

MODIFIED POST-GRADUATE SYLLABUS
DEPARTMENT OF AGRICULTURAL EXTENSION
UBKV, Pundibari, Cooch Behar
COURSE-SUMMARY

Course No.	Course-Title	Credit Hour	Remarks
Master Degree Major/Core Courses			
EXT-501	DEVELOPMENT PERSPECTIVES OF EXTENSION EDUCATION	2+0	Semester-I
EXT-502	DEVELOPMENT COMMUNICATION AND INFORMATION MANAGEMENT THROUGH E-EXTENSION	3+1	Semester-I
EXT-503	RESEARCH METHODS IN BEHAVIORAL SCIENCES	3+1	Semester-I
EXT-551	DIFFUSION AND ADOPTION OF INNOVATIONS	2+1	Semester-II
EXT-552	ENTREPRENEURSHIP DEVELOPMENT AND MANAGEMENT IN EXTENSION	3+1	Semester-II
EXT-553	HUMAN RESOURCE DEVELOPMENT	2+1	Semester-II
EXT-698	MASTER'S SEMINAR	1+0	Semester-IV
EXT-699	MASTER'S RESEARCH	20	Semester-IV
Minor Courses			
EXT-504	PARTICIPATORY METHODS FOR TECHNOLOGY DEVELOPMENT AND TRANSFER	1+1	Semester-I (Odd)
EXT-505	VISUAL COMMUNICATION	1+1	Semester-I (Odd)
EXT-554	RURAL SOCIOLOGY	2+0	Semester II (Even)
EXT-555	EDUCATIONAL PSYCHOLOGY	2+0	Semester II (Even)
EXT-601	GENDER SENSITIZATION FOR DEVELOPMENT	1+1	Semester III (Odd)
EXT-602	BASIC IMAGING TECHNOLOGY	1+2	Semester III (Odd)
EXT-603	PERSPECTIVES OF DISTANCE EDUCATION	1+1	Semester III (Odd)
EXT-604	MARKET-LED EXTENSION	1+1	Semester III (Odd)
Supporting Courses			
	ANY COURSES FROM OTHER DEPARTMENTS ESPECIALLY FROM AGRICULTURAL ECONOMICS AND AGRICULTURAL STATISTICS DEPARTMENT	05	Semester-I Semester II Semester III
Doctoral Degree Major Courses			
EXT-701	ADVANCES IN AGRICULTURAL EXTENSION	2+1	Semester-I
EXT-702	ADVANCED DESIGN AND TECHNIQUES IN SOCIAL SCIENCE RESEARCH	2+1	Semester-I
EXT-703	ADVANCES IN TRAINING TECHNOLOGY	2+1	Semester-I
EXT-751	ORGANIZATIONAL DEVELOPMENT	2+1	Semester-II
EXT-752	ADVANCED INSTRUCTIONAL TECHNOLOGY	2+1	Semester-II
EXT-799	SEMINAR-I (FORMULATION, PLAN OF WORK)	1+0	Semester-II
EXT-998	SEMINAR-II (PRE-SUBMISSION)	1+0	Semester-VI
EXT-999	DOCTORAL RESEARCH	45	Semester-VI
Minor Courses			
EXT-704	THEORY CONSTRUCTION IN SOCIAL SCIENCES	2+0	Semester-I
EXT-753	ADVANCED MANAGEMENT TECHNIQUES	2+1	Semester-II
EXT-801	MEDIA MANAGEMENT	2+1	Semester-III
EXT-802	TRANSFER OF TECHNOLOGY IN AGRICULTURE	2+1	Semester-III
Supporting Courses			
	ANY COURSES FROM OTHER DEPARTMENTS ESPECIALLY FROM AGRICULTURAL ECONOMICS AND AGRICULTURAL STATISTICS DEPARTMENT	05	Semester-I Semester II Semester III

CS.2002. *Communication*. Himalaya Publ. House.

Reddy AA. 1987. *Extension Education*. Sree Lakshmi Press, Bapatla. Sandhu AS. 2004. *Textbook on Agricultural Communication Process and Methods*. Oxford & IBH.

EXT 503

RESEARCH METHODS IN BEHAVIOURAL SCIENCE

3+1

Objective

This course is designed with a view to provide knowledge and skills in methods of behavioural sciences research and student will learn the Statistical Package for Social Sciences (SPSS) for choosing appropriate statistics for data analysis.

Theory

UNIT I

Research – Meaning, importance, characteristics. Behavioural sciences research – Meaning, concept and problems in behavioural sciences research. Types and methods of Research – Fundamental, Applied and Action research, Exploratory, Descriptive, Diagnostic, Evaluation, Experimental, Analytical, Historical, Survey and Case Study. Review of literature – Need, Search Procedure, Sources of literature, Planning the review work. Research problem – Selection and Formulation of research problem and guiding principles in the choice of research problem, Factors and criteria in selection of research problem, statement of research problem and development of theoretical orientation of the research problem.

UNIT II

Objectives – Meaning, types and criteria for judging the objectives. Concept and Construct – Meaning, role of concepts in research and Conceptual frame work development in research. Variable – Meaning, types and their role in research. Definition – Meaning, characteristics of workable definitions, types and their role in research. Hypothesis – Meaning, importance and functions of hypothesis in research, Types of hypothesis, linkages, sources, problems in formulation and criteria for judging a workable hypothesis. Measurement – Meaning, postulates and levels of measurement, Use of appropriate statistics at different levels of measurement, criteria for judging the measuring instrument and importance of measurement in research. Validity – Meaning and methods of testing. Reliability – Meaning and methods of testing. Sampling – Universe, Sample and Sampling-Meaning, basis for sampling, advantages and limitations, size and factors affecting the size of the sample and sampling errors – Methods of elimination and minimizing, Maximinon Principle, Sampling – Types of sampling and sampling procedures.

UNIT III

Research Designs – Meaning, purpose and criteria for research design, Types, advantages and limitations of each design. Experimental design – Advantages and limitations. Data Collection devices - Interview – Meaning, purpose, types, techniques of interviewing and advantages and limitations. Enquiry forms and Schedules – Meaning, types of questions used, steps in construction and advantages and limitations in its use. Questionnaires – Meaning, difference between schedule and questionnaire,

types of questions to be used, pre – testing of the questionnaires or schedules and advantages and limitations. Check lists – Meaning, steps in construction, advantages and limitations in its use. Rating scales – Meaning, types, limits in construction, advantages and limitations in its use. Observation – Meaning, types, tips in observation, advantages and limitations in its use. Case studies – Meaning, types, steps in conducting, advantages and limitations in its use. Social survey – Meaning, objectives, types and steps in conducting, advantages and limitations.

