Syllabus

of

M.Sc(Ag) & PhD

In

Agricultural Extension Education

SCHOOL OF AGRICULTURAL SCIENCES
NAGALAND UNIVERSITY, MEDZIPHEMA CAMPUS
MEDZIPHEMA: NAGALAND
2023

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CONTENTS

Course Title with credit Load
M.Sc. in Agricultural Extension Education

Major Courses: 20 Cr Hrs

Course Code	Course Title	Credit Hours
EXT-501*	Extension Landscape	2(2+0)
EXT-502*	Applied Behaviour Change	3(2+1)
EXT-503*	Organisational Behaviour and Development	3(2+1)
EXT-504*	Research Methodology in Extension	3(2+1)
EXT-505*	Capacity Development	3(2+1)
EXT-506*	ICTs for Agricultural Extension and Advisory Services	3(2+1)
EXT-507*	Evaluation and Impact Assessment	3(2+1)

Minor Courses: 08 Cr Hrs

a. It is suggested the student may choose at least two out of three courses listed below as part of minor courses as these are related to policy advocacy and aim to build larger understanding of the subject.
b. Further, it is suggested that the student may choose the remaining Courses from any other discipline including the disciplines of Agri. Economics/ABM and are related to the research problem selected by the student.
c. The final choice of the minor courses should be mandatorily approved by the Student Advisory Committee/HoD.

EXT-508	Managing Extension Organisations	3(2+1)
EXT-509	Enabling Innovation	2(1+1)
EXT-510	Gender Mainstreaming	3(2+1)

Supporting Courses: 06 Cr Hrs

STAT	Statistical methods for applied/ Social Sciences	3(2+1)
STAT/COMP	Computer Applications for Agricultural Extension Research	3(2+1)

It is suggested that the student may choose the supporting courses other than the listed courses, provided the opted courses are related to the research problem selected by the student and be mandatorily approved by the Student Advisory committee/HoD.

Common Courses: 05 Cr Hrs

1. Technical Writing and Communications Skills
2. Intellectual Property and its management in Agriculture
3. Agricultural Research, Research Ethics and Rural Development Programmes some of these courses are already in the form of e-courses/MOOCs. The students may be allowed to register these courses/ similar courses on these aspects, if available online on SWAYAM or any other platform. If a student has already completed any of these courses during UG, he/she may be permitted to register for other related courses with the prior approval of the HoD/BoS.

EXT-591	Master's Seminar	**01**	**Cr Hr**
	Thesis/Research	**30**	**Cr Hrs**
	Total	**70**	**Cr Hrs**

Course Title with Credit Load

Ph.D. in Agricultural Extension Education

Major Courses: 12 Cr Hrs

Course Code	Course Title	Credit Hours
EXT-601*	Policy Engagement and Extension	3(2+1)
EXT-602*	Methodologies for Social and Behavioural Sciences	3(2+1)
EXT-603*	Technology Commercialization and Incubation	3(2+1)
EXT-604*	Educational Technology and Instructional Designs	3(2+1)

Minor Courses: 06 Cr Hrs

a. It is suggested the student may choose at least one out of three courses listed below as part of minor courses as these are related to policy advocacy and bring in global perspectives with an aim to build larger understanding of the subject to the student.
b. Further, it is suggested that the student may choose the remaining Courses from any other discipline including the disciplines of Agri. Economics/ABM and are related to the research problem selected by the student.
c. The final choice of the minor courses should be mandatorily approved by the Student Advisory Committee/HoD.

EXT-605	Risk Management and Climate Change Adaptation	3(2+1)
EXT-606	Livelihood Development	2(1+1)
EXT-607	Facilitation for People centric Development	3(2+1)

Supporting Courses: 05 Cr Hrs

STAT	Multivariate Statistical Methods for Extension Research	3(2+1)
COM	Multimedia and Applications	2(1+1)

It is suggested that the student may choose the Supporting courses other than the listed courses, provided the opted courses are related to the research problem selected by the student and be mandatorily approved by the Student Advisory committee/HoD.

Seminars : 02

EXT-691	Doctoral Seminar - I	**1(1+0) Cr Hr**
EXT-692	Doctoral Seminar - II	**1(1+0) Cr Hr**
	Thesis/Research	**75 Cr Hrs**
	Total	**100 Cr Hrs**

Course contents

M.Sc. in Agricultural Extension Education

Ⅰ. **Course Title** : **Extension Landscape**
   Course Code : **EXT 501**
   Credit Hours : **2+0**

Block 1: Globally, What Is New In Extension?
Unit 1: Challenges before Extension and Advisory Services (EAS)

Extension and Advisory Services (EAS)- Meaning (embracing pluralism and new functions) New Challenges before farmers and extension professionals: Natural Resources Management-Supporting farmers to manage the declining/deteriorating water and soil for farming; Gender Mainstreaming- How extension can enhance access to new knowledge among women farmers; Nutrition- Role of extension in supporting communities with growing nutritious crop and eating healthy food; Linking farmers to markets- Value chain extension including organizing farmers, strengthen value chain and supporting framers to respond to new standards and regulations in agri-food system; Adaptation to climate changes- How extension can contribute to up-scaling Climate Smart Agriculture; Supporting family frams-strengthening the capacities of family farms; Migration-Advising farmers to better respond to opportunities that emerge from increasing mobility and also supporting migrants in enhancing their knowledge and skills; Attracting and Retaining Youth in agriculture including promotion of agripreneurship and agri-tourism; Urban and peri-urban farming- How to support and address issues associated with urban and peri-urban agriculture; Farmer distress, suicides- Supporting farmers in tackling farm distress.

Unit 2: New Functions and New Capacities

Beyond transfer of technology: Performing new functions to deal with new challenges; Organising producers into groups-dealing with problems that need collective decision making such as Natural Resources Management (NRM) and access to markets; Mediating conflicts and building consensus to strengthen collective decision making; Facilitating access to credit, inputs and services-including development of services providers; Influencing policies to promote new knowledge at a scale Networking and partnership development including convening multi-stakeholder platforms/innovation platforms.

New capacities needed by extension and advisory services at different levels –at the individual (lower, middle management and senior management levels), organizational and enabling environment levels; -Core competencies at the individual level; Varied mechanisms for capacity development (beyond training).

Unit 3: Pluralism in EAS

Pluralism in Extension Delivery: Role of private sector (input firms, agri-business companies, consultant firms and individual consultants)- Trends in the development of private extension and advisory services in India and other countries; challenges faced by private extension providers; Role of Non-Governmental Organizations (National/international)/ Civil Society Organizations (CSOs) in providing extension-Experiences from India and other countries; Producer Organizations- Role in strengthening demand and supply of extension services; their strength and weaknesses-experiences from different sectors; Role of Media and ICT advisory service providers; global experiences with use of media and ICTs in advisory services provision.

Block 2: Insights from Innovation Studies and New Extension Approaches

Unit 1: From the Linear Paradigm to Systems Paradigm

Diffusion of Innovations paradigm- strengths and limitations; multiple sources of innovation-farmer innovation, institutional innovation; framer participation in technology generation and promotion; strength and limitations; Agricultural Knowledge and Information systems (AKIS); strength and limitations; Agricultural Innovation Systems (AIS); Redefining Innovation- Role of Extension and Advisory Services in IAS-From information delivery to intermediation across multiple nodes; role of brokering; Innovation Platforms, Innovation Management; Strength and weaknesses of IAS. Rethinking Communication in the Innovation Process – Network building, support social learning, dealing with dynamics of power and conflict.

Unit 2: Evolving Extension Approaches

Evolution and features of extension approaches: Transfer of technology approach; educational approach, farmer participatory extension approach, demand-driven extension, market led extension (value chain extension), extension for climate smart agriculture, gender sensitive extension, extension for entrepreneurship Extension systems in different regions: Asia-Pacific, Europe, Latin America, Australia, North America Networking for Strengthening EAS: GFRAS (Global Forum for Rural Advisory Services) and its regional networks.

Block 3: Extension Reforms and Policy Challenges

Unit 1: Changes in Governance, Funding and Delivery

Reduction in public funding: public withdrawal from extension provision (partial/full); Examples/Cases; Privatization: Public funding and private delivery; cost sharing and cost recovery; Examples/Cases; Decentralisation of extension services; Examples/Cases; Lessons from extension reforms in different countries; Extension and Sustainable Development Goals (SDGs).

Unit 2: Challenges in Managing Pluralistic Extension Systems

Pluralism: Managing pluralism and Co-ordination of pluralistic extension provision; Public private partnerships in extension (including the role of local governments/panchayats and producer organisations); Examples, challenges in co-ordination; Achieving convergence in extension planning and delivery, Financing Extension: Mobilising resources for extension: public investments, donor support (grants/loans); Monitoring and Evaluation of Extension: Generating appropriate data for Assessment and Evaluation of pluralistic extension; Strengthening extension policy interface; generating evidence on impact of extension and policy relevant communication.

II. Course title   : Applied Behaviour Change

Course Code : EXT 502

Credit Hours : 2+1

Theory

Block 1: Foundations of Behaviour Change

Unit 1: Foundation of Human Behaviour

Human behaviour – Meaning, importance and factors influencing human behavior; Biological bases of human behavior – Nervous system, brain, endocrine system and genes; Individual variations – intelligence, ability and creavity- foundations and theories, personality and temperament – foundations, approaches, theories of personality, measuring personality (traits, locus of control, self-efficacy; Personal, social and moral development – meaning, concepts – self-concept, self-esteem and self-worth and theories. Motivation – foundations, approaches, theories, managing human needs and motivations; perceiving others – impression, attitude, opinions; Emotions – foundations, types and functions, measuring emotional intelligence.

Block 2: Cognitive Processes And Learning

Unit 1: Cognitive Progresses affecting Human Behaviour

Sensory organs and their role cognition; Cognitive processes – Attention, perception, remembering and forgetting, knowledge and expertise – foundations and theories; Principles and processes of perception; Consciousness – meaning, types, sleep and dreams; Learning and memory – Memory – meaning, type and mechanisms of storage and retrieval of memories in the Human brain; Complex cognitive processes – concept formation, Thinking, Problem solving and transfer – foundations, theories and approaches.

