

COURSE STRUCTURE AND SYLLABUS

Syllabus of Post-graduate Programmes (as per the ICAR-BSMA for Social Sciences 2021)

MBA in Agri-Business Management



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Shaping Lives...
Empowering Communities...

**M.S. SWAMINATHAN SCHOOL OF AGRICULTURE
CENTURION UNIVERSITY OF TECHNOLOGY &
MANAGEMENT
Odisha-761211, India**

2023

**CENTURION UNIVERSITY OF TECHNOLOGY AND
MANAGEMENT, ODISHA**

CERTIFICATE



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*Shaping Lives...
Empowering Communities...*

This is to certify that the syllabus of the Program MBA in Agri Business Management of the MS Swaminathan School of Agriculture is approved in the 12th Academic Council Meeting held on 3rd December 2022.

**Dean
MS Swaminathan School of Agriculture
CUTM, Odisha**

Preface

Rapid advancement in agriculture has resulted in increased demand for qualified managers to manage this sector. Indian agriculture is facing numerous challenges with a rapidly changing business environment, pace of technological change, globalisation, competitive environment and changing role of government. These challenges will place unparalleled demands on the capabilities of tomorrow's managers. Agribusiness Management has enormous potential to address key national and global challenges of inclusive growth, and food and nutritional security. With increasing incomes, the demand for value added agricultural products will also increase, driving the demand for Agribusiness Managers. Increasing integration of World food markets and the expansion of organized retail also imply that the scope of agribusiness is becoming increasingly global. The Agribusiness Management Education System in India is uniquely placed to meet the demand for professional agribusiness managers across the globe.

Agri-business management is a specialized two-year MBA programme which focuses on business aspect of agriculture production and its international trade. The postgraduate course aims to craft professional business leaders and entrepreneurs in food, agriculture, and allied sectors. The course is offered in premier business schools in and State Agricultural Universities in India and across the globe and focuses on managerial skill development in the agricultural sector. Students learn how to make sustainable business decisions and minimize risk while working in the agricultural sector. The course curriculum is designed to build and enhance a global perspective among students. The course also needs to create awareness among students about the environmental forces that impact managerial decisions. Considering the above-mentioned issues and concerns, courses, and programmes in the field of agri-business management must also be reformed to increase the employability and entrepreneurship opportunities for the Postgraduates and Doctoral participants at the same time prepare

them for handling global competitiveness without compromising farmers' and farming community needs and demands. The sub-committee on Agri-business Management constituted by ICAR (under the ICAR Broad Subject Matter Area (BSMA) for Social Sciences) has kept above development in view while revising the PG and PhD Curricula in Agri-business Management. We also addressed the issue of repetitions of content, updating them with the recent trends in the industry, under-graduate curricula in agriculture. To do these, we identified first the core competencies that are required at the different levels and worked backwards based on the areas and organising them into courses. We are also recommending summer internship-2 at the master's level (each for 4-6 weeks with Agri based organisations) and we propose a credit load of 10 and 4 for each of these internships/ attachments at PG level. We believe this will help the students to have more relevant practical experience and this will boost their job prospects. We have organised the curriculum under different block and units and each course has an introduction explicitly stating the purpose of this course (why this course), aim of the course (what it tries to provide) and learning outcomes. Several new reading references are also provided at the end of each course. The committee recognised the need for organising training of teachers to impart some of the new courses and this could be further elaborated in consultation with ICAR and other organisations that can support or even lead this exercise.

The committee organised a stakeholder meeting with Agri based industry executives, academicians from reputed institutions, alumni from different ABM programmes of the SAUs, teachers involved in ABM teaching in selected SAUs at Bikaner on September 17, 2018, for development of curricula.

Our heartfelt gratitude to all the core committee members and stakeholders for their specific contributions to development of this revised curricula especially Mr Kamal Kumar, Advisor, Dhanuka Agritech Ltd; Dr Vikram Singh, Dean, NIAM, Jaipur; Dr Ranjit Singh, Professor, NAARM; Dr Seema Nath, Associate Dean, College of Agriculture, PJTSAU; Dr Radhika, Associate Professor, PJTSAU; Dr Madhu Sharma, Professor, SKRAU, Bikaner, Dr Swati Sharma, Assistant Professor, Navsari

Agricultural University, Navsari; Dr Dinesh Jain, Associate Professor, RAJUVAS, Bikaner and Dr Amita Sharma, Assistant Professor, IABM, Bikaner.

Finally, MS Swaminathan School of Agriculture is thankful to ICAR-BSMA 2021 committee for undertaking curricula revision and for their valuable inputs and guidance on restructuring and revising the syllabus of post graduate programmes (volume 2, social sciences) applicable for MBA (Agri Business Management).

Syllabi of Post-graduate Programmes

(as per the ICAR-BSMA for Social Sciences 2021)

Program Outline of MBA in Agri Business Management

S No	Category	Credit Hours (as per BSMA 2021)	Credit Hours (Proposed)
1	Major Courses	20	22
2	Minor Courses	8	8
3	Supporting Courses	6	6
4	Common Courses	5	5
5	Basic Mandatory Courses for Summer Internship	6	7
6	Basic Mandatory Courses for Project	10	10
7	Seminar and Research	15	15
TOTAL		70	73

Course Details with Credit Load

I. MAJOR COURSES (22 Credits)

S No	Course Code	Course Title	Credit Hours	T-P-P
1	CUTM2802	Principles of Management and Organisational Behaviour	3	2-0-1
2	CUTM1199	Accounting for Managers	4	3-0-1
3	CUTM1184	Micro Economics	4	3-0-1
4	CUTM1205	Production & Operations Management	3	2-1-1
5	CUTM1934	Human Resource Management and Organisation Development	4	2-0-1
6	CUTM2790	Agricultural and Food Marketing Management- I	2	1-0-1
7	CUTM2793	Agricultural and Food Marketing Management- II	2	1-0-1
8	CUTM1208	Supply Chain Management	2	1-0-1
9	CUTM2794	International Trade in Agricultural Products	2	1-0-1

II. MINOR COURSES (8 Credits)

S No	Course Code	Course Title	Credit Hours	T-P-P
1	CUTM4068	Food Technology and Processing Management	3	2-0-1
2	CUTM4069	Fertiliser Technology and Management	3	2-0-1
3	CUTM4070	Management of Agro-Chemical Industry	3	2-0-1
4	CUTM4071	Seed Production Technology Management	3	2-0-1
5	CUTM4072	Technology Management for Livestock Products	3	2-0-1
6	CUTM4073	Fruit Production & Post Harvest Management	3	2-0-1
7	CUTM4074	Farm Power & Machinery Management	2	1-0-1
8	CUTM4075	Food Retail Management	2	1-0-1
9	CUTM4076	Management of Agricultural Input Marketing	2	1-0-1
10	CUTM4077	Feed Business Management	2	1-0-1
11	CUTM4078	Management of Veterinary Hospitals	2	1-0-1
12	CUTM4079	Poultry And Hatchery Management	2	1-0-1
13	CUTM4080	Management Of Agri-Business Co-Operatives	2	1-0-1
14	CUTM4081	Dairy Business Management	1	0-0-1
15	CUTM4082	Agri Extension Management	1	0-0-1
16	CUTM4083	Renewable Energy Sources Management	1	0-0-1
17	CUTM4084	Quality Management for Agri Business	1	0-0-1
18	CUTM4085	Advertising and Brand Management	1	0-0-1
19	CUTM4086	Contract Farming	1	0-0-1
20	CUAB2324	Agri-warehouse Management	2	0-0-2
21	CUDM2378	Commodity Market and Trading	2	0-0-2
22	CUTM1932	Financial Inclusion and Micro Finance	2	0-0-2
23	CUMM2360	Rural Marketing	4	2-1-1
24	CUBA2213	Agriculture Analytics	3	0-2-1

III. SUPPORTING COURSES (6 Credits)

S No	Course Code	Course Title	T-P-P	Required Credit Hours (BSMA-2021)	Proposed Credit
1	CUTM2799	Operations Research	1-0-1	2	2
2	CUTM1204	Corporate Finance	3-0-1	2	4
3	CUTM1929	Strategic Management	2-0-2	2	4

IV. COMMON COURSES (5 Credits)

S No	Course Code	Course Title	T-P-P	Credit
1	PGSS0502	Technical Writing and Communication Skills	0-0-1	1
2	PGSS0501	Library and Information Services	0-0-1	1

3	PGSS 0505	Agricultural Research, Research Ethics, and Rural Development Programmes	1-0-0	1
4	CUTM2797	Intellectual Property and Its Management in Agriculture	1-0-0	1
5	CUDM2361	Disaster Management	1-0-0	1

Note: Some of these courses are already in the form of e-courses/MOOCs. The students may be allowed to register these courses/similar courses on these aspects, if available online on SWAYAM or any other platform. If a student has already completed any of these courses during UG, he/she may be permitted to register for other related courses with the prior approval of the HOD/BoS.