UNIT IV

Data processing – Meaning, coding, preparation of master code sheet, analysis and tabulation of data, Statistical Package for Social Sciences (SPSS) choosing appropriate statistics for data analysis based on the level of measurement of variables.

Report writing – Meaning, guidelines to be followed in scientific report writing, References in reporting.

Practical

Selection and formulation of research problem - Formulation of objectives and hypothesis-Selection of variables based on objectives-Developing the conceptual framework of research. Operationally defining the selected variables-Development of data collection devices.-Testing the validity and reliability of the data collection instruments.- Pre-testing of the data collection instrument-Techniques of interviewing and collection of data using the data collection instruments-Data processing, hands on experiences on SPSS, coding, tabulation and analysis. Formulation of secondary tables based on objectives of research.Writing report, Writing of thesis and research articles-Presentation of reports.

Suggested Readings

Chandrakandan K, Venkatapirabu J, Sekar V & Anand Kumar V. 2000. *Tests and Measurements in Social Research*. APH Publ.

Kerlinger FN. 1973. *Foundations of Behavioural Research*. Holt Rhinehart. Kothari CR.1984. *Research Methodology, Methods and Techniques*.Chaitanya Publ. House.

Krishnaswami OR & Ranganatham M. 2005. *Methodology of Research in Social Sciences*. Himalaya Publ. House.

Mulay S & Sabaratnam VE.1983. *Research Methods in Extension Education*.Manasavan.

Ranjit Kumar. 1999. *Research Methodology - A Step by Step Guide forBeginners*. Sage Publ.

Ray GL & Sagar Mondal. 1999. *Research methods in Social Sciences and Extension Education*. Naya Prokash.

Wilkinson TS & Bhandarkar PC.1993. *Methodology and Techniques of Social Research*. Himalaya Publ.Home.

EXT 504

PARTICIPATORY METHODS FOR TECHNOLOGY DEVELOPMENT AND TRANSFER

1+1

Objective

This course is intended to orient the students with the key concepts, principles process of different participatory approaches for technology development and transfer and also to expose the students with various participatory tools and techniques like space related, time related, relation

oriented methods. Besides the students will be learning the preparation of action plans participatory monitoring and evaluation.

Theory

UNIT I

Participatory extension – Importance, key features, principles and process of participatory approaches; Different participatory approaches (RRA, PRA, PLA, AEA, PALM, PAR, PAME, ESRE, FPR) and successful models.

UNIT II

Participatory tools and techniques. Space Related Methods : village map (social & resource), mobility services and opportunities map and transect; Time related methods : time line, trend analysis, seasonal diagram. Daily activity schedule, dream map; Relation oriented methods : cause and effect diagram (problem tree), impact – diagram, well being ranking method, Venn diagram, matrix ranking, livelihood analysis.

UNIT III

Preparation of action plans, concept and action plan preparation; Participatory technology development and dissemination; Participatory planning and management, phases and steps in planning and implementation aspects; Process monitoring, participatory evaluation.

Practical

Simulated exercises on space related methods, time related method and relation oriented methods; Documentation of PTD and dissemination; Preparation of action plan; Participatory monitoring and evaluation of developmental programmes.

Suggested Readings

Adhikary. 2006. *Participatory Planning and Project Management in Extension Science*. Agrotech Publ. Academy.

Mukharjee N. 2002. *Participatory Learning and Action*. Concept Publ. Co. Singh BK. 2008. *PRA/PLA and Participatory Training*. Adhyayan Publ. & Distr.

Somesh Kumar. 2002. *Methods for Community Participation*. Vistaar Publ.

EXT 505

VISUAL COMMUNICATION

1+1

Objective

This course is intended to give a clear perspective about the importance of visuals and graphics in communication. The course starts with the delineating about the characteristics of visuals and graphics followed by its main functions, theories of visual perception and its classification and selection. Further, the course deals with the designing the message, graphic formats and devices and presentation of data. It makes the students to understand, prepare and present the scientific data effectively by using low cost visuals. The course also exposes the students to various Digitized video material in multimedia and also enable to design visuals for print, TV and know-how about scanning of visuals.

Theory

UNIT I

Role of visuals & graphics in Communication. Characteristics of visuals & graphics. Functions of visuals and graphics. Theories of visual perception. Classification and selection of visuals.

UNIT II

Designing message for visuals, Graphic formats and devices. Presentation of Scientific data. Principles and production of low cost visuals.

UNIT III

Photographs- reprographic visuals. PC based visuals. Digitized video material in multimedia production. Designing visuals for print and TV and video.

UNIT IV

Pre-testing and evaluation of visuals. Scanning of visuals.

Practicals

Preparation of low cost projected and Non-Projected visuals. Designing and layout of charts, posters, flash cards etc. Power point presentations. Generating computer aided presentation graphics. Scanning and evaluation of visuals.

Suggested Readings

Bhatia A. 2005. *Visual Communication*. Rajat Publications, New Delhi. Edgar Dale 1970. *Audio Visual methods in Teaching*. Holt, Rinehart & Winston. James WB, Richard BL, Fried F Harclerod. 1952. *A.V. Instructional Material & Methods*. Mc.Graw Hill. Reddy YN. 1998. *Audio Visual Aids in Teaching, Training and Extension*. Haritha Publ. House, Hyderabad.

EXT 551 DIFFUSION AND ADOPTION OF INNOVATIONS 2+1

Objective

The students will learn how the agricultural innovations spread among the farmers in the society by getting into the insights of diffusion concept and adoption process, stages of adoption and innovation decision process, adopter categories and their characteristics, opinion leaders and their characteristics, attributes of innovations, and factors influencing adoption. In addition, the students would be learning various concepts related to diffusion and adoption of innovations.

Theory

UNIT I

Diffusion – concept and meaning, elements; traditions of research on diffusion; the generation of innovations; innovation-development process; tracing the innovation-development process, converting research into practice.

UNIT II

The adoption process- concept and stages, dynamic nature of stages, covert and overt processes at stages, the innovation-decision process – a critical appraisal of the new formulation.