Unit 2: Information Processing

Information processing – meaning, principles; Models of information processing – Waugh and Norman model of primary and secondary memory; Atkinson and Shiffrin's stage model of memory; other models including blooms taxonomy and sternberg's Information Processing Approaches; Attention and perception – meaning, types, theories and models; Consciousness.

Unit 3: Learning

Learning – foundations, approaches and theories; Cognitive approaches of learning – meaning, principals theories and models; Memory – foundations, types; Behavioural approaches of learning – foundations and theories – classical conditioning, operant conditioning, applied behavior analysis; Social cognitive and constructivist approaches to learning – foundations and theories – social cognitive theory, Self-regulated learning; learning styles – meaning, types and applications in learning.

Unit 4: Judgement, Choice and decision-making

Human judgement – meaning, nature, randomness of situations, theories and models; Choice – meaning, criteria for evaluating options, theories and models of human choice; Choice architecture; Decision-making – Meaning, problem analysis; steps and techniques of decision-making under different contexts.

Block 3: Human Behaviour in the Society

Unit 1: Attitudes and Influence

Attitudes - meaning, assumptions, types, theories and models of attitude formation; methods of changing attitudes, Relating to Others – liking, attraction, helping behavior, prejudice, discrimination and aggression; Liking/ affect – meaning, types and Theories; Attraction – meaning, types and theories; Persuasion – meaning, theories and techniques; Social influence and groups - conformity , compliance and obedience.

Practicals

- Understanding perception – Attentional Blink and Repetition Blindness exercise
- Understanding attention – Testing selective attention capacity and skills and processing speed ability through Stroop test
- Hands-on experience in the techniques for assessing creative thinking – divergent and convergent thinking
- Lab exercise in applying Maslow's need hierarchy to assess motivation
- Learning – Classical conditioning and operant conditioning
- Assessing learning styles through Barsch and Kolb inventories
- Practical experience in building self-esteem
- Assessment of emotional intelligence
- Exercises in problem solving
- Exercises in visual perception
- Measuring self-concept using psychometric tools
- Experiment on factors influencing information processing
- Assessment of attitudes
- Hands on experience in methods of persuasion
- Field experience in assessing social judgement
- Simulation exercise to understand decision-making under different situations
- Exercise in rational decision-making.

III. **Course Title   : Organizational Behaviour and Development**

   Course Code   : EXT 503

   Credit Hours   : 2+1

 Theory
            Block 1: Organizational Behaviour

   Unit 1: Basics of Organization

Introduction to organizations-concept and characteristics of organizations; Typology of organizations; Theories of organizations: nature of organizational theory, Classical theories, Modern management theories, System Theory – Criticisms and lessons learnt/ analysis.

Unit 2: Basics of Organizational Behaviour

Concept of Organizational Behavior, Scope, importance, Models of OB.

Unit 3: Individual Behaviour in Organizations

Introduction, Self-awareness, Perception and Attribution, Learning, systems approach to studying organization needs and motives – attitude, values and ethical behavior, Personality, Motivation-Concept & Theories, Managing motivation in organizations.

Unit 4: Group Behaviour in Organization

Foundations of group, behavior and group dynamics, Group Development and Cohesiveness, Group Performance and Decision Making, Intergroup Relations; Teams In Organizations-Team building experiential exercises, Interpersonal Communication and Group; Leadership: Meaning, types, Theories and Perspectives on Effective Leadership, Power and Influence, managing Conflict and Negotiation skills, Job/ stress management, decision-making, problem-solving techniques.

Unit 5: Productive Behaviour and Occupational Stress

Productive behavior – Meaning, dimension, Job analysis and Job performance – meaning, dimensions, determinants and measurement; Job satisfaction and organizational commitment – meaning, dimensions and measures roles and role charity; occupational stress – meaning, sources, theories and models, effects, coping mechanism, effects and management; Occupational stress in farming, farmer groups/organizations, research and extension organizations.

Unit 6: Organizational System

Organizations Structure- Need and Types, Line & staff, functional, committee, project structure organizations, centralization &decentralization, Different stages of growth and designing the organizational structure; Organizational Design-Parameters of Organizational Design, Organization and Environment, Organizational Strategy, Organization and Technology, Power and Conflicts in Organizations, Organizational Decision-Making; Organizational Culture vs Climate; Organizational Change; Organizational Learning and Transformation.

Block 2: Organizational Development
Unit 1: Overview of Organizational Development
Concept of OD, Importance and Characteristics, Objectives of OD, History and Evaluation of OD, Implications of OD Values.
Unit 2: Managing the Organizational Development Process
Basic Component of OD Program-Diagnosis-contracting and diagnosing the problem, Diagnostic models, open systems, individual level group level and organizational level diagnosis; Action-collection and analysis for diagnostic information, feeding back the diagnosed information and interventions; Program Management- entering OD relationship, contracting, diagnosis, feedback, planned change, intervention, evaluation.

Unit 3: Organizational Development Interventions
Meaning, Importance, Characteristics of Organization development Interventions, Classification of OD Interventions-Interpersonal interventions, Team Interventions, Structural Interventions, Comprehensive Interventions.

Unit 4: Organizational Development Practitioner or Consultant

Who is OD consultant? Types of OD consultants and their advantages, qualifications, Comparison of traditional consultants Vs. OD consultants, Organizational Development process by the practitioners skills and activities.

 Practicals

- Case Analysis of organization in terms of process – attitudes and values, motivation, leadership.
- Simulation exercises on problem-solving – study of organizational climate in different organizations.
- Study of organizational structure of development departments, study of departmentalization, span of control, delegation of authority, decision-making patterns.
- Study of individual and group behavior at work in an organization.
- Conflicts and their management in an organization.
- Comparative study of functional and nonfunctional organizations and drawing factors for organizational effectiveness.
- Exercise on OD interventions (Interpersonal, Team, Structural, Comprehensive) with its procedure to conduct in an organization

Ⅳ. **Course Title   : Research Methodology in Extension**

   Course Code   : EXT 504

   Credit Hours : 2+1

Theory

Block 1: Introduction To Behavioural Research

Unit 1: Nature of Behavioural Research

Methods of knowing; Science and scientific method; Behavioural research – Concept, aim, goals and objectives; Characteristics and Paradigms of research; Types of behavioural research based on applications, objectives and inquiry; Types of knowledge general through research – historical, axiological, theoretical and conceptual knowledge, prior research studies, reviews and academic debate; Role of behavioural research in extension; Careers in behavioural research.

Unit 2: The Behavioural Research Process

Basic steps in behavioural research – Formulating a Research Problem; Reviewing the Literature; Identifying the variables and hypotheses; Formulating research designs, methods and tools; Selecting sample; Collecting data; Analyzing and Interpreting the Data; Reporting and Evaluating Research; Skills needed to design and conduct research; Writing research proposals.

Block 2: Steps in Behavioural Research Process

Unit 1: Formulating a Research Problem

The research problem and research topic – definitions; Importance of formulating a research problem; Sources of research problems; Characteristics of a good research problem; Research problems in quantitative and qualitative research; Steps in formulating a research problem; Strategies for writing research problem statement; Research purpose statement; Research questions – Types, Criteria for selecting research questions, techniques for narrowing problem into a research question; Objectives – Meaning, types and criteria for judging the objectives.

Unit 2: Reviewing the Literature

Review-meaning and importance; Type of literature review – Context, Historical, Integrative, methodological, self-study and theoretical; Literature review for quantitative and qualitative studies; Steps in conducting literature review – Identify key terms, locate literature, critical evaluation and selection; organizing literature and writing literature review.

Unit 3: Identifying Variables and Hypotheses

Developing theoretical, conceptual, empirical frameworks; Approaches for identifying concepts, constructs and variables; Role of theory in behavioural research; Steps in identifying variables – Domain, Concepts, Constructs, Dimensions; Indicators; Variables, Definitions, premises, propositions and hypotheses; Techniques of identifying concepts, constructs and variables – Types of concepts; Types of variables –causal relationship, the study design; and the unit of measurement; Types of definitions-Types of propositions and hypotheses. Characteristics of good hypotheses; Measurement – Meaning, levels of measurement – nominal, ordinal, interval and ratio; Criteria for choosing measurement levels for variables.

Unit 4: Formulating Research Designs, Methods and Tools

Research designs – Definition, purpose and functions; Research Design as Variance Control – MAXMINCON Principle; criteria for selecting a suitable Research Design; Classification of research designs; Quantitative designs – experimental, descriptive, comparative, correlational, survey, ex-post facto and secondary data analysis; Qualitative designs – ethnographic, grounded theory, phenomenological and Narrative research; Mixed method designs – Action research design; Translational research; Elements of research design – Research strategies, Extent of researcher interference, Study setting, Unit of analysis and Time horizon. Sources of errors while specifying research designs. Internal and external validity; Choosing right research design; Triangulation – Importance in behavioural research, Types of triangulation, Research method; Designing research Instruments – questionnaires, interview schedules; tests – knowledge test, behavior performance tests; scales – scales and tools; participatory rural appraisal.

Unit 5: Selecting Sample

Sampling – population, element, sample, sampling unit, and subject; Sampling strategies for quantitative research; Principles of sampling; Factors affecting the inferences drawn from a sample; Types of sampling, Methods of drawing a random sampling with or without replacement, Types of sampling – probability Sampling – Simple random sampling, Cluster sampling, Systematic sampling, Stratified random sampling and unequal probability Sampling; Non-probability Sampling – Reliance of available subjects, Purposive or judgmental sampling , accidental sampling, expert sampling, Snowball sampling, and Quota sampling; Sample size requirements for quantitative and qualitative studies. Methods for estimating sample size; Generalisation – Importance, Types of generalizations.

Unit 6: Collecting Data
The process of collecting data – Selection, training, supervision, and evaluation of field investigators; Online data collection. Testing goodness of measures through item analysis – Reliability and validity; Types of validity – Content validity: Face and content validity, Criterion-related validity: concurrent and predictive validity, Construct validity: convergent, and discriminant validity, factorial validity, and nomological validity; Types of reliability – Test-Retest, Parallel forms, Inter-item consistency reliability, Split-half reliability. Factors affecting the validity and reliability of research instruments, Strategies for enhancing validity and reliability of measures. Validity and reliability in qualitative research.

