



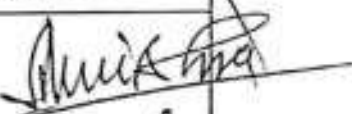
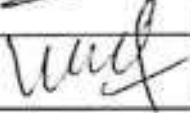
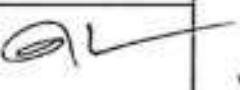




**Mahatma Gandhi Chitrakoot Gramodaya Vishwavidyalaya,  
Chitrakoot, Satna (M.P.)  
Statute No. 9, Faculty Board of Studies, Section-15 (3)  
Ph.D.(Agricultural Extension), Department of Technology Transfer  
Faculty of Agriculture**

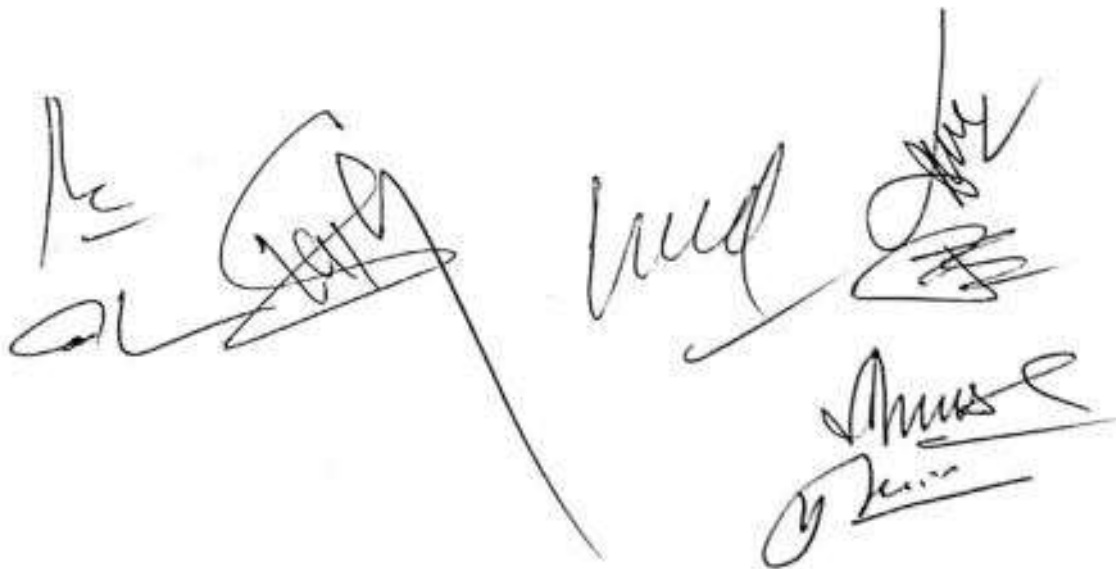
**Minutes of the Meeting**

The second meeting of the Board of Studies for Ph.D. Agricultural Extension programme was held on 18.11.2022 at 11.00 A.M. in the Seminar Hall of the faculty. The committee for Board of Studies of Ph.D. Agricultural Extension constituted as under: -

S.N.	Name of the Members	Designation & Address	Committee position	Signature
1	Prof. D.P. Rai	Dean, Faculty of Agriculture	Chairman	
2	Prof. Bhanu Prashad Mishra	Professor and Head Department of Agriculture Extension Banda University Agriculture and Technology, Banda (U.P.)	Expert	
3	Prof. K.K. Singh	Head, Department of Technology Transfer.	Member Secretary	
4.	Dr. Pawan Sirothia	Associate Prof. (Soil Science) Head, N.R.M., Faculty of Agriculture	Member	
5	Dr. S.P. Mishra	Associate Prof. (Agril. Biochemsitry) Head, Crop Science, Faculty of Agricultue	Member	
6	Prof. Nand Lal Mishra	Dean Faculty of Art	Member	
7	Prof. Virendra Vyas	Faculty of Art	Member	
8	Dr. S. S. Gautam	Associate Prof. (Statistics), Faculty of Science & Environment	Member	
9	Dr. Y.K. Singh	Associate Prof. Transfer of Technology, Faculty of Agriculture	Member	
10	Dr. Pawan Sirothia	Associate Prof. (Soil Science) Head, N.R.M., Faculty of Agriculture	Member	

1. The Course Curriculum of Ph.D. (Agricultural Extension), as per recommendation of the NCG (National Core Group) 19 BSMA (V Dean's committee) report of ICAR was discussed and courses proposed have been critically examined. The committee members also discussed thoroughly semester wise breakup of the courses. The valuable advice of the members have been incorporated in the light of course breakup as per prescribed by the V Dean's committee of ICAR to finalize the Syllabus of Ph.D. Agricultural Extension, courses and approved the courses and their contents.
2. All the members interacted and finally agreed for credit 107 credit load and same courses have been approved by the committee as given in Appendix I
3. All the Committee Members discussed on the name of course and suggested that the name of degree should be Ph.D. (Agricultural Extension) as per the ICAR revised restructured Doctoral report 2021 and ICAR accreditation committee report.
4. The course curriculum will be applicable from academic session of 2022-23 Ph.D. (Agricultural Extension) and onward.
5. For Ph.D. (Agricultural Extension) programme, the registration date of commencement of first semester (date of fee deposition) is to be considered for calculating time period of degree programme.
6. The RDC (Research Development Committee) of Ph.D. (Agricultural Extension) programme is to be conducted at the end of first Semester of Ph.D. degree programme.
7. Ph.D. (Agricultural Extension) programme is to be offered abiding the rules/norms as it is stated in I.C.A.R.

