

PG COURSE DETAILS FOR M. Sc. (Dairy Economics)

Aim of the course:

The course aims at disseminating recent technical knowledge related to Dairy Economics, to impart teaching and guidance at graduate, post-graduate and doctoral levels in Dairy Economics, Statistics and Management, to conduct research on various aspects of dairy economics, statistics and management, to organize capacity building specialized training programmes in dairy economics, statistics & management.

Objectives of the course:

1. To orient the students on theories of economic growth and relevance of theories in developing countries.
2. To make them to understand the dairy farming and its effect on sustainable agricultural development
3. To make them to understand the globalization and its impact on agricultural development.
4. To develop human resources for the booming Dairy and Food Industry at par excellence in the field of Dairy Economics

Scope:

Presently, none of the Dairy Science Colleges are offering this postgraduate degree and as a result of which the demand-supply gap of Dairy Economists is quite high. Dairy Economists can play an leading role in Dairy Industry in various roles like conducting surveys, Subject Matter Specialists. They can also be a part of academics

Aim of the Department:

The mandate of this Department is to impart knowledge in the field of Economics, Statistics, Mathematics and Accountancy, besides providing research guidance in statistical analysis and interpretation. The focus of this Division revolves around Economics of Milk Production and Processing, with thrust on cost-returns studies. In subsequent periods, the Division aims at enveloping more intricate and broader aspects of dairy enterprise encompassing backward and forward linkage factors for facilitating technology evaluation and transfer.

Course Curriculum and syllabus:

Courses	Course Code	Name of Course	Credits
Major Courses (25 credits)	DEC-711	Micro Economic Theory and Applications	3(3-0-0)
	DEC-712	Agricultural Production Economics	3(2-0-1)
	DEC-713	Linear Programming	3(2-0-1)
	DEC-714	Agricultural Marketing and Price Analysis	3(2-0-1)
	DEC-715	Research Methodology for Social Sciences	2(2-0-0)
	DEC-716	Macro Economics and Policy	2(2-0-0)
	DEC-717	Agricultural Development Policy Analysis	2(2-0-0)
	DEC-718	Econometrics	3(2-0-1)
	DEC-719	Dairy Business Management	3(2-0-1)
	DEC-880	Seminar I	1
Minor courses (15 credits)	DEX-711	Fundamentals of Dairy and Animal Husbandry	3(2-0-1)
	DEX-720	Entrepreneurship Development	3(2-0-1)
	MAS -815	Experimental Design	3(2-0-1)
	DEC-720	Dairy Farm Management	3(2-0-1)
	DEX-716	e-Extension for rural development	3(2-0-1)
Supporting Courses(05 credit)	MAS – 511	Statistical Methods	3(2-0-1)
	CSIT-701	Computer Orientation	3(2-0-1)
Thesis		Research work	30
Total credits			

SEMESTER WISE ALLOTMENT OF COURSES:

SEMESTER I (18 Credits)	S.NO.	COURSE CODE	COURSE TITLE	CREDITS
	1	DEC-711	Micro Economic Theory and Applications	3(3-0-0)
	2	DEC-712	Agricultural Production Economics	3(2-0-1)
	3	DEC-713	Linear Programming	3(2-0-1)
	4	DEC-714	Agricultural Marketing and Price Analysis	3(2-0-1)
	5	DEX-611	Fundamentals of Dairy and Animal Husbandry	3(2-0-1)
	6	DEX-620	Entrepreneurship Development	3(2-0-1)
SEMESTER II (16 Credits)	S.NO.	COURSE CODE	COURSE TITLE	CREDITS

commonly used forms - Properties, limitations, specification, estimation and interpretation of commonly used production functions.

Factors of production, classification, interdependence, and factor substitution - Determination of optimal levels of production and factor application –Optimal factor combination and least cost combination of production - Theory of product choice; selection of optimal product combination.

Cost functions and cost curves, components, and cost minimization –Duality theory – cost and production functions and its applications Derivation of firm's input demand and output supply functions -Economies and diseconomies of scale.

