Key Areas

- Food Process and Post-Harvest Technology
- Land and Water Resource Management
- Farm Machinery and Mechanization
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- Remote-sensing and GIS

Food Quality, Safety Assessment and Management

Introduction

Food Quality and Safety Management Systems help organizations manage food and beverage related risks. These Food Safety Management Systems take into account not only basic food regulations and acceptable practices, but also include contingency plans for potential crises management such as product recall. All such practices form the basis of a Food Safety Management System (FSMS) and Hazard Analysis and Critical Control Points (HACCP), which are internationally, accepted programs for managing the risks associated with food and beverage industry.

Program Description

The training program is designed for international as well as national members of academia and industries on food quality and safety management systems and to make them conscious about food quality attributes and safety standards adopted globally by elite food industries. The scope of training starts from farm produce to the dinner table.

Program Participants

The training program is designed for participants from National and International academia, industry, restaurant and grocery owners, government, and private sectors.

Program Objectives

- To empower participants from all food-business segments with knowledge in food quality and safety management systems.
- To help participants define problems in terms of their constraints to food safety and quality assessment system and to develop solutions based on those limitations
- To develop ability in selecting, establishing and maintaining a suitable program of quality and food safety.

Program Curriculum

- Quality assessment techniques
- ISO quality management systems.
- Food Safety Standards & Regulations
- Risk Assessment
- HACCP
- Facility design (factory, restaurants, and warehouses) based on food safety & standards.

Duration of program: 2 weeks
Date: 4th November, 2024 – 17th November, 2024
Program Coordinator: Dr. Atul A. Mishra

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Machine Learning Using Python

Introduction

Machine learning (ML) is a branch of Artificial Intelligence and computer science that focuses on the using data and algorithms to enable AI to imitate the way that humans learn, gradually improving its accuracy.

Programme Description

This training programme crafted by industry professionals, imparts a deep understanding of principles and practices. With an intensive curriculum and hands-on projects, participants gain experience in model design, AI/ML solutions, feature engineering, big data handling, and data-driven decision-making. Acquire skills to develop cutting-edge solutions tailored to organizational needs.

Programme Participant

This programme is designed for participants of following like Software developers who want to learn and become a Machine Learning developer to enhance their carrier in the domain of Trending Artificial intelligence.

Objectives

- To discuss Data and its concept.
- To understand Machine Learning Architecture.
- To understand Python language Concepts

Curriculum

- Introduction to Data & its type
- Introduction to Python and its libraries like Numpy, Pandas.
- Introduction to Graph Libraries in Python like Seaborn, Matplotib
- Introduction to Machine Learning
- Type of Machine Learning and its algorithms
- Supervised Learning Regression and classification
- Case Study on Regression
- Case Study on Classification
- Error rate and Confusion Matrix
- Reinforcement Learning

Duration: 2 Weeks
Date: 4th November, 2024 – 17th November, 2024
Programme coordinator: Dr. Anchit S. Dhar

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REMOTE SENSING AND GIS APPLICATIONS IN URBAN PLANNING AND MANAGEMENT

Introduction

The socio-economic development of the country is mostly based on natural resources. Due to increase in population, industrialization, over exploitation of natural resource causes landslide, climate change, drought, flood etc. There is need to carefully manage these resources. Natural resource management deals with managing the way in which people and natural landscape interact. Therefore, it has been very much essential to know the spatial as well as temporal distribution of the resource if they are to be properly managed in a sustainable manner. In such a situation Geospatial technology is proven to be much reliable, precise and efficient as well than any other resource assessment technology. These technologies give a visual impression of the landscape that helps to make quick decision in resource management.

Objectives

- To understand the concept of remotely sensed data.
- Geometric and radiometric correction of data.
- Inventory of forest cover and Biomass estimation using remote sensing data.
- To find out the change in natural resource in two different time data

Programme description

This program is intended to train the participant to apply remote sensing and GIS tools and techniques needed in managing and applying in natural resource and forestry. The participants will also enhance their knowledge of geometric rectification and polynomial rectification, mapping techniques, change detection and GIS

Programme Participants

This program is design for Planners, managers applying remote sensing and GIS tools in planning and managing natural resources, technical professionals involved in the field of remote sensing and GIS.

Curriculum

Program will include the following topics:

- Fundamentals of remote sensing, GIS and GPS
- Demonstration on the application of remote sensing techniques in forest inventory
- Resource mapping using RS and GIS
- Different Change detection techniques used to find the change in forested areas.

Duration: 2 Weeks
Date: 4th November, 2024 – 17th November, 2024
Programme coordinator: Dr. C. J. Wesley

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DRUG DISCOVERY AND DEVELOPMENT : CONCEPT AND APPROACHES

Introduction

A drug is most commonly a small organic molecule that activates or inhibits the function of biomolecules such as proteins to results in therapeutic application. Drug design seeks to explain the relationship of physico-chemical properties of the molecules and various processes by which these molecules usually produce their pharmacological effects on the basis of molecular interaction in terms of molecular structures. In most basic sense, drug design approach builds a relationship between pharmacological activities with chemical structure and involves design of small molecules that are complementary in shape and charge to the bimolecular target by which they interact and will bind. In today's highly competitive context of limited resources rational drug design works as a tool to the pharmaceutical industry which are interested in finding new techniques that will reduce time and investment in the early stages of development and identify entities with a high probability of success through the clinical phases to attain approval as a new drug.