Unit 7: Analyzing and Interpreting the Data

Data coding, exploration and editing; Methods of data processing in quantitative studies; Quantitative data analysis – parametric and non-parametric statistical analyses; Parametric analyses – Descriptive and inferential statistics, Hypothesis testing – Type Ⅰ and Type Ⅱ errors. Concepts in hypothesis testing – Effect Size, a, a, and power, P Value; Multivariate data analysis – regression, factor analysis, cluster analysis, logistic regression and structural equation modeling. Guidelines for choosing appropriate statistical analysis; Statistical packages for data analysis; Methods of interpreting data and drawing inferences – The Ladder of Inference; Methods of communicating and displaying analysed data.

Unit 8: Reporting and Evaluating Research
Writing reports and research publications; Evaluation Methodology

Practicals

- Selecting a research problem and writing problem statement
- Narrowing down research problem to purpose, research questions and objectives
- Choosing, evaluating and reviewing research literature
- Selection of variables through construct conceptualization and defining variables
- Choosing research design based on research problem
- Choosing right sampling method and estimating sample size
- Developing research methods and tools – questionnaires, interview schedule, check lists and focus group guides
- Writing a research proposal
- Field data collection using research methods and tools
- Testing reliability and validity of research instruments
- Hands on experience in using SPSS for coding, data exploration, editing, analysis and interpretation Formulation of secondary tables based on objectives of research
- Writing report, Writing of thesis and research articles
- Presentation of reports

V. Course Title   : Capacity Development

   Course Code   : EXT 505

   Credit Hours : 2+1

Theory

Block 1: Introduction to Capacity Development

Unit 1: Capacity Development-An Overview

 Training, capacity building, capacity development and HRM-Meaning and differences; Need and principles of capacity development: Types and levels of capacities – Institutional capacities (include the rules, regulations and practices that set the overarching contextual environment), Organisational capacities (how various actors come together to perform given tasks), Individual capacities (technical, functional and leadership skills). Types of capacity building – Based on structure (structured, semi-structured & unstructured), Based on context (orientation, induction and refresher), and other categories (online, webinar, distance etc.) . Components of capacity development: Capacity development cycle.

Unit 2: Capacity Development- Approaches and Strategies

Capacity Development Dilemma- Theory versus Practice, Trainee versus Task, Structured versus Unstructured, Generic and Specific: Approaches in Capacity Development -Informative approach, Participatory approach, Experimental approach/Experiential, Performance based approach; Capacity Development Strategies – Academic strategy, Laboratory strategy, Activity strategy, Action strategy, Personal development strategy, Organizational development strategy.

Unit 3: Planning and Organization of Capacity Development Programmes

 Steps in Designing and Planning of capacity Development- Step 1. Select the participants, Step 2. Determine the participants' needs, Step 3. Formulate goal and objectives, Step 4. Outline the content, Step 5. Develop instructional activities, Step 6. Prepare the design, Step 7. Prepare evaluation form, Step 8. Determine follow-up activities: Organising capacity development programme: Operational arrangements at different stages- Before the programme, During the programme, Middle of the programme, At the end of the programme, After the programme, Follow up; Stakeholders' responsibilities.

Block 2: Capacity Development Needs Assessment
Unit 1: Planning and Organization of Capacity Development Programmes
Concept of Need Assessment; Approaches in Need Analysis- Performance Analysis, Task Analysis, Competency Study; Needs Survey.

Unit 2: Capacity Development Needs Assessment methods

Data Collection Methods in Identifying Needs – Rational Methods (Observation, Informal talks, Complaints, Comparison, Analysis of report, Opinion poll, Buzz session, analysis of the new programme), Empirical Methods (Job analysis, Performance evaluation, Checklist or Questionnaire Method, Tests, Critical Incident Technique, Card Sort Method, Focus Group Discussion, Interview, SWOT Analysis); Information and skills required in Need Analysis; Identification of Needs through Task Analysis – Task identification, Task Analysis, Gap Analysis.

Block 3: Capacity Development Institutions and Management

Unit 1: Capacity Development Institutions

Capacity Developer (Trainer): Meaning and concept; Types of Capacity Developers (regular, ad-hoc, part time, guest and consultants): Roles of Capacity Developer (explainer, clarifier, supporter, confronter, role model, linker, motivator, translator/interpreter, change agent); Good Capacity Developer – Qualities, skills and roles Qualities, Skills (Intrapersonal & Inter personal), Roles (Manager, Strategist, Task Analyst, Media Specialist, Instructional Writer, Marketer, Facilitator, Instructor, Counsellor, Transfer Agent, Evaluator); Capacity Development Centers and Locations; Organisation's Role in Capacity Development.

Unit 2: Capacity Development Project Formulation

Project Proposal: Concept and Meaning; Steps in Project Formulation- Review of past proposals, Consulting experts, consultants, and previous organizers, Review past project evaluation reports, Interact with the prospective beneficiaries; Format for Writing Project Proposal (LFA).

Block 4: Capacity Development Process and HRD

Unit 1: Capacity Development Methods and Tools

Capacity Development Methods –Lecture, Discussion, Syndicate, Seminars, Conference, Symposium, Role Play, Case study, Programmed Instruction, T – group/Laboratory methods; Factors Determining Selection of Methods – Capacity development objectives, subject matter, categories of participants, and the available resources like time, location, budget: Capacity Development Aids.

Unit 2: Evaluation

Capacity Development Programme Evaluation – Meaning & Importance; Purpose of Evaluation; Principles of Evaluation; Types of Evaluation – Formative, Summative, Kirkpatrick's four leaves of evaluation; Process of Evaluation- Evaluation at the the beginning, Evaluation during the programme, Evaluation at the end; Use of evaluation findings; Statistical Tools for evaluation.

Unit 3: Impact Assessment

Impact Assessment- Meaning, Need, Features, Benefits, Concepts; Indicators for Impact assessment – Direct indicators, Indirect or proxy indicators, Quantitative indicators, Qualitative indicators, Result chain / hierarchy of indicators; Methods of Impact Evaluation- Learning retention of participants (KOSA), Impact on the job performance, Impact on organizational effectiveness, Impact on stakeholder's competency.

Unit 4: Human Resource Development

HRD: Meaning, Importance and Benefits; Types of HRD Systems & Sub-systems Career system (Manpower planning, Recruitment, Career planning, Succession planning, Retention), Work system (Role analysis, Role efficacy, Performance plan, Performance feedback and guidance, Performance appraisal, Promotion, Job rotation, Reward), Development system (Induction, Training, Job enrichment, Self-learning mechanisms, Potential appraisal, Succession development, Counselling, Mentor system), Self-renewal system (Survey, Action research, Organisational development interventions), Culture system (Vision, mission and goals, Values, Communication, Get together and celebrations, Task force, small groups); Components of HRD System – Performance Appraisal, Potential Appraisal, Task System, Development System, Socialisation System, Governance; Functions of HRD-Organisationa Development, Career Development, Capacity Development.

Practicals

- Capacity development needs assessment exercise
- Capacity development project formulation exercise
- Planning organizing and conducting an extension capacity development programme
- Designing a programme
- Writing learning objectives
- Developing objectives into curriculum
- Training plan
- Organizing capacity development workshop
- Evaluation with pre- and post-training tests
- Training methods – practicing each method mentioned in contents as group exercise

VI. **Course Title** : **ICTs for Agricultural Extension and Advisory Services**

Course Code : EXT 506

Credit Hours : 2+1

Theory

Block 1: Introduction to Information and Communication Technologies (ICTs) and E-extension

Unit 1: ICTs- Concepts and Status
ICTs- meaning, concepts, basics of ICTs, global and national status, types and functions of ICTs, innovations, meaning of e-governance, e-learning, mLearning, advantages and limitations of LCTs.

Unit 2: ICTs in Knowledge Management

Knowledge management-meaning, approaches and tools, role of ICTs in Agricultural Knowledge Management.

Unit 3: e-Extension initiatives in Agriculture and allied sectors

e-Extension, overview on Global and national e-extension initiatives, Inventory of e-Extension initiatives in Agriculture and allied sectors from Central and State governments, ICAR, SAUs, private sector and NGO initiatives in India.

Block 2: Application of ICTs in Extension and Advisory Services

Unit 1: ICT Applications

Knowledge centres (tele centres), digital kiosks, websites and web portals, community radio, farmers callcenters, mobile phone based advisory services and mobile applications (mExtension, mLearning), Self-learning CDs on Package of practices, social media, digital videos, Market Intelligence and Information Systems- ICT enabled Supply-Chains/ e-Marketing (e-NAM, Agmarknet, etc.).

Unit 2: ICT Expert Systems

Expert System/ Decision Support System/ Management Information Systems, Farm Health Management & Intelligence System for Plant Health, Animal Health, Soil Health, Fishery, Water, Weather, etc.

Unit 3: ICT Networks

Global and regional knowledge networks, international information management systems, e-Learning platforms (MOOCS, Course CCRA, EduEx, etc), e-Governance Systems; digital networks among extension personnel, Farmer Producers Organisations (FPOs)/SHGs/ Farmers Groups.

Block 3: Knowledge Management and Standards

Unit 1: Policies in Knowledge Management
Global policy/ Standards on e-Governance, National policy on e-governance, Open Data / Open Gov Standards and Open Source etc; Language Technology Applications; National e-Agriculture policy/ Strategies/ guidelines.

Unit 2: Web Standards
Web standards, creating and writing for webportlals, development of mobile applications, developing digital videos- story board- video recording- video editing, types of blogs and writing guidelines.

Unit 3: Social Media Applications to engage audience

Video conference, live streaming and webinars, types and functions of social media applications, guidelines for preparing social content, engaging audience and data-analytics.

Block 4: Smart and Disruptive Technologies and Advanced Analytics for Agricultural Extension

Unit 1: Smart Technologies

Open technology computing facilities, System for data analytics/ mining/ modeling/ Development of Agricultural simulations; Remote Sensing, GIS,GPS, Information Utility (AIU); disruptive technologies- analysis; Internet of Things (IoTs), Drones, Artificial intelligence (AI), block chain technology, social media and Big Data analytics for extension.