UNIT III

Adopter categories – Innovativeness and adopter categories, adopter categories as ideal types, characteristics of adopter categories; Perceived attributes of Innovation and their rate of adoption, factors influencing rate of adoption.

UNIT IV

Diffusion effect and concept of over adoption, opinion leadership-measurement and characteristics of opinion leaders, monomorphic and polymorphic opinion leadership, multi-step flow of innovation; concepts of homophily and heterophily and their influence on flow of innovations; Types of innovation-decisions – Optional, Collective and Authority and contingent innovation decisions; Consequences of Innovation-Decisions – Desirable or

Undesirable, direct or indirect, anticipated or unanticipated consequences;
Decision making – meaning, theories, process, steps, factors influencing decision – making.

Practical

Case studies in individual and community adoption process, content analysis of adoption studies, Identification of adopter categories on a selected technology, study of attributes of current farm technologies, Identification of opinion leaders, Sources of information at different stages of adoption on a selected technology, study of factors increasing or retarding the rate of adoption, presentation of reports on adoption and diffusion of innovations.

Suggested Readings

- Dasgupta. 1989. *Diffusion Agricultural Innovations in Village India*. Wiley Eastern.
- Jalihal KA & Veerabhadraiah V. 2007. *Fundamentals of Extension Education and Management in Extension*. Concept Publ. Co.
- Ray GL. 2005. *Extension Communication and Management*. Kalyani Publ. Reddy AA. 1987. *Extension Education*. Sree Lakshmi Press, Bapatla. Rogers EM. 2003. *Diffusion of Innovations*. 5th Ed. The Free Press, New York.

EXT 552

ENTREPRENEURSHIP DEVELOPMENT AND MANAGEMENT IN EXTENSION

3+1

Objective

The first part of the course is intended to provide overall picture of planning and development of enterprises for extending sustainable livelihoods for rural people. The second part of the course is structured to help the students to gain knowledge and skills in different concepts and techniques of management in extension organizations.

Theory

UNIT I

Entrepreneurship – Concept, characteristics, Approaches, Theories, Need for enterprises development. Agri – entrepreneurship – Concept, characteristics, Nature and importance for sustainable Livelihoods. Traits of entrepreneurs – Risk taking, Leadership, Decision making, Planning, Organising, Coordinating and Marketing, Types of Entrepreneurs. Stages of establishing enterprise – Identification of sound enterprise, steps to be considered in setting up an enterprise, feasibility report, product selection, risk and market analysis, legal requirements. Project Management and Appraisal – Market, Technical, Financial, Social Appraisal of Projects.

UNIT II

Micro enterprises – Profitable Agri enterprises in India – Agro Processing, KVIC industries. Micro financing – meaning, Sources of Finance, Banks, Small scale industries development organizations. Marketing for enterprises – Concept, planning for marketing, target marketing, Competition, market survey and strategies, Product sales and promotion. Gender issues in entrepreneurship development – Understanding gender and subordination of women, Gender as a development tool, Policy approaches for women entrepreneurship development. Success and Failure stories for enterprises – Issues relating to success and failure of enterprises - Personal, Production, Finance, Social, Marketing.

UNIT III

Management – Meaning, concept, nature and importance, Approaches to management, Levels of management, Qualities and skills of a manager. Extension Management – Meaning, Concept, Importance, Principles of management, Classification of Functions of Management. Planning – Concept, Nature, Importance, Types, Making planning effective. Change Management – factors, process and procedures. Decision making – Concept, Types of decisions, Styles and techniques of decision making, Steps in DM Process, Guidelines for making effective decisions. Organizing – Meaning of Organization, Concept, Principles, Organizational Structure, Span of Management, Departmentalization, Authority and responsibility, Delegation and decentralization, line and staff relations. UNIT IV

Coordination – Concept, Need, Types, Techniques of Coordination. Interpersonal relations in the organization. Staffing – Need and importance, Manpower planning, Recruitment, Selection, Placement and Orientation, Training and Development – Performance appraisal – Meaning, Concept, Methods. Direction – Concept, Principles, Requirements of effective direction, Giving orders, Techniques of direction. Leadership – Concept, Characteristics, Functions, Approaches to leadership, Leadership styles. Organizational Communication – Concept, Process, Types, Net Works, Barriers to Communication. Managing work motivation – Concept, Motivation and Performance, Approaches to motivation. Supervision – Meaning, Responsibilities, Qualities and functions of supervision, Essentials of effective supervision. Managerial Control – Nature, Process, Types, Techniques of Control, Budgeting, Observation, PERT and CPM, MIS.

Practical

Field visit to Successful enterprises-Study of Characteristics of Successful entrepreneurs Development of Project Proposal -Case Studies of Success / Failure enterprises-Exercise on Market Survey-Field visit to Financial institutions-Simulated exercise to understand management process-Field visit to extension organizations to understand the functions of management
-Group exercise on development of short term and long term plan-Simulated exercise on techniques of decision making-Designing organizational structure -Group activity on leadership development skills.

Suggested Readings

Gupta CB. 2001. *Management Theory and Practice*. Sultan Chand & Sons. Indu Grover. 2008. *Handbook on Empowerment and Entrepreneurship*. Agrotech Public Academy.
Khanka SS. 1999. *Entrepreneurial Development*. S. Chand & Co. Singh D. 1995. *Effective Managerial Leadership*. Deep & Deep Publ. Tripathi PC & Reddy PN. 1991. *Principles of Management*. Tata McGraw Hill.
Vasanta Desai. 1997. *Small Scale Industries and Entrepreneurship*. Himalaya Publ. House.

EXT 553

HUMAN RESOURCE DEVELOPMENT (HRD)

2+1

Objective

To orient the students about key concepts importance, scope & conceptual frame work, growth & development of Human Resource Development, Subsystems of Human Resource Development for extension organization and process of

HRD.

Theory

UNIT I

Human Resource Development – Definition, Meaning, Importance, Scope and Need for HRD; Conceptual frame work, inter disciplinary approach, function systems and case studies in HRD; HRD Interventions – Different Experiences; Selection, Development & Growth- Selection, Recruitment, Induction Staff Training and Development, Career planning; Social and Organizational Culture: Indian environment perspective on cultural process and social structure, society in transition; Organizational and Managerial values and ethics, organizational commitment ; Motivation productivity - job description – analysis and evaluation; Performance Appraisal.

