SCHOOL OF AGRICULTURE
Ph.D. (Agricultural Extension Education)
Detailed Syllabus

Programme Overview

The Ph.D. programme in Agricultural Extension is designed to develop advanced understanding of extension theories, communication and innovation processes, participatory development, research methods, digital extension, and policy and programme evaluation. The coursework combines theoretical foundations with field-based exercises, analytical assignments and doctoral seminars.

Credit convention used in this draft: L–T–P denotes Lecture–Tutorial–Practical; one credit is assigned for each weekly lecture/tutorial hour and the practical credit allocation follows the institutional convention. Course codes and credits are proposed for academic review.

AEX 601 – Advanced Concepts and Theories in Agricultural Extension Education
Credit Hours: 2+1 (3)

Course Description
The course provides an advanced understanding of the philosophical foundations, concepts, theories and contemporary paradigms of extension education. It examines the evolution of extension systems and their role in agricultural and rural transformation.

Aim of the Course
To develop critical understanding of extension theories, approaches and institutional roles in changing agricultural and rural contexts.

Theory

Block 1: Foundations and evolution
- Meaning, scope, philosophy, objectives and functions of extension education; education, extension and development.
- Historical development of agricultural extension in India and selected international experiences; evolution of public, private and pluralistic extension systems.
- Extension approaches and paradigms: technology transfer, human development, systems approach, innovation systems, facilitation and empowerment.

Block 2: Theories and contemporary perspectives
- Adult learning, experiential learning, social learning, transformative learning and constructivist perspectives.
- Behavioural and social theories relevant to extension: diffusion of innovations, social learning, planned behaviour, social capital and collective action.
- Gender, equity, inclusion, livelihood, sustainability, resilience and climate-sensitive extension.

Practical
- Prepare a comparative review of major extension approaches and their assumptions.
- Map extension institutions and stakeholders in a selected district or block.
- Analyse an agricultural development case using an appropriate extension theory.
- Conduct a field-based assessment of farmers' learning needs and prepare a short report.

Learning Outcomes
- Critically explain major concepts, theories and paradigms in extension education.
- Compare extension approaches and assess their suitability for different farming and rural contexts.
- Apply theoretical perspectives to analyse extension and rural development issues.

Suggested Readings

- Rogers, E. M. (2003). Diffusion of Innovations (5th ed.). Free Press.
- Swanson, B. E. and Rajalahti, R. (2010). Strengthening Agricultural Extension and Advisory Systems: Procedures for Assessing, Transforming, and Evaluating Extension Systems. World Bank.

- van den Ban, A. W. and Hawkins, H. S. (1996). Agricultural Extension (2nd ed.). Blackwell Science.
- Leeuwis, C. (2004). Communication for Rural Innovation: Rethinking Agricultural Extension (3rd ed.). Blackwell Science.

AEX 602 – Research Methodology and Advanced Statistics in Extension Education
Credit Hours: 2+1 (3)

Course Description
The course develops advanced competence in formulating research problems, designing rigorous studies, selecting appropriate methods, analysing data and interpreting findings in agricultural extension research.

Aim of the Course
To equip doctoral scholars with the skills required to design, conduct and report high-quality extension research.

Theory

Block 1: Research foundations and design
- Nature and scope of social science research; research paradigms, epistemology and ethics.
- Identification of research gaps; problem formulation; review of literature; conceptual and theoretical frameworks; hypotheses and research questions.
- Research designs: experimental, quasi-experimental, survey, ex-post facto, correlational, longitudinal, case study, mixed-methods and action research.
- Sampling frames, probability and non-probability sampling, sample size, measurement, scales, reliability and validity.

Block 2: Data analysis and research communication
- Descriptive and inferential statistics; tests of significance; correlation and regression; analysis of variance and non-parametric tests.
- Multivariate techniques: factor analysis, principal component analysis, cluster analysis, discriminant analysis and path analysis; introduction to structural equation modelling.
- Qualitative data analysis, coding, thematic analysis, triangulation and integration of mixed-methods data.
- Research ethics, plagiarism, referencing, scientific writing, journal selection, thesis organisation and research data management.