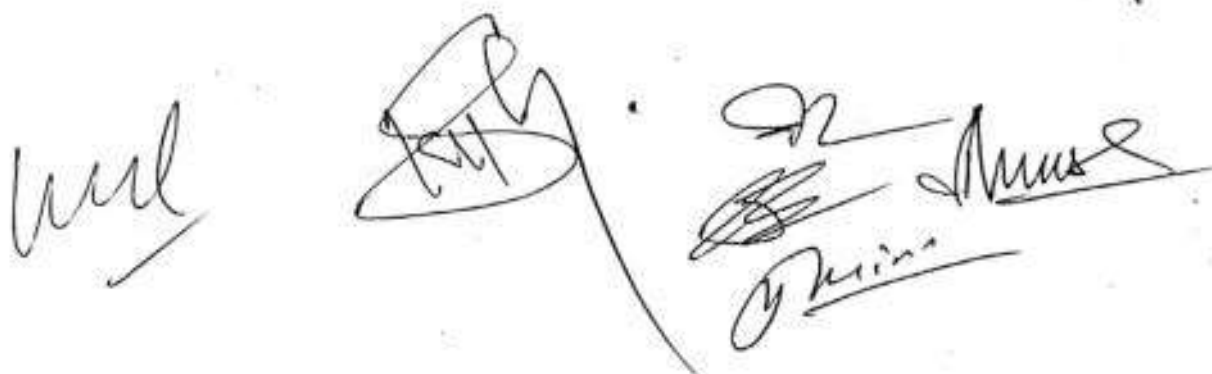
The meeting was concluded with the vote of thanks to the honourable members.

The image shows four handwritten signatures in black ink. The signatures are arranged in two rows. The top row contains two signatures, and the bottom row contains two signatures. The signatures are stylized and difficult to read, but they appear to be the names of the committee members who attended the meeting.

**Department of Technology Transfer**  
**Faculty of Agriculture**  
**Mahatma Gandhi Chitrakoot Gramodaya Vishwavidyalaya, Chitrakoot, Satna, M.P.**

**Ph.D. (Agricultural extension)**

SN	Code		
<b>A.1</b>		<b>Major Course</b>	<b>12 Credit (L+P)</b>
1.	EXT-601	Policy Engagement and Extension	3(2+1)
2.	EXT-602	Methodologies for Social and Behavioural Sciences	3(2+1)
3.	EXT-603	Technology Commercialization and Incubation	3(2+1)
4.	EXT-604	Educational Technology and Instructional Design	3(2+1)
<b>A.2</b>		<b>Minor Course</b>	<b>08 Credits (L+P)</b>
1.	EXT-605	Advances in Soil Fertility Risk Management and Climate Change Adaptation	3(2+1)
2.	EXT-606	Livelihood Development	2(1+1)
3.	EXT-607	Facilitation for People centric Development	3(2+1)
<b>B.</b>		<b>Supporting Course</b>	<b>05 Credits (L+P)</b>
1.	STAT	Multivariate Statistical Methods for Extension Research	3(2+1)
2.	COM	Multimedia and Applications	2(1+1)
<b>C.</b>		<b>Seminars</b>	<b>02 Credits (L+P)</b>
	EXT-691	Doctoral Seminar-I	1(1+0)
	EXT-692	Doctoral Seminar-II	1(1+0)
<b>D</b>		<b>Thesis research (Doctoral research)</b>	<b>75 credits</b>
		<b>Grand Total</b>	<b>102 Credits</b>



**Department of Technology Transfer**  
**Faculty of Agriculture**  
**Mahatma Gandhi Chitrakoot Gramodaya Vishwavidyalaya, Chitrakoot, Satna (M.P.)**

**Credit Distribution of Ph.D.(Agricultural Extension)**

S.N.	Course	Credits
1	Major Courses	12
2	Minor Courses	08
3	Supporting Courses	05
4	Seminar	02
5	Research	75
	<b>Total</b>	<b>102</b>

**Semester wise course breakup**

**Semester I**

S.N.	Course No.	Course Title	Credits
<b>Major Courses</b>			
1	EXT-601	Policy Engagement and Extension	3(2+1)
2	EXT-602	Methodologies for Social and Behavioural Sciences	3(2+1)
<b>Minor Courses</b>			
3	EXT-606	Livelihood Development	2(1+1)
4	AEC-606	Advanced marketing and price analysis	3(2+1)
<b>Supporting Courses</b>			
5	STAT	Multivariate Statistical Methods for Extension Research	3(2+1)