UNIT II

Human Resource management: Collective bargaining, Negotiation skills; Human Resource Accounting (HRA): What is HRA? Why HRA? Information Management for HRA and Measurement in HRA; Intra personal processes: Collective behaviour, learning, and perception ; Stress and coping mechanisms; Inter-Personal Process, Helping Process – communication and Feedback and interpersonal styles; Group & Inter group process: group information and group processes; Organizational communication, Team building Process and functioning, Conflict management, Collaboration and Competition; HRD & Supervisors: Task Analysis; Capacity Building – Counseling and Mentoring; Role of a Professional Manager: Task of Professional Manager – Responsibility of Professional Manager; Managerial skills and Soft Skills required for Extension workers; Decision Making: Decision Making models, Management by Objectives; Behavioural Dynamics :Leadership styles – Group dynamics.

UNIT III

Training – Meaning, determining training need and development strategies – Training types, models, methods and evaluation; Facilities for training – Trainers training – techniques for trainees participation; Research studies in training extension personnel; Main issues in HRD: HRD culture and climate – organizing for HRD – emerging trends and Prospective.

Practical

Visit to different training organizations to review on going activities & facilities; Analysis of Training methods followed by training institutions for farmers and extension workers Studies on evaluation of training programmes; Study of HRD in organization in terms of performance, organizational development, employees welfare and improving quality of work life and Human resource information, Presentation of reports.

Suggested Readings

- Agochiya D. 2002. *Every Trainer's Handbook*. Sage Publ.
- David Gross. 1997. *Human Resource Management - The Basics*. TR Publ. Davis Keth & Newston W John 1989. *Human Behaviour at Work*. 8th Ed. McGraw-Hill.
- Hersey Paul & Balanchard H Kenneth. 1992. *Management of Organizational Behaviour Utilizing Human Resource*. 5th Ed. Prentice-Hall of

- India.
- Knoontz Harold & Weihhrich Heinz 1990. *Essentials of Management*. 5th Ed. McGraw-Hill.
- Lynton RP & Pareek U. 1993. *Training for Development*. DB. Taraporewale Sons & Co.
- Punna Rao P & Sudarshan Reddy M. 2001. *Human Resource Development Mechanisms for Extension Organization*. Kalyani Publ.
- Rao TV. 2003. *Readings in Human Resource Development*. Oxford Publ. Co.
- Silberman Mel. 1995. *Active Training*. Press Johnston Publ. Co., New Delhi.
- Singh RP. 2000. *Management of Training Programmes*. Anmol Publ.
- Subba Rao P. 2005. *Management & Organizational Behaviour*. Himalaya Publ. House.
- Sundaram RM, Gupta V, George SS. 2006. *Case Studies in Human Resource Management*. ICFAI, Hyderabad.
- Tripati & Reddy. 2004. *Principles of Management*. Tata McGraw-Hill. Wayne MR & Robert MN. 2005. *Human Resource Management*. International Ed. Pearson Prentice Hall.

EXT 554 RURAL SOCIOLOGY

2+0

Theory:

UNIT I

Rural Sociology, concept, scope; Importance of Rural Sociology in Development Extension Work; Rural Sociology and other social sciences, Basic concepts in sociology - society, social structure, community, social organisation, social institution, culture, social change, cultural change, social system, social processes, social values, norms, folkways, mores, customs, sanctions;

UNIT II

Culture - Concept, types, patterns, cultural relativism, cultural integration, developmental activities; Social Institutions in development; Family - concept, functions, types families, psycho-social relationship in the family, as a factor in rural development, Kin and clan - Definition, characteristics, functions, its relationship with group behaviour, kinship types: Socialisation - concept and its role in personality formation as progressive and non-progressive rural person; Social Stratification - concept, status, role, rank, class structure, change in class system in rural India, class and caste system, origin, characteristics, Differences between class and caste. Groups - Definition, types of groups; Leadership concept, types and range of leadership behaviour and principles of leadership in community development work.

UNIT III

Religious Belief System - Superstitions, rituals, festivals; Belief system and its significance in rural development; Social Structure - Social organisation and social system, concepts, conceptual differences, types of social structure, social structure as a social factor in rural development process, Social control - Different components of social control, its significance in rural development, Social Change - Concept, cultural change, technological change, planned change, concept of diffusion, acculturation, Important theories of social change; UNIT IV

Social Processes/Social Interaction - Definition, concept, types, Competition, Conflict, Co-operation, Accommodation, and Assimilation, and change in social processes due to development programmes.

EXT 555

EDUCATIONAL PSYCHOLOGY

2+0

Theory:

UNIT I

Psychology as science, its scope and importance in extension education, Perception: nature of perception, laws of perception, selectivity in perception, sensory factors in perception, importance of perception in extension work,

UNIT II

Attitude: meaning and characteristics, formation of stereotypes and prejudices, factors in attitude change, Emotion: its nature, types of emotional response, theories of emotion, the role of emotion in regulating human behaviour,

UNIT III

Learning: indicators of learning, definition and principles of learning, theories of learning, experiential learning, Defence mechanisms, types and importance, Personality and Individual differences: Personality as a set of traits, personality as the self, Roger's self theory, Maslow's self-actualisation theory.

EXT 601

GENDER SENSITIZATION FOR DEVELOPMENT

1+1

Objective

In this course the students will learn about an overview of the concept of gender and gender balance on development and develop skills of identifying gender roles, rights, responsibilities and relationships on development. Besides the students will also learn the attitudinal change to internalize gender equity concerns as fundamental human rights and also enhance the capability for identifying and analyzing gender issues in agriculture and allied sectors.

Theory

UNIT I

Gender concepts, issues and challenges in development; Gender roles, gender balance, status, need and scope; Gender analysis tools and techniques.

UNIT II

National policy for empowerment of women since independence; Developmental programmes for women; Gender mainstreaming in agriculture and allied sectors –need and relevance; Gender budgeting – A tool for empowering women.

UNIT III

Women empowerment –Dimensions; Women empowerment through SHG approach; Women entrepreneurship and its role in economic development; Public Private Partnership for the economic empowerment of women; Building rural institution for women empowerment; Women human rights ; Action plans for gender mainstreaming.