Technology in agricultural production, nature and effects and measurement - Measuring efficiency in agricultural production; technical, allocative and economic efficiencies - Yield gap analysis-concepts-types and measurement - Nature and sources of risk, modeling and coping strategies. **Practical**

Different forms of production functions - specification, estimation and interpretation of production functions – returns to scale, factor shares, elasticity of production - physical optima-economic optima-least cost combination-optimal product choice- cost function estimation, interpretation-estimation of yield gap - incorporation of technology in production functions- measuring returns to scale risk analysis through linear programming.

Suggested Readings

Beattie BR & Taylor CR. 1985. *The Economics of Production*. John Wiley & Sons.
Doll JP & Frank O. 1978. *Production Economics - Theory and Applications*. John Wiley & Sons. Gardner BL & Rausser GC. 2001. *Handbook of Agricultural Economics*. Vol. I. *Agricultural Production*. Elsevier.
Heady EO. *Economics of Agricultural Production and Resource Use*. Prentice-Hall. Sankayan PL. 1983. *Introduction to Farm Management*. Tata Mc Graw Hill.

DEC-713

LINEAR PROGRAMMING

3(2-0-1)

Objective

The Course Objective of the course is to impart knowledge of Linear programming techniques.

Theory

Decision Making- Concepts of decision making, introduction to quantitative tools, introduction to linear programming, uses of LP in different fields, graphic solution to problems, formulation of problems.

Simplex Method: Concept of simplex Method, solving profit maximization and cost minimization problems. Formulation of farms and nonfarm problems as linear programming models and solutions.

Extension of Linear Programming models: Variable resource and price programming, transportation problems, recursive programming, dynamic programming.

Game Theory- Concepts of game theory, two person constant sum, zero sum game, saddle point, solution to mixed strategies, the rectangular game as Linear Programme.

Practical

Graphical and algebraic formulation of linear programming models. Solving of maximization and minimization problems by simplex method. Formulation of the simplex matrices for typical farm situations.

Suggested Readings

Dorfman R. 1996. *Linear Programming & Economic Analysis*. McGraw Hill.
Lomba NP. 2006. *Linear Programming*. Tata McGraw Hill.
Shenoy G. 1989. *Linear Programming-Principles & Applications*. Wiley Eastern Publ.
Vaserstein. 2006. *Introduction to Linear Programming*. Pearson Education Publication

DEC-714 AGRICULTURAL MARKETING AND PRICE ANALYSIS

3(2-0-1)

Objective

To impart adequate knowledge and analytical skills in the field of agricultural marketing issues, and enhance expertise in improving the performance of the marketing institutions and the players in marketing of agricultural commodities.

Theory

Review of Concepts in Agricultural Marketing - Characteristic of Agricultural product and Production – Problems in Agricultural Marketing from Demand and Supply and Institutions sides. Market intermediaries and their role - Need for regulation in the present context - Marketable & Marketed surplus estimation. Marketing Efficiency - Structure Conduct and Performance analysis - Vertical and Horizontal integration - Integration over space, time and form-Vertical coordination.

Marketing Co-operatives – APMC Regulated Markets - Direct marketing, Contract farming and Retailing - Supply Chain Management - State trading, Warehousing and other Government agencies -Performance and Strategies – Market infrastructure needs, performance and Government role - Value Chain Finance.

Role of Information Technology and telecommunication in marketing of agricultural commodities - Market research-Market information service - electronic auctions (e-bay), e-Chaupals, Agmarket and Domestic and Export market Intelligence Cell (DEMIC) – Market extension.

Spatial and temporal price relationship – price forecasting – time series analysis – time series models – spectral analysis. Price policy and economic development – non-price instruments.

