<div align="center">
**Course Title: Extension Landscape**
**Course Code: EXT 501**
**Credit Hours: 2(2+0) (Theory)**
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**<u>Block 1: Globally, What Is New In Extension</u>**

**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 Resource 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 farmers to respond to new standards and regulations in agri-food systems.

- Adaptation to climate changes-How extension can contribute to up-scaling Climate Smart Agriculture Supporting family farms 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 Resource 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 service 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.
- Farmer 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 AIS-From information delivery to intermediation across multiple nodes; Role of brokering; Innovation Platforms, Innovation Management; Strength and weaknesses of AIS.
- 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 approaches, 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).
- 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.

**Course Title: Applied Behaviour Change**
**Course Code: EXT 502**
**Credit Hours: 3(2+1)**

<u>**Theory**</u>

<u>**Block 1: Foundations of Behaviour Change**</u>

**Unit 1: Foundations of Human Behaviour**

- Human behaviour – Meaning, importance and factors influencing human behavior.
- Biological bases of human behaviour – Nervous system, brain, endocrine system and genes.
- Individual variations – intelligence, ability and creativity– 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.

<u>**Block 2: Cognitive Processes and Learning**</u>

**Unit II: Cognitive Processes 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, types 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 Approach.
- Attention and perception – meaning, types, theories and models; Consciousness.

**Unit 3: Learning**

- Learning – foundations, approaches and theories.
- Cognitive approaches of learning– meaning, principles theories and models.
- Memory – foundations, types.
- Behavioural approaches of learning – foundations and theories classical conditioning, operant conditioning, applied behaviour analysis.
- Social cognitive and constructivist approaches to learning – foundations and theories – social cognitive theory, Selfregulated learning.

- Learning styles – meaning, types and applications in learning.

**Unit 4: Judgment, Choice and Decision-making**
- Human judgment – 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 behaviour, 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.

**Unit 2: Social Judgement, Social Identity and Inter-Group Relations**
- Social judgement – meaning, frame of reference, stereotyping.
- The judgement of attitude models.
- Attribution – meaning, theories.
- Rational decision making.
- Social identify – meaning, types; assessment.
- Groups – meaning, types, group processes; sustainability of groups.
- Inter group processes and theories social learning.

**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.

**Course Title: Organisational Behavior and Development**
**Course Code: EXT 503**
**Credit Hours: 3(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**

- Concepts of Organisational Behaviour, 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 behaviour.
- Personality.
- Motivation-Concept & Theories, Managing motivation in organizations.

**Unit 4: Group Behaviour in Organization**

- Foundations of group, group behaviour 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 behaviour - Meaning, dimension.
- Job analysis and Job performance –meaning, dimensions, determinants and measurement.
- Job satisfaction and organizational commitment - meaning, dimensions and measures roles and role clarity.
- 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: Organisational Development
### Unit 1: Overview of Organizational Development
- Concept of OD, Importance and Characteristics, Objectives of OD.
- History and Evolution 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 behaviour 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.

**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 generated 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 a problem into a research question.
- Objectives - Meaning, types and criteria for judging the objectives.

### Unit 2: Reviewing the Literature

- Review-meaning and importance.

- Types 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; organising 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 methods: Designing research Instruments – questionnaires, interview schedules; tests – knowledge tests, behaviour performance tests.
- Scales– scales and indexes, checklists, focus groups; Steps in developing and using research methods and tools; participatory rural appraisal.

**Unit 5: Selecting Sample**

- Sampling - population, element, sample, sampling unit, and subject.
- Sampling strategies for quantitative and qualitative research.
- Principles of sampling; Factors affecting the inferences drawn from a sample.
- Types of sampling, Methods of drawing a random sample, Sampling with or without replacement.
- Types of sampling- Probability Sampling - Simple random sampling, Cluster sampling, Systematic sampling, Stratified random sampling and Unequal probability Sampling.

- Nonprobability 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 generalisations.

**Unit 6: Collecting Data**

- The process of collecting data – Selection, training, supervision, and evaluation of field investigators.
- Online data collection; Errors and biases during 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 and qualitative studies.
- Quantitative data analysis - parametric and non-parametric statistical analyses.
- Parametric analysis – Descriptive and inferential statistics.
- Hypothesis testing - Type I and Type II errors. Concepts in hypothesis testing - Effect Size, á, â, and Power, P Value.
- Multivariate data analysis – regression,factor analysis, cluster analysis, logistic regression and structural equation modelling.
- 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 conceptualisation 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

**Theory**

**Block 1: Introduction to Capacity Development**

**Unit 1: Capacity Development–An Overview**

- Training, capacity building, capacity development and HRD-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 andrefresher), 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 Centres 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 levels of evaluation;
- Process of Evaluation- Evaluation at 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-Organisational 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

