



## Introduction

The Nuclear Institute for Food and Agriculture (NIFA), an establishment of Pakistan Atomic Energy Commission, is actively involved in basic and applied research in selected areas of food and agriculture. The institute is well equipped with modern laboratory facilities and trained manpower. It maintains an active collaboration with PAEC establishments and other national and international organizations engaged in similar pursuits. Utilizing the expertise and the facilities available, NIFA organizes, annually, a One-week postgraduate training course on the applications of nuclear & other techniques in food and agricultural research for students, researchers and academicians.

The course is designed to acquaint the participants with theoretical and practical aspects of Nuclear and other contemporary techniques. Apart from lectures in the specialized fields, the course also provides the participants a practical exposure to various on-going research projects at NIFA. The faculty comprises of subject experts from NIFA as well as other organizations.

## Required Qualification

The minimum qualification required is B.Sc./ B.Sc. (Hons.) Agriculture.

## Application

Applications duly completed on the prescribed format should reach to the course coordinator on or before September 25, 2023. In-service candidates should apply through proper channel.

## Registration Fee

Rs. 3,500/- for Professionals.  
Rs. 2,500/- for Students.

## Award of Certificates

Certificates will be awarded to the participants for successful completion of course at the concluding ceremony.

## Accommodation/Travel

The participants or the nominating agencies will bear the expenses for travel and stay at Peshawar. NIFA will, however, help in arranging accommodation (on payment) if requested in advance. Pick & drop facility will be provided free of cost within Peshawar on main G.T. Road from NIFA to Hayatabad (Bagh-e-Naran Jehaz chowk).

## Outline of the Training Course

### Lectures

- A. Radiation Concepts**
  - Fundamentals of Radiations,
  - Radioisotopes and their Application in
  - Food, Agriculture, Health, Industry and Environment.
  - Food Irradiation for Food safety & security.
- B. Food Nutrition and Engineering**
  - Food canning & extrusion technology.
  - Nutritional Evaluation of foods.
  - Facts about dietary fats.
- C. Crop Improvement**
  - Mutation Breeding.
  - Biotechnology.
- D. Plant Protection**
  - Nuclear techniques in Insect.
  - Pest Management.
  - Termite control.
  - Biological control.
  - Plant Pathology.

- E. Soil Science**
  - Isotopes in Soil Science and Plant Nutrition
  - Crop Water Use Efficiency
  - Integrated Nutrient Management
  - Growing of off-season Vegetables in high Tunnel Farming
- F. Modern Analytical Techniques**
  - Chromatography
  - Spectroscopy
- G. Statistical & Computational Techniques**
  - Statistical Designs
  - Economic Analysis
- H. Special Lectures**
  - Role of Biotechnology in Agriculture
  - Environmental Issues/Global Warming
  - Glimpses of Scientific signs in Glorious Quran
  - Current status of food safety and Halal Foods

### Laboratory Experiments/ Demonstrations

- Use of Radiation Sources, Counters and Dosimetry
- Use of Neutron Moisture Meter
- Radio-Sensitivity of Plant/Insects
- Chromatographic Techniques
- UV / Vis., NIRS
- Quality Indices of Oils and Fats
- DNA Extraction, Quantification and PCR
- Atomic Absorption Spectroscopy

For Further Information  
Visit NIFA Website  
<http://www.nifa.org.pk>