Theory of storage - Introduction to Commodities markets and future trading - Basics of commodity futures - Operation Mechanism of Commodity markets – Price discovery - Hedging and Basis - Fundamental analysis - Technical Analysis - Role of Government in promoting commodity trading and regulatory measures. **Practical**

Supply and demand elasticities in relation to problems in agricultural marketing. Price spread and marketing efficiency analysis. Marketing structure analysis through concentration ratios. Performance analysis of Regulated market and marketing societies. Analysis on contract farming and supply chain management of different agricultural commodities, milk and poultry products. Chain Analysis - quantitative estimation of supply chain efficiency - Market Intelligence – Characters, Accessibility, and Availability Price forecasting. Online searches for market information sources and interpretation of market intelligence reports – commodity outlook - Technical Analysis for important agricultural commodities - Fundamental Analysis for important agricultural commodities - Presentation of the survey results and wrap-up discussion.

Suggested Readings

Purecell WD & Koontz SR. 1999. *Agricultural Futures and Options: Principles and Strategies*. 2nd Ed. Prentice-Hall.

Rhodes VJ. 1978. *The Agricultural Marketing System*. Grid Publ., Ohio. Shepherd SG & Gene AF. 1982. *Marketing Farm Products*. Iowa State Univ. Press.

Singhal AK. 1986. *Agricultural Marketing in India*. Annual Publ., New Delhi.

DEC-715 RESEARCH METHODOLOGY FOR SOCIAL SCIENCES

2(2-0-0)

Objective

To expose the students to research methodology used in social sciences. The focus will be on providing knowledge related to research process, data collection and data analysis etc. **Theory**

Importance and scope of research in agricultural economics. Types of research - Fundamental vs. Applied. Concept of researchable problem – research prioritization – selection of research problem. Approach to research – research process.

Hypothesis – meaning - characteristics - types of hypothesis – review of literature – setting of Course Objective and hypotheses - testing of hypothesis.

Sampling theory and sampling design – sampling error - methods of sampling – probability and non-probability sampling methods - criteria to choose. Project proposals – contents and scope – different types of projects to meet different needs – trade-off between scope and cost of the study. Research design and techniques – Types of research design.

Data collection – assessment of data needs – sources of data collection – discussion of different situations. Mailed questionnaire and interview schedule – structured, unstructured, open ended and closed-ended questions. Scaling Techniques. Preparation of schedule – problems in measurement of variables in agriculture. Interviewing techniques and field problems - methods of conducting survey – Reconnaissance survey and Pre testing.

Coding editing – tabulation – validation of data. Tools of analysis – data processing. Interpretation of results – Preparing research report / thesis – Universal procedures for preparation of bibliography – writing of research articles.

Practical

Exercises in problem identification. Project proposals – contents and scope. Formulation of Objective and hypotheses. Assessment of data needs – sources of data – methods of collection of data. Methods of sampling – criteria to choose – discussion on sampling under different situations. Scaling Techniques – measurement of

scales. Preparation of interview schedule - Field testing. Method of conducting survey. Exercise on coding, editing, tabulation and validation of data. Preparing for data entry into computer. Hypothesis testing – Parametric and Non-Parametric Tests. Exercises on format for Thesis / Report writing. Presentation of the results.

Suggested Readings

Black TR. 1993. *Evaluating Social Science Research - An Introduction*. SAGE Publ.
Creswell JW. 1999. *Research Design - Qualitative and Quantitative Approaches*. SAGE Publ.
Dhondyal SP. 1997. *Research Methodology in Social Sciences and Essentials of Thesis Writing*. Amman Publ. House, New Delhi.

DEC-716 MACROECONOMICS AND POLICY

2(2-0-0)

Objective

Macro economics and Policy course is intended to expose the students to macroeconomic concepts and theory, the application of the macro economic theory, and implication of the macroeconomic policies.

Theory

Nature and Scope of Macro Economics - Methodology and Keynesian Concepts National Income - Concepts and measurement- Classical theory of Employment and Say's Law-Modern theory of Employment and Effective Demand.