**Semester II**

S.N.	Course No.	Name of the course	Credits
<b>Major Courses</b>			
1	EXT-603	Technology Commercialization and Incubation	3(2+1)
2	EXT-604	Educational Technology and Instructional Design	3(2+1)
<b>Minor Courses</b>			
3	EXT-607	Facilitation for People centric Development	3(2+1)
<b>Supporting Courses</b>			
5	COM	Multimedia and Applications	2(1+1)
<b>Seminars</b>			
6	EXT-691	Doctoral Seminar-I	1(1+0)

**Semester III**

S.N.	Course No.	Course Title	Credits
1.	EXT-692	Doctoral Seminar-II	1(1+0)
		Written Comprehensive (Major, Minor)	
		Oral Comprehensive Examination	

**Semester IV**

S.N.	Course No.	Course Title	Credits
1.		Doctoral Research Work	

1

Semester V

S.N.	Course No.	Course Title	Credits
1.		Doctoral Research Work	

Semester VI

S.N.	Course No.	Course Title	Credits
1.		Thesis writing and submission	75
		Total	102

Note:

1. Curricula research may be given in any semester according to need.
2. For calculating time period of Ph.D. (Agricultural Extension) degree, registration date of commencement of first semester (date of fee deposition) is to be considered for the degree programme.
3. The RDC (Research Development Committee) of PhD (Agricultural Extension) programme is to be conducted at the end of first Semester of Ph.D. degree programme.
4. Written comprehensive viz. Major and Minor Exam is to be conducted with completion of major and minor courses respectively, by the faculty coordinated by the department. The students must have cleared (60 % passing marks) Major and Minor courses offered for the degree programme..
5. Oral comprehensive exam is to be conducted in coordination of Supervisor and Advisory committee by external examiner after completion of written comprehensive.





## Course Title with Credit Load

### Ph.D. in Agricultural Extension Education

#### Major Courses 12

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

#### Minor Courses 06

- 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 a 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 Agrl. 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	2+1
EXT-606	Livelihood Development	1+1
EXT-607	Facilitation for People centric Development	2+1

#### Supporting Courses 05

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

EXT-691	Doctoral Seminar-I	1+0
EXT-692	Doctoral Seminar-II	1+0
	ii. Thesis / Research	75
	Total	100

## Course Contents

### Ph.D. in Agricultural Extension Education

- I. Course Title : Policy Engagement and Extension  
 II. Course Code : EXT 601  
 III. Credit Hours : 2+1

#### IV. Why this course?

Extension's performance in any country to a large extent is dependent on the wider policy and institutional context prevailing at the national level. At the organizational level, extension should have capacities to influence policies that affect their performance. To effectively influence policies, extension professionals need to generate not only sound evidence of its impact, but also capacities to engage with policy relevant actors especially at various levels. While few countries have developed specific extension policies, there has been very limited success in translating these policies into programmes and operational guidelines. Lack of policy relevant research to generate evidence on extension's impact; poor documentation of successful initiatives, and lack of training on engaging with policy relevant actors have all contributed to this. Extension professionals, often encounter situations where existing policy constraints development interventions or where new policies could better support development. This course is aimed at developing these capacities to successfully engage with policy actors and bringing about desirable policy changes to strengthen extension.

#### V. Aim of the course

- To orient students on the importance of policies in shaping extension's performance
- To discuss ways of generating policy relevant evidence to influence policies
- To develop capacities to engage with policy actors and the policy development process

The course is organized as follows:

No	Blocks	Units
1.	Why policies matter?	1. Understanding Policy 2. Policy Advocacy and Tools 3. Policy Analysis 4. Policy Development Process
2.	Using evidence to influence Policy Change	1. Influencing Policy Change 2. Global Experience with Extension Policy

#### VI. Theory

##### Block 1: Why Policies Matter?

##### Unit 1: Understanding Policy

Why policies are important for extension? Role in providing structure, ensure funding 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 organisational 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, mobilising 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.

### **VII. Practicals**

- Analysis of country/state level agricultural/extension policy to understand the policy intentions from strengthening EAS



- Analysis of extension policy of other countries; policy intentions, processes adopted in development of 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 form? (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.

#### VIII. Teaching methods/activities

- Lecture
- Assignment (Reading/Writing)
- Student's Book/Publication Review
- Student presentation
- Group Work
- Student's interview of key policy makers
- Case Analysis
- Guest Lectures
- Review of policy documents
- Short attachments

#### IX. Learning outcome

- After successful completion of this course, the students are expected to be able to:
- Appreciate the role of policies in shaping performance of extension
  - Understand how to generate and communicate policy relevant evidence
  - Critically evaluate extension policies in different countries
  - How to engage in policy advocacy.