Practical

Visits to rural institutions of women for studying in the rural institutions engaged in Women empowerment; Visits to entrepreneurial unit of women for studying the ways and means of establishing entrepreneurship units for Women and their development and also SWOT analysis of the Unit; Visit to Center for women development - NIRD to study the different activities related to projects and research on gender; Visit to gender cell, Office of the Commissioner and Director of Agriculture, Hyderabad, to study the mainstreaming of gender

of Distance Education in Teacher Education.

UNIT III

Planning Distance Education – A Systems Approach Student Learning – Course Planning, The target groups – Barriers to learning in Distance Education – Planning and Management of Networked Learning.

UNIT IV

Educational Technology is Distance Education Application of information and Educational Technologies in Distance Education, Development of Course and Course material, Management of resources, processes, Forms of Instructional material in Distance Education and Media Development and Production in Distance Education - Video Classroom Strategy in Distance Education – Strategies for maximizing the reach – services to students, programme Evaluation - performance indicators and Quality Assessment.

Practical

Visit to the University which is implementing the Distance Education Programmes. Detailed Study of their programme in relation to Educational Technology, Methodology, Curriculum Development, Evaluation and Assessment. Exercise on development of curriculum for Distance Education exclusively for farming community.

Suggested Readings

Holmberg B. 1995. *Theory and Practice of Distance Education*. Routledge Publ..

Lakshmi Reddy MV. 2001. *Towards Better Practices in Distance Education*. Kanishka Publ.

More MG. 2003. *Hand Book of Distance Education*. Lawrence Erlbaum Associates Publ.

Panda.S. 2003. *Planning & Management in Distance Education*. Kogan Page Publ.

Pathak CK. 2003. *Distance Education: Prospects and Constraints*. Rajat Publ.

Sharma DC. 2005. *Management of Distance Education*. Anmol Publ. Sharma M. 2006. *Distance Education: Concepts and Principles*. Kanishka Publ.

EXT 604

MARKET LED EXTENSION MANAGEMENT

1+1

Objective

The student will learn the significance of post harvest management & value addition in present market environment and the challenges and future strategy for market led extension management. Also identifies the information sources and develop strategy for market intelligence and the marketing infrastructure, multilevel marketing and linkages for market led extension. In addition the students would be learning the public private partnerships for market led extension management, the features of contract farming, WTO its implications on agriculture and Understanding the role of IT for market intelligence.

Theory

UNIT I

Agricultural extension at cross roads; Changing scenario of agricultural

extension at the national level; Market led extension – emerging perspectives; Market led extension – issues and challenges; Dimensions of market led extension.

UNIT II

Agricultural marketing an overview; Development of a marketing plan, pricing concepts and pricing strategy; Consumer behaviour; Marketing communication and promotional strategies; The marketing research process; Agricultural trade liberalization and its impact; International marketing opportunities; Implications of AOA, TRIPS and IPRs agreements on agriculture; Agreement on SPS and TBT - an over view; Commodity features marketing.

UNIT III

Public private linkages in market led extension; Role of SHG in market led extension; Contact farming – a viable approach to meet market challenges; IT enabled approaches for market led extension and communication; Weather service and crop modeling – An effective tool in market led extension.

Practical

Identification and analysis of different marketing sources for agricultural commodities. Development of strategy for an effective market intelligence system; Development of suitable marketing plan to suite rural situation; Visit to APEDA, Rythu Bazaars to study the processes and procedures related to market-led extension.

Suggested Readings

Kaleel FMH & Krisnamurthy J. 2007. *Market Led Extension Dimensions and Tools*. Agro Tech Publ. Academy.

Rajmanohar TP & Kumaravel KS. 2006. *Contract Farming in India*. ICFAI Univ. Press, Hyderabad.

Subbalakshmi V. 2005. *Globalization - Indian Experience*. ICFAI Univ. Press, Hyderabad.

Suresh K. 2005. *Rural Markets - Emerging Opportunities*. ICFAI Univ. Press, Hyderabad

EXT 701 ADVANCES IN AGRICULTURAL EXTENSION 2+1

Objective

By the End of the course student will be able to

- Critically analyze different Agricultural Extension approaches
- Understand Agricultural Knowledge Information System (AKISs) ITK
- Understand Advances in Extension - Cyber extension, ICT enabled extension services; Market Led Extension, Public Private Partnership, Mainstreaming gender in extension organizational Innovations.
- Visualize implications of WTO - AOA and develop extension strategies.
- Understand extension reforms and Farmer Field Schools Decentralized Decision Making, bottom up planning, ATMA, FSBE & CIGs etc., ATIC, IVLP & Kisan Call Centres

Theory

UNIT I

Approaches of Agricultural Extension: A critical analysis of different approaches of agricultural extension. Importance and relevance of

indigenous knowledge system, identification and documentation of ITK, Integration of ITK system in research formulation, Concept of Agricultural Knowledge and Information System, Training of Stakeholders of AKIS. UNIT II Cyber Extension - Concept of cyber extension, national and international cases of extension projects using ICT and their impact of agricultural extension, alternative methods of financing agricultural extension - Scope, limitations and experience and cases. Research - Extension -Farmer - Market linkage: Importance, Scope, Implications etc., Market - Led Extension, Farmer - Led Extension, Concept of Farm Field School, Farm School, Public - Private Partnership: Meaning, Models, Identification of various areas for partnership. Stakeholder's analysis in Extension. Main streaming gender in Extension - Issues and Prospects.

UNIT III

Implications of WTO - AOA for extension services, re-orientation of extension services for agri-business and marketing activities, GOI-NGO collaboration to improve efficiency of extension.

UNIT IV

Extension and contemporary issues: Extension and issues related to rural poverty. Privatization of Extension. Intellectual Property Rights (IPRs). Extension Reforms in India - Decentralized decision making, Bottom up planning, Farming System and Situation based Extension Delivery System, Extension delivery through Commodity Interest Groups. Organization innovations in Extension - ATIC, IVLP, Kisan Call Centres.

Practical

Analysis of ITK systems, cases on integration of ITK and formal research system, Analysis of cases on cyber extension and privatization of extension. Analysis of ATMA and SREP. Practicing bottom up planning. Visit to Public-Private -Farmer partnership. Learnings from Food and Nutritional Security and bio-diversity Projects and Programmes.