Consumption function- Investment and savings - Concept of Multiplier and Accelerator - Output and Employment - Rate of interest - Classical, Neo classical and Keynesian version- Classical theory Vs Keynesian theory – Unemployment and Full employment.

Money and classical theories of Money and Price - Keynesian theory of money and Friedman Restatement theory of money - Supply of Money - Demand for Money -Inflation: Nature, Effects and control.

IS & LM frame work - General Equilibrium of product and money markets - Monetary policy - Fiscal policy- Effectiveness of Monetary and Fiscal policy - Central banking. Business cycles - Balance of Payment - Foreign Exchange Rate determination.

Suggested Readings

Ahuja HL. 2007. *Macroeconomics: Theory and Policy*. S. Chand & Co.
Eugene A Diulio 2006. *Macroeconomics*. 4th Ed. Schaums' Outlines.
Gardner Ackely 1987. *Macro Economic: Theory and Policy*. Collier
Macmillan. Dornbusch. 2006. *Macroeconomics*. McGraw Hill Publication

DEC-717 AGRICULTURAL DEVELOPMENT POLICY ANALYSIS

2(2-0-0)

Objectives

To provide orientation to the students regarding the concepts and measures of economic development

Theory

Development Economics – Scope and Importance - Economic development and economic growth - divergence in concept and approach - Indicators and Measurement of Economic Development – GNP as a measure of economic growth – New Measures of Welfare – NEW and MEW – PQLI – HDI – Green GNP - Criteria for under development – Obstacles to economic development – Economic and NonEconomic factors of economic growth.

Economic development – meaning, stages of economic development, determinants of economic growth. Theories of economic growth –

Ricardian growth model – The Harrod – Domar Model – The Neo classical Model of Growth – The Kaldor Model – Optimal Economic Growth – Recent Experiences of developing country economies in transition – Role of state in economic development – Government measures to promote economic development. Introduction to development planning.

Role of agriculture in economic / rural development – theories of agricultural development – Population and food supply - need for sound agricultural policies – resource policies – credit policies – input and product marketing policies – price policies.

Development issues, poverty, inequality, unemployment and environmental degradation – Models of Agricultural Development – Induced Innovation Model - policy options for sustainable agricultural development.

Globalization and the relevance of development policy analysis – The dilemma of free trade – Free trade versus Protectionism- Arguments for protection. Arguments against protection. Role of protection in Developing

Countries. WTO – Agreement on Agriculture - Contradictions of free trade - proponents and opponents policies in vulnerable sectors like agriculture – Lessons for developing countries.

Suggested Readings

Chakaravathi RM. 1986. *Under Development and Choices in Agriculture*. Heritage Publ., New Delhi.
Diwett KK. 2002. *Modern Economic Theory*. S. Chand & Co.
Eicher KC & Staats JM. 1998. *International Agricultural Development*. Johns Hopkins Univ. Press.
Frank E. 1992. *Agricultural Policies in Developing Countries*. Cambridge Univ. Press.
Ghatak S & Ingersent K. 1984. *Agriculture and Economic Development*. Select Book Service Syndicate, New Delhi.

DEC-718 ECONOMETRICS

3(2-0-1)

Objective

The Course Objective of the course is to impart knowledge on econometric tools to the students of agricultural economics. Training in econometrics will help the student to analyze the economic problem by applying quantitative techniques.

Theory

Introduction – relationship between economic theory, mathematical economics, models and econometrics, methodology of econometrics regression analysis.

Basic two variable regression - assumptions estimation and interpretation approaches to estimation - OLS, MLE and their properties - extensions to multi variable models-multiple regression estimation and interpretation.

Violation of assumptions – identification, consequences and remedies for Multicollinearity, heteroscedasticity, autocorrelation – data problems and remedial approaches - model misspecification.

Use of dummy variables-limited dependent variables – specification, estimation and interpretation.

Simultaneous equation models – structural equations - reduced form equations - identification and approaches to estimation.