#### X. Suggested Reading

- AEPF. 2015. *Report on the Policy Forum by Ghana Directorate of Agricultural Extension Services, Ministry of Food and Agriculture; Modernizing Extension and Advisory Services and Agriculture Policy Support Project, Ghana.*  
<http://www.g-fras.org/en/knowledge/documents/category/18-policy.html?download=490:report-on-the-ghana-agricultural-extension-policy-forum-2015>
- Amosa, MDU. 2018. *Policy Analysis and Engagement Toolkit. A guide for Pacific Non-government Organizations in the Fisheries Sector.* WWF.  
[http://d2ouvy59p0dg6k.cloudfront.net/downloads/policy\\_analysis\\_toolkit\\_quality.pdf](http://d2ouvy59p0dg6k.cloudfront.net/downloads/policy_analysis_toolkit_quality.pdf)
- Anonymous. N.d. *Policy analysis.*  
<http://www.egyankosh.ac.in/bitstream/123456789/25760/1/Unit-19.pdf>
- Anonymous. N.D. *Policy analysis.*  
<https://web.csulb.edu/~msaintg/ppa670/670steps.htm>
- Bardach E. *A Practical Guide for Policy Analysis The Eightfold Path to More Effective Problem Solving* Fourth Edition. Sage Publications. CQ Press.  
<http://dlib.scu.ac.ir/bitstream/Ebook/32773/2/9781608718429.pdf>
- Cairney P. 2015. *Chapter 2: Policymaking in the UK: What is Policy and How is it Made?. Policy and Policymaking in the UK.*



agricultural-extension.html  
 Sprechmann, S and Peltan, E. 2001. *Advocacy Tools and Guidelines Promoting Policy Change. Cooperative for Assistance and Relief Everywhere, USA.*  
[https://thinktank.org/wp-content/uploads/2016/01/CARE\\_Advocacy\\_Guidelines.pdf](https://thinktank.org/wp-content/uploads/2016/01/CARE_Advocacy_Guidelines.pdf)  
 Start D and IngaHorland. 2004. *Tools for Policy Impact: A Handbook for Researchers.* Overseas Development Institute.  
<http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/194.pdf>  
 Sulaiman KV and Hall A. 2005. *Extension Policy at the National Level in Asia.* Plant Production Science Vol 3, 203-219.  
<http://www.tandfonline.com/doi/pdf/10.1080/09682030500042303>  
 Sulaiman KV. 2014. *How to Develop and Implement Extension Policies? Lessons from Four Australasian Countries.* Global Forum for Rural Advisory Services, Switzerland  
[http://compendium.g-ira.org/component/option=com\\_download/category/27-checklist-stepwise-approaches.html?download=262:how-to-develop-and-implement-extension-policies-lessons-from-four-australasian-countries](http://compendium.g-ira.org/component/option=com_download/category/27-checklist-stepwise-approaches.html?download=262:how-to-develop-and-implement-extension-policies-lessons-from-four-australasian-countries)  
 The Policy Project. 1999. *Networking for Policy Change An Advocacy Training Manual.* The Futures Group International, Research Triangle Institute (RTI) and The Centre for Development and Population Activities (CEDPA).  
<http://www.policyproject.com/pubs/AdvocacyManual.pdf>

- I. Course Title : Methodologies for Social and Behavioural Research  
 II. Course Code : EXT 602  
 III. Credit Hours : 2+1  
 IV. Why this course?

In general, social and behavioural science research plays a crucial role in the professional development in a subject domain, through advancing knowledge and developing working modalities and standards. Precisely, the empirical research helps to develop robust and outcome focused working strategies, processes and models to enable the professionals to maximise their efficiency. This course on advanced social science research caters to the need to equipping the scholars with essential skills in conducting high quality research which helps them to design working strategies, processes and models for professional development.

V. Aim of the course

This course aims to equip the doctoral students to conduct outcome-oriented social and behavioural science research and to develop sound field focused extension strategies and models with adequate replicability, while advancing knowledge on processes governing success of those strategies. The focus of the course is on equipping the scholars with advanced capacities in conducting systematic, objective and outcome oriented research by applying state-of-art methods and tools at every stage of research from planning to publishing.

The course is organized as follows:

No	Blocks	Units
1.	Advanced methods for improving quality of research data	1. Measurement Properties of Research Instruments 2. Threats to Data Quality
2.	Scales, indexes and tests	1. Scales, Indexes and Tests-1 2. Scales, Indexes and Tests-2

No	Blocks	Units
3.	Emerging research approaches and designs	1. Qualitative Research Methods 2. Emerging Approaches
4.	Utilising research outputs	1. Publishing Research 2. Ethics in Extension Research

## VI. 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 validities – 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 interrater 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, Types – 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 Tests-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-centred 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, types, 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 Outputs

#### 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 guidelines; 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

### VII. Practicals

- Practice in developing research instruments
- Methods of assessing measurement properties of research instruments - dimensionality, reliability and validity
- Hands-on exercise in minimising 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

**VIII. Teaching methods/activities**

- Lecture
- Assignment (Reading/Writing)
- Student presentation
- Group Work
- Guest Lectures
- Research Report (Writing)

**IX. Learning outcome**

- The scholars should develop critical skills in conducting systematic and objective research by using robust methods while minimising biases and errors
- The students should intelligently choose and apply advanced methods and tools at every stage of research and execute them in a objective way by managing the actors and processes effectively
- The students should develop expertise in designing tests, scales and indexes along with other tools to measure the socio-psychological processes at individual, group and community levels