Suggested Readings

- Bagchi J. 2007. *Agriculture and WTO Opportunity for India*. Sanskruti. Chambers R, Pacy A & Thrupp LA. 1989. *Farmers First*. Intermediate Technology Publ.
- Crouch BR & Chamala S. 1981. *Extension Education and Rural Development*. Macmillan.
- John KC, Sharma DK, Rajan CS & Singh C. 1997. *Farmers Participation in Agricultural Research and Extension Systems*. MANAGE, Concept Publ. Co.
- Khan PM. 2002. *Text Book of Extension Education*. Himanshu Publ.
- Narasaiah ML. 2005. *Agricultural Development and World Trade Organization*. Discovery Publ.
- Talwar S. 2007. *WTO Intellectual Property Rights*. Serials Publ.
- Van den Ban BW & Hawkins BS. 1998. *Agricultural Extension*. S.K. Jain Publ.
- Venkaiah S. 2001. *New Dimensions of Extension Education*. Anmol Publ.

Objective

By the End of the course student will be able to

- Develop & Standardize Attitude scale using different techniques of attitude scale construction.
- Develop skills of using Projected & Semi Projected & Semi Projected Techniques, Computer Package analysis and PRO Tools in Extension Research.

TheoryUNIT I

Scaling technique - meaning, types, principles, steps and quality, techniques of attitude scale construction - Paired comparison, Equal appearing intervals, Successive Intervals, Summated ratings, Scalogram analysis, Scale discrimination technique, Reliability and Validity of Scales.

Sociometrics, content analysis, case studies, Q-sort techniques, Semantic different technique.

UNIT II

Projective and Semi projective techniques, Critical incident techniques, Computer packages for analysis - usage in Extension Research. Knowledge scale measurement. Participatory tools and techniques in behaviour Research - Data collection and Evaluation. Impact analysis, e-data collection and information analysis.

Practical

Practice in constructing a scale and use of scale in various situations. Reliability and validity of the scales developed, Application of Semi Projective and Projective techniques. Content analysis, case studies. Practicing participatory tools and techniques. Hands on experience on Computer Preparation and Data Collection instruments, review of previous studies.

Suggested Readings

- Burns RB. 2000. *Introduction to Research Methods*. Sage Publ. Chandrakandan K & Karthikeyan C. 2004. *Behavioral Research Methodology*. Classical Publ.
- Daivadeenam P. 2002. *Research Methodology in Extension Education*. Agro-Tech Publ. Academy.
- Kerlinger N Fred. 2002. *Foundations of Behavioural Research*. Surjeet Publ.
- Kothari CR. 2000. *Research Methodology Methods & Techniques*. 2nd Ed. Wishwa Prakasham.
- Ray GL & Mondal S. 1999. *Research Methods in Social Science and Extension Education*. Naya Prokash.
- Roger L & Domino WSK. 1980. *Research Methods*. Prentice Hall.
- Sadhu AM & Singh A. 2003 *Research Methodology in Social Science*. Himalaya Publ. House.
- Sarantakos S. 1998. *Social Research*. 2nd Ed. Macmillan.
- Sinha SC & Dhiman AK. 2002. *Research Methodology*. ESS Publ.
- Verma RK & Verma G. 2002. *Research Methodology*. Commonwealth Publ.

- Jaico. Publ.
 Samanta RK. 1993. *Training Methods for Management and Development*.
 M.D. Publ.
 Sethy ED. 2003. *A Practical Hand Book on Training*. Anmol Publ.

EXT 704 THEORY CONSTRUCTIONS IN SOCIAL SCIENCES 2+0

Objective

By the end of the course student will be able to develop skills of theory building and scientific application of theoretical concept in Social Sciences by applying appropriate statistical tests.

Theory

UNIT I

Importance of theory constructions in social science. Theory: Meaning, elements, Ideal Criteria, Functions, Types. Definitions: Meaning, types and Rules. Generalizations: Meaning, Classification. Relationship: Meaning Types.

UNIT II

Terminologies used in theory constructions: Axiom, Postulate, Proposition, Theorem, Fact, Concept, Construct, Probability and Measurement Basic Derived. Steps in theory building - Axiomatic Techniques, Historical approaches. Scientific application Theoretical concept in Social Sciences. Test of Theory: Applying appropriate statistical tests.

Suggested Readings

- Blalock HM. *Theory Construction: Form verbal to Mathematical Formulations*. Prentice Hall.
 Dubin R. *Theory Building*. The Free Press, New York.
 Gibbs JP. *Sociological Theory Construction*. The Dryden Press, Illionis. Hage J. *Techniques and Problems of Theory Constructions in Sociology*. John Wiley & Sons
 Stinchombe AL. *Construction of Sociological Theories*. Harcourt, Brace & World.
 Wionton CA. *Theory and Measurement in Sociology*. John Wiley & Sons.

EXT 751 ORGANIZATIONAL DEVELOPMENT 2+1

Objective

- By the end of the course student will be able to
- Understand & Study the Organization in terms of types, Characteristics, Needs, Motives, Organization behaviour, Organization Communication, Organization development and Individual behaviour in organization.
 - To analyse the factors effecting organizational effectiveness and distinguish between functional and non functional organization.

Theory

UNIT I

Introduction to organizations: Concept and Characteristics of organizations, Organizational Behaviour - Context and concept - levels of organizations - formal and informal organizations, Theories of organizations: Nature of organizational theory - classical theories - features of Bureaucracy - administrative theory and Scientific management - Neo-classical theories - the human relations movement - modern theory.

UNIT II

Systems approach to study organization needs and motives - Attitude, values and ethical behaviour - alienation and work - work motivation - communication and interpersonal behaviour - organization communication - leadership behaviour - decision making, problem solving techniques - organizational climate - change proneness and resistance to change, Organizational change, Organizational structure - Process in organizing - Dimension of Motivation Climate.

UNIT III

Departmentation - Span of Management - Delegation of authority - Centralization and decentralization - line and staff organization - functional organization - divisionalisation - Project organization - Matrix organization - free form organization - top management structure.

UNIT IV

Individual behaviour in organization. Fundamentals of Human relations and Organizational behaviour, Groups and teams - Organisational culture and performance. Dynamics of Organization behaviour - leadership conflict situations and inter group behavior- Organisational Development - Factors effecting organization effectiveness. Creativity, leadership, motivation and organization development.

Practical

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, decisions 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 non-functional organisations and drawing factors for organizational effectiveness.