V. BASIC MANDATORY COURSES FOR SUMMER INTERNSHIP (7 Credits)

S No	Course Code	Course Title	T-P-P	Credit
1	CUTM1240	Contemporary Development Communication	1-1-2	4
2	CUTM4634	Research Methodology in Agri-business Management	2-0-1	3

VI. BASIC MANDATORY COURSES FOR PROJECT (10 Credits)

S No	Course Code	Course Title	T-P-P	Credit Hours
1	CUTM1686	Computer Applications in Business	0-5-1	6
2	CUTM2800	Agribusiness Environment and Policy	1-0-1	2
3	CUTM2801	Agri Business Laws and Ethics	0-2-1	2
4	CUTM2803	Project Management and Agri Business Entrepreneurship	1-1-1	3

VII. SEMINAR AND RESEARCH (15 Credits)

S No	Course Code	Course Title	T-P-P	Credit
1	CUTM2805	Master's Seminar	0-0-1	1
2	CUTM1224	Summer Internship	0-0-4	4
3	CUTM2806	Dissertation/ Project Work	0-0-10	10

SEMESTER-WISE DISTRIBUTION OF COURSES

FIRST SEMESTER			SECOND SEMESTER		
S NO	COURSE NAME	CREDIT HOURS	S NO	COURSE NAME	CREDIT HOURS
1	Principles of Management and Organisational Behaviour	3	1	Contemporary Development Communication	4
2	Accounting for Managers	4	2	Intellectual Property and Its Management in Agriculture	1
3	Micro Economics	4	3	Corporate Finance	4
4	Production and Operations Management	3	4	Agricultural and Food Marketing Management- II	2
5	Agricultural and Food Marketing Management- I	2	5	International Trade in Agricultural Products	2
6	Supply Chain Management	2	6	Computer Applications in Business	6
7	Technical Writing and Communication Skills	1	7	Minor Course-1	2
8	Library and Information Services	1			
1ST SEM- TOTAL		20	2ND SEM- TOTAL		21
THIRD SEMESTER			FOURTH SEMESTER		
S NO	COURSE NAME	CREDIT HOURS	S NO	COURSE NAME	CREDIT HOURS
1	Operations Research	2	1	Disaster Management	1
2	Agricultural Research, Research Ethics, and Rural Development Programmes	1	2	Minor Course-4	2
3	Agribusiness Environment and Policy	2	3	Dissertation/ Project Work	10
4	Research Methodology in Agri-business Management	3			
5	Master's Seminar	1			
6	Summer Internship/ Industrial Attachment	4			
7	Minor Course-2	2			
8	Minor Course-3	2			
9	Agri Business Laws and Ethics	2			
3RD SEM- TOTAL		19	4TH SEM- TOTAL		13
TOTAL: 73 CREDIT HOURS					

Course Contents

MBA in Agri-Business Management

FIRST SEMESTER

#1. Principles of Management and Organisational Behaviour

Course Code: CUTM2802

Credit Hours: 3 (2-0-1)

Aim of the Course:

Provide students with opportunities to understand a wide variety of topics related to business management, focusing on fundamental management principles and concepts that apply to agribusiness, traditional management skills, and new competencies needed to succeed in a fast-paced environment that demands ongoing innovations.

Course Outcome:

- **Understanding of Core Management Principles:** Students will gain a solid understanding of fundamental management principles, including planning, organizing, leading, and controlling, and be able to apply them to agribusiness contexts.
- **Leadership and Team Management Skills:** Students will develop leadership and team management skills, enabling them to effectively lead and manage teams in agribusiness organizations, considering the unique challenges and dynamics of the industry.
- **Application of Organizational Behaviour Concepts:** Students will be able to apply organizational behaviour concepts to analyse and improve employee motivation, job satisfaction, and teamwork within the context of agribusiness operations.
- **Strategic Decision-Making Abilities:** Students will acquire the ability to make strategic decisions in the agribusiness sector by understanding decision-making processes and evaluating various factors and alternatives, considering the specific challenges and opportunities in the industry.
- **Effective Communication and Conflict Resolution:** Students will develop effective communication skills, conflict resolution techniques, and negotiation abilities, crucial for managing relationships and addressing conflicts among stakeholders in agribusiness organizations.

Course Contents:

Module 1: Basic Concepts of Management

Unit-I: Introduction to Management: Nature, Scope and Significance of Management, Evolution of Management Thought, Approaches to Management, functions, and skills of a manager

Unit-II: Management functions: Planning – Types, Steps, Objective, Process, Strategies, Policies, MBO, organizing– Structure & Process, Line, Staff, Authority & Responsibility, Staffing – Recruitment and Selection, directing– Training, Communication & Motivation, Controlling- Significance, Process, Techniques, Standards & Benchmarks, Management Audit

Module 2: Insights About Organizational Behaviour

Unit III: Nature, Scope, and Significance of Organizational Behaviour; Foundations of Individual behaviour – Emotions, Personality, Values, Attitudes, Perception, Learning, and individual decision making, Motivation- Types of motivation, theories of motivation, motivational practices at workplace, managing stress and work life balance.

Unit IV: Group dynamics- types of groups, group formation, Group decision making, team building and developing collaboration, leadership styles and influence process; leadership theories, leadership styles and effective leader.

Module 3: Organisational Dynamics

Unit V: Understanding and managing organisational culture, power and political behaviour in organisations, conflict Management, negotiation, managing organizational change, concept of organisational development.

Learning Outcomes

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

- Understand the basic concepts of management and organizational behaviour.
- Develop an overall view about the various management functions, managerial skills, and approaches.
- Get insights about the fundamentals of individual and group behaviour in the organizational setting.
- Analyse the organisational level challenges in managing the resources optimally.

Suggested Reading:

- Robbins SP, Coulter M and Randel A and Viswanathan R. 2022. *Management, 15th Edition*. Pearson Education
- Weihrich H, Cannice MV and Koontz H. 2015, *Management, A Global, Innovative and Entrepreneurial Perspective*, 14th Edition, McGraw Hill Education Pvt Ltd.
- Beierlein JG, Schneeberger KC, Osburn DD. 2014. *Principles of Agribusiness Management*. Fifth edition. Waveland Press
- Neck CP, Houghton JD and Murray EL. 2019, *Organizational Behavior- A Skill Building Approach*, 2nd Edition, Sage Publication India Private Limited.
- Greenberg J. 2013, *Behavior in Organisations*, PHI Learning Private Limited, New Delhi.
- John A, Wagner III JA, and Hollenbeck JR. 2015. *Organizational Behaviour*, Routledge Taylor & Francis Group, New York.
- Koontz H and Weighhrich K. 2010. *Essentials of Management*. Tata McGraw Hill

#2. Managerial Accounting and Control

Course Code: CUTM1199

Credit Hours: 3 (3-0-1)

Objectives

This course aims to enable the students to:

- familiarise themselves with the basic conceptual framework of Financial Accounting i.e., from the recording of transactions to Understanding and Interpreting Financial Statements.
- provide knowledge to the students about financial statements and the principles underlying them and develop their skills in reading Annual Reports.
- equip students with the skills required to understand cost statements/records and management accounting.

