

On completion of the course the student will be able to demonstrate interaction of food by using different analytical techniques and may assess physico-chemical properties of foods.

CourseDetails

Coursetype: Certificate program

Title: Food analysis and Instrumentation

Objectives

- Toimpartbasicpracticalskillsinadvancedinstrumentalanalysis.
- Actualsampleanalysisandhandsontrainingofdifferentinstrumentslikenitrogen analyzer, spray dryer, Texture analyzer, Hunter lab colour spectrophotometer etc.
- Totrainstudents regardingcalibration, assayandmaintenanceof theinstruments.
- Toequipstudentswithprofessionalskills requiredtoworkinindustry.

Expectedlearningoutcome /skills

- Studentsareexpectedtodemonstrateactualanalysisusinghigh endinstruments.
- Theyshouldable topreparethespecializedsolutionslike buffers,indicatorsetc.
- Theyshouldable todorealsampleanalysisoninstruments usingSOPs.Theyshoulddemonstratetroubleshootingabilities duringactualanalysis.
- Theyshould beableto prepareprotocols foranalysisandSOP forvarious instruments.

Contents

- Introductory lectures by in-house faculty.
- Experts in the field as guest lecturers guiding the students in the intricacies of Food analysis.
- Interactive sessions for better understanding and elucidation of core concepts related to Food analysis and instrumentation.
- Discussions and sample tests for knowledge assessment

Prerequisites: Science Graduate with Food science or Food technology or Nutrition or Home science or Biochemistry or Chemistry as one of the subjects

Duration of the program: 03 Months (30 hours online)

Course Fee: Rs.500/-

Career opportunities: The course is tailor made for pursuing a career in food industryas well as Analytical testinglaboratory.

Syllabus

Unit I

Guidelines for Sample preparation, Instrument operation and Interpretation of results, laboratory demonstration. Molecular and Elemental Analysis of Food, Physical & Chemical analysis of food, Microbiological analysis of food

Unit II

Spectrometric Methods of Food Analysis (UV and Visible molecular absorption spectrometry, Atomic Absorption Spectrometry, ICP, colour Spectrometry, Atomic Mass Spectrometry, Infrared Spectrometry)

Unit III

Separation Techniques (HPLC, GC, TLC, Super Critical Fluid Extraction Chromatography, Electrophoresis), Viscosity and Consistency Measurements of Food (Measurements of Rheological Properties, Instrumental Measurement of Texture of Foods)

Unit IV

Thermal Methods of Analysis (Thermogravimetry, Differential Thermal Analysis (DTA), Differential Scanning Calorimetry (DSC), Good Laboratory Practices (GLP)

Unit V

ISO requirement for food testing lab (ISO 17025), FSSAI Regulations for food laboratory, Case Studies, Laboratory demonstration, practicals and instrument handling

Scheme of examination and Assessment

Internal Assessment	
Assignments	**Tests** (3 tests- Multiple choice)
3 (25 marks)	**Tests (25 marks each)**
Total: 150 Marks	

Final Assessment

Course completion test
Duration of exam: **1hr**
No. of questions: **100**, each correct answer carries 1-mark, **Total marks: 100**

Grades will be awarded based on the marks obtained by the candidates in both internal and final assessment. (150+100 = 250 Marks)

Mode of teaching: Online