CONCEPT NOTE FOR VSEC COURSES

DEPARTMENT OF BOTANY

Title: SEMESTER 1 : Organic Farming

SEMESTER 2 : Floriculture and Post-Harvest Management

To be taught to: Botany students

The Department of Botany has put forward the "**Organic Farming**" for Sem-I and "**Floriculture and Post Harvest Management**" for Sem-II as their titles for VSEC. The concept behind putting organic farming and floriculture is, these industries are among the well-established industries in field plant sciences with estimated turnover of around 3.4 billion and 213.7 billon INR.

The syllabus is designed in such way that:

1. The students will not only be able to achieve the basic concept but also learn advance techniques in the above-mentioned fields and address issues such controlling and managing diseases, pests and weeds of crop plants.
2. They will get practical exposure of Organic farming procedures like use of kitchen manure and compost production.
3. They will also get knowledge of marketing strategies for Flower industry and products in flower industry so that they can either work in well-established firm or have their own startup.

DEPARTMENT OF MICROBIOLOGY

Title: Semester- I – BASIC ANALYTICAL TECHNIQUES- I

To be taught to: Microbiology students

The skill-based course on Basic Analytical Techniques aims to train the students with essential knowledge and hands-on experience in utilizing centrifugation, microscopy, and spectroscopy for scientific analysis. It seeks to provide students with a comprehensive understanding of centrifugation, microscopy, and spectroscopy techniques, their principles, applications, and limitations. These techniques are fundamental to various fields, including biology, chemistry, medicine, and materials science, and provide critical insights into the properties, structures, and composition of different materials/molecules/substances. Through practical training and theoretical sessions, the students will develop the necessary skills to apply these techniques effectively, analyse data, and interpret results. The course will employ a practical-oriented approach, combining theoretical lectures, hands-on laboratory sessions, demonstrations, and interactive discussions. Students will have access to state-of-the-art laboratory facilities, equipment like Sartorius fermenter , HPTLC, PCR , Brookfield Viscometer , lyophilizer and software for data analysis.

TITLE Semester II– MUSHROOM CULTIVATION TECHNOLOGY

To be taught to: Microbiology students

The skill-based course on Mushroom Cultivation Technology aims to provide students with the knowledge and practical skills necessary to cultivate mushrooms successfully. Mushroom cultivation is a sustainable and economically viable agribusiness that has gained significant popularity due to the growing demand for nutritious and gourmet mushrooms in the market. The course seeks to prepare students with a comprehensive understanding of mushroom cultivation, from basic concepts to advanced techniques. The students will learn about different mushroom varieties, cultivation substrates, environmental conditions, pest and disease management, and post-harvest handling. The course will adopt a blended learning approach, combining theoretical lectures, hands-on practical sessions, field visits to mushroom farms, and interactive discussions. By mastering the techniques and acquiring the necessary skills, the students will be well-equipped to establish and manage their mushroom cultivation enterprises, contributing to sustainable agriculture, food security, and economic growth

DEPARTMENT OF STATISTICS

Title: SEMESTER 1 : STATISTICAL ANALYSIS USING ELECRONIC SPREADSHEETS-1 **SEMESTER 2 :** STATISTICAL ANALYSIS USING ELECRONIC SPREADSHEETS-2

To be taught to: S**tatistics students**

With the advent of Technology and its progress at lightning speed, use of data analysis tools and techniques have become indispensable part of Today's Industry. Presenting, organizing and analysing data using Data Analysis Software is the essence of all data-based decision-making process. Department of Statistics will be doing the training to get introduced to the basic and advanced features of data analysis tools using MS-EXCEL by offering to the students of Science Faculty, the skill enhancement course, statistical analysis using electronic spreadsheets at both the semesters of First Year Under Graduate Program under NEP 2020. Students who have offered subject Statistics as major or minor or any student who wishes to get acquainted with data analysis techniques would become natural choice for this skill enhancement course.

DEPARTMENT OF ZOOLOGY

Title: SEMESTER 1 : Vermiculture

SEMESTER 2: Pearl Culture

To be taught to: Zoology students

The syllabus on vermiculture and Pearl Culture is designed to provide comprehensive knowledge and practical skills in the art and science of vermi-technology and pearl cultivation. The syllabus also includes modules on environmental management, focusing on sustainable practices, conservation efforts, and the mitigation of potential environmental impacts

associated with vermicomposting and pearl cultivation respectively. Additionally, learners will gain insights into the marketing and business aspects, understanding market trends, consumer preferences, and value chain management. Through a combination of theoretical knowledge and hands-on practical training, this syllabus aims to produce skilled professionals capable of managing and operating vermi-composts and pearl culture farms with expertise, efficiency, and a commitment to sustainability as well as develop. The respective courses aims to cultivate employment practices with minimum investment and maximum returns. Graduates of this program will be well- prepared to promoting economic development, employment generation, and the preservation of precious natural resources.

DEPARTMENT OF PHYSICS

Title: SEMESTER 1 : Fundamental Physics in Medical Applications-I

SEMESTER 2: Fundamental Physics in Medical Applications-II.

Department of Physics offers VSEC for students of science discipline with a course titled Fundamental Physics in Medical Applications-I in SEM-I which gives an idea about concepts of physics in medical sciences as a part of various diagnosis method by using study of atomic structure and electromagnetic radiation. Also, learner will get an idea of Propagation and detection of ultrasound.

Department of Physics offers VSEC for students of science discipline with a course titled Fundamental Physics in Medical Applications-II in SEM-II which gives an idea about concepts of X-Ray source, also learner can study physics of medical diagnostics viz CT scan, MRI etc**.**