**X. Suggested Reading**

- Berg B. 2009. *Qualitative Research. Methods for the Social Sciences*. Boston: Allyn& Bacon.
- Creswell JW. 2007. *Qualitative inquiry and research design: Choosing among five approaches* (2nd ed.). Thousand Oaks, CA: SAGE Pub.
- Edwards AL. 1957. *Techniques of attitude scale construction*. East Norwalk, CT, US: Appleton-Century-Crofts.
- Furr, RM. 2011. *Scale construction and psychometrics for social and personality psychology*. Los Angeles: SAGE Pub.
- Malhotra, NK. 2010. *Marketing research: An applied orientation*. Sixth Edition. Upper Saddle River, NJ: Prentice Hall Pub.
- Netemeyer RG, Bearden WO and Sharma S. 2003. *Scaling procedures: issues and applications*. Thousand Oaks: SAGE Publications.
- Nunnally, JC, and Bernstein IH. 1994. *Psychometric theory* (3rd ed.). New York, NY: McGraw-Hill
- Rao, C.R. and Sinharay S. 2007. *Handbook of Statistics, Vol. 26: Psychometrics*, The Netherlands; Elsevier Science B.V.
- Raykov T and Marcoulides GA. 2010. *Introduction to Psychometric Theory*. New York, NY: Taylor & Francis
- Scott J and Carrington PJ. 2011. *The SAGE handbook of social network analysis*. London: SAGE.
- Sekaran U and Bougie R. 2013. *Research Methods for Business A Skill-Building Approach*. 6<sup>th</sup> Edition, Wiley, New York.
- Sivakumar PS, Sontakki BS, Sulaiman RV, Saravanan R and Mittal N. (eds). 2017. *Good Practices in Agricultural extension Research. Manual on Good Practices in Extension Research and Evaluation*. Agricultural Extension in South Asia. Centre for research on innovation and science and policy (CRISP), Hyderabad, India. <http://www.aesanetwork.org/wp-content/uploads/2018/07/6.pdf>

- I. Course Title** : Technology Commercialisation And Incubation
- II. Course Code** : EXT 603
- III. Credit Hours** : 2+1

**IV. Why this course?**

The technology commercialisation and incubation is an emerging area which links



technology development, transfer and commercialisation processes with entrepreneurship development. Technology commercialisation aims to realize the value of agricultural technologies developed at the research establishments, by maximising their utility to stakeholders. With the increasing awareness of protecting and commercialising the Intellectual Property Resources (IPR) in the free market economy, there is a need to understand the organic relationship between protection and commercialisation IPR, and entrepreneurship development.

#### V. Aim of the course

This course is aimed to develop a critical understanding among extension students about how the technology commercialisation process is linked to IPR management and entrepreneurship development.

The course is organized as follows:

No	Blocks	Units
1.	Technology commercialisation and the modern context	<ol style="list-style-type: none"> <li>1. Basics of Technology Commercialisation</li> <li>2. Nature of Agricultural Technology</li> <li>3. Basics of Technology Transfer and Commercialisation</li> </ol>
2.	Intellectual Property Resources (IPR) Management	<ol style="list-style-type: none"> <li>1. Overview of Intellectual Property Resources</li> <li>2. Systems for protecting IP</li> <li>3. Management of IPR</li> <li>4. Protection and Management of Biological Resources</li> <li>5. Protection, Management and Commercialisation of Grass root and Farmers Innovations, Traditional and Indigenous Knowledge</li> <li>6. Geographical Indications (GI) and Appellation of Origin</li> <li>7. Genetically Modified Organisms (GMO), Agriculture and Biosafety</li> </ol>
3.	Technology commercialisation	<ol style="list-style-type: none"> <li>1. Technology Assessment and Refinement</li> <li>2. Technology Valuation</li> <li>3. Technology Commercialisation Strategies</li> <li>4. Scaling up of Technologies</li> <li>5. Technology Licensing</li> <li>6. Technology Takers and Entrepreneurship</li> <li>7. Policy Support for Technology Commercialisation and Entrepreneurship Development</li> </ol>
4.	Technology Incubation	<ol style="list-style-type: none"> <li>1. Basics of Technology Incubation</li> <li>2. Technology Incubation in India</li> </ol>
5.	Technology promotion and essential skills for technology commercialisation	<ol style="list-style-type: none"> <li>1. Technology Promotion</li> <li>2. Dealing with Entrepreneurs, Agripreneurs and Other Stakeholders</li> </ol>
6.	Emerging approaches in technology commercialisation and incubation	<ol style="list-style-type: none"> <li>1. Technology Scouting</li> </ol>

**VI. Theory****Block 1: Technology Commercialisation and the Modern Context****Unit 1: Basics of technology commercialisation**

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 commercialisation

**Unit 2: Nature of Agricultural Technology**

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

**Unit 3: Basics of Technology transfer and commercialisation**

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

**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 commercialising farmers 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 Farmers Innovations - Meaning, forms 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 commercialisation 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 GMO 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 Under 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 Auction Method; Hybrid approaches; Royalty rate method