Practical

Single equation two variable model specification and estimation – hypothesis testing- transformations of functional forms and OLS application-estimation of multiple regression model - hypothesis testing - testing and correcting specification errors - testing and managing Multicollinearity - testing and managing heteroscedasticity - testing and managing autocorrelation - estimation of regressions with dummy variables - estimation of regression with limited dependent variable - identification of equations in imultaneous equation systems.

Suggested Readings

Gujarati DN. 2003. *Basic Econometrics*. McGraw Hill.
Johnson AG Jr., Johnson MB & Buse RC. 1990. *Econometrics - Basic and Applied*. MacMillan.
Kelejan HH & Oates WE. 1994. *Introduction to Econometrics Principles and Applications*. Harper and Row Publ.
Koutsoyianis A. 1997. *Theory of Econometrics*. Barner & Noble.

DEC-719 DAIRY BUSINESS MANAGEMENT

3(2-0-1)

Concept of dairy business management, managerial decision making, functions of management. Planning-objectives, classification of plans, planning related to finance, production and personnel aspects of the dairy. Organising-fundamentals of organizational design, departmentation, principles and delegation of authority. Responsibility and accountability. Staffing-Personnel management, planning, selection, introduction, orientation and training of unskilled and skilled personnel in dairy organizations. Project appraisal and monitoring Standards and norms for appraisal, monitoring and its tools, management information systems, net present value and internal rate of return. Demand analysis-Determinants of demand of dairy products, responsiveness of demand, estimation of product and factor demand, types and approaches for demand forecasting. Cost analysis-Application of different cost concepts and functions in managerial decisions. Pricing-determinants of price of dairy products, pricing under different objectives and market structures, product differentiation and product-mix decisions. Profit planning and control-Concept, profit planning and break-even analysis in dairy industry, World Trade Organization (WTO). Introduction to Intellectual Property Rights.

Practical

Delineation of milk shed area.
Case studies for solving problem situations.
Demand forecasting
Estimation of cost of milk procurement and processing.
Break-even analysis and break-even charts.
Use of PERT in dairy industry.
Optimisation of product-mix.
Estimation of cost of inventory.
Economic lot size and other quantity standards.

Suggested Readings

1. James, A.F., Stoner; R. Edward Freeman and Daniel R. Gilbert Jr. 1996. Management. Prentice Hall of India Pvt. Ltd., N. Delhi.
2. Megginson, L.E., Donald C., Mosley, Paul. H Pietri 1983, Management Harper International Edition, London
3. Mote, V.L., Paul Samuel and Gupta, G.S., 1977, Managerial Economics Tata McGraw Hill Publishing Co. Ltd., New Delhi
4. Arther A. Thompson Jr. and A.J. Strickland. 1995. Strategic Management : Concept and Cases. Richard D. Irwin Inc.
5. Stephen Hill .1999. Managerial Economics: The analysis of business decisions. Macmillan Education Ltd., Hampshire.
6. Robbins Stephen P. and Decenzo, David A. 2002. Fundamentals of Management. Pearson Education (Singapore) Pvt.Ltd., Delhi.
7. Vohra N.D. 2003. Quantitative techniques in management. Tata McGraw Hill Publishing Co. Ltd., N. Delhi.

DEC-720 DAIRY FARM MANAGEMENT**3(2-0-1)****Objective**

To expose the students to research methodology used in social sciences. The focus will be on providing knowledge related to research process, data collection and data analysis etc

THEORY:

Management factor in dairy farming, Necessary and sufficient conditions for optimization in farm management decisions on resource allocation and enterprise combination, Appraisal of farm resources and preparation of farm plans. Farm adjustment programmes under uncertain conditions, Flexibility in resource use and product planning, Cash or kind reserves, diversification and dairy animal/farm insurance, Analysis of farm records, Depreciation and appraisal of farm business income and efficiency.

PRACTICAL:

Each student will be required to maintain the detailed records of dairy farm selected for this purpose. Enterprise budget and farm plans will be prepared and analysis of measures of the size of farm business income and efficiency will be done.