Learning Outcomes

After completion of the course, students will be able to:

- Develop an awareness and understanding of the accounting process and fundamental accounting principles that underpin the development of financial statements (e.g., accrual accounting vs. cash accounting, definition, recognition, measurement, and disclosure of assets, liabilities, revenues, expenses; inventory valuation methods and methods of depreciation).
- Understand and interpret the nature and role of the principal financial statements (i.e., the Income Statement, the Statement of Financial Position, and the Statement of Cash Flows).
- Understand and apply cost concepts and management accounting to analyse common business management decisions such as pricing a product and services.

Module- I: Fundamental Principles of Accounting

Accounting Environment of Business: Purpose of accounting, Links of accounting with every aspect of the business, Cash based vs Accrual based accounting, Accounting Cycle, Financial Year, Difference between management accounts and statutory accounts; Computerised Accounting (Learning to use Tally Package), Concepts and Conventions of Accounting: Accounting as an Information System, Users of Accounting information (specifically the

difference in financial information required by the Board, CXO levels, field level staff, stock exchanges, auditors, and regulators, etc.). Accounting Principles and Standards.

Module- II: Accounting Process

Basic Accounting Procedures: Balance Sheets items, P&L items, Accounting Equation, Transactions, Capital & Revenue Expenditure and Receipts, Classification of Accounts and Chart of Accounts (relevance to reporting) The Accounting Process: The Journal, the Ledger, and the Trial Balance; Depreciation: Meaning Causes, Factors affecting depreciation, Methods of providing depreciation, Straight Line Method & Diminishing Balance Method; Inventory Valuation: Introduction, Determination of Cost, Valuation of Inventories (FIFO, LIFO, and Average Method).

Module- III: Understanding and Interpreting Financial Statements

Financial Statements: Purpose, Minimum content, and information, Vertical and Horizontal Financial Statement, Trading and Profit and Loss Account, Balance Sheet, and Cash Flow Statement, Content of Annual Report.

Module: IV Introduction to Cost and Management Accounting

Difference from financial accounting and reporting, the concept of overheads and allocation principles, reconciling management and financial accounts, Classification of Costs; Cost Unit, Cost Centres, Preparation of Cost Sheet— Marginal Costing: Marginal Cost and BEP Analysis.

Books Recommended:

- Financial Accounting - A Managerial Perspective, 2014, 5th Edition, R. Narayanswamy, PHI
- Accounting for Management—Ashok Sehgal, Taxxman
- Khan & Jain – Management Accounting, TMH
- Horngreen, Datar, Foster- Cost Accounting, Pearson
- Financial Accounting, Jain/Narang/Agrawal, Kalyani
- Basic Financial Accounting for Management, Shah, Oxford

#3. Micro Economics

Course Code: CUTM1184

Credit Hours: 4 (3-0-1)

Course Objectives

- Develop a managerial economics perspective.
- Facilitate students to understand different economic paradigms using Microeconomics concepts.

Learning Outcome

- Apply economic perspective to solve business problems.

Course Outline

Module 1: The Central Concepts

Logic of Economics: Scarcity and Efficiency: The Twin Themes of Economics; Three Problems of Economic Organization: Market, Command, and Mixed Economies, Society's Technological Possibilities: Inputs and Outputs; The Production-Possibility Frontier: Applying the PPF to Society's Choices; The Modern Mixed Economy: How Markets Solve the Three Economic Problems; Circular Flow of an Economy; The Invisible hand given by Classical Economists; The visible hand of the government given by modern Economists

Module 2: Demand, Supply, and its applications

Basic Elements of Supply and Demand: Forces behind the demand and supply curve; Shifts in demand and supply curve; Equilibrium of Supply and Demand; Price Rationing.

Supply and Demand: Elasticity and Applications: Price Elasticity of Demand and Supply; Elasticity and Revenue; The Paradox of the Bumper Harvest; Applications to Major Economic Issues: Impact of a Tax on Price and Quantity; Minimum Floors and Maximum Ceilings; Demand and Consumer Behaviour: Classical Utility Theory-Cardinal Utility; Neoclassical Utility Theory-Ordinal Utility; The paradox of value; Leisure and the Optimal Allocation of Time.

Module 3: Theory of Production, Cost

Theory of Production and Marginal Products: The Production Function; Total, Average, and Marginal Product; The Law of Diminishing Returns; Returns to Scale; Technological Change; Empirical Estimates of the Aggregate Production Function; Economic Analysis of Costs: Total

Cost: Fixed and Variable; The Relation between Average Cost and Marginal Cost; The Link between Production and Costs; Diminishing Returns and U-Shaped Cost Curves; Choice of Inputs by the Firm; Marginal Products and the Least-Cost Rule; Transaction Cost, Opportunity Cost, and Markets.

Module 4: Decisions of the Firm

Perfect and Imperfect Market: Perfect Competition and Pareto Optimality; Sources of imperfect competition; Economic Costs of Imperfect Competition; Public Policies on Imperfect Competition.

Module 5: Market Failure and Inefficiency

Economics of Risk and Uncertainty: The Economic Impacts of Speculation; Market Failures in Information; Moral Hazard and Adverse Selection; Externalities: Market Inefficiency with Externalities; Analysis of Inefficiency; Valuing Damages and Policies to Correct Externalities.

Suggested Textbooks

- Dwivedi DN. 2015. Managerial Economics. 8th Edition, Vikash Publishing House
- Gupta GS. 2017. Managerial Economics, 2nd Edition, Tata McGraw Hill Education
- Geetika, Ghosh. P. & Roy Choudhury. P., 'Managerial Economics', Tata McGraw Hill Education, New Delhi
- Samuelson, Paul A., and Nordhaus, W.P., 'Economics', McGraw Hill, New York
- Pindyck, R.S., Rubinfeld D. L. and Mehta P. L., 'Microeconomics', Pearson Education

#4. Production & Operations Management

Course Code: CUTM1205

Credit Hours: 3 (2-1-1)

Course Rationale:

This course is intended to develop understanding of management students about the production and operation designs adopted in modern industry. It also emphasises on quality management practices adopted in manufacturing industries.

Course objectives:

- Understand Manufacturing 4.0 and appreciate technology integration in smart production.

- Understand the various production and operations design decisions and how they relate to the overall strategies of organizations.
- Understand the importance of product and service design decisions and its impact other design decisions and operations.
- Obtain an understanding of quality management practice in organizations and how total quality management and six-sigma facilitate organizational effectiveness.
- Understand the roles of inventories and basics of managing inventories in various demand settings.

Course Outcomes:

- Understand the core features of the operations and production management function at the operational and strategic levels, specifically the relationships between people, process, technology, productivity, and quality and how it contributes to the competitiveness of firms.
- Students will develop an integrated framework for strategic thinking and decision making to analyse the enterprise with a specific focus on production delivery processes.
- Develop the ability to identify operational methodologies to assess and improve an organization performance.
- Assess the OPM function performance and capabilities in various organizations.

Course Outline

Module: I

Manufacturing Operations Management - The Smart Backbone of Industry 4.0: Introduction, Basic concepts of Manufacturing Operations Management(MOM)/ Manufacturing Execution System(MES) for Industry 4.0, Smart manufacturing; The roots of smart manufacturing, Pillars of smart manufacturing; Pillar 1: Manufacturing technology and processes, Pillar 2:Materials, Pillar 3: Data, Pillar 4: Predictive engineering, Pillar 5: Sustainability, Pillar 6: Resource sharing and networking,, Challenges and trends in OM; Process structure in services & manufacturing; Strategic fit, Process tools, Strategies for change: Process improvement.

Module: II

Process Analysis: key elements of process analysis: flow rates, and flow times, uncover bottlenecks, optimize labour and inventory, and complexities of multiple flow units. Inventory Management; Purpose of Inventories, Costs of Inventories, Independent versus Dependent Demand, Economic Order Quantity, Continuous Review System, Periodic Review System, Using P and Q System in Practice, ABC Inventory Management, Betting on the Uncertain Demand. Service Levels and Lead Times; Newsvendor Model.

Module: III

Quality: quality in operations, from examining the common reasons for defects to the most widely used implementation techniques for addressing problems of quality and ensuring reliability and standards. sound strategy for maintaining quality and stability.