Suggested Readings

- Ancona, Kochaw, Scully, Van Maanen, Westney 1999. *Organizational Behaviour and Processes*. South Western College Publ., New York.
- Banerjee M. 1984. *Organizational Behaviour*. Allied Publ.
- Deka GC. 1999. *Organizational Behaviour - A Conceptual Applicational Approach*. Kanishka Publ.
- Dwivedi RS. 2006. *Human Relations and Organization Behaviour- A Global Perspective*. 5th Ed. Macmillan.
- Kumar A. 2000. *Organizational Behaviour Theory and Practice*. Anmol Publ.
- Luthans F. 1998. *Organizational Behavior*. Tata McGraw Hill.
- Luthans F. 2001. *Organizational Behaviour*. McGraw Hill.
- Newstrom JW & Davis K. 1997. *Human Behaviour at Work*. Tata McGraw Hill.
- Robbins SP. 2007. *Organizational Behaviour*. Prentice Hall.
- Shaun T & Jackson T. 2003. *The Essence of Organizational Behaviour*. Practice Hall of India.
- Stephen RR. 1999. *Organizational Behaviour*. 5th Ed. Practice Hall of India.

Objective

By the end of the course student will be able to

- Understand Agricultural Education Scenario in the country and Curriculum development process
- Plan & Prepare and present course outline, Lesson Plan & Skill plan
- Develop appropriate Teaching & Learning Styles
- Use innovative instructional aids & methods

TheoryUNIT I

Concepts in Instructional Technology, Scope of Instructional Technology. History of agricultural education in India. Guidelines for curriculum development in Agricultural Universities. Curriculum design development. UNIT II

Course outline, Lesson plans for theory and practicals. Teaching and learning styles. Theories of learning. Cognitive levels. Instructional Course Objective. Motivation of students.

UNIT III

Instructional Methods. Experiential learning cycle. Innovative Instructional Aids. Computer Assisted Instruction. Programmed instruction technique. Team Teaching. E-Learning, Art of Effective Communication. Distance education. Student evaluation - Question Bank. Appraisal of Teacher Performance. Review of research in Instructional Technology.

Practical

Formulation of instructional Course Objective. Development and presentation of course outlines. Preparation & presentation of lesson plans for theory & practical with CAI design. Preparation of innovative low cost instructional aids. Development of model question bank. Preparation of schedule for teacher evaluation. Visit to Distance Education centre. Study of research reviews and Presentation of reports.

Suggested Readings

Agarwal JC. 2007. *Essentials of Educational Technology Innovations in Teaching – Learning*. 2nd Ed. Vikas Publ. House.

Agarwal R. 2000. *Educational Technology and Conceptual understanding*. Anmol Publ.

Dayal BK. 2005. *Educational Planning and Development*. Dominant Publ. Grover I, Kaushik S, Yadav L & Varma SK. 2002. *Communication and Instructional Technology*. Agro Tech Publ. Academy.

Jacobsen D, Eggen P & Kauchak D. 1985. *Methods for Teaching - A Skills Approach*. 2nd Ed. Charles E. Merrill Publ.

Joyce B & Well M. 1980. *Models of Teaching*. 2nd Ed. Prentice Hall.

Khan PM. 2002. *Text Book of Extension Education*. Himanshu Publ.

Rush N. 1987. *Technology Based Learning - Selected Readings*. London Publ. Co., New York.

Tara Chand 1999. *Educational Technology*. Anmol Publ.

Objective

By the end of the course student will be able to

- Develop understanding on concept of MIS, its scope in Agriculture Extension Organization.
- Understand, Develop and Evaluate the MBO System
- To cope up with stress, Resolve conflicts and develop effective inter personal communication skills using Transactional analysis.
- To plan & use, DSS, AI, ES, PERT, CPM

TheoryUNIT I

Management Information System (MIS): Basic concepts, types of information needed at various levels, design of MIS in an agricultural extension organization. Scope for computerization, system alternatives and Evaluation. Implementation, operation and maintenance of the system.

UNIT II

Management by Course Objective (MBO): Elements of the MBO system. The Process of MBO. Making MBO effective. Evaluation of the MBO system - strengths and weaknesses. Transactional Analysis (TA): Ego states, transactions, inter relationships, strokes, stamps.

UNIT III

Managing Organizational Stress: Sources of stress in organization, effect of stress. Coping mechanisms and managing stress, Stress management, Team Building Process: Types of teams. Steps in teamwork, Facilitators and barriers to effective relationships, nature of prejudice, tips in reducing interpersonal conflicts, inter-group conflict, resolving techniques. Conflict management, tips in reducing interpersonal conflicts.

UNIT IV

Decision Support Systems (DSSs): Basic information about Artificial Intelligence (AI) Expert System (ESs), their future applications in extension system. Forecasting techniques - time series analysis and Delphi, decision making and talent management PERT, CPM Techniques and time management.

Practical

Managements Information system, in research & development organizations. Study of Management by Course Objective in an organization. Transactional Analysis, exercises on Team building process, coping skills with organizational stress, exercises on Decision Support Systems (DSSs). Practicals exercise on forecasting techniques, Visit to Management organizations.

Suggested Readings

- Chaudhary AK. 1999. *Encyclopedia of Management Information System*. Vols. I, II. Anmol Publ.
- Hari Gopal K. 1995. *Conflict Management - Managing Interpersonal Conflict*. Oxford & IBH.
- James O'Brien 1999. *Management Information System*. Tata McGraw-Hill. Koontz H & Welhrich H. 2004. *Essentials of Management*. 5th Ed. Tata. McGraw- Hill.
- Lauden & Lauden 2003. *Management Information System*. Pearson Edu.

farm Video production, Types of Video Production and equipment used in the production, Procedure or Technique of video production.

Cassette Technology – Role in TOT, Techniques of production of cassettes for the farming community.

Traditional Media – Role of Folk Media in TOT and integration with electronic media.

UNIT IV

Advances in communication Technology – Management of Agricultural Information System (MAIS). Use of computers in Agriculture – Application of IT in Agriculture. Use of Modern Communication Medium-Electronic Video, Teletext, tele conference, Computer assisted instruction, Video conferencing, - Features, Advantages, Limitations and risk factors involved in New Media. Designing and developing of communication and media strategy for developmental programmes. Online journalism scope & importance.