**Unit 3: Technology Commercialisation Strategies**

Meaning- approaches for technology commercialisation – technology scaling up, technology licensing, handholding, agriprenneur 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 policies; Government of India Support for Innovation and Entrepreneurship – Startup India, Make in 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, farmers fairs, technology shows

##### Unit 2: Dealing with Entrepreneurs, Agripreneurs and Other 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

#### VII. 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 other 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 organising technology promotion events



- Hands on experience in various techniques in business communication and Business etiquette

#### VIII. Teaching methods/activities

- Lecture cum discussion
- Cases
- Class exercises
- Assignment (Reading/Writing)
- Student's Book/Publication Review
- Group Presentation

#### IX. Learning outcome

- At the end of the course the students are expected to develop competencies in:
- Enabling stakeholders to protect and manage their IPR
  - Managing IPR to maximise their value realisation through commercialisation, and
  - Providing mentoring and handholding support to agripreneurs, rural entrepreneurs, start-ups, Farmer Organisations and other forms of entrepreneurs through incubation

#### X. Suggested Reading

- Bandopadhyay D. 2018. *Securing Our Natural Wealth: A Policy Agenda for Sustainable Development in India and for Its Neighbouring Countries*. Singapore; Springer.
- Ghosh, S. and Joshi, A. 2017. *Handbook for Non-Profit Incubator Managers*. New Delhi: Deutsche Gesellschaft für Internationale.
- Gupta AK. 2016. *Grassroots Innovation: Minds on the margin are not marginal minds*. Gurugram: Penguin Books.
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- Pandey N and Dharni K. 2014. *Intellectual Property Rights*. Delhi. PHI Learning Pvt. Ltd.
- Sharma G and Kumar H. 2018. *Intellectual property rights and informal sector innovations: Exploring grassroots innovations in India*. The Journal of World Intellectual Property. 1-17. DOI: <https://doi.org/10.1111/jwip.12097>.
- Stevens AJ. 2016. *Intellectual property valuation manual for academic institutions* (Report No. CDIP/17/INF/4). Geneva: Committee on Development and Intellectual Property (CDIP).
- WIPO and ITC. 2010. *Exchanging Value - Negotiating Technology Licenses, A Training Manual*. World Intellectual Property Organization (WIPO).

- I. Course Title : Educational Technology and Instructional Design
- II. Course Code : EXT 604
- III. Credit Hours : 2+1
- IV. Why this course?

Technology, digital media and mobile access have drastically changed how people learn. And the field of education is rapidly becoming a dynamic opportunity for interactive instruction. Today's curriculum developers and instruction designers, especially in the extension and RAS ecosystem, need to equip themselves with the continuous developments in both theory and practice of instructional design so as to create satisfying learning experiences. Similarly, knowledge and skilful use of social media and disruptive technologies like internet of things (IOT), augmented reality, artificial intelligence, etc. makes this course essential for extension professionals who are expected to act as harbingers of change.

**V. Aim of the course**

The aim is to develop knowledgeable, responsive and effective teachers committed to educating diverse group of learners in a dynamic extension landscape. This course will help the learners to appreciate the role of technology in learning and how it can be integrated into instructional design to create engaging learning experience in both classroom and online learning environment. The course also aims to prepare the students as competent professionals employable in the extension and RAS providers both as specialised researchers as well as designers.

The course is organized as follows:

No	Blocks	Units
1.	Educational Technology	1. The Landscape of Educational Technology and Instructional Design 2. Theories of learning 3. Technology Enabled Learning
2	Instructional Design	1. Theories of Instruction 2. Creating Instruction 3. Instructional Strategies 4. Evaluating Instruction 5. Trends in Instructional Design

**VI. 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); Online Education - Synchronous and Asynchronous learning models; 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 Intelligences, 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.

## VII. Practicals

- Exercises on preparation of the Analysis Report that includes the task/content

- analysis and learner analysis and the Design Plan includes learning objectives and corresponding instructional strategies and assessment items
- Prepare 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 Barsch 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 processes 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 centres, etc.
  - Hands-on practice with video-editing software, web conferencing and video conferencing solutions

#### VIII. Teaching methods/activities

- Lectures & Videos
- Individual and group assignments
- Group discussion and debating
- Enactive learning exercises
- Case studies / Case analysis
- Storyboarding
- Guest Lectures
- Field Visits
- Capstone Project
- Prototype development

#### IX. Learning outcome

After successful completion of this course, the students are expected to be able to:

- Develop a critical understanding of concepts of learning and education within the context of agricultural development
- Relate and apply learning theories and models to the development, design and evaluation of courses utilizing educational technology and instructional design
- Hone their skills to take up research work in analysing and evaluating different





learning systems, teaching-learning environments, competencies and learning outcomes

- Find placement opportunities in the industry for job profiles such as e-learning specialist, training officer, curriculum developer, instructional designer, education consultant, etc.