Module: IV

Service Management: Queues Effect of Randomness on Process Performance. Waiting Line Problems. Effect of Randomness on Throughput. Throughput Loss due to Impatience / Limited Buffers.

Texts Books:

- Operations Management for Competitive Advantage, 2005, 11th Edition, McGraw Hill Education by Chase R, Jacobs R, and Aquilano N.
- Krajewski, Ritzman, Malhotra- Operations Management, Pearson
- Gaither, Frazier, Operations Management, CENAGE

References Books:

1. Roberta S. Russell & Bernard W. Taylor III, - “Operations Management”, Pearson/ PHI-(PPT)
2. Everette. Adam Jr., Ronald J. Ebert, - “Production and Operations Management”, 4th Edition, 1989, PHI
3. B. MAHADEVAN, “OPERATIONS MAANGEMENT” FOR CASELETS

#5. Agricultural and Food Marketing Management-I

Course Code: CUTM2790

Credit Hours: 2 (1-0-1)

Course Outcomes

- **Market Analysis and Research:** Students will acquire skills to conduct comprehensive market analysis and research within the agricultural and food industry, allowing them to identify market trends, consumer preferences, and opportunities for agribusinesses.
- **Development of Effective Marketing Strategies:** Students will be able to develop and implement effective marketing strategies tailored to the unique characteristics of agricultural and food products, considering factors such as seasonality and perishability.
- **Brand Management and Positioning:** Students will learn how to manage and enhance the brand image of agricultural and food products, including strategies for brand positioning, product differentiation, and consumer engagement.
- **Supply Chain and Distribution Management:** Students will gain insights into supply chain management within the agribusiness context, understanding the logistics, transportation, and distribution challenges specific to agricultural and food products.
- **Regulatory and Sustainability Compliance:** Students will understand the regulatory framework for marketing agricultural and food products, including food safety

standards, labelling requirements, and sustainability certifications, ensuring compliance with industry regulations and ethical practices.

Course Outline

Module 1: Overview of Marketing Management

Unit 1: Introduction and Concept/ philosophies of Marketing Management; Product Management: The product, The product mix, Product line extensions, Product line deletions, Branding products, The advantages and disadvantages of branding, Branding decisions Brand loyalty models, Homogenous first order markov models, Higher order Markov models Packaging, The functions of packaging, Packaging technology, Recent developments in packaging.

Module 2: Pricing Decisions

Unit 2: Pricing objectives, the laws of supply and demand, Elasticity of demand Cross-price elasticity of demand, Practical problems of price theory, Cost – revenue- supply relationships, the meaning of price to consumers, Price as an indicator of quality, Pricing strategies, Cost-plus methods of price determination, Breakeven analysis, Market-oriented pricing, psychological pricing, Geographical pricing, Administered pricing.

Module 3: Channel Management and Physical Distribution

Unit 3: Channel decisions in relation to marketing strategy, the value of middlemen, Key decisions in channel management, Types of distribution system, Marketing to middlemen, Power and conflict in distribution channels, Physical distribution, Customer service levels, Developing a customer service policy, The total distribution concept, Warehouse management, Inventory management, Calculating the economic order quantity, Transport management, Technological advances in physical distribution, Vehicle scheduling and routing, Fixed and variable routing systems, Vehicle scheduling tools, Vehicle scheduling models, Computer-based vehicle scheduling.

Module 4: Marketing Communications

Unit 4: The nature of marketing communications, setting marketing communication, objectives, Factors influencing the communications mix, the marketing communications mix, Advertising, Sales promotion, Public relations, Personal selling, Digital Marketing, Mobile Marketing, Social Marketing and Social Media Marketing, Training the sales force, change

agents, Selecting the media, Establishing the promotional budget, Monitoring the effectiveness of marketing communications.

Unit 5: Marketing Costs and Margins: Assessing the performance of a marketing system, Marketing efficiency and effectiveness, Operational efficiency, pricing efficiency, Identifying marketing costs and margins, The reference products concept, Handling costs, Packaging costs, Transport costs, Storage costs, Processing costs, Capital costs.

VI. Teaching methods/activities

- Lectures
- Cases studies from recent marketing trends from the Agri and food organisations
- Assignments (Group/ Individual)
- Live project based upon marketing practices adopted by various organizations
- Group discussions on contemporary marketing practices

VII. Learning outcome

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

- Understand the basics of marketing with specific emphasis on managing the product details.
- Get detailed insight on the pricing techniques and managing the demand and supply relationship profitably.
- Develop the understanding about the marketing channels and intermediaries involved.
- Understand the promotional strategies and communication development tools and methods.

VIII. Suggested Reading

- Kotler P, Keller KL, Alexander C, Sheth JN and G Shainesh. 2022. *Marketing Management, 16th Edition*, Pearson Education.
- Ramaswamy VS. 2017. *Marketing Management: A Strategic Decision-Making Approach*, McGraw Hill Education
- Saxena R. 2009. *Marketing Management*. Mc Graw Hill. 4th Edition
- William Perreault Jr., McCarthy E. Jerome., 2006, *Basic Marketing: A Global Marketing Approach*, Tata McGraw Hill
- Gay R, Charlesworth A, Esen R. 2014, *Online Marketing*, Oxford University Press

- Mohammed, Fisher, Jaworski and Cahill: *Internet Marketing – Building Advantage in a networked economy* Tata McGraw-Hill
- Strauss J and Frost R. 2013. *E-Marketing*, Prentice-Hall
- Roberts M. 2018. *Internet Marketing*, Cengage Learning
- Vassos: *Strategic Internet Marketing – Practical e-commerce and branding Tactics*, Que Books
- Chaffey, Meyer, Johnston, and Ellis – Chadwick. 2009. *Internet Marketing*, Prentice-Hall/Financial Times

#6. Supply Chain Management

Course Code: CUTM1208

Credit Hours: 2 (1-0-1)

Objective

To introduce the students to the concepts, processes, and framework of agricultural supply chain management.

Course Outline

Module - I

Supply Chain: Changing Business Environment; SCM: Present Need; Conceptual Model of Supply Chain Management; Evolution of SCM; SCM Approach; Traditional Agri. Supply Chain Management Approach; Modern Supply Chain Management Approach; Elements in SCM. Innovations in Global Agri-SCM.

Module – II

Demand Management in Supply Chain: Types of Demand, Demand Planning and Forecasting; Operations Management in Supply Chain, Basic Principles of Manufacturing Management. SCM Metrics/ Drivers and Obstacles.

Module – III

Purchasing Cycle, Types of Purchases, Contract/Corporate Farming, Classification of Purchases Goods or Services, Traditional Inventory Management, Material Requirements Planning, Just in Time (JIT), Vendor Managed Inventory (VMI).

Module – IV

History and Evolution of Logistics; Elements of Logistics; Management; Distribution Management, Distribution Strategies; Pool Distribution; Transportation Management; Fleet Management; Service Innovation; Warehousing; Packaging for Logistics, Third-Party Logistics (TPL/3PL); GPS Technology.

Module – V

Concept of Information Technology: IT Application in SCM; Advanced Planning and Scheduling; SCM in Electronic Business; Role of Knowledge in SCM; Performance Measurement and Controls in Agri. Supply Chain Management Benchmarking: introduction, concept, and Forms of Benchmarking. Case Studies on the following: (a) Green Supply Chains (b) Global Supply Chains (c) Coordination in a SC. Value of and distortion of information: Bullwhip effect (d) Sourcing and contracts in SC (e) Product availability with uncertain demand (f) Inventory planning with known/ unknown demand (g) Cases from FAO/IFPRI, etc.

Suggested Reading

- Acharya SS and Agarwal NL. 2022. Agricultural marketing in India, 7th Edition. CBS Publishers & Distributors.
- Chopra S, Meindl P and Kalra DV. 2016. Supply chain management: Strategy Planning, and Operation, Pearson Education India.
- Mohanty RP. 2010. Indian Case Studies in Supply Chain Management & Other Learning Resources. Oxford.
- Chandrasekaran N. 2010. Supply Chain Management: Process, system & Practice. Oxford.
- Altekar RV. 2006, Supply Chain Management: Concepts and Cases. PHI
- Singh S. 2004. Organic Produce Supply Chains in India-Organisation and Governance. Allied Publ.

