AST 101: Mathematics

Elementary set theory, Determinant upto third order, Cofactors and minors, Multiplication of determinants, Adjugate and reciprocal, Solution of linear equations by Cramer's rule, Matrices: Basic operations, Inverse and transpose of matrix, Rank of a matrix, solution by matrix method, Solution of system of linear equations, Elementary concepts of differentiation and integration, Curve fitting.

AEC 151: Principles of Agricultural Economics


AEX 151: Fundamentals of Rural Sociology


AST 201: Agricultural Statistics

Theory: Introduction: Definition of Statistics and its use and limitations; Frequency Distribution and Frequency Curves; Measures of Central Tendency: Characteristics of Ideal Average, Arithmetic Mean; Median, Mode, Merits and Dements of Arithmetic Mean; Measures of Dispersion: Standard Deviation, Variance and Coefficient of Variation; Probability: Definition and concept of probability; Normal Distribution and its properties; Introduction to Sampling: Random Sampling; the concept of
Standard Error; Tests of Significance- Types of Errors, Null Hypothesis, Level of Significance and Degrees of Freedom, Steps involved in testing of hypothesis; Large Sample Test- SND test for Means, Single Sample and Two Samples (all types); Small Sample Test for Means, Student’s t-test for Single Sample, Two Samples and Paired t test. F test; Chi-Square Test in 2x2 Contingency Table, Yates' Correction for continuity; Correlation: Types of Correlation and identification through Scatter Diagram, Computation of Correlation Coefficient Y and its testing. Linear Regression: of Y on X and X on Y. Inter-relation between Y and the regression coefficients, fitting of regression equations. Experimental Designs; Basic Designs, Completely Randomized Design (CRD), Layout and analysts with equal and unequal number of observations, Randomized Block Design (RBD), Layout and analysis, Latin Square Design (LSD), Layout and analysis.

AEC201: Agricultural Finance and Co-operation


AEC 251: Agricultural Marketing, Trade and Prices

process, Meaning, Need for Agricultural Price Policy. Risk in Marketing: Meaning and importance, Types of Risk in Marketing, Speculations and Hedging, Futures trading, Contract farming.

AEX 251: Concept of Dimensions of Agricultural Extension


Developmental programmes of pre-independence era: Sriniketan, Marthandam, Gurgaon experiment and Gandhian constructive programme. Firka Development, Development programmes of Post independence era: Etawah- Pilot project and Nilokheri Experiment.

Community Development Programme: Meaning, Definition, Concepts, Philosophy, Principles, Objectives, Differences between Community Development and Extension Education, National Extension service.

Panchayati Raj, 3-tiers of Panchayati Raj system Powers Functions and Organizational setup. Agricultural Development Programmes with reference to year of start, objectives and salient features: Intensive Agricultural District Programme (IADP), High Yielding Varieties Programme (HYVP), Institution Village Linkage Programme (IVLP), Watershed Development Programme (WDP), National Agricultural Technology Project (NATP), ATMA, ATIC, NAIP. Social Justice and Poverty alleviation programmes: Integrated Tribal Development Agency (ITDA), Integrated Rural Development Programme (IRDP), Swarna Jayanti Gram Swarojgar Yojana (SJGY), Prime Minister Employment Yojana (PMELY), new trends in extension, privatization, Women Development programmes: Development of Women and Children in Rural Areas (DWCRA), Rashtriya Mahila Kosh (RMK), Integrated Child Development Scheme (ICDS), and Mahila Samriddi Yojana (MSY), NREGA. Reorganized extension system (T & V System): Salient features, Fort night Meetings, Monthly workshops, Linkages, Merits and Demerits, Emergence of Broad Based Extension (BBE).

AST 251: Introduction to Computer Application

MSEXCEL: Electronic Spreadsheets, concept, packages. Creating, Editing and Saving a spreadsheet with MSEXCEL. Use of in-built Statistical and other functions and writing expressions. Use of Data Analysis Tools, Correlation and Regression, t-test for two-samples and ANOVA with One-way Classification. Creating Graphs. MSACCESS: Concept of Database, Units of database, creating database; Principles of Programming: Flow Charts and Algorithms, illustration through examples. BASIC language, VISUAL BASIC-concepts, basic and programming techniques.

AST 252: Computer application in Statistics

All the following practicals will be taught by using Statistical Softwares so as to make the students competent in solving their problems.

Frequency distribution: Construction of table and its graphical representation, histogram, frequency polygon, frequency curve, bar chart, pie chart, scatter diagram, line diagram

Descriptive Statistics: Measures of mean; mode, standard deviation, variance and coefficient of variation, percentiles, quartile, and median for raw and grouped data

Tests of Significance: Large sample and small sample test: Z test, Student's t-test, F test; Chi-Square test

Correlation: Computation of Correlation Coefficient Y and its testing, linear Regression of Y on X and X on Y. Inter-relation between V and the regression coefficients, fitting of regression equations.