#### X. Suggested Reading

- Agarwal JC. 2007. *Essentials of Educational Technology Innovations in Teaching – Learning*. 2<sup>nd</sup> Ed. Vikas Publ. House.
- Allen M. 2013. *Leaving ADDIE for SAM: An Agile Model for Developing the Best Learning Experiences*  
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- Challa J and Reddy NM. 2008. *Education Technology for Agricultural Sciences*, NAARM, Rajendra Nagar, Hyderabad, Telangana, India.
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- James ML. 2006. *Small Teaching: Everyday Lessons from the Science of Learning*
- Kolb D. 2014. *Experiential learning: Experience as the source of learning and development* (2nd ed.). Upper Saddle River, NJ: Prentice Hall
- Koper R. 2006. *Current Research in Learning Design*, *Educational Technology & Society*, 9 (1), 13-22.
- Kozma RB. 1994. *Will media influence learning? Reframing the debate*. *Educational Technology Research & Development*, 42(2), 7-19.
- Merrill MD, Drake L, Lacy M J and Pratt J. 1996. *Reclaiming instructional design* (PDF). *Educational Technology*. 36 (5): 5–7. Archived (PDF) from the original on 2012-04-26.
- Parrish PE. 2007. *Aesthetic principles for instructional design*, *Education Technology Research*

- and Development, DOI 10.1007/s11423-007-9060-7
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- Reiser RA, Mackal M, and Sachs SG. 2005. *Textbooks used in graduate programs in instructional design and technology: Changes over the past twelve years*. *Educational Technology*, 45(6), 53-61.
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- The Encyclopedia of Educational Technology. *What is Educational Technology?*  
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#### Websites

- e-Learning Industry- <https://elearningindustry.com/>
- Instructional Design Central- <https://www.instructionaldesigncentral.com/>
- Instructional Design- <http://www.instructionaldesign.org/theories/>
- International Society for Educational Technology- <https://www.isfet.org/courses/>
- Educational Technology- <https://educationaltechnology.net/>
- AESA-Agricultural Extension in South Asia- <http://www.aesanetwork.org/>
- GFRAS-Global Forum for Rural Advisory Services- <http://www.g-fras.org/en/>

- I. Course Title : Risk Management and Climate Change Adaptation
- II. Course Code : EXT 605
- III. Credit Hours : 2+1
- IV. Why this course?

Present agriculture and allied sectors India face tremendous challenges on multiple fronts. Agrarian distress and the climate change impacts together pose grave dangers to food, nutritional and ecological security. As change agents, extensional professionals in particular and agricultural graduates in general need to equip themselves with knowledge and skill sets required to navigate the climate change scenario so as to help reduce risk and vulnerability. Hence, this customised course.

#### V. Aim of the course

The course is designed to provide both basic and applied knowledge on the subjects of risks management and climate change adaptation with reference to Indian agriculture. This course will approach the subjects from a multidisciplinary



- I. Course Title : Livelihood Development  
 II. Course Code : EXT 606  
 III. Credit Hours : 1+1

**IV. Why this course?**

One of the aims of extension work is to enhance and expand the sustainable livelihood opportunities for individuals in a society. For this a thorough understanding of the different aspects of livelihood and its interface with nature becomes imperative. Resource poor farmers and the socially and politically weaker sections of the society currently face several challenges in expanding their livelihoods. Keeping these in view, the course has been designed to provide a theoretical framework for understanding of the basic concepts, definitions and approaches related to 'livelihood', 'vulnerability' 'institutional processes', and 'development and policies' pertaining to livelihood development in India.

**V. Aim of the course**

- To develop an understanding on the concept of livelihood and its various forms
- To acquaint the students regarding the various alternative approaches that has been adopted to support livelihoods
- To familiarize the students to some of the methods, tools and techniques they can utilize to design livelihood interventions
- To expose the students to the context, especially the economic models and policy environment that guides the livelihood choices
- To equip students to work in multidisciplinary teams and engage at multiple levels on livelihood issues

The course is organized as follows:

No	Blocks	Units
1.	Understanding of Livelihood	1. Concept of Livelihoods 2. Livelihood Challenges
2.	Livelihood Analysis	1. Livelihood Frameworks 2. Designing Livelihood Intervention and Promotion
3.	Livelihood Augmentation	1. Pathways for LA

**VI. 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 -sub-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, Natural; Vulnerability Assessment- Shocks, trends, seasonality; Policies, institutional context and processes; Conceptual Frameworks- DFID, CARE, UNDP, OXFAM, BASIX livelihood triad, 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 critique; 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

### VII. 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

### VIII. Teaching methods/activities

- Interactive Lectures – by sharing in advance a reading material
- Analysis of case studies
- Audio-visual of successful/ failure models of agribusiness firms
- Guest session by field practitioners, if possible





- Group presentations by the students
- Field visit and field based individual or group assignments

#### IX. Learning outcome

This course will equip students with perspectives, knowledge and skills to develop a comprehensive understanding of the livelihood concepts, various forms, approaches, tools and techniques to analyze existing livelihood pattern and strategies the sustainable livelihood intervention in the rural areas.