#7. Technical Writing and Communication Skills

Course Code: PGSS0502

Credit Hours: 1 (0-0-1)

Objective

To equip the students/scholars with skills to write dissertations, research papers, etc. To equip the students/scholars with skills to communicate and articulate in English (verbal as well as written).

Practical

- Technical Writing - Various forms of scientific writing- theses, technical papers, reviews, manuals, etc.
- Various parts of thesis and research communications (title page, authorship contents page, preface, introduction, review of literature, material, methods, experimental results, and discussion).
- Writing of abstracts, summaries, précis, citations, etc.; commonly used abbreviations in the theses and research communications; illustrations, photographs, and drawings with suitable captions; pagination, the numbering of tables and illustrations; Writing of numbers and dates in scientific write-ups; Editing and proof-reading.
- Writing a review article. Communication Skills - Grammar (Tenses, parts of speech, clauses, punctuation marks); Error analysis (Common errors); Concord; Collocation; Phonetic symbols and transcription; Accentual pattern: Weak forms in connected speech:
- Participation in a group discussion: Facing an interview; presentation of scientific papers.

#8. Library and Information Services

Course Code: PGSS0501

Credit Hours: 1 (0-0-1)

Objective

To equip library users with skills to trace information from libraries efficiently, to apprise them of information and knowledge resources, to carry out literature surveys, to formulate information search strategies, and to use modern tools (Internet, OPAC, search engines, etc.) of information search.

Course Contents

Module – I

Introduction to library and its services; Role of libraries in education, research, and technology transfer.

Module – II

Classification systems and organization of library; Sources of information- Primary Sources, Secondary Sources, and Tertiary Sources; Intricacies of abstracting and indexing services (Science Citation Index, Biological Abstracts, Chemical Abstracts, CABI Abstracts, etc.).

Module – III

Tracing information from reference sources; Literature survey; Citation techniques/Preparation of bibliography; Use of CD-ROM Databases, Online Public Access Catalogue, and other computerized library services; Use of Internet including search engines and its resources; e-resources access methods.

----- **END OF FIRST SEMESTER** -----

SECOND SEMESTER

#1: Contemporary Development Communication

Course Code: CUTM1240

Credit Hours: 4 (1-1-2)

Course Objectives

This course aims to enable the students to:

- Understand the processes and approaches to contemporary development communication.
- Learn situation analysis, problem tree analysis, and participatory communication appraisal in the field.
- Understand strategies for awareness raising and communication campaigns relevant to current times (e.g., COVID-19).

Learning Outcome

After completion of the course, students will be able to:

- Demonstrate an understanding of the approaches to contemporary development communication.
- Perform situation analysis and problem-tree analysis to address the development issues.
- Design and implement development communication strategies combining participatory methods with communication processes, social media, and digital tools best suited for a specific situation (e.g., COVID-19).

Course Outline

Module I: Digital Instructional Media Design: Storyboarding

- Digital Story: Develop Idea, Plan, Outline/Script/ Film and Record, Finish, Publish and Share, Review
- Reflective learning journal

Practice Exercise 1: To start seeing and exploring various methods of digital storytelling - and applying it to the work - students will be responsible for bringing to the class's attention an example of a good/bad, effective/ineffective, or ethical/unethical digitally told communication.

Practice Exercise 2: Students will use storyboard tools (e.g., <https://boards.com/best-storyboard-software>), concepts and frameworks for giving a voice to their story/sharing the unheard voice during (or post) COVID-19 from the field. Students will also convert their storyboard into visuals and upload them in their Blogsites.

Practice Exercise 4: Student's will develop a reflective learning journal using the storyboard tool (<https://boards.com/best-storyboard-software>). Students are recommended to use Gibbs's Reflective Cycle as reference.

Module II: Concepts and Approaches to Development Communication

- What is Development Communication?
- Approaches to Development Communication: Diffusion/Extension Approach, Mass Media Approach, Development Support Communication Approach, Institutional Approach, Integrated Approach, Localized Approach to Development Communication, Planned Strategy to Development Communication.

Practice Exercise 1: Students will design individual blogs using WordPress through self-learning method on the theme COVID-19 – Awareness and Prevention Campaign with drop down menu 'About', 'Me-in-a Minute', 'Creative Repository- Posters, Videos, Audios ', 'COVID-19 Apps', 'Voices of the Youth', 'COVID-19 Blogs', 'Social Media Campaigns', 'My Learning', 'Useful Links', 'Contact'.

Practice Exercise 2: Students will explore on various contemporary development campaigns on COVID-19 (e.g., Tata Trust, Voices of the Youth, WHO Campaigns, MyGov/any other) and discuss best development communication practices, and upload in the Blogsite.

Practice Exercise 3: Considering a recent community development project, students will identify at least three issues or concerns that can be addressed, and explain briefly, what communication development contribution could be.

Module III: Communication Strategies for Development

- Participatory Communication Strategy Design (PCSD): Situation and Problem Tree Analysis, Stakeholder Analysis
- Knowledge, Skills, Attitude and Practices (KSAP) Analysis
- Planning Process (P- process): Inquire, Design Strategy, Create and Test, Mobilise and Monitor, Evaluate and Evolve.

Practice Exercise 1: Students will brainstorm the entire day to develop a problem tree on COVID-19/sanitation representing cause-effect relationships. Problem Tree Analysis will include Identify substantial and direct causes of the focal problem, identify substantial and

direct effects of the focal problem, construct a problem tree showing the cause-and-effect relationships between the problems, Review the problem tree.

Practice Exercise 2: Students will present the problem tree and communication plan on COVID-19/sanitation in the review meeting. Students will also scan and upload the problem tree image and communication plan on the personal Blogsite.

Practice Exercise 3: Students will develop campaign plan using P- process and storyboard tools on Covid-19 -Awareness and Prevention Measures in the adopted/neighbouring village (s).

Project 1: Students will run campaigns on 'COVID-19-Awareness and Prevention Measures' in the adopted/ neighbouring villages and social media platforms and make post campaign analysis.

References:

- Mario Acunzo et al., (2014). Communication for Rural Development Sourcebook, Food and Agriculture Organization of the United Nations.
- Community Toolbox, http://ctb.ku.edu/en//tablecontents/section_1017.htm
- Digital Communication Course, <https://www.culturepartnership.eu/en/publishing/digital-communication>.

#2. Intellectual Property and its management in Agriculture

Code: CUTM2797

Credit: 1 (1-0-0)

Objective

The main objective of this course is to equip students and stakeholders with knowledge of Intellectual Property Rights (IPR) related protection systems, their significance and use of IPR as a tool for wealth and value creation in a knowledge-based economy.

Theory

Historical perspectives and need for the introduction of Intellectual Property Right regime; TRIPs and various provisions in TRIPS Agreement; Intellectual Property and Intellectual Property Rights (IPR), benefits of securing IPRs; Indian Legislations for the protection of various types of Intellectual Properties; Fundamentals of patents, copyrights, geographical indications, designs and layout, trade secrets and traditional knowledge, trademarks, protection of plant varieties and farmers' rights and biodiversity protection; Protectable subject matters,

protection in biotechnology, protection of other biological materials, ownership and period of protection; National

Biodiversity protection initiatives; Convention on Biological Diversity; International Treaty on Plant Genetic Resources for Food and Agriculture; Licensing of technologies, Material transfer agreements, Research collaboration Agreement, License Agreement.

Suggested Readings

1. Erbisch FH and Maredia K. 1998. *Intellectual Property Rights in Agricultural Biotechnology*. CABI.
2. Ganguli P. 2001. *Intellectual Property Rights: Unleashing Knowledge Economy*. McGraw-Hill.
3. *Intellectual Property Rights: Key to New Wealth Generation*. 2001. NRDC and Aesthetic Technologies.
4. Ministry of Agriculture, Government of India. 2004. *State of Indian Farmer*. Vol. V. Technology Generation and IPR Issues. Academic Foundation.
5. Rothschild M and Scott N. (Ed.). 2003. *Intellectual Property Rights in Animal Breeding and Genetics*. CABI.
6. Saha R. (Ed.). 2006. *Intellectual Property Rights in NAM and Other Developing Countries: A Compendium on Law and Policies*. Daya Publ. House.