Unit 2: Human Computer Interactions

Human centered Learning/ Ergonomics/ Human Computer Interactions-Meaning; Theories of multimedia learning – Sweller's load theory, Mayer's cognitive theory of multimedia learning, Schnotz's integrative model of text and picture comprehension, van Merriënboer's four-component instructional design model for multimedia learning, Basic Principles of Multimedia Learning – Split-attention, Modality, Redundancy, Coherence, Signaling, segmenting, pre-training, personalization, voice embodiment; Advanced principles – Guided discovery, worked examples, Self-explanation, drawing, feedback, multiple representation, Learner control, animation collaboration, prior knowledge, and working memory. Designing ICT gadgets based on human interaction principles – Interactive design-Meaning, importance; Approaches of interactive design – user-centered design, activity-centered design, systems design, and genius design; Methods of interactive design – Usability testing methods.

Practicals

- Content and client engagement analysis
- Designing extension content for ICTs
- Creating and designing web portals, blogs, social media pages
- Developing digital videos
- Live streaming extension programmes and organizing webinars
- Working with Farmers call centres
- Engaging with professional digital networks
- Writing for digital media

VII. Course Title   : Evaluation and Impact Assessment

    Course Code   : EXT 507

    Credit Hours   : 2+1

 Theory

Block 1: Programme Evaluation

Unit 1: Introduction to Evaluation

Concept of Evaluation: Meaning and concept in different contexts; Why Evaluation is Done and When? Programme planning,

analyse programme effectiveness, decision making, accountability, impact assessment, policy advocacy; Objectives, types, criteria and approaches of programme evaluation, evaluation principles; the context of program evaluation in agricultural extension; Role and Credibility of Evaluator; Role as educator, facilitator, consultant, interpreter, mediator and change agent. Competency and credibility of evaluator.

Unit 2: Evaluation Theories

Evaluation theory vs. practice – synergistic role between practice and theory in evaluation; Evaluation theories – Three board categories of theories that evaluators use in their works – programme theory, social science theory, and evaluation theory (other theories/ approaches – Utilization-Focused Evaluation & Utilization-Focused Evaluation (U-FE) Checklist, Values Engaged Evaluation, Empowerment Evaluation, Theory-Driven Evaluation). Integration between theory and practice of evaluation: - evaluation forums, workshops, conferences and apprenticeship/ internship.

Block 2: Evaluation Process

Unit 1: How to Conduct Evaluation

Ten Steps in programme evaluation: (1) Identify and describe programme you want to evaluate (2) Identify the phase of the programme(design, start-up, on-going, wrap-up, follow-up) and type of evaluation study needed (needs assessment, baseline, formative, summative, follow-up) (3) Assess the feasibility of implementing an evaluation (4) Identify and consult key stakeholders (5) Identify approaches to data collection (quantitative, qualitative, mixed) (6) Select data collection techniques (survey interviews and questionnaires with different typed) (7) Identify population and select sample (sampling for evaluation, sample size, errors, sampling techniques) (8) Collect, analyse and interpret data (qualitative and quantitative evaluation data analysis) (9) Communicate findings (reporting plan, evaluation report types, reporting results, reporting tips, reporting negative findings (10) Apply and use findings (programme continuation/ discontinuation, improve on-going programme, plan future programmes and inform programme stakeholders).

Unit 2: Evaluating the Evaluation

Evaluating the Evaluation – 10 Steps as above with focus on conceptual clarity, representation of programme components and stakeholders, sensitivity, representativeness of needs, sample and data, technical adequacy, methods used for data collection and analysis, costs, recommendations and reports.

Block 3: Programme Management Techniques

Unit 1: SWOT Analysis and Bar Charts

SWOT Analysis – Concept, origin and evolution; SWOT As a Programme Management Tool; Conducting SWOT Analysis – Common Questions in SWOT Analysis; Advantages and Disadvantages of SWOT; Bar Charts (Gantt Charta and Milestone Charts) – Characteristics, advantages and limitations.

Unit 2: Networks

Networks – Introduction, origin and widely used networks (Programme Evaluation and Review Technique (PERT) and Critical Path Method (CPM), differences between PERT and CPM, advantages and disadvantages. Networks Technology – Activity, Dummy activity, Event (predecessor event, successor event, burst event, merge event, critical event), Earliest Start Time (EST), Latest Start Time (LST), Critical Path, Critical Activity, Optimistic time (T_o), Pessimistic time (P_o), most likely time (T_M), Expected time (T_E), Float or Slack, Event Slack, Lead time, Lag time, Fast tracking, Crashing critical path, Activity Table, Danglers, Normal Time. Rules for Preparation of Networks and Steps in Network Preparation with example.

Block 4: Programme Evaluation Tools

Unit 1: Bennett's Hierarchy of Evaluation

Introduction to Bennett's hierarchy – Background and description; Relation between programme objectives & outcomes at 7 levels of Bennett's hierarchy – inputs, activities, participation, reactions, KASA changes, practice and behavior changes, end results. Advantages and Disadvantages of Bennett's hierarchy

Unit 2: Logic Framework approach (LFA)

Introduction to LFA – Background and description; Variations of LFA – Goal Oriented Project Planning (GOPP) or Objectives Oriented Project Planning (OOPP); LFA Four-by-Four Grid – Rows from bottom to top (Activities, Outputs, Purpose and Goal & Columns representing types of information about the events (Narrative description, Objectively Verifiable Indicators (OVIs) of these events taking place, Means of Verification (MoV) where information will be available on the OVIs, and Assumptions). Advantages and Disadvantages of LFA.

Block 5: Impact Assessment

Unit 1: Introduction to Impact Assessment

Concept of Impact Assessment: Meaning, concept and purpose In different contexts; Impact Assessment Framework: Meaning of inputs, outputs, outcomes, impacts and their relation with monitoring, evaluation and impact assessment.

Unit 2: Impact Assessment Indicators

Indicators for impact assessment – meaning and concept; Selecting impact indicators; Types of impact indicators for technology and extension advisory service – social and behavioral indicators, socio-cultural indicators, technology level indicators, environmental impact assessment indicators and institutional impact assessment indicators.

Unit 3: Approaches for Impact Assessment

Impact assessment approaches – Quantitative, qualitative, participatory and mixed methods with their advantages and disadvantages; Quantitative Impact Assessment Types – Based on Time of Assessment (Ex-ante and ex-post), Based on Research Design (Experimental, quasi experimental, Non-experimental). Econometric Impact Assessment: - (Partial Budgeting Technique, Net Present Value, Benefit Cost Ratio, Internal Rate of Return, Adoption Quotient, etc). Qualitative and Participatory Impact Assessment Methods.

Unit 4: Environment Impact Assessment (EIA)

Concept of EIA – Introduction, What it is? Who does it? Why it is conducted? How it is done?; Benefits and important aspects of EIA-risk assessment, environmental management and post product monitoring. Environmental Components of EIA – air, noise, water, biological, land; Composition of the expert committees and Steps in EIA process – screening, scoping, collection of baseline data, impact prediction, mitigation measures and EIA report, public hearing, decision making, monitoring and implementation environmental management plan, assessment of alternatives, delineation of mitigation measures and EIA report; Salient Features of 2006 Amendment of EIA Notification – Environmental Clearance/Rejection, participants of EIA; Shortcomings of EIA and How to improve EIA process?

Practicals

- Search the literature using web / printed resources and identify evaluation indicators for the following:
- Utilization-Focused Evaluation
- Values Engaged Evaluation
- Empowerment Evaluation
- Theory-Driven Evaluation
- Visit Directorate of Extension and enquire about extension programmes being implemented / coordinated by Directorate. Develop an evaluation proposal of any one programme using "Ten Steps in Programme Evaluation' discussed in the theory class.
- Review any comprehensive programme evaluation report from published sources. Evaluate the report and write your observations following the 'Evaluation the Evaluation' approach.
- Identify at least four agriculture development programmes and their objectives being implemented in your state. Write two attributes each on Strength, Weaknesses, Opportunities and Threats related to the identified programme objectives in the SWOT grid.
- Identify an on-going development programme and make-out 6 activities from the programme.
- Draw a Gantt chart for 12 months programme activities.
- Write a report on evaluation hierarchy levels and indicators as per Bennett's hierarchy of evaluation for any development programme or project.

- Develop LEF four-by-four grid for any development programme or project with activities, outputs, purpose and goal and objectively verifiable indicators, means of verification & assumptions.
- Visit a nearby KVKs / ATIC. Select any agriculture technology with package of practices and extension advisory services promoted by KVK / ATIC. Identify impact assessment indicators for social and behavioral indicators, socio-cultural indicators, technology level indicators, environmental impact assessment indicators and institutional impact assessment indicators.
- Refer any Environment Impact Assessment report and analyse steps in EIA. Write your observations.

VIII. **Course Title   : Managing Extension Organizations**

Course Code   : EXT 508

Credit Hours   : 2+1

Theory

Block 1: Basics of Management

Unit 1: Management- An Overview

Management and Extension management – Meaning, concept, nature and importance; and theories of management. Management, administration and supervision – meaning, definition and scope; Approaches to management, Principles, functions and levels of management; Qualities and skills of a manager; Interpersonal relations in the organization; Reporting and budgeting

Block 2: Management in different types of Extension Organizations

Unit 1: Extension Management in public, private sector and other sectors

Extension management (POSDCORB) I public sector, Development of Agriculture, Agricultural Technology Management Agency (ATMA), Krishi Vigyan Kendra (KVK), SAUs, ICAR Institutes, Private sector, Cooperatives, NGOs, FPOs etc. organizational Structure, Relations between different units- Challenges in management

Unit 2: Concepts in Management

Decision making – Concept, Types of decisions, Styles and techniques of decision making, Steps in DM Process, Guidelines for making effective decisions; Human Resource Management; Manpower planning, Recruitment, Selection, Placement and Orientation, Training and Development; Dealing with fund and staff shortages in different extension organizations (KVK, ATMA etc.); Leadership – Concept, Characteristics, Functions, Approaches to leadership, Leadership styles; Authority and responsibility, Delegation and decentralization, line and staff relations; Challenges of co-ordination in extension organizations; Managing interdepartmental coordination and convergence between KVK, ATMA and line departments; Coordinating pluralism in extension services; Challenge in managing public-private partnerships (PPPs) at different levels in agricultural development in general and extension in particular; Performance appraisal – Meaning, Concept, Methods.

