

## **Indian Institute of Crop Processing Technology** Ministry of Food Processing Industries, Govt. of India

### A Certificate course on **“Hands on training in Hi-tech Analytical Instrumentation for food quality analysis”**

#### **Food Safety and Quality Testing Laboratory (NABL Accredited)**

IICPT has a long experience in performing food quality testing, both for research purposes and as part of its extension services provided to Food processors in India. The food safety and quality testing laboratory is equipped with state-of-art instruments to analyze the physico-chemical characteristics of food materials including raw materials and finished products. This laboratory has been certified by the National



Accreditation Board for Testing and Calibration Laboratories (NABL) as per the Quality system of ISO/IEC 17025: 2005. A team of experienced scientists are involved in finding solutions to the complex problems arising in the food industry.

#### **Scope of Training**

Continuous analysis of food is requested for 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 consumers' demands. The old methods used at the beginning of the 20<sup>th</sup> century based on the “wet chemistry” have evolved into the current powerful analytical instrumental



techniques used in food laboratories. This improvement has led to the significant enhancements in analytical accuracy, precision, detection limits, and sample throughput, thereby expanding the practical range of food applications.

Accessing information from literature and not directly working with the analytical instrumentation for food quality analysis through text books is common and easy way. Such knowledge is theoretical and leads to nowhere. Hands-on training and practical exposure on using analytical

equipment becomes important to improve upon the abilities of an individual on food quality analysis. The practical exposure also enhances the employability of the individual in industrial and academic institutional laboratories. Practical exposure will help to prepare a strong foundation and gain understanding of the technique and of food quality testing. Presently there is a dearth of technically qualified skilled professionals and their requirement in industry and academic is growing rapidly.

### **Training programme would focus:**

Five day analytical training course is designed to cater to individuals who aspire to become food quality



analyst. Modern analytical equipments, including Gas Chromatography with Mass Spectrophotometer (GC-MS), High Performance Liquid Chromatography (HPLC), High Performance Thin Layer Chromatography (HPTLC) and Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES) are some of the instruments in which hands on training will be offered. Participants will learn about the basis of instruments and how to properly

operate the equipment for routine and special analysis. An introduction to basic troubleshooting will also be presented. The emphasis for this training will be on practical hands-on operation.

### **Benefits of the training**

At the end of the course, a trainee will have acquired the following skill set:

- To operate hi-tech equipments with confidence on testing of food samples
- Capacity to maintain the equipment in good working conditions
- Knowledge to identify and rectify the trouble shooting in the equipment.
- Operation of hi-tech analytical equipments for quality testing of food samples
- Maintenance of such analytical equipments

The food processing sector is growing at a much faster pace than any other industry in the country. Numerous food quality testing laboratories are coming up. The new industries, the new and existing food testing laboratories will require technically trained manpower to handle analytical equipments. Such as the places where the trainees will find fitting employments. Augmentation of basic knowledge with industry oriented technical skills and hands on experience can develop potential to achieve unlimited growth in this field.

## Target Group

Analytical instrumentation training for food quality analysis offers a promising career with sustained growth to graduates and post graduates in the disciplines of Chemistry, Food science & technology, Food Process Engineering , Biochemistry, Molecular Biology, Microbiology, Foods & Nutrition, Pharmacy, Agricultural Sciences, Dairy Technology and Environmental sciences.

## The program will be beneficial to

- Students
- Research Scholars
- R&D Scientists
- QA Managers & Practicing Chemists
- Government Regulatory Bodies
- Food & Environmental Scientists
- Academicians



## Programme Schedule

### Day 1

- A Brief Introduction to HPLC
- LC Definitions and Descriptions
- Introduction to Troubleshooting - LC Systems
- Sample Preparation & Quantification
- Laboratory Demonstrations & Method of calibration
- Discussion

### Day 2

- GC-MS Definitions and Descriptions
- GC Instruments and Components
- An Introduction to GC Columns
- Sample Preparation for GC-MS
- Laboratory Demonstrations & qualitative analysis
- Introduction to Troubleshooting GC Systems
- Discussion

### Day 3

- Introduction to Thin Layer Chromatography(TLC)
- HPTLC Definitions and Descriptions

- Qualitative & Quantification analysis
- Troubleshooting TLC sampler
- Laboratory Demonstrations
- Discussion

#### **Day 4**

- Introduction to ICP-OES
- Design of ICP Instruments and Components
- Operating Parameters
- Laboratory Demonstrations
- Discussion

#### **Day 5**

- Sample preparations
- Instrumentation operation
- Interpretation results laboratory demonstrations
- Discussion

#### **REGISTRATION FEE (Exclusive of Food & Accommodation)**

- Rs. 6,000/- for students (ID proof from Principal/HOD is required)
- Rs. 8,000/- for faculty members and industrial persons

#### **FOR FURTHER INFORMATION**

##### **The Director**

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