The Indian Acts - Patents Act, 1970 and amendments; Design Act, 2000; Trademarks Act, 1999; The Copyright Act, 1957 and amendments; Layout Design Act, 2000; PPV and FR Act 2001, and Rules 2003; The Biological Diversity Act, 2002.

#6. Agri Business Laws and Ethics

Course Code: CUTM2801

Credit Hours: 2 (1-0-1)

Objectives

The objective of this course is to expose the learner to various ethical issues and laws affecting business. Focus will be on understanding provisions of various business laws with reference to agriculture and ethical practices to conduct the business properly.

Course Outline

Module 1: Indian Legal System

Unit I: Introduction to Indian legal system, The Indian Contract Act-1872: Contract meaning, types of contracts, essentials of a valid contract, offer and acceptance, capacity to contract, free consent, performance of contract.

Unit-II: Law of Negotiable Instruments: Promissory Notes, Bills of Exchange, Cheques and Bank Drafts, Endorsements, Law of Sale of Goods, Sales of Goods Act-1930-: Sale and agreement to sale, types of goods, Transfer of property in goods, mode of delivery of goods, performance of contract of sales, rights of an unpaid seller.

Unit III: Companies Act-1956: incorporation, commencement of business, types of companies, management of company, Memorandum of Association and Articles of Association, prospectus, winding of companies.

Module 2: Regulatory Environment for Agri Business

Unit IV: Essential Commodities Act, Consumer Protection Act, RTI Act, MRTP Act- major provisions and implications. Competition Act-2002, Regulatory environment for International Business

Module 3: Business Ethics

Unit V: Nature and importance of ethics and moral standards; corporations and social responsibilities, scope and purpose of business ethics; Ethics in business functional areas; industrial espionage; solving ethical problems; governance mechanism. implementing business ethics in a global economy

Teaching methods/activities

- Lectures
- Live projects
- Assignments (Individual and Group)
- Presentations about the ethical practices of the firms in India
- Newspaper analysis about the contemporary issues

Learning outcome

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

- Learn about the Indian legal system that directly affects the agri business in India.
- Know about the regulatory framework in which the agri business is to be conducted and managed.
- Understand the importance of practicing business ethics.

Suggested Reading

- Tulsian PC and Tulsian B. 2018. *Business Law*. 3rd Edition. TMH, New Delhi.

- Mathur SB. 2010. *Business Law*. Tata McGraw Hill Edn. Pvt Ltd.
- Gulshan SS and Kapoor GK. 2003. *Business Law including Company Law*. 10th Ed. New Age Publ.
- Kapoor ND. 2005. *Business Law*. S. Chand & Sons.
- Tuteja SK. 2005. *Business Law for Managers*. S. Chand & Sons.
- Singh Avtar. 2017. *Contract and Specific Relief*, Eastern Book Company; Twelfth edition
- Pathak A. 2015. *Legal Aspects of Business*. McGraw Hill Education. 6th Edition

#3. Corporate Finance

Course Code: CUTM1204

Credit Hours: 4 (3-0-1)

Course Objectives

- The course aims to develop skills for preparation and interpretation of business information apart from application of financial theory in investment decisions, with special emphasis on capital structure, Capital Budgeting, and other concepts.
- The course will orient the students with real-world examples and applications in Excel.

Learning Outcomes

After completing the course, the students will be able to appreciate the interdisciplinary aspects of financial management.

- Understand the finance function in an organization
- explain the Practical applications of TVM
- Identify the Investment Decision Criteria
- explain the concept of opportunity cost of capital
- explain the capital Structure and firm value: Two Schools of Thought
- Management of Cash & Marketable Securities-Concept, Need & Techniques
- Gain an understanding of some of the practical aspects of corporate finance decision

Course Outline

Module-I

We will address in this module the concept of financial management its scope objective and emerging role of finance manager and the application of time value of money for decision making in finance. We will also address the risk and return prospective of some Indian companies.

1. Scope of Financial Management; Objectives of Financial Management
2. Role of Finance manager
3. Time Value of Money
4. Conceptual Framework of Risk and Return

Module II

We will address in this module the how companies decide to make investment by taking both discounting and non-discounting technique. The module will address to calculate the IRR and NPV by taking some data of Projects. The Course by the discussion of criteria of choosing investment projects. Beside NPV, the internal rate of return (IRR) and other approaches are introduced. We show why the NPV criterion is the best and why the application of others may lead to wrong investment decisions. Then we focus on the main ideas to be considered while setting up cash flow patterns and making the choice of project based on NPV. We mention some special issues – relevant costs, depreciation, inflation.

1. Nature of Capital Budgeting
2. Identifying Relevant Cash Flows
3. Investment Evaluation Techniques: DCF and Non-DCF Techniques
4. NPV vs. IRR
5. Importance and concept of cost of capital
6. Cost of debt, Cost of Preference share, Cost of Equity, Overall WACC

Module III

How companies decide on how much debt to take, and whether to raise capital from markets or from any other sources. Understand how companies make financing, pay-out and risk

management decisions that create value. Measure the effects of leverage on profitability, risk, and valuation.

1. Capital Structure Theories concept
2. NI Approach
3. NOI approach
4. MM approach
5. Operating, Financial and Combined Leverage

Module IV

How company's dividend decision affects the firm value. We will discuss the concept of stock dividend, share repurchase, and stock split decision affecting the shareholder wealth. It will address the concept of liquidity and profitability through working capital management.

1. Concept of Dividend
2. Cash dividend and Bonus Share
3. Share repurchase, and stock split
4. Irrelevance of Dividends; and Relevance of Dividends
5. Concept of Working Capital

Suggested Readings:

Textbooks:

Financial Management- Theory and Practice, 2022, 11th Edition by Dr Prasanna Chandra – Tata Mc Graw-Hill

Reference Books:

- Financial Management by I M Pandey –Tata McGraw-Hill
- Brealey and Meyers: Principles of Corporate Finance: Tata McGraw Hill, New Delhi, 2008.
- Keown, Martin, Petty, and Scott (Jr): Financial Management: Principles and Applications; Prentice Hall of India, New Delhi, 2002.

#4. Agricultural and Food Marketing Management-II

Course Code: CUTM2793

Credit Hours: 2 (1-0-1)

Objective

To develop learning about the basic concept of marketing with major emphasis on agri and food marketing by equipping the students with the understanding of ecosystem in which the agri organization functions to meet the requirements of the customer profitably.

Course Outline

Module 1: Agricultural and Food Marketing

Unit 1: The importance of agricultural and food marketing to developing countries, the marketing concept and marketing systems, Marketing sub-systems, Marketing functions, Links between agriculture and the food industry, Agricultural and food marketing enterprises, Marketing boards in developing countries, Cooperatives in the agriculture and food sectors, Control and management of secondary co-operatives, The weaknesses of co-operatives, Selling arrangements between cooperatives and their members.

Unit 2: Market Liberalisation: Economic structural adjustment programmes, Macro-economic stabilisation, The role of the state in liberalised markets, Strategies for reforming agricultural marketing, Obstacles to be overcome in commercialisation and Privatisation of agricultural marketing, Dealing with accumulated deficits, Encouraging private sector involvement in agricultural marketing, Impediments to private sector participation in agricultural markets, impact of the macro-economic environment on private traders, Government action to improve private sector performance.

Module 2: Marketing Strategy, Planning and Control

Unit 3: Marketing Strategy, Planning and Control: Strategy, policy and planning, Strategic business units, the need for marketing planning, the process of marketing planning, Contents of the marketing plan, Monitoring, evaluating, and controlling the marketing planning, Marketing controls, Marketing plan control, Efficiency control.