#### X. Suggested Reading

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- Morse S and McNamara N. 2009. *Sustainable Livelihood Approach: A critique of theory and practice*, Springer Science. (Chapter 2)
- Pastakia A and Oza S. 2011. *Livelihood Augmentation in Rainfed Areas: A Strategy Handbook for the Practitioner*, Development Support Centre, Ahmedabad.
- Scoones Ian. 1998. *Sustainable Rural Livelihoods: A Framework for Analysis*, IDS Working Paper 72.
- Scoones Ian. 2009. *Livelihoods perspectives and rural development*. *Journal of Peasant Studies*, 36 (1).

- I. Course Title : Facilitation for People Centric Development  
 II. Course Code : EXT 607  
 III. Credit Hours : 2+1  
 IV. Why this course?

The prime aim of the agricultural extension professionals is to influence development change among the stakeholders with whom they work. In the Agricultural Innovation Systems (AIS) context, this change will happen when good relationships, networks and partnerships are formed. A new extension approach that aims at participatory and group learning as well as networking, where the extensionist acts as a facilitator is needed. It is important to inculcate the good facilitation skills by the extension professional to increase the effectiveness and impact among the agricultural extension and advisory services stakeholders.

#### V. Aim of the course

- To orient students on the importance facilitation
- To inspires students to understand facilitation tools to influence change at the individual, group and organisational levels
- To develop capacities in multi-stakeholder engagement, facilitation and networking



- Waiting line problem, Problems on Markov Chains, Sequencing and Replacement models.
- Formulating and solving transportation type problems, Assignment problems as a special type of transportation problem.
- Solving deterministic and probabilistic queuing models Structuring and solving decision trees for optimal decisions Game theory, Simulation, Developing network (PERT/CPM) diagrams and determining the critical path.

#### IX. Teaching Methods/ Activities

- Lectures.
- Case studies.
- Assignments (Group/individual).
- Group Discussions

#### X. Learning outcome

After successful completion of this course, the student will be able to-  
Gain expertise in formulating problems of management into mathematical form and work out the optimum solutions.

Apply the knowledge of different models in better decision making and controlling of the firm.

#### XI. Suggested Reading

- Taha HA. *Operations Research: An Introduction*.
- Veerabhadrapa H. *An Introduction to Operations Research*.
- Gupta PK and Hira DS. *Operations Research*.
- Sharma R. *Operations Research*.
- Sharma JK. *Operation Research*.
- Greene WH. 2002. *Econometric Analysis*. Pearson Education.
- Johnston J and Dinardo J. 2000. *Econometric Methods*. Mc Graw-Hill.
- Koutseyianis A. 1997. *Theory of Econometrics*. Barner & Noble.

- I. Course Title : Advanced Agricultural Marketing And Price Analysis  
 II. Course Code : AEC 606  
 III. Credit Hours : 2+1  
 IV. Why this course?

Efficient markets, connectivity in markets, facilities of transport and storage ensure that there is growth in marketing of the produce as well as the industries based on those produce. The decision of selling the produce at the right time, and at a higher price is crucial to ensure remunerative returns to the farmer. Thus, this course is required to enhance the knowledge to students in agricultural markets and price analysis.

#### V. Aim of the course

To impart adequate knowledge and analytical skills in the field of agricultural marketing and enhance expertise in improving the performance of the marketing institutions and the players in marketing of agricultural commodities. Learning outcome: After successful completion of this course, the student will be able to-  
Gain the knowledge of marketing and agricultural prices. Work out the interaction between different markets and analyse their working. Gain expertise in forecasting of price and build up market intelligence.



## VI. Organization of the course

The course is organised as follows:

No	Block	Unit
1.	Concepts	1. Agricultural Marketing- Insights
2.	Marketing Institutions and Dynamics	1. Institutions and their functions 2. Market Dynamics
3.	Techniques	1. Commodity marketing 2. Models for Analysis

## VII. Theory

### Block 1: Concepts

#### Unit 1: Agricultural Marketing-

Insights Importance of market analysis in the agricultural system - types of marketing-advantages and disadvantages - quantitative estimation -the distinguishing characteristics and role of agricultural prices -data sources for agricultural products and prices - softwares used in market analysis.

### Block 2: Marketing Institutions and Dynamics

#### Unit 1: Institutions and their functions

Role of various formal institutions in agricultural marketing - and functions - measuring their efficiency - public - private partnership - institutional arrangements. Successful case studies.

#### Unit 2: Market Dynamics

Multi market estimation, supply response models. Market integration and price transmission - supply / value chain management. GAP analysis. Current trends in information in the changing agrifood system.

### Block 3: Techniques

#### Unit 1: Commodity Marketing

Agricultural commodity marketing -spot and futures- marketing of derivatives- speculation, hedging, swap, arbitrage etc. commodity exchanges - price discovery and risk management in commodity markets-Regulatory mechanism of futures trading.

#### Unit 2: Models for Analysis

Lag operators and difference equations; stationary and stochastic processes; Unit roots and cointegration; conditional heteroscedasticity: ARCH and GARCH models -forecast evaluation; methods of forecasting. price indices and econometric estimation and simulation.

## VIII. Practical

- Estimation of demand/ supply forecasting.
- Supply chain/ value chain analysis for different commodities
- Commodity models- multi market estimation- time series analysis
- Market integration studies- price discovery price volatility estimation
- Commodity price forecasting using econometric softwares.