**Suggested Readings**

- ADB. 2009. *Training Needs Assessment and Strategic Training Plan.* Bentaya GM, and Hoffmann V (Eds). 2011. *Rural Extension* Volume 3 -Training Concepts and Tools. Margraf Publishers GmbH, Scientific books, KanalstraBe 21; D-97990, Weikersheim,191 pp.
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- Maguire. 2012. *Module 2: Agricultural Education and Training to Support Agricultural*
- *Innovation Systems. Overview. Agricultural Innovation Systems: An Investment Source book*. The World Bank.
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- SIDA.2000. *Capacity Development*. SIDA Working Paper No. 4. Analysis of Needs for Capacity Development.
- SIDA. 2000. Working Paper No. 4. *Analysis of Needs for Capacity Development*
- Sulaiman RV and Mittal N. 2016. *Capacity Needs of Extension and Advisory Services (EAS) in South Asia.* Policy Brief No 1. Agricultural Extension in South Asia. http://www.aesanetwork.org/policy-brief-no-1-capacity-needs-of-extension-and-advisory-serviceseas-in-south-asia/
- Swanson BE and Rajalahti R. 2010. *Strengthening Agricultural Extension and Advisory Services.*A Guide for Facilitators.
- TAP. 2013. *Capacity Development for Agricultural Innovation Systems - Key Concepts and Definitions*. Tropical Agricultural Platform
- TAP. 2016. *Common Framework on Capacity Development for Agricultural Innovation Systems*. Guidance Note on Operationalization, Tropical Agricultural Platform
- UNDP. 1998. *Capacity Assessment and Development in a Systems and Strategic Management Context*. Technical Advisory Paper No. 3. Management Development and Governance Division Bureau forDevelopment Policy, January 1998, United Nations Development Programme

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- WAC. 2013. *Assessing Capacity Needs and Strategy Development for Grassroots Rural Institutions: A Guide for Facilitators*. World Agroforestry Centre (WAC)

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

**Course Code: EXT 506**

**Credit Hours: 3(2+1) (Theory and Practical)**

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**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 ICTs.

**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 call centres, 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 and Value-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, OpenData / 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 webportals, development of mobileapplications, 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 media 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/ modelling/ Development of Agricultural simulations;
- Remote Sensing, GIS, GPS, InformationUtility (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 cognitive 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, personalisation, voice embodiment;
- Advanced principles - Guided discovery, worked examples, Self-explanation, drawing, feedback, multiple representation, Learnercontrol, 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 organising webinars