Unit 4: New Product Development: The impetus to innovation, new product development process, the adoption process, the effect of products characteristics on the rate of adoption, Buyer behaviour: The influences on buyer behaviour, Exogenous influences on buyer behaviour Endogenous influences on buyer behaviour, the consumer buying decision process, Buyer behaviour and market segmentation, Lifestyle segmentation, Organisational markets Industrial markets, Industrial buyer characteristics.

Module 3: Commodity Marketing

Unit 5: Stages in a commodity marketing system, Grain marketing, Challenges for grain marketing systems, fruits and vegetables, Livestock, and meat marketing, Poultry and eggs marketing, marketing of fresh milk.

Teaching methods/activities

- Lectures
- Cases studies from recent marketing trends from the agri and food organisations
- Assignments (Group/ Individual)
- Live project based upon marketing practices adopted by various organizations
- Group discussions on contemporary marketing practices

Learning outcome

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

- Understand the agricultural and food marketing concepts and systems
- Get an insight about the marketing planning and strategies for developing products for meeting the specific needs of the final customers
- Develop a clear view about the commodity marketing practices in India and in international markets

Suggested Reading

- Acharya SS and Agarwal NL. 2022. *Agricultural Marketing in India*. 7th Edition. CBS Publishers and Distributors
- Kohls RL and Uhj JN. 2015. *Marketing of Agricultural Products*. 9th Edition. Pearson Education India.
- Mohan J. *Agri-Marketing Strategies in India*, NIPA
- Sharma Premjit. 2010. *Agri-Marketing Management*, Daya Publishing House

#5. International Trade in Agricultural Products

Course Code: CUTM2794

Credit Hours: 2 (1-0-1)

Objective

To impart knowledge to the students about international trade in agriculture and various provisions under WTO in the new trade regime.

Course Outline

Module 1: Introduction to International Trade

Unit I: International trade–basic concepts, WTO, and its implications for Indian economy in general and agriculture sector in particular.

Unit II: TRIPS, TRIMS quotas, anti-dumping duties, quantitative and qualitative restrictions, tariff and non-tariff measures, trade liberalization, subsidies, green and red boxes, issues for negotiations in future in WTO; CDMs and carbon trade.

Unit III: Importance of foreign trade for developing economy; absolute and comparative advantage, foreign trade of India. Cases on agri business commodity trade practices.

Module 2: Regulations and Policy Measures for International TRADE

Unit IV: India's balance of payments; inter regional Vs international trade; tariffs and trade control; exchange rate; the foreign trade multiplier.

Unit V: Foreign demand, supply side analysis, opportunity cost, trade and factor prices, implications for developing countries, market entry methods, export procedures & documentations.

Teaching methods/activities

- Lectures
- Cases on contemporary issues
- Group assignments
- Live projects
- Policy discussions
- Guest lectures
- Industrial visits to firms exporting agri commodities

Learning outcome

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

- Understand the basic concepts of international trade with reference to WTO and International agreements on Agriculture.
- Assess the practices of trade of agri business commodities.
- Develop a clear understanding about the significant regulations and policy measures for International Trade.

Suggested Reading

- Study materials by the Center for WTO Studies, ITPO, New Delhi, *The Future of Indian Agriculture*
- Brouwer F and Joshi PK. 2016. *International Trade and Food Security*, LEI – Wageningen UR, The Netherlands.

#6. Computer Applications in Business

Course Code: CUTM1686

Credit Hours: 6 (0-5-1)

Course Objective

To understand the application of computers in the business organization with a focus on Microsoft Word, Microsoft Excel, and Microsoft PowerPoint.

Learning Outcomes

On completion of this course, learners will be able to:

- To understand the basic uses of Microsoft word in business,
- To understand the basic uses of Microsoft Excel in business,
- To understand the basic uses of Microsoft PowerPoint in business.

Course Outline

Module I

Word processing Introduction: Creating and saving your document, displaying different views, working with styles and character formatting, working with paragraph formatting techniques using indents, tabs, alignment, spacing, bullets and numbering and creating borders. Page setup and sections: Setting page margins, orientation, headers and footers, end notes and foot notes, creating section breaks and page borders.

Module II

Working with tables: Creating tables, modifying table layout and design, sorting, inserting graphics in a table, table math, converting text to table and vice versa. Create newspaper columns, indexes, and table of contents. Spellcheck your document using inbuilt and custom dictionaries, checking grammar and style, using thesaurus, and finding and replacing text. Create bookmarks, captions, and cross referencing, adding hyperlinks, adding sources and compiling and bibliography Mail merge: Creating and editing your main document and data source, sorting and filtering merged documents and using merge instructions like ask, fill-in and if-then else. Linking and embedding to keep things together.

Module III

Spreadsheets Introduction: Concept of worksheets and workbooks, creating, opening, closing and saving workbooks, moving, copying, inserting, deleting and renaming worksheets, working with multiple worksheets and multiple workbooks, controlling worksheet views, naming cells using name box, name create, and name define. Using formulae and functions: Understanding absolute, relative, and mixed referencing in formulas, referencing cells in other

worksheets and workbooks, correcting common formula errors, working with inbuilt function categories like mathematical, statistical, text, lookup, information, logical, database, date and time and basic financial functions.

Module IV

Consolidating worksheets and workbooks using formulae and data consolidate command
Printing and Protecting worksheets: Adjusting margins, creating headers and footers, setting page breaks, changing orientation, creating portable documents, and printing data and formulae. Implementing file level security and protecting data within the worksheet
Creating charts and graphics: Choosing a chart type, understanding data points and data series, editing, and formatting chart elements, and creating Sparkline graphics. Analysing data using pivot tables: Creating, formatting, and modifying a pivot table, sorting, filtering, and grouping items, creating calculated field and calculated item, creating pivot table charts, producing a report with pivot tables. Performing what-if analysis: Types of what if analysis (manual, data tables, scenario manager).

Module V

PowerPoint presentation Introduction: Creating a blank presentation using a design template, basing a new presentation on an existing one, creating and managing slides, using content place holders, creating graphs, tables, diagrams, organization charts, inserting clip art and images.
Viewing and navigating a presentation: Organizing ideas in outline view, using slide sorter to rearrange a presentation, previewing presentation in slide show, understanding master views, using title master, slide master, handout master and notes master, working with headers and footers, using hyperlinks, advanced navigation with action settings, navigation shorthand with action buttons.

Module VI

Animation and multimedia: Using and applying animation schemes, custom animation, understanding sound file formats and video types, adding music, sound, and video clips. Final presentation: Applying transition to slides, controlling transition speed, using hidden slides, using custom shows, using on screen pen, and adding and accessing notes during a presentation.

Module VII

Database Designs for Accounting and Business Applications: Reality- Expressing the Application; Creating Initial design in Entity Relationship (ER) Model; Transforming ER Model to Relational data model concepts; Implementing RDM design using an appropriate DBMS. SQL and Retrieval of Information: Basic Queries in SQL; Embedded Queries in SQL; Insert, Delete and Update statements in SQL DBMS Software: Environment; Tables; Forms; Queries; Reports; Modules; Applying DBMS in the areas of Accounting, Inventory, HRM and its accounting, Managing the data records of Employees, Suppliers and Customers.

Module VIII

Flash Fill, Advance Number Formatting, Advance Conditional Formatting, Data Validation, Quick Analysis, Lookup Functions, Match & Index, V lookup, H lookup, SUMPRODUCT Function.

Module IX

Google Drive: Files in Google Drive, Form Creation, Sending and receiving response.

Suggested Readings

1. Laudon KC and Laudon JP. 2018. *Management Information Systems- Managing the digital Firm*, 15th Edition, Pearson India.
2. Turban, Volonino, Woods. Wali OP. 2015. *Information Technology for Management*,
3. *Advancing Sustainable, Profitable Business Growth*, Wiley.
4. Alexis Leon and Mathews Leon: *Fundamentals of information technology*, 2nd Edition, 2009, Vikas Publishing.
5. Sinha, *Computer Fundamentals*,
6. BPB Pub Malhotra, *Computer Applications in Business*.
7. Saxena, Sanjay, “*A First Course in Computers*”, Vikas Publishing House.