Block 3: Motivation and Organizational Communication

Unit 1: Motivation and Communication

Managing work motivation – Concept, Motivation and Performance, Approaches to motivation, team building; Organizational Communication – Concept, Process, Types, Networks, Barriers to Communication; Mentoring, Time Management, Teamwork and team-building strategies; Modernization of information handling

Unit 2: Supervision and Control

Supervision – Meaning, Responsibilities, Qualities and functions of supervision, Essentials of effective supervision; Managerial Control – Nature, Process, Types, Techniques of Control, Observation, PERT and CPM, Management Information System (MIS): Concept, tools and techniques, MIS in extension organizations.

Practicals

- Simulated exercises on techniques of decision making
- Study the structure and function of agro-enterprises, Designing organizational structure/ organograms.
- Group activity on leadership development skills
- Simulated exercise to understand management processes
- Field visit to extension organizations (ATARI, KVKs, NGOs), FPOs, dairy cooperatives to understand the functions of management
- Practical exercise on development of short term and long term plans for agro-enterprises
- Developing model agriculture-based projects including feasibility study, financial planning and cost-benefit analysis

IX. Course Title   : Enabling Innovation

   Course Code   : EXT509

   Credit Hours   : 1+1

 Theory

Block 1: Agricultural Innovation Systems

Unit 1: Agricultural Innovation Systems: Concepts and Elements

Origins of the innovation systems concept-Innovation vs Invention; Agricultural Innovation System (AIS) –ToT, FSR, AKIS and AIS compared, key insights from AIS: How Innovation takes place; Role of different actors in AIS; Importance of interaction and knowledge flows among different actors, Role of Communication in Innovation Process; Role of Extension in AIS, Different views to analyze AIS: structural view, functional view, process view and capacity view.

Unit 2: Enabling Innovation

Role of enabling environment: Policies and institutions in enabling innovation; Role of Government-Innovation Policy: Achieving coordination and policy coherence; Innovation Platforms; Role of Innovation Brokers, Methodologies for AIS Diagnosis: Typologies of existing methodologies-strengths and limitations; Assessing Extension and Advisory Services within AIS: Capacity Development in AIS: Strengthening capacities to innovate.

Block 2: Scaling Up Knowledge for Innovation

Unit 1: Scaling Up: Tools, Approaches and Pathways

Scaling Up: Definitions; Changing views on scaling up: Approaches to Scaling Up: Push, pull, plant, probe: Scaling up pathways: Drivers and spaces for scaling up; Framework and Tools for Scaling up: Planning and implementing a scaling up pathways; Scalability assessment tools; Role of policies in scaling up: Influencing policies for scaling up; Innovation Management for scaling up knowledge and implications for Extension and Advisory Services.

 Practical

- Identify one crop/commodity sector and use AIS framework to diagnose actors and their roles, patterns of interaction, institutions determining interaction and the enabling policy environment and develop a AIS Diagnosis Report (Review and Key informant interviews)
- Undertake a case study on a successful case of scaling up knowledge and identify factors that contributed to its success
- Identify one specific knowledge (a technology, an approach) that has been recently introduced and develop an Up scaling Strategy

X. **Course Title   : Gender Mainstreaming**

   Course Code   : EXT 510

   Credit Hours   : 2+1

Theory

Block 1: Why Gender Matters?

Unit 1: Historical Perspective of Gender

Historical perspective of gender: Feminism and emergence of gender as a concept, Scope of gender studies in agriculture and rural development

Unit 2: Agrarian Importance of Gender

Agrarian Importance of Gender: Understanding the importance of gender in national and global agriculture-Key gender issues and challenges in agricultural – Gender and value chain- Global actions to address gender-needs and strategies to address gender and women empowerment.

Block 2: Gender Related Concepts, Analysis, Gender and Technology

Unit 1: Gender Related Concepts and Divides

Gender related concepts and divides: Understanding of the concepts of gender, gender equality and equity, gender balance, gender blindness, gender relations, gender neutrality, gender bias and discrimination, gender rights, gender roles and responsibilities. Gender budgeting, Gender divides and their implications such as gender digital divide, gender access to resources and inputs divide, gender mobility divide, gender wage divide, Gender needs: practical and strategic.

Unit 2: Gender Analysis

Gender analysis: Importance, usage, prerequisites, techniques of gender analysis-Tools for gender analysis.

Block 3: Gender Mainstreaming and Women Empowerment

Unit 1: Gender mainstreaming

Gender mainstreaming: Importance of gender mainstreaming in agriculture, Extension strategies to address gender issues such as gender and health, nutrition, gender in agricultural value chains, gender and climate change adaptation, gender and globalization & liberalization for mainstreaming gender concerns into the national programmes and policies.

Unit 2: Women Empowerment

Women Empowerment: Importance of women empowerment, Current national women empowerment and gender indices. Women empowerment approaches (technological, organizational, political, financial, social, legal and psychological), Case studies based on experiences and learning from various development and rural development programmes.

Unit 3: Global Best Practices, Policies and Frameworks

Global Best Practices, Policies and frameworks: Global best practices, women empowerment and gender mainstreaming models and frameworks for addressing gender concerns in agriculture, approaches of various organizat6ions: gender mainstreaming and special women focused programmes in agriculture and rural development.

Unit 4: Entrepreneurship Development for Women
Entrepreneurship development for women: Women entrepreneurship development in agriculture and agro processing: current status, women led enterprises, supporting organizations and schemes, Govt. policies, entrepreneurship development programme and process for women in agriculture.

Practicals

- Visit to a village for understanding rural gender roles and responsibilities as groups, followed by class presentation by groups
- Exercise for capturing shifts in gender roles and responsibilities
- Conducting gender analysis in a village using gender analysis techniques
- Visit to agencies supporting women empowerment followed by report presentation. Each student to visit a different organization such as State Rural Livelihood Mission, Women Development Corporation, Department of Agriculture, Important NGOs working for women empowerment
- Exercise for identification and prioritization of issues affecting/needs for women empowerment
- Interaction with a successful women entrepreneur/ SHG

Course Contents

Ph.D. in Agricultural Extension Education

Ⅰ. **Course Title** : Policy Engagement and Extension

    Course Code : EXT 601

    Credit Hours : 2+1

Theory

Block 1: Why Policies Matter?

Unit 1: Understanding Policy

Why policies are important for extension? Role in providing structure, ensure finding and framework for providing functions-examples; Policy: definitions and types: Is policy a product or a process or both? Policies and institutions-How these influence defining organizational roles and performance in extension organizations-Role of policies in upscaling knowledge-Role of extension in influencing policies to enable innovation.

Unit 2: Policy Advocacy and Tools

Definition of advocacy, Approaches to policy advocacy-Advising, Media campaigning, Lobbying, Activism, Information Education Communication (IEC) and Behavior Change Communication (BCC); Advocacy for Rural Advisory Services (RAS); Policy advocacy strategy

Unit 3: Policy Analysis

Explain the meaning and use of policy analysis in decision- making; Describe different types of policy analysis- empirical, evaluative or normative policy analysis, retrospective/ prospective policy analysis, predictive/prescriptive/descriptive policy analysis; How to do policy analysis? – understand the process of policy analysis, highlight the different methods and techniques used in policy analysis, doing ethical policy analysis; Tools for policy impact- research tools, context assessment tools, communication tools, policy influence tools

Unit 4: Policy Development Process

Policy development process: Who drives policy change?: National Governments, Donors, Civil Society-varied experiences: Understanding the environment and key actors in policy space- problem identification-policy adoption, implementation and evaluation; stakeholder mapping, identifying opportunities and barriers, mobilizing financial resources; Dealing with policy incoherence: identifying contradictions and challenges in policy implementation

Block 2: Using Evidence to Influence Policy Change

Unit 1: Influencing Policy Change

Generating evidence: Role of policy research; analyzing the usefulness and appropriateness of the evidence; Using evidence in policy advocacy; Understanding your audience: analyzing channels of influence; creating alliances; identifying policy champions; Defining goals and objectives; Developing advocacy messages: Policy papers, Policy briefs, good practice notes, etc.: Good practices in influencing policies Organising policy dialogues: Policy engagement strategy-Engaging with policy makers: Go and NGO experiences; Policy working groups; advisory panels; use of committees: Use of media including ICTs and social media for influencing policies.

Unit 2: Global Experience with Extension Policy
Extension policy in different countries: Explicit extension policy Vs extension as part of Agriculture Policy, Challenges in policy implementation: lack of capacities, financial resources, ownership, lack of stakeholder consultations: Strengthening capacities in extension to influence policies: Global Forum for Rural Advisory Services (GFRAS)'s efforts in strengthening extension policy advocacy: policy compendium, training modules, training for strengthening capacities to influence policies.

Practicals

- Analysis of country/state level agricultural/extension policy to understand the policy intentions from strengthnening EAS
- Analysis of extension policy of other countries: policy intentions, processes adopted in development off the policy and mechanisms of policy implementation
- Interview key policy actors in EAS arena at the state/national level (eg: Director of Agriculture, Director of Extension in SAU, Chairman/Managing Director of Commodity Board. Member Agriculture, State Planning Board) to explore policy level challenges in EAS
- Identify what evidence policy makers look for from extension research? Is the evidence available? If so what from? (Reports, Briefs etc), If not, develop a plan
- Explore how different stakeholders influence policies (eg: policy advocacy of prominent NGOs, private sector and public sector) –What mechanisms and tools they use
- Identify policy level bottlenecks that constrain effective EAS delivery at the district level- Eg: Issues around linkages between KVK and ATMA; inter-departmental collaboration; public private partnerships; joint action etc.