Practical

Exercise on Writing for Print Media – Writing News / Success Stories / Feature articles for different topics related to Agriculture & allied fields. Exercise of editing & proof reading the Farm News for News papers – different types of intro and leads. Exercise of Writing for Radio, TV, Preparation of story board for farm Video Production – Script writing for Radio and T.V. Visit to media management organizations for studying the principles, procedures and processes in managing the media. Participation and Interaction through video conference. Developing communication & Media Strategy for selected developmental programme / activity.

Suggested Readings

- Bhaskaran C, Prakash R & Kishore Kumar N. 2008. *Farm Journalism in Media Management*. Agro-Tech Publ. Academy.
- Chatterjee PC. 1991. *Broadcasting in India*. Sage Publ.
- Chiranjeev A. 1999. *Electronic Media Management*. Authors Press. D'Souza
- YK.1998. *Principles and Ethics of Journalism and Mass Communication*. Commonwealth Publ.
- Defleur ML & Dennis EE. 2001. *Understanding Mass Communications*. Goyalsaab Publ.
- Jain SC. 2006. *International Marketing Management*. CBS Publ. Keval J
- Kumar. 2004. *Mass Communication in India*. Jaico Publ.
- Malhan PN. 2004. *Communication Media: Yesterday, Today and Tomorrow*. Directorate of Publication Division, New Delhi. Mehta DS.
1992. *Mass Communication and Journalism in India*. Allied Publ.
- Panigrahy D. 1993. *Media Management in India*. P. K. Biswasroy (Ed.). Kanishka Publ.
- Shrivastava KM. 1995. *News Writing for Radio and TV*. Sterling Publ. Sinha
- KK. 2001. *Business Communications*. Galgotia Publ.

EXT 802

TRANSFER OF TECHNOLOGY IN AGRICULTURE 2+1

Objective

- By the end of the Course student will be able to
- Develop thorough understanding on different systems of Technology

- Transfer
- Develop appropriate communication & Media Strategy suitable to the System of Technology Transfer
- Analyse the constraints in Systems of Technology Transfer Technology and Suggest suitable Strategies.

Theory

UNIT I

Technology - Meaning and Concepts - Appropriate technology, transfer of technology - meaning and concepts. Systems of transfer of technology - Knowledge Generating System (KGS) - Knowledge Disseminating System (KDS) - Knowledge Consuming System (KCS) - Input Supplying Agencies System (ISAS).

UNIT II

Appropriateness of communication media in the system of technology transfer. New communication strategy for transfer and adoption of Agricultural technology. Extension training in transfer of technology.

UNIT III

Analysis. Constraints in Transfer of Technology, agencies or departments involved in TOT. Extension professional in TOT. Attributes of Technology and its Relation in TOT process. TOT to resource poor farmers. Role of Key communicators or local leaders in TOT. Private and Public partnership in TOT.

Practical

Analysis of Transferred technology. Analysis of knowledge generation and consuming systems. Formulation of communication strategies, Study of attributes of selected fast spreading technologies and slow technologies, study of constraints in TOT, visit to TOT centres of ICAR and SAU, Identification of key communicators, Case studies of Public-Private Partnerships, Visits to the print and electronic media centres to study their role in TOT.

Suggested Readings

- Chaturvedi TN. 1982. *Transfer of Technology among Developing Countries; Need for Strengthening Cooperation*. Gitanjali Publ. House.
- Dunn DD. 1978. *Appropriate Technology With a Human Face*. Macmillan Press.
- Kapoor SK, Roy PB & Roy AK. 1980. *Role of Information Centres in Technology Transfer*. IASLIC, Kolakata.
- Lekhi RK. 1984. *Technological Revolution in Agriculture*. Classical Publ. Co.
- Singh SN. 1991. *Transfer of Technology to Small Farmers; An Analysis of Constraints and Experience*. Concept Publ. Co.
- Wallender HW. 1980. *Technology Transfer of Management in the Developing Countries*. Ballinger Publ. Co., Cambridge.

EXTENSION EDUCATION

List of Journals

- Agricultural Extension Review
- European Journal of Agricultural Education and Extension
- Indian Journal of Social Work
- International Journal of Business and Globalization
- International Journal of Sustainable Development
- Journal of Extension
- Journal of Asia Entrepreneurship and Sustainability
- Journal of Environmental Extension
- Journal of Extension Education
- Journal of International Agriculture and Extension Education
- Journal of Rural Development
- British Journal of Educational Technology
- Economic and Political Weekly
- Indian Economic Panorama
- Indian Journal of Adult Education
- Indian Journal of Extension Education
- Indian Journal of Human Development
- Indian Journal of Open Learning
- Indian Journal of Social Development
- Indian Journal of Training and Development
- Indian Social Science Review
- Journal of Extension System
- Journal of Development Studies
- Journal of Educational Planning and Administration
- Journal of Educational Psychology
- Journal of Environmental Studies and Policy
- Journal of Sustainable Agriculture
- The Journal of Entrepreneurship

e- Resources

- www.pearsoned.com (Pearson Education Publication)
- www.mcgraw-hill.com (McGraw-Hill Publishing Company)
- www.oup.com (Oxford University Press)
- www.emeraldinsight.com (Emerald Group Publishing)
- www.sagepub.com (Sage publications)
- www.macmillanindia.com (Macmillan Publishing)
- www.krishiworld.com (Agriculture Portal)
- www.aiaee.org (The Association for International Agricultural and Extension Education)
- www.geogate.org (Agriculture Portal)
- www.icar.org.in (Indian Council of Agricultural Research)
- www.manage.gov.in (National Institute of Agricultural Extension Management)

Suggested Broad Topics for Master's and Doctoral Research

- œ Agricultural communication
- œ Agricultural Journalism
- œ Agriculture Education
- œ Agro Forestry Extension
- œ Banking & Credit
- œ Commercialization and Diversification in Agriculture
 - Vegetables
 - Horticulture
 - Agri. tourism
 - Floriculture
 - Mushroom cultivation
 - Bee Keeping
 - Organic Farming
- œ Cropping System/Farming System
- œ Diffusion and Adoption
- œ Dry Farming Technology
- œ Entrepreneurship Development
- œ Extension Administration and Management
- œ Extension Methods and techniques
- œ Extension Trainings
- œ Extension Management and Sustainable Agricultural Development
- œ Indigenous Practices
- œ Rural Organization and Institutions
- œ Scientific Productivity and Human Resource Development
- œ Youth/Women Development
- œ Social Marketing