Practical
- Develop a research proposal with objectives, hypotheses and an appropriate design.
- Construct and pre-test an interview schedule or questionnaire; assess reliability and validity.
- Prepare a sampling plan and calculate sample size for a defined study.
- Analyse a sample dataset using suitable statistical software and interpret outputs.
- Prepare a research paper abstract, data table and reference list.

Learning Outcomes
- Formulate researchable problems and develop coherent research designs.
- Select appropriate sampling, measurement and data-analysis procedures.
- Interpret quantitative and qualitative evidence and communicate research findings ethically.

Suggested Readings

- Kothari, C. R. and Garg, G. (2019). Research Methodology: Methods and Techniques (4th ed.). New Age International.
- Kerlinger, F. N. and Lee, H. B. (2000). Foundations of Behavioral Research (4th ed.). Harcourt College Publishers.
- Creswell, J. W. and Creswell, J. D. (2018). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (5th ed.). SAGE.
- Field, A. (2018). Discovering Statistics Using IBM SPSS Statistics (5th ed.). SAGE.

AEX 603 – Communication, Diffusion of Innovations and Knowledge Management
Credit Hours: 2+1 (3)

Course Description
The course examines communication processes, media and interpersonal channels, diffusion and adoption of innovations, knowledge systems and communication strategies for agricultural development.

Aim of the Course
To develop advanced understanding of communication and innovation processes and the ability to design evidence-based communication strategies.

Theory

Block 1: Communication processes and strategies
- Concept, elements, models and barriers of communication; interpersonal, group, organisational and mass communication.
- Communication for behaviour change; message design, audience segmentation, feedback and communication campaigns.
- Traditional, folk, print, electronic and digital media; community media, video-mediated extension and social media.

Block 2: Diffusion and knowledge systems
- Diffusion process, innovation attributes, adopter categories, adoption and discontinuance; consequences of innovation.
- Opinion leadership, social networks, change agents, communication networks and knowledge brokerage.
- Indigenous and local knowledge, scientific knowledge, co-creation, knowledge management and agricultural innovation systems.
- Communication evaluation, reach, engagement, behavioural outcomes and impact assessment.

Practical
- Develop and pre-test an extension message for a selected farming practice.
- Prepare a communication strategy using interpersonal, group and mass-media channels.
- Conduct a small diffusion/adoption case study and identify factors influencing adoption.
- Map a local agricultural knowledge network and identify key information intermediaries.

Learning Outcomes
- Analyse communication processes and barriers in agricultural contexts.
- Explain diffusion, adoption and innovation-system processes.
- Design and evaluate communication strategies for different farmer audiences.

Suggested Readings

- Rogers, E. M. (2003). Diffusion of Innovations (5th ed.). Free Press.
- Servaes, J. (Ed.). (2008). Communication for Development and Social Change. SAGE.

- Leeuwis, C. (2004). Communication for Rural Innovation: Rethinking Agricultural Extension (3rd ed.). Blackwell Science.
- FAO. (Various years). Communication for Development and agricultural communication resources.

AEX 604 – Participatory Extension, PRA and Community-Based Development
Credit Hours: 1+1 (2)

Course Description
The course focuses on participatory philosophies, tools and institutional processes for enabling communities and farmer groups to analyse their situations, set priorities and plan collective action.

Aim of the Course
To develop practical competence in participatory diagnosis, planning, facilitation and community-led development.

Theory

Block 1: Participatory approaches
- Concepts, principles and evolution of participatory development and extension; participation, empowerment and social inclusion.
- Participatory Rural Appraisal (PRA), Rapid Rural Appraisal (RRA), Participatory Learning and Action (PLA) and community-led planning.
- Stakeholder analysis, power relations, gender-sensitive facilitation and inclusion of marginalised groups.

Block 2: Tools and collective institutions
- Social and resource mapping, transect walk, seasonal calendar, timeline, Venn diagram, wealth ranking, problem tree and pair-wise ranking.
- Focus group discussion, participatory monitoring, community score cards and outcome mapping.
- Farmer groups, self-help groups, farmer producer organisations, cooperatives and community-based organisations.