Programme description

This training programme will provide hands on experience with cutting edge methods and tools available to highlight the recent trends, advances and future perspectives in the field of Cheminformatics, Bioinformatics, drug design, Genomics and other related disciplines. It will be delivered using a mixture of lectures, computer-based practical sessions and interactive discussions. The main aim behind this workshop is to provide skills transferable to other fields, thereby broadening employment prospects and also would be useful to researchers working in drug discovery.

Programme participants

This programme is designed for participants with Pharmaceutical science, Biotechnology and life science background from both academia as well as industry who are interested in drug design and molecular modeling.

Objectives

The main objectives of the programme are as follows:

- To understand comparative modeling of protein structures and protein-protein complexes.
- To understand advances and challenges protein-ligand docking and its application in novel lead optimization technique.
- To discuss QSAR and molecular modeling in drug discovery research.
- To learn computational methods in order to understand homology modelling and protein analysis.
- To understand scoring function for Molecular docking

Curriculum

The study programme includes the follow subjects:

- Introduction to Molecular Modeling, Force field, energy minimization techniques.
- Virtual Screening & Docking
- Pharmacophore Models
- Focused Library Design
- Molecular Simulation & Binding Energy
- Predicting ADME & Toxicities
- Fragment-based Drug Design

Duration: 2 Weeks
Date: 4th November, 2024 – 17th November, 2024
Programme coordinator: Dr. Udaya P. Singh

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QUALITY AND SAFETY ASSESSMENT OF MILK AND MILK PRODUCTS

Introduction

Quality and Safety of dairy products has been an area of priority for consumers, retailers, manufacturers and regulators. Quality and food safety practices are important for food security in the dairy industry. There is a huge demand for safe, high-quality dairy foods with a long shelf-life. Therefore it has become a neccessity to assure the consumer about the quality and safety aspects of dairy products.

Programme description

This programme is designed to develop a practical "hands on training" in safety and quality aspects of dairy products. This Training will enhance the skills and knowledge required to implement and conduct chemical and microbiological analysis of different dairy products.

Programme participants

It is intended for Professionals involved in Quality Control for strengthening their proficiency in designing quality system and implementations of quality. The programme shall also open new vista for entrepreneurs who intend to diversify in Food Safety and Quality Aspects. This programme will be equally beneficial to those who want to complement their pre-existing skills and knowledge.

Objectives

The main objectives of the programme are as follows:

- To understand the importance of quality assurance in dairy industry
- Identify the factors for conducting shelf life study
- Appraise the concept of quality in relation to dairy products and evaluate the factors affecting the quality and safety of dairy products
- Discuss the principles and approaches for implementation of an effective Food safety Management system

Curriculum

The study programme includes the following subjects:

- Introduction to quality and safety aspects of dairy products
- Instrumentation involved in quality assurance of dairy industry
- Estimation of major milk constituents
- Rapid methods for detection of adulterants and contaminants
- Monitoring Microbiological quality characteristics of dairy products

Duration: 2 Weeks
Date: 4th November, 2024 – 17th November, 2024
Programme coordinator: Dr. Gaurav Yadav

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Computer Aided Machine Design

Introduction

Computer-aided machine design (CAMD) is the use of computer systems to assist in the creation, modification, analysis, or optimization of a design. CAD software is used to increase the productivity of the designer, improve the quality of design, improve communications through documentation, and to create a database for manufacturing. CAD output is often in the form of electronic files for print, machining, or other manufacturing operations. When designing a machine, two closely related parts of the procedure present themselves. First the machine parts which must be so proportioned and related to each other to provide proper motion, second each part must be adapted to withstand forces imposed upon it. The nature of the part movement does not depend upon the part strength or absolute dimensions of the movement parts.

Programme Description

The training programme will provide the introduction of the subject Computer-aided machine design and the application of the subject in modern industries. How to enhance the quality of the product within time limit & to minimize the cost of the product?

Programme Participants

The programme is designed for participants with Mechanical/ Production / industrial/ automobile engineering background from both academia and Industry.

Objectives

- Make a complete statement of the purpose for the machine to be designed.
- Review the current computer files and select the library of mechanism that would give the desired motion or group of the motions.
- Display the mechanisms on an output device such as a cathode ray tube (CRT) to study the forces on each member of the mechanism selected.
- Select a mechanism and use it in a material comparison program to assist in the selection of the material best suited for each member.

Curriculum

- Introduction of Computer Aided Machine Design.
- Selection of the correct design technique.
- Selection of design software for modelling and analysis.

Duration: 2 Weeks
Date: 4th November, 2024 – 17th November, 2024
Programme coordinator: Dr. Prabhat Kumar Sinha

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