II. Course Title   : Methodologies for Social and Behavioural Research

    Course Code   : EXT 602

    Credit Hours   : 2+1

Theory

Block 1: Advanced Methods for Improving Quality of Research Data

Unit 1: Measurement Properties of Research Instruments

Measurement properties – Dimensionality, reliability and validity; Dimensionality – Unidimensionality and multidimensionality, Methods of assessing dimensionality, Formative and reflective constructs; Validity – Importance, Internal validity – face validity; content validity, Substantive Validity, Structural Validity; External validity – Convergent and Discriminant Validity, known-group validity, Criterion-Related Validity, Consequential Validity, nomological validity; Methods of assessing various forms of validity – Judges rating, Lawshe's Content Validity Ratio, Item-objective congruence index; latent variable method; Reliability – Internal consistency reliability – Split-Half, Cronbach alpha; Temporal Stability reliability – test-retest method; Interrater Consistency and Consensus – inter rater reliability and iinterrater agreement; Alternative Forms or parallel forms reliability – Reliability of difference – Factors Affecting the Validity and Reliability of Test Scores; Generalizability Theory

Unit 2: Threats to Data Quality

Errors and biases; Errors – Meaning and sources; Types – Sampling error, Non-sampling or measurement error and processing error – Meaning, causes; Effects of errors and biases on data quality; Bias in behavioural research – Meaning, causes, Type – Respondent and researcher biases; Methods of reducing errors and biases in surveys, questionnaires, personal interviews, focus groups and online methods

Block 2: Scales, Indexes and Tests

Unit 1: Scales, Indexes and Test-1

Approaches to measurement and scale development – Classical test theory. Formative or index models, The C-OAR-SE approach and Item Response Theory; Item analysis in Classical test theory – item difficulty and item discrimination; Scoring performance in scales and tests – meaning, types and methods; Scale development strategies – deductive and empirical; Stimulus-centered scales – method of equally appearing intervals, paired comparison, Person scaling – Q methodology; Subject-centre scales – The Likert scale and Semantic Differential

Unit 2: Scales, Indexes and Tests-2
Steps in constructing a multi-dimensional scale using confirmatory factor analysis,; Response scales – Guttman's scalogram analysis and The Rasch method; Indexes –Meaning, types, importance; Similarities and differences with scales, Methods of constructing indexes; Common indexes used in extension. Measurement invariance –Meaning, types, methods of assessing measurement invariance. Tests – meaning, types, importance; steps in conducting various tests – knowledge test

Block 3: Emerging Research Approaches and Designs
Unit 1: Qualitative Research Methods

Qualitative methods – Meaning; Types – Ethnography, Grounded theory, Phenomenology, Ecological psychology, Discourse Analysis; Observational research; Case study research – Sampling and sample size; Data collection methods – In-depth interviews, Focus groups, direct observation, Record review; Content analysis; unobtrusive Measures; Projective and semi-projective techniques; Selecting right qualitative method – Strengths and limitations of qualitative research; Analysis and interpretation of qualitative research data; Research synthesis – meaning, importance, methods; Systematic reviews and meta analysis – meaning, steps, and applications; Policy research

Unit 2: Emerging Approaches

Mixed methods research – meaning, purpose, types and applications; Participatory research – Meaning, importance, type methods and tools and applications; Action research – Meaning, importance, Principles, types, Steps in conducting action research, application in behavioural sciences. Social Network Analysis – Meaning, importance, types, steps in social network analysis, applications; Advanced methods of measuring perception and beliefs. Multi criteria decision making, analytical hierarchy approach

Block 4: Utilising Research Output

Unit 1: Publishing Research

Scholarly communication process; Research reports – Meaning, types, contents; Presentations – Meaning, types, principles of good presentation –Tell 'Em" and KISS 'Em" principles; Research publications – meaning, importance, types; Guidelines for preparing research papers – Peer review process, citation styles; Open access publishing; Publishing in social media. Software in academic writing

Unit 2: Ethics in Extension Research
Ethics in conducting behavioural research; Human subject research – Meaning, history, and ethical aspects of collecting and using Indigenous knowledge and farmers technologies; Ethical practices in publishing; Plagiarism – meaning, sources, Identifying and correcting plagiarism in a research paper using anti-plagiarism software
 Practicals
- Practice in developing research instruments
- Methods of assessing measurement properties of research instruments – dimensionality, reliability and validity
- Hands-on exercise in minimizing errors and biases
- Hands-on experience in constructing tests, scale and indexes
- Practice in summated scale development using confirmatory factor analysis
- Hands on experience in assessing measurement invariance
- Practicing and collecting data using participatory tools and techniques, analyzing and interpreting qualitative data
- Hands-on experience in writing systematic review using meta-analysis
- Field practice in conducting action research
- Practical experience in writing research paper
- Hands on exercises using software for qualitative data analysis
- Practice in detecting and correcting plagiarism using software

III. Course Title : Technology Commercialisation And Incubation

   Course Code   : EXT603
   Credit Hours : 2+1
Theory
Block 1: Technology Commercialisation and the Modern Context
Unit 1: Basic of technology commercialization
Technology – Definition, functions, process of technological advancement – invention, discovery, innovation and technology; types of innovation – Basic research, Breakthrough innovation, Disruptive Innovation and Sustaining Innovation; Technology transfer and commercialization

Unit 2: Nature of Agricultural Technology

Agricultural technology – meaning, types; technology generation system; technology life cycle

Unit 3: Basics of Technology transfer and commercialization

Technology transfer Vs Commercialisation; Technology commercialization process – elements, models, systems and processes; Technology transfer model – research, disclosure, development and commercialization

Block 2: Intellectual Property Resources (IPR) Management

Unit 1: Overview of Intellectual Property Resources

Introduction to IPR; Overview & Importance; Genesis; IPR in India and IPR abroad; Patents, copyrights, trademarks & trade secrets, geographical indication, industrial design; Emergence of IPR Regimes and Governance Frameworks – Trade-Related Aspects of Intellectual Property Rights (TRIPS), Convention on Biological Diversity (CBD), Cartagena Protocol, International Union for Protection of New Plant Varieties (UPOV)< and BIMSTEC.

Unit 2: Systems for Protecting IP

IPR protection laws and systems – National IPR Policy; and IPR laws; procedures for filing IP protection; Systems of IP protection and management in agricultural universities and research institutions and also by stakeholders

Unit 3: Management of IPR

Mechanisms of IPR Management – Institutional Arrangement, IP Management processes – invention disclosure; IP portfolio management; Infringement management

Unit 4: Protection and Management of Biological Resources

Introduction; National Biodiversity Act (2002); Protection of Plant Varieties and Farmers Rights ACT (2001); Guidelines for registration and transfer of biological resources; Farmers rights; Mechanisms of documenting/ collecting, protecting and commercializing framers varieties and other biological resources; National Biodiversity Authority, PPVFRA and other agencies involved in management of biological resources in India. Access to Genetic Resources and Sharing of Benefits

Unit 5: Protection, Management and Commercialisation of Grassroot and Farmers Innovations, Traditional and Indigenous Knowledge

Traditional and Indigenous Knowledge, Grassroot and Framers Innovations – Meaning, froms and importance; Systems of documentation, registration, protection and commercialisation. Documentation of traditional indigenous knowledge – Traditional Knowledge Digital Library (TKDL), Community Biodiversity Registers (CBRs), People's Biodiversity Registers (PBRs), Plant Biodiversity Register, and Honeybee Network.

Unit 6: Geographical Indications (GI) and Appellation of Origin

Geographical indications and appellation of origin – meaning, origin; Geographical Indications of Goods (Registration and Protection) Act (1999); Documentation, registration and commercialization of GI protected materials and processes.

Unit 7: Genetically Modified Organisms (GMO), Agriculture and Biosafety

The Global Concerns on Use of Genetically Modified Organisms in Food and Agriculture; The Cartagena Protocol on Bio-safety; Regulation of GOM in India – Recombinant DNA Advisory Committee (RDAC), Institutional Bio-safety Committee (IBSC), Review Committee on Genetic Manipulation (RCGM), Genetic Engineering Approval Committee (GEAC), State Bio-safety Coordination Committee (SBCC) and District Level Committee (DLC). Laws and Acts for regulation of GMO – Guidelines for Research in Transgenic Plants, 1998; Seed Policy, 2002; Plant Quarantine Order, 2003; Regulation for Import of GM Products Unde Foreign Trade Policy, 2006; National Environment Policy, 2006

Block 3: Technology Commercialisation

Unit 1: Technology Assessment and Refinement

Meaning; Importance; Approaches and methods of assessment and refinement of various technologies – stakeholder oriented approaches including participatory technology assessment and refinement; assessment and refinement of traditional and indigenous knowledge and grassroot innovations

Unit 2: Technology Valuation

Returns to investment; IP Valuation-Oxford context, IP Valuation methods – Cost approach; Income approach – Discounted Cash Flow, Risk-Adjusted Net Present Value, Net Present Value with Monte Carlo Simulation and Real Options Theory; Market approach – Industry Standards Method, Rating/Ranking Method, Rules of Thumb Approach and Action Method; Hybrid approaches; Royalty rate method

Unit 3: Technology Commercialisation Strategies

Meaning- approaches for technology commercialization – technology scaling up, technology licensing, handholding, agripreneur development, technology business incubation

Unit 4: Scaling up of Technologies

Meaning, types and stages of technology scaling up; mechanisms

Unit 5: Technology Licensing

Meaning and types – Procedures of licensing, preparing licensing documents; Management of technology licensing process

Unit 6: Technology Takers and Entrepreneurship

Meaning; types of technology takers; Technology Taking as a Strategy; Types of entrepreneurship – agripreneurs, startups, small businesses, Producer Organizations, Self Help Groups, Clusters and other forms of entrepreneurship

Unit 7: Policy support for Technology Commercialisation and Entrepreneurship Development

Policy support for entrepreneurship development in India – National Policy on Skill Development and Entrepreneurship and other polices; Government of India Support for Innovation and Entrepreneurship – Startup India, Digital India, Atal Innovation Mission and others; Entrepreneurship policy and schemes at different states of India; Organisations promoting entrepreneurship in India

Block 4: Technology Incubation

Unit 1: Basics of Technology Incubation

Meaning, functions and types; stakeholder oriented incubation process – Livelihood incubation, village incubators

Unit 2: Technology Incubation in India

System of technology incubation- incubation process; its effectiveness; Managing profit oriented and non-profit incubators; Schemes for promoting incubators in India

Block 5: Technology Promotion And Essential Skills For Technology Commercialisation

Unit 1: Technology Promotion

Technology promotion – meaning, types, business meetings, scientist-industry/ entrepreneur meets, technology conclave, business plan competition, framers fairs, technology shows