Experimental Designs: Analysis of Completely Randomized Design (CRD), Randomized Block Design (RBD) and Latin Square Design.

AEC 301: Production Economics and Farm Management


4. AEX 301: Extension Methodology for Transfer of Agricultural Technology

Theory: Extension Teaching Methods: Meaning, Definition, Functions and classification. Individual Contact Methods; Farm and Home Visit, Result Demonstration, Office Call, Telephone Call -meaning, Objectives Steps, Merit and Demerits. Group Contact Methods: Group Discussion, Methods Demonstration, Farmers Day and Field Trips-, meaning, Objectives Steps, Merit and Demerits. Small Group Discussion Techniques- Lecture, Symposium, Panel, Buzz Group, Workshop, Brain Storming, Seminar and Conference. Mass Contact Method: Mass Meeting,


Capacities Building of Extension Personnel and Farmers: Meaning, Definition Importance, Types and Methods of training.

**AST301: Information Technology in Agriculture**

**Basics of Computer-hardware**, software and Operating systems. Concept of Security Systems and security software. Introduction to popular word processor and spreadsheet software.

**Application of Information and Communication Technology**

**tools**: Principle, mode of operation computer interfacing and handling of-Digital Still camera, Digital Video Camera, Mobile Phone, LCD Projector and Video-Conferencing systems. Documentation using such tools.

**Use of Internet Technologies**: Concepts of Internet - its tools and resources. Downloading and uploading information using Internet. Acquaintance with different Internet search engines and making need based search using specific criteria through these systems. Basic concepts of web page designing.

**Computer Networking**: Concepts and forms of different computer networking systems-LAN, WAN, MAN, Broadband technologies. Concepts of Internet service Provider. Utilisation of existing computer network in India.

**Development of multimedia presentation skill**: Introduction to multimedia softwares - Flash, Photoshop, Power Point, Corel. Operation of these software and creating interactive documents using these softwares. Development of presentation skills through LCD projector.

**Information Technology in Agricultural Development**:

Importance and scope of application of IT-enabled services in different activities -Distance education, Virtual classroom, e-governance, village service centre. IT in research, extension, planning and management in agriculture. Utilising expert system software for decision support system in agriculture. Success stories of Information & Communication Technology (ICT)
application in rural India - e-choupal, Gyandoot, SATCOM, Drishti Telecentre etc.

**AEX 302 : Application of Information Technology in Agriculture**

1. Awareness of basic computer hardware and operating systems software
2. Operation of popular word processor and spreadsheet software Handling of ICT tools - Digital Still camera, Digital Video Camera, Mobile Phone, LCD Projector and Video-Conferencing systems
3. Development of documents using ICT tools
4. Identification of Internet tools and resources
5. Acquaintance with Internet searching methodologies using popular search engines
6. Methods of Web page designing
7. Acquaintance with existing computer network systems
8. Preparation of documents using multimedia software
9. Presentation of multimedia documents using LCD projector
10. Visit to existing IT-enabled Agricultural Service Centre in rural area

**AEC 351: Fundamentals of Agribusiness Management**


**AEX 355 : Entrepreneurship Development and Communication Skills**

**Theory:** Entrepreneurship and Entrepreneurship Development:

AEX 451 : Behavioural Skill

Theory : Changing Scenario of Agriculture and human resource management; theory of personality and socialization, behaviour and enterpreneurship; entrepreneurship! motivation and skills in changing organization; personality profiling; experiential learning cycle and behaviour, ELC based training programme and methodology. Communication and behavioural skill. Simulation theory and processing.

AEC 451 : Marketing management and Agricultural Marketing


AEC 452 : Agribusiness management

Meaning, importance and scope of Agril-Business management and Rural Industrialization. Basic principles and modern tools of agri-business management. Agril- Industries & economic development- Food self- sufficiency- reduced food losses-
improved nutrition- employment generation- Development of Skill & Technology- Foreign exchange- import substitution-increased public sector revenues.

Economic characteristics attributed to agro- industry - addition of value to domestic raw materials- industrial linkages- Economics of scale - technology.


**AEC 453 : Farm planning and management**


**AST 454 : Econometric Approach in Agriculture**

**Theory:** Concept of production function, Demand and supply curves, Engel curve, Input-output analysis, Static and dynamic models of economics, Single and simultaneous equation models, Identification, Method of estimation of parameters: Maximum likelihood and least squares, Multi-collinearity, Autocorrelation, Time series analysis, and Index number.

**Practical:** Use of regression analysis in production function analysis, Practical problems on identification and input-output analysis in farm sectors, Use of regression and other techniques in forecasting, Isolation of different components of time series data, Formation of index numbers and cost of living indices.

**AST 455 : Sample Survey Techniques in Agriculture**

**Theory:** Sampling versus complete enumeration, Sampling errors and non- sampling errors, Simple random sampling; with replacement and without replacement, Estimation of population mean and population proportion and their standard errors and Stratified Random Sampling.