

STC-121 Agri-Informatics (credit hours 1+1)

Theory

Introduction to Computers, Anatomy of computers, Memory Concepts, Units of Memory, Operating Systems, definition and types, Applications of MS-Office for creation, Editing & Formatting documents, Data presentation, tabulation and graph creation, statistical analysis, mathematical expressions, Database, concepts and types, uses of DBMS in Agriculture, World Wide Web (WWW): Concepts and components.

Computer Programming: General Concepts, Introduction to computer programming languages, concepts and standard input/ output operations. Introduction to Visual Basic, Java, Fortran, C, C++ etc.

e-Agriculture, concepts design, development and applications, Application of innovative ways to use information and communication technologies (IT) in Agriculture.

Use of ICT in Agriculture. Computer Models for understanding plant processes: Computer Models in Agriculture; Statistical, weather Analysis and Crop simulation models; Concepts, structures, Input-Output files limitations, advantages and application of models for understanding plant processes, sensitivity, verification, calibration and validation. IT application for computation of water and nutrient requirement of crops, Computer-controlled devices (automated systems) for Agri-input management, Smartphone Apps in Agriculture for farm advises, market price, postharvest management etc; Geospatial technology, concepts, techniques, components and uses for generating valuable agri-information. Decision support systems, concepts, components and applications in Agriculture, Agriculture Expert System, Soil Information Systems etc for supporting Farm decisions. Preparation of contingent crop-planning using IT tools.

Practical

Study of Computer Components, accessories, practice of important DOS Commands. Introduction of different operating systems such as windows, Unix/ Linux, Creating, Files & Folders, File Management. Use of MS-WORD and MS Power-point for creating, editing and presenting a scientific Document. MS-EXCEL - Creating a spreadsheet, use of statistical tools, writing expressions, creating graphs, analysis of scientific data. MS-ACCESS: Creating Database, preparing queries and reports, demonstration of Agri-information system.

Introduction to World Wide Web (WWW). Introduction of programming languages. Hands on Crop Simulation Models (CSM) such as DSSAT/Crop-Info/CropSyst/ Wofost; Computation of water and nutrient requirements of crop using CSM and IT tools. Introduction of Geospatial Technology for generating valuable information for Agriculture. Use of smart phone and other devices in agro-advisory and dissemination of market information. Introduction to Geospatial Technology for generating information important for Agriculture. Hands on practice for preparation of Decision Support System. Preparation of contingent crop planning.