Unit 2: Dealing with Entrepreneurs, Agripreneurs and Others Stakeholders

Business communication; Business Etiquette; business networking

Block 6: Emerging Approaches in Technology Commercialisation and Incubation

Unit 1: Technology Scouting

Technology Scouting and Innovations in technology incubation

 Practicals

- Understanding the technology commercialisation process – Visit to Technology Commercialisation Unit of ICAR Institute/ Agricultural University
- Understanding the IPR protection practices – Visit to Patent Attorney office
- Hands-on experience in drafting IPR application – Patent/Copyright/Trademark
- Understanding protection of biological resources including plant varieties – Visit to PPVFRA Branch office/ ICAR Institute or Agricultural University involved in plant variety protection
- Documenting Traditional and indigenous knowledge – Field experience in using various protocols of using traditional and indigenous knowledge
- Protecting unique local goods through Geographical Indications – Hands on experiences in documenting and registering Geographical indications
- Technology assessment/ validation of traditional and indigenous knowledge – QuIK and methods
- Hands on experience in technology valuation
- Hands on experience in technology licensing process including drafting agreements
- Understanding the Technology Business Incubation – Visit to Agri Business Incubator or Technology Business incubator
- Hands on experience in planning and organizing technology promotion events
- Hands on experience in various techniques in business communication and Business etiquette

IV. Course Title   : Educational Technology and Instructional Design

     Course Code   : EXT 604

     Credit Hours : 2+1

 Theory

Block 1: Educational Technology

Unit 1: The Landscape of Educational Technology and Instructional Design
Understanding various terms – educational technology, instructional design, instructional systems design, curriculum design, pedagogy, andragogy; Brief overview of the origin and evolution of ET and ID as theory and practice; what is the relevance of ET and ID relevant in extension and rural advisory services? Extensional professionals as instructional designers and architects of the learning experience

Unit 2: Theories of Learning
what is learning? Critical overview of Behaviorism, Cognitivism, Constructivism and Complex learning theories; instructional designers and learning theories; Types of learning or learning domains- Bloom's taxonomy of the cognitive domain, Krathwohl and Bloom's affective domain and Simpson's psychomotor domain

Unit 3: Technology Enabled Learning
What is the role of technology in education? Digital media, new tools and technology; Open and distance Learning (ODL); Onlin Education – Synchronous and Asynchronous learning modes; eLearning, Massive Open Online Courses – SWAYAM, Open Education Resources (OERs), Course CERA, EduEx, CoL, RLOs; digital education and its applications in higher agricultural education; Smart classrooms and Campuses, Web-based remote laboratory (WBRL); Integrating media and digital tools into ID;

types and implications of disruptive technologies for higher education and extension; Augmented learning; Adaptive learning; meaning, features and good practices in using open source Learning Management Systems (Moodle); Quality assurance and certification in e-learning.

Block 2: Instructional Design

Unit 1: Theories and Models of Instruction
Howard Gardner's Theory of Multiple Intelligence, David Kolb's Experiential Learning Cycle, Albert Bandura's Social Learning Theory, Rand Spiro's Cognitive Flexibility Theory and Its Application in eLearning, Wlodkowski's Motivational Framework for Culturally Responsive Adult Learning; ADDIE Model, Dick and carey Model, SAM Model, Bloom's Taxonomy; integrating the theories of instruction into the practice of ID in extension and RAS ecosystem.

Unit 2: Creating Instruction
Overview of planning, designing and implementing the curricula and learning experiences; Needs Analysis – meaning, approaches and steps; Task and content analysis – meaning, approaches, steps and techniques (topic analysis, procedural analysis, and the critical incident method); Learner analysis – meaning, importance and approaches, relevance of Maslow's Hierarchy of Needs and learning styles, Captive Audience vs. Willing Volunteers, Universal vs. user-centered design, Learner Analysis Procedures; Writing learning objectives; Meaning of Learning Goal and Learning Objectives; ABCDs of well-stated objectives; Setting goals, translating goals into objectives; Contextualising ADDIE process within the Extension learning environment

Unit 3: Instructional Strategies
Organizing content and learning activities – scope and sequence of instruction; Posner's levels of organizing (Macro, Micro, Vertical, and Horizontal) and structures of organizing (content vs. media) instruction, Gagne's events of instruction, Edgar Dale's Cone of Experience; Methods of Delivery- classroom teaching, programmed instruction, synchronous and asynchronous modes of distance education; Changing role of a teacher in classroom and teaching competencies

Unit 4: Evaluating Instruction
Meaning of Assessment, Measurement and Evaluation; Developing learner evaluations and their reliability & validity; assessment techniques for measuring change in knowledge, skill and attitude of learners – Objective Test Items, Constructed-Response Tests, Direct Testing, Performance Ratings, Observations and Anecdotal Records, Rubrics, Portfolios, surveys and Questionnaires, Self-Reporting Inventories, Interviews; Conducting learner evaluation pre-, during and post-instruction; Formative and Summative Evaluation- meaning, approaches and steps; Evaluating Learner Achievement and the Instructional Design Process; Evaluating the Success of Instruction; Performance appraisal of teachers

Unit 5: Trends in Instructional Design
Alternatives to ADDIE model – Rapid prototyping and constructivist ID, reflections on instructional design as science and as an art; Relating ID models and process in extension learning environment; political economy of higher education in developed and developing countries; University assessment and rating methods, returns from agricultural higher education; research in education and instructional design.

Practicals
- Exercises on preparation of the Analysis Report that includes the task/content analysis and learner and the design plan includes learning objectives and corresponding instructional strategies and assessment items
- Prepare the course outline and lesson plan with an appreciation for diverse learning styles based on temperament, gender, and cultural/ethnic differences and deliver a lecture for UG/PG students
- Assessing learning styles through Branch and Kolb inventories
- Development and testing of survey instruments for evaluating learning outcomes/competencies of students
- Development and testing of survey instruments for performance appraisal / competency assessment of teachers.
- Design an online e-learning module on a topic of interest as a capstone project – integrate and apply the knowledge and skills gained from the course for creating an effective learning experience for a target audience
- Designing and developing a theme based knowledge portals
- Exercises on designing an online course using open source LMS like moodle or EDX
- Select and evaluate or design for social al media
- Prepare a short research paper on recent theories and models of instructional design
- Interview an instructional designer of your choice and prepare a synthesis report about what job roles he/she perform, What ID process does he or she use, challenges faced

- Develop a prototype for one of the lessons in your design plan using PowerPoint or a website builder such as Weebly to create the screens integrating multimedia content and various functionalities
- Field visit to a virtual learning / augmented learning labs, e-learning labs, distance learning centers, etc.
- Hands-on practice with video-editing software, web conferencing and video conferencing solutions

V. Course Title   : Risk Management and Climate Change Adaptation

   Course Code   : EXT 605

   Credit Hours   : 2+1

 Theory

Block 1: Risk Management in Agriculture

Unit 1: Understanding Risk and Distress

Introduction to risk, risk management, uncertainly, sensitivity and distress, General risk theory, Risk analysis methods, Risk perception and decision making, Indicators of risk and distress in agriculture – identification, selection and assessment, Understanding the agrarian distress in India agriculture, Sources of distress in Indian farming –changing farm size, land use, cropping patterns, pricing policy, markets and terms of trade, Typology of crisis in agriculture; Droughts, floods and Indian agriculture, Distress and farmer suicides – causes and socio-economic consequences

Unit 2: Managing Risk and Distress

Ways to reducing/managing risk and distress in India agriculture; crop and life insurance; Developing support systems; Planning, implementation and evaluation of risk/distress management programs; Institutional frameworks for risk and disaster management – NDMA & SDMAs; Developing District Agriculture Contingency Plans; Risk management by diversification; Good practices and lessons from other countries; responses of government, non-government and extension system to agrarian crisis; National Farmers Policy.

Unit 3: Extension Professionals and Risk management

Understanding social-psychological and behavioural dimensions of farms under risk/distress; Risk perception and communication; Helping farmers manage farm level risks – mobilizing resources, linking with markets, strengthening capacities; Working with village level risk management committees; Operational skills for preparing contingency and disaster management plans; Institutional and extension innovations in managing risk and distress; Policy and technological performances for dealing with drought and flood.

Block 2: Adapting to Climate Change

Unit 1: Introduction to Climate Change Science

Basic concepts of and terms in climate change science; impacts of climate change; anthropogenic drivers of climate change, Climate change and Indian agriculture; climate adaptation vs. disaster risk reduction; anticipated costs of adaptation; climate change and poor; Overview of UNFCCC framework and institutions, Kyoto Protocol and beyond, India's National Action Plan on Climate Change and National Mission on Strategic Knowledge on Climate Change; National Coastal Mission, Institutional arrangements for managing climate change agenda.

Unit 2: Introduction to Climate Change Adaptation and Mitigation

Introduction to Climate Change Adaptation, Conducting a vulnerability assessment (CVI and SEVI framework), Identifying and selecting adaptation options; Global, national and state level initiatives and plans to support climate change adaptation, private sector and civil society initiatives and activities; Mainstreaming climate change adaptation into development planning, financing climate adaptation and budgetary allocations for programmes, Gender and climate change adaptation, Agricultural development programmes and strategies towards climate change adaptation and mitigation, Community based and Ecosystem based adaptation strategies, preparing evidence based intervention plans for vulnerability reduction at micro and macro-levels.

Unit 3: Climate Smart Agriculture (CSA) and Extension & Advisory Services

Climate smart agriculture; Developing climate smart and climate resilient villages; Stakeholders and determinants involved in climate smart agriculture; Climate smart agriculture and EAS; Innovative extension approaches used in CSA; Climate information services, Farmers perceptions about climate change; Farm and household level manifestation strategies; Barriers and limits to adaptation; Farmers feedback on performance of extension methods; skills, competencies and tools required for extension professionals at different levels and development departments in up scaling CSA.