• Working with Farmers call centres

• Engaging with professional digital networks

• Writing for digital media
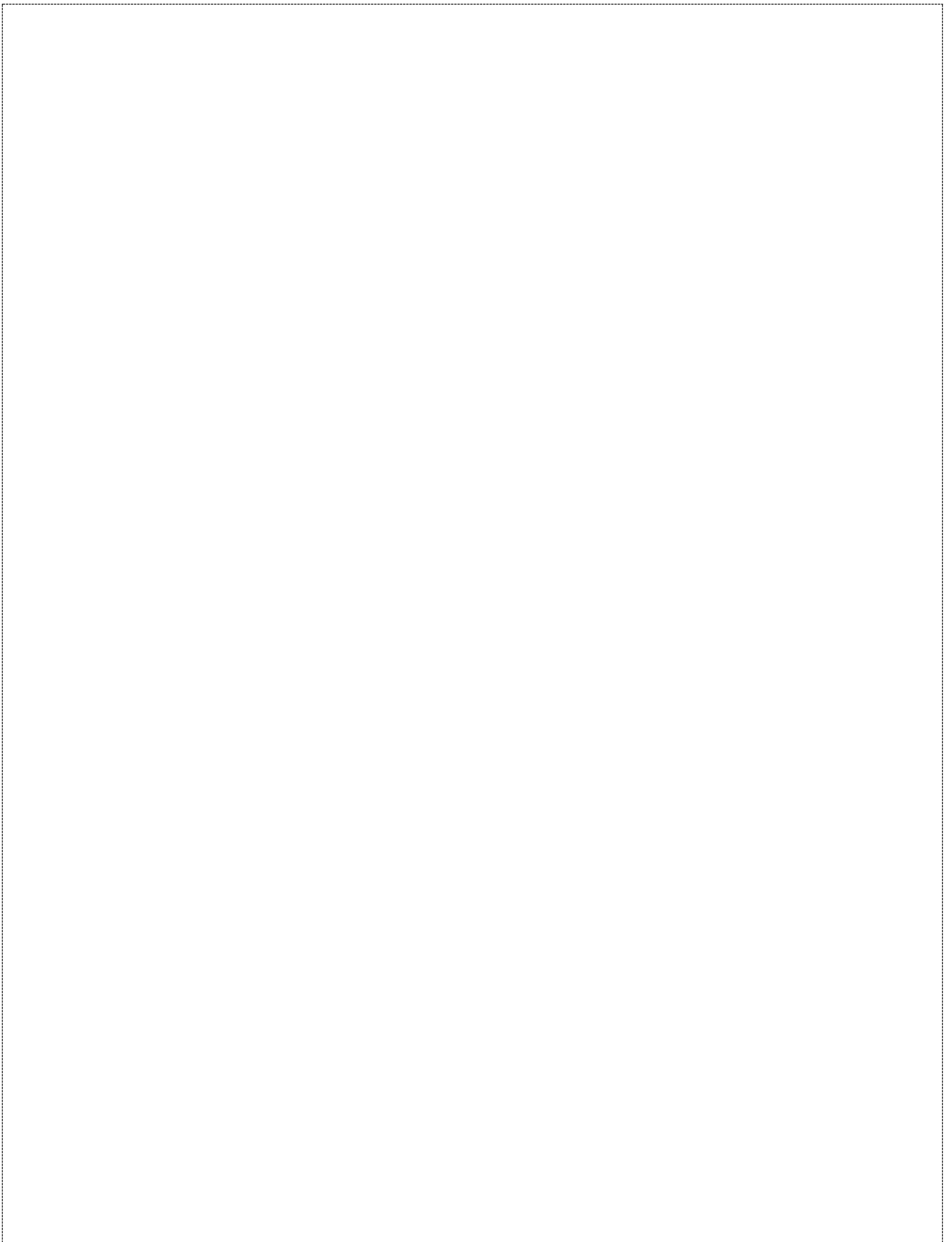
**Theory**
**Block 1: Programme Evaluation**
**Unit 1: Introduction to Evaluation**
- Concept of Evaluation: Meaning and concept in different contexts;
- Why Evaluation is Done and When? Programme planning, analyse programme effectiveness, decision making, accountability, impact assessment, policy advocacy;
- 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 broad 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, ongoing, 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 types) (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 Charts 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 Terminology – 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 (To), Pessimistic time (Po), Most likely time (TM), Expected time (TE), Float or Slack, Event Slack, Lead time, Lag time, Fast tracking, Crashing critical path, Acclivity 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 behaviour 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, impactsand 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 services - 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? Howit 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  Steps in EIA process - screening, scoping, collection of baseline data, impact prediction, mitigation measures and EIA report, public hearing, decision making, monitoring and implementation of environmental management plan, assessment of alternatives, delineation of mitigation measures and EIA report; Salient Features of 2006 Amendment to 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 in your university 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 'Evaluating the Evaluation' approach.

• Identify at least four agriculture development programmes and their objectives being implemented in your state. Write two attributes each on Strengths, 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 LFA 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.

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**Course Title: Managing Extension Organizations**

**Course Code: EXT 508**

**Credit Hours: 3(2+1)**

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**<u>Theory</u>**
**<u>Block 1: Basics of Management</u>**
**Unit 1: Management- An Over view**

- Management and Extension management – Meaning, concept, nature and importance;
- 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) in public sector, Department of Agriculture, Agricultural Technology Management Agency (ATMA), Krishi Vigyan Kendra (KVK), SAUs, ICAR Institutes, Private sector, Cooperatives, NGOs, FPOs etc.
- Organisational 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;
- Challenges in managing public-private partnerships (PPPs) at different levels in agricultural development in general and extension in particular;
- Performance appraisal – Meaning, Concept, Methods.

**<u>Block 3: Motivation and Organizational Communication</u>**
**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, Team work 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 InformationSystems (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 exercises on PERT & CPM
• Group 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.

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**Course Title: Gender Mainstreaming**
**Course Code: EXT 510**
**Credit Hours: 3(2+1) (Theory and Practical)**
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**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 agriculture
- 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.

**Unit 3: Gender and Technology**

- Gender and technology: How gender and technology impact each other, Gender neutral technology, Gender sensitive technology, Gender supportive assistance in technology adoption-Gender in agricultural research and extension.

**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 andrural 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 organizations
- Gender mainstreaming and special women focused programmes in agriculture and rural development.

**Unit 4: Entrepreneurship Development for Women**

- Entrepreneurship development for women: Women entrepreneurship developmentin 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 Title: Basic Concepts on Laboratory Equipments**
**Course Code: PGS-504**
**Credit Hours: 1(0+1)**

**Objective:**

To acquaint the students about the basics of commonly used techniques in laboratory.

**Practical:**

Classification of Audio-Visual materials Selection/planning/preparation/evaluation and Presentation of Visual Aids, Preparation and use of non-projected visual aids- Poster, Charts, Graphs, Flash cards, Preparation and use of Extension literature- Leaflet, Booklet, Folder and Pamphlet, Handling and use of Digital Camera, Handling and use of LCD Projector, developing script for print media- News story and Success story, Writing for Electronic Media, Understanding PRA tools and their use in the village situation