Practical
- Conduct a supervised PRA exercise in a village and prepare a village profile.
- Prepare a problem-priority matrix and a community action plan.
- Facilitate a focus group discussion and document participation and group dynamics.
- Prepare a stakeholder map and a participatory monitoring framework.

Learning Outcomes
- Select and apply appropriate participatory tools.
- Facilitate inclusive community diagnosis and action planning.
- Assess the role of farmer institutions and collective action in rural development.

Suggested Readings
- Chambers, R. (1994). The Origins and Practice of Participatory Rural Appraisal. World Development, 22(7), 953–969.
- Pretty, J. N. et al. (1995). Participatory Learning and Action: A Trainer’s Guide. IIED.
- FAO. (Various years). Participatory Rural Communication Appraisal and participatory development manuals.

AEX 605 – ICT, Digital Agriculture and Emerging Extension Systems
Credit Hours: 1+1 (2)

Course Description
The course explores the application of information and communication technologies in agricultural advisory services, digital platforms, data-enabled decision support and emerging models of pluralistic extension.

Aim of the Course
To develop the ability to assess and design inclusive digital extension interventions.

Theory

Block 1: Digital extension ecosystem
- Evolution of ICT in agriculture; mobile-based advisory, web portals, call centres, community radio and digital knowledge platforms.
- Digital literacy, access, affordability, language, gender and social inclusion; digital divide and responsible technology use.
- Geospatial technologies, remote sensing, GIS, mobile applications, sensors, Internet of Things and decision-support systems.

Block 2: Emerging technologies and governance
- Artificial intelligence, machine learning, big data, predictive advisory and personalised extension services.
- Digital farmer registries, e-market information, digital public infrastructure and data interoperability.
- Data privacy, informed consent, cybersecurity, algorithmic bias and responsible use of digital tools.
- Blended extension models integrating face-to-face advisory with digital services; evaluation of digital extension.

Practical
- Audit the usability and accessibility of a selected agricultural information platform.
- Design a prototype digital advisory message or farmer information service.
- Prepare a GIS-based or digital stakeholder/resource map for a selected area.
- Develop indicators to evaluate the reach, use and outcomes of a digital extension intervention.

Learning Outcomes
- Assess ICT tools and digital platforms for agricultural advisory services.
- Identify opportunities and risks associated with emerging technologies.
- Design inclusive blended extension interventions and evaluation indicators.

Suggested Readings

- Aker, J. C. (2011). Dial ‘A’ for Agriculture: A Review of Information and Communication Technologies for Agricultural Extension in Developing Countries. Agricultural Economics, 42(6), 631–647.

- FAO. (2017). Information and Communication Technology (ICT) in Agriculture: A Report to the G20 Agricultural Deputies.
- World Bank. (2017). ICT in Agriculture: Connecting Smallholders to Knowledge, Networks, and Institutions (Updated Edition).

AEX 606 – Extension Programme Planning, Policy, Monitoring and Evaluation
Credit Hours: 1+1 (2)

Course Description
The course provides advanced knowledge of extension programme formulation, policy analysis, implementation, monitoring, evaluation and impact assessment in pluralistic agricultural extension systems.

Aim of the Course
To build competence in designing, managing and evaluating extension programmes and analysing agricultural extension policy.

Theory

Block 1: Programme planning and policy
- Situation analysis, needs assessment, prioritisation, objective setting, logical framework and theory of change.
- Programme design, budgeting, implementation arrangements, convergence and coordination among extension actors.
- Agricultural and rural development policies; public, private and civil-society extension; decentralisation and pluralism.
- Extension reforms, accountability, governance and institutional capacity development.

Block 2: Monitoring, evaluation and impact
- Monitoring and evaluation concepts; input, activity, output, outcome and impact indicators.
- Baseline, process, outcome and impact evaluation; counterfactual thinking and contribution analysis.
- Participatory monitoring and evaluation, gender-responsive indicators and equity analysis.
- Cost-effectiveness, sustainability, scaling, learning and adaptive management.

Practical
- Prepare a needs assessment and stakeholder analysis for an extension programme.
- Develop a logical framework or theory-of-change model with measurable indicators.
- Prepare a simple activity plan, budget and monitoring schedule.
- Critically review an agricultural extension policy or programme and prepare an evaluation brief.