Practicals

- Hands-on practice in using risk assessment/analysis tools
- Case studies on risk / distress assessment in agriculture –Indian and global
- Lessons / Experiences from NICRA Project in agriculture and allied sectors
- Developing criteria, indicators and indices for assessment of risk, vulnerability and resilience
- Hands on practice on use of vulnerability and risk assessment tools and techniques
- Case studies on success stories of climate change adaptation and community based initiatives
- Developing district and village level intervention plans for climate change adaptation
- Field visits to State Disaster Management Authority
- Case studies on climate smart agriculture / villages from India and world
- Case studies on impact assessment of crop insurance programs, disaster management programs
- Capstone project on documenting ITKs and local practices related to reducing risk / climate resilience agriculture

VI. Course Title : Livelihood Development

     Course Code   : EXT 606

     Credit Hours : 2+1

Theory

Block 1: Understanding of Livelihood

Unit 1: Concept of Livelihoods

Basic concepts of livelihood and Development, Types of development-Immanent/inherent and interventionist/ intentional; Why promote livelihood; Livelihood intervention: definition, types-Spatial, segmental, sector; Systemic view of Livelihoods, Understanding Rural Livelihoods-Farm, Non-Farm, and off farm; Linkages with Farm and Off-farm Livelihoods; Economic Models

Unit 2: Livelihood Challenges

Livelihood Challenge- Political economy of Livelihoods, Issues of access to farm and non-farm livelihoods; Livelihoods from a Gender Perspective-Feminization of agriculture/ poverty, women in the unorganized sector, the issue of unpaid and informal work; Livelihood Coping Mechanism- Climate Change and Livelihoods; Livelihoods and Disasters

Block 2: Livelihood Analysis

Unit 1: Livelihood Frameworks

Sustainable Livelihoods Approaches (SLAs)-Definition and origins of SLA: assets or capitals and capabilities in SLA and its linkage to the other capitals; Physical, Social, Economic, Human, nature; Vulnerability Assessment – Shocks, trends, seasonality; Policies, institutional context and processes; Conceptual Frameworks- DFID, CARE, UNDP, OXFAM, BASIX livelihood traid, Nine square Mandala or Rural Livelihood System's Framework, etc.; Past, Present and possibilities for the future of the SLA, critiques of the approach

Unit 2: Designing Livelihood Intervention and Promotion

Designing a suitable livelihood intervention-Observing and Understanding the Local Economy; Selecting livelihood activities suitable for the poor in the area; Deciding on the interventions. Livelihood promotion approaches-Poverty and livelihood: Approaches and programs in India; Livelihood and a Rights Based Approach- MGNREGA and its critiques; Livelihood and a Social Capital based approach: NRLM

Block 3: Livelihood Augmentation (LA)

Unit 1: Pathways for LA

Basic concepts; Pathways: a) Entrepreneurial strategies for LA; b) NRM based intervention; c) Market based interventions including Value-chain analysis; d) ICT based interventions; e) Livelihood and allied agriculture (dairy, poultry, Goatery, etc.) based livelihood; f) Forest based Livelihoods vis a vis Livelihood Protection and Promotion: Contribution of NTFP in supporting rural livelihoods Note: Block 'A' and 'B' is theoretical; Block 'C' should be covered in the form practical's supported by few classroom discussion through cases

Practicals

- Village stays to understand the livelihood pattern of villagers and how the other socio-economic factors affect the livelihood of people
- Visit to institutes/ universities adopted and/or nearby villages to experience the life and natural resources in rural communities-understanding of village culture, evolution, social structure, livelihood pattern, trends, governance arrangements, and the natural context (landscape layout, land use, vegetation types etc)
- Application of participatory rural appraisal skills for understanding village context; Engagement of working with rural communities and their grass-root institutions, understanding dynamics of working in a group
- Visit to different agri-business models as mentioned in the Block 'C'. group assignments may be given to document the field experience in the form of case study of an enterprise/ entrepreneur/ members and other related stakeholders

VII. Course Title   : Facilitation for People Centric Development

    Course Code   : EXT 607

    Credit Hours   : 2+1

Theory

Block 1: Introduction to Facilitation for Development

Unit 1: Facilitation for development in the AIS

Facilitation for development in the AIS; Understanding facilitation for development; Importance of facilitation as a core function of extension within the Agricultural Innovation Systems (AIS)

Unit 2: Principles, Attributes and Skills for Facilitation for Development

Basic principles of facilitation for development; Desired attributes of facilitator for development- Cognitive attributes, Emotional attributes (Emotional intelligence), Social, behavioural and attitudinal attributes; Technical skills of a facilitator for development- Design processes, Facilitation techniques and tools, the art of questioning and probing, process observation and documentation, Visualisation

Block 2: Facilitating Change in Individuals, Groups and Organisations

Unit 1: Realise Potential- Self-Discovery

Self-discovery to realize our potentials, Tools for self-discovery, formulating a personal vision, Taking responsibility for your own development

Unit 2: Group Dynamics and Working Together

Understanding the dynamic of human interaction, Group dynamics and power relations, Managing relationships, Shared vision and collective action, Tools for team building

Unit 3: Organizational Change Process

Organizational change process, organizational learning to adapt to changing environments, Enhancing performance of organizations, Leadership development, Tools for organizational change

Block 3: Facilitating Operational Level Multi-stakeholder Engagements
Unit 1: Multi-Stakeholder Interactions
Defining stakeholders, Development of collective and shared goals, Building trust and accountability, Tools for stakeholder identification and visioning
Unit 2: Innovation and Policy engagement Platforms
Visualizing innovation platforms (IPs), Why are IPs important?, Different models of IP for multi-stakeholder engagement, policy engagement platforms, Generating issues and evidence for policy action, Advocacy for responsive policy processes

Block 4: Brokering Strategic Partnerships, Networking And Facilitation

Unit 1: Linkages, Partnerships, Alliances and Networking

Brokering linkages and strategic partnerships, Identification of critical links, Knowledge brokering, Creating linkages with markets, Learning alliances and networking, Coordination of pluralistic service provision within the AIS, The concept of action learning and reflective practitioners, Networking

Unit 2: Facilitating Capacity Development

Facilitating Capacity Development-Facilitate participation and learning in development programs and projects. Virtual platforms- skills for strengthening dialogue, collaboration, shared commitment amongst diverse actors and stakeholders

Practicals

- Practicing facilitation techniques,
- Self discovery exercises,
- Working together and interaction (task based),
- Arrangement for multi-stakeholder interactions,
- Understanding organizational change process tools and techniques,
- Case analysis on organizational change process,
- Participating with innovation platforms,
- Policy engagement platforms,
- Stakeholder analysis mapping,
- Exercise on networking skills,
- Facilitating capacity building programmes
- Facilitating virtual platforms
- Field visit to multi-stakeholder partnership projects

Ⅷ. **Course Title   : Multivariate Statistical Methods For Extension Research**

 Course Code   : STAT

 Credit Hours   : 2+1

 Theory

Block 1: Overview of Multivariate Statistical Methods

Unit 1: Basics of Multivariate Statistical Methods (MVSM)

What is multivariate data analysis; Basic concepts in MV – variate, measurement error; Power analysis and size; SPSS software

Unit 2: Classification and Types of MVSM

Independence and dependence techniques; Factor analysis – principal component, exploratory factor analysis; Multiple correlation and multiple regression; Discriminant analysis; Logistic regression; Cluster analysis; Conjoint analysis; Multi Dimensional Scaling/ Perceptual mapping; Correspondence analysis; Structural equation model

Unit 3: Selecting Appropriate MVSM

Selection based on purpose – Dimension reduction, identifying latent variables, strength of relationship among multiple dependent/ independent variables, identifying choice and estimating their utility; etc and type of variables – metric and non-metric

Unit 4: A Structured Approach for Building Multivariate Statistical Models

Steps in planning and conducting MVSM

Unit 5: Basic Econometric Methods-1

Nature of regression analysis; Two variable and multivariable regression models; Linear and non-linear regression models; Estimation methods

Unit 6: Basic Econometric Methods-2

Simultaneous-equation models; Panel data models; Forecasting – Time series and other models

Block 2: Data Preparation and Cleaning

Unit 1: Missing data – Meaning, types, methods of missing data processing, advantages and limitations, Outliers- Meaning, types, methods for identifying and managing outliners

Unit 2: Testing Assumptions of MVSM and Data Transformation

Testing assumption of parametric analysis – normality, linearity, multicollinearity; Data transformation methods

Block 3: Methods for Assessing Human Choice/ Preferences and Decision-making

Unit 1: Assessing Human Preference Structures Using Conjoint Analysis

Meaning- Importance, guidelines for selecting variables, steps in designing a conjoint experiment – objectives, design, data collection and analysis. Applications in extension

Unit 2: Assessment of Adoption of Agricultural Technologies Using Limited Dependent Variable models

Meaning, importance, types – logit, probit and tobit and their variations; steps in analysis and interpretation of results, applications in extension

Unit 3: Multidimensional Scaling

Meaning, importance and types, steps and applications in extension

Unit 4: Multi-criteria decision-making

Meaning, importance, methods – analytical hierarchy process, Applications in extension

Block 4: Methods of Assessing Association and Causality

Unit 1: Multiple Correlations and multiple Regressions

Meaning, importance, types, methods of estimation, analysis and interpretation of results, application sin extension

Unit 2: Discriminant Analysis

Meaning, types, steps in conducting discriminant analysis, Applications in extension

Block 5: Methods of Grouping Objects/ Variables Based On Latent Variables

Unit 1: Principal Component Analysis (PCA) and Common Factor Analysis

Meaning, importance, types of factor analysis, difference between types, steps in conducting PCA/ Common Factor Analysis, applications in extension

Unit 2: Structural Equation Modelling (SEM) –Two units

Meaning, importance, types – confirmatory factor analysis and structural model; steps in conducting SEM, Applications in extension

Unit 3: Cluster Analysis

Meaning, importance, types – Steps; Applications in extension

Block 6: Emerging MV Statistical Methods

Unit 1: Emerging MV Statistical Methods

Canonical correlation, partial least square (PLS)

Practicals

- Hands on experience of following methods using SPSS/ AMOS software
- Selecting appropriate MVSM
- Missing data analysis and outliner management
- Testing assumptions of MVSM and data transformation
- Assessing human preference structures using conjoint analysis
- Assessment of adopting of agricultural technologies using limited dependent variable models – logit, probit and tobit.
- Multidimensional scaling
- Multiple correlation and multiple regression
- Discriminant analysis
- Principal Component Analysis (PCA) and Common Factor Analysis
- Structural Equation Modeling (SEM)
- Cluster analysis