Learning Outcomes
- Design evidence-based extension programmes and implementation plans.
- Analyse agricultural extension policy and institutional arrangements.
- Develop monitoring and evaluation frameworks and interpret programme results.

Suggested Readings

- FAO. (2011). The State of Food and Agriculture 2010–11: Women in Agriculture – Closing the Gender Gap for Development.
- World Bank. (2012). Agricultural Innovation Systems: An Investment Sourcebook.

- Rossi, P. H., Lipsey, M. W. and Henry, G. T. (2019). Evaluation: A Systematic Approach (8th ed.). SAGE.
- Patton, M. Q. (2012). Essentials of Utilization-Focused Evaluation. SAGE.

AEX 607 – Gender, Livelihoods, Climate Resilience and Sustainable Rural Development
Credit Hours: 1+1 (2)

Course Description
The course examines the social dimensions of agricultural development, rural livelihoods, gender relations, climate risks and the role of extension in building resilient and sustainable communities.

Aim of the Course
To strengthen the capacity to analyse livelihood and climate-related challenges and formulate inclusive extension responses.

Theory

Block 1: Gender and livelihood systems
- Rural social structure, institutions, social differentiation and access to productive resources.
- Gender analysis, women in agriculture, unpaid work, youth, vulnerable groups and inclusive advisory services.
- Sustainable livelihoods framework, livelihood diversification, migration, rural entrepreneurship and value chains.

Block 2: Climate resilience and sustainable development
- Climate change, vulnerability, exposure, adaptive capacity and community resilience.
- Climate-smart agriculture, natural resource management, agroecology and risk communication.
- Disaster preparedness, climate information services, farmer adaptation and local institutions.
- SDGs, sustainable rural development and extension contributions to resilience and wellbeing.

Practical
- Conduct a gender and livelihood analysis of a selected farming community.
- Prepare a climate vulnerability and adaptation profile for a village or farming system.
- Develop an inclusive extension intervention for a climate-related agricultural risk.
- Map relevant SDGs and indicators to a rural development or extension programme.

Learning Outcomes
- Analyse gender, livelihood and social inclusion issues in agriculture.
- Assess climate vulnerability and adaptation needs.
- Design extension interventions supporting resilient and sustainable rural development.

Suggested Readings

- Chambers, R. and Conway, G. R. (1992). Sustainable Rural Livelihoods: Practical Concepts for the 21st Century. IDS Discussion Paper 296.
- DFID. (1999). Sustainable Livelihoods Guidance Sheets.
- IPCC. (2022). Climate Change 2022: Impacts, Adaptation and Vulnerability.
- FAO. (2013). Climate-Smart Agriculture Sourcebook.

Doctoral Seminar Courses

AEX 691: Doctoral Seminar I (0+1; 1 Credit)

Presentation and critical discussion of research literature, emerging issues and the scholar's proposed/current research. Assessment may include seminar presentation, written synopsis, discussion and response to questions.

- Critical review of recent peer-reviewed literature in Agricultural Extension Education.
- Presentation of research problem, conceptual framework, objectives, methodology and progress.
- Academic discussion, peer feedback, referencing and research communication.

AEX 692: Doctoral Seminar II (0+1; 1 Credit)

Presentation and critical discussion of research literature, emerging issues and the scholar's proposed/current research. Assessment may include seminar presentation, written synopsis, discussion and response to questions.

- Critical review of recent peer-reviewed literature in Agricultural Extension Education.
- Presentation of research problem, conceptual framework, objectives, methodology and progress.
- Academic discussion, peer feedback, referencing and research communication.

General Notes

- The course codes, titles, credits, course sequencing and reading lists in this document are proposed for departmental consideration and are not represented as an already approved university curriculum.
- The final course basket should be aligned with the University Ph.D. ordinance, UGC regulations, institutional credit framework and the scholar's approved research area.
- A minor/elective course may be selected from an allied discipline such as Agronomy, Agricultural Economics, Soil Science, Plant Pathology, Agricultural Statistics, Sociology, Management or Rural Development, subject to availability and approval.