#7. Minor Course-2

----- **END OF SECOND SEMESTER**-----

THIRD SEMESTER

#1. Project Management and Agribusiness Entrepreneurship

Course Code: CUTM2803

Credit Hours: 3 (1-1-1)

Objective

The objective of this course is to expose the learner to the fields of project management and entrepreneurship development. The focus will be to train the students to develop new projects and encourage them to start their own ventures.

Course Outline

Module - I

Concept, characteristics of projects, types of projects, project identification, and Project's life cycle.

Module - II

Project feasibility- market feasibility, technical feasibility, financial feasibility, and economic feasibility, social cost-benefit analysis, project risk analysis.

Module - III

Network Methods: Meaning, Network Analysis, Requirements for Network Analysis, Critical Path Method (CPM), Programme Evaluation and Review Technique (PERT), Project scheduling and resource allocation.

Module - IV

Financial appraisal/evaluation techniques- discounted/non-discounted cash flows; Net present values, profitability index, Internal rate of returns; Cost benefits ratio; Accounting rate of return, Payback period, Project implementation; Cost overrun, Project control and information system.

Module - V

Entrepreneurship, Significance of entrepreneurship in economic development qualities of an entrepreneur, entrepreneurship development programs and role of various institutions in

developing entrepreneurship, life cycles of new business, environmental factors affecting the success of a new business, reasons for the failure and visible problems for business, developing effective business plans, Procedural steps in setting up of an industry.

Suggested Readings

- Chandra P. 2017. Projects- Planning, Analysis, Selection, Financing, Implementation, and Review, 8th Edition, McGraw Hill Education.
- Gopal Krishan P & Nagarajan K. 2005. Project Management. New Age.
- Hisrich RD & Peters MP. 2002. Entrepreneurship. Tata McGraw Hill.
- Kaplan JM. 2003. Patterns of Entrepreneurship. John Wiley & Sons.
- Nandan H. 2007. Fundamentals of Entrepreneurship Management. Prentice Hall.
- Ramamoorthy VE. 2005. Textbook of Project Management. MacMillan.

#2. Operations Research

Course Code: CUTM2799

Credit Hours: 2 (1-0-1)

Objective

To acquaint the students with the applications of important operations research techniques for a better understanding to solve business problems.

Course Outline

Module – I

Linear Programming: Objective, Assumptions, Formulation of Linear Programming Problem, Data Envelopment Analysis, Graphic Method, Simplex method, Introduction to Dynamic Programming, Transportation, and Assignment Problems.

Module – II

Inventory control Models: Costs Involved in Inventory Management, Types of Inventories, Economic Order Quantity (EOQ) Model, Continuous Review (Q) System, Periodic Review (P) System, and Hybrid System.

Module – III

Waiting-Line Models: Waiting Line Problem, Characteristics of a Waiting Line System, Single-Channel Model, Multiple-Channel Model, Constant-Service Time Model, Finite Population Model, Sequencing and Replacement models.

Module – IV

Decision making under Risk and uncertainties, the Decision problem, Maximax Criterion, Maximin Criterion, Minimax Regret Criterion, Laplace Criterion, pay off Tables, Decision Trees, Expected Value of Perfect Information, stochastic models, neural networks, Markov process.

Module – V

Game Theory – Two-Person Zero-Sum Game, Simulation, Network Analysis– PERT& CPM. Financial Engineering.

Suggested Reading

- Taha HA. 2007. Operations Research - An Introduction. Prentice Hall.
- Vohra ND. 2017. Quantitative Techniques in Management. 5th Edition McGraw Hill.
- Wagner HM. 2005. Principles of Operation Research. Prentice Hall.

#3. Agricultural Research, Research Ethics, and Rural Development Programmes

Code: PGSS0505

Credit: 1 (1-0-0)

Objective:

To enlighten the students about the organization and functioning of agricultural research systems at national and international levels, research ethics, and rural development programs and policies of the Government.

Course Contents:

Module I

History of agriculture in brief; Global agricultural research system: need, scope, opportunities; Role in promoting food security, reducing poverty and protecting the environment; National Agricultural Research Systems (NARS) and Regional Agricultural Research Institutions; Consultative Group on International Agricultural Research (CGIAR): International Agricultural Research Centres (IARC), partnership with NARS, role as a partner in the global agricultural research system, strengthening capacities at national and regional levels; International fellowships for scientific mobility.

Module II

Research ethics: research integrity, research safety in laboratories, the welfare of animals used in research, computer ethics, standards, and problems in research ethics.

Module III

Concept and connotations of rural development, rural development policies, and strategies. Rural development programs: Community Development Programme, Intensive Agricultural District Programme, Special group – Area Specific Programme, Integrated Rural Development Programme (IRDP) Panchayati Raj Institutions, Co-operatives, Voluntary Agencies/ Non-Governmental Organisations. Critical evaluation of rural development policies and programs. Constraints in implementation of rural policies and programs.

Suggested Readings:

1. Bhalla GS and Singh G. 2001. Indian Agriculture - Four Decades of Development. Sage Publ.
2. Punia MS. Manual on International Research and Research Ethics. CCS Haryana Agricultural University, Hisar.
3. Rao BSV. 2007. Rural Development Strategies and Role of Institutions - Issues, Innovations, and Initiatives. Mittal Publ.
4. Singh K. 1998. Rural Development - Principles, Policies, and Management. Sage Publ.

#4. Agribusiness Environment and Policy

Course Code: CUTM2800

Credit Hours: 2 (1-0-1)

Objective

To expose learners to the environment in which the agri-business is conducted. The focus will be on understanding micro and macro environmental forces and their impact on agribusiness.

Course Outline

Module – I

Role of agriculture in Indian economy; problems and policy changes relating to farm supplies, farm production, agro-processing, agricultural marketing, agricultural finance, etc. in the country.

Module-II

Structure of Agriculture – Linkages among sub-sectors of the Agribusiness sector; economic reforms and Indian agriculture; the impact of liberalization, privatization, and globalization on the Agribusiness sector.

Module – III

Emerging trends in production, processing, marketing, and exports; policy controls and regulations relating to the industrial sector with specific reference to agro industries.

Module – IV

Agribusiness policies- concept and formulation; and new dimensions in Agribusiness environment and policy.

Module – V

Agricultural price and marketing policies; public distribution system and other policies.

Suggested Reading

- Adhikary M. 1986. Economic Environment of Business. S. Chand & Sons.
- Aswathappa K. 1997. Essentials of Business Environment. Himalaya Publ.
- Francis Cherunilam 2019. Business Environment- Text and Cases. 27th Edition. Himalaya Publishing House.

#5. Research Methodology in Agri-business Managemnet

Course Code: CUTM4634

Credit Hours: 3 (2-0-1)

Course Objectives

The purpose of this course is to orient the learners with the logic of social science inquiry, research design, and a variety of research methods. This course will provide learners with an appreciation both the quantitative and qualitative approaches to social science research and compare between their epistemologies, research design, and the tools they offer for carrying out social science research. The learner will be engaged through the course material through self-readings, lectures, class discussions, assignments, and a research project. The students will collaborate with classmates to develop a research proposal, incorporating a logical design that addresses a specific research question in the social sector. The specific objectives are:

- The course aims to impart foundational knowledge of social research methods and will help in demonstrating proficiency in the use of selected research methods and tools.

- It will help in developing students' level of analysis through examining the usefulness of various research approaches: content analysis, survey and field research, quantitative and qualitative analysis, and case studies.

Learning Outcomes:

After Completing the course, the student will be able to

- Students will be able to appreciate and understand the process of doing research.
- Students will be able to use quantitative and qualitative measurement tools and sampling techniques and understand how to apply them.
- Students will understand the characteristics of Qualitative and Quantitative measurement and how to operationalise concepts using each approach.
- Students will be able to apply various data collection techniques, for both Qualitative and Quantitative research.
- Students will be able to select and use appropriate analytical techniques for quantitative and qualitative methods.

Course Outline

Module-I

Introduction to RM: Meaning and significance of research. Importance of scientific research in business decision making. Types of research and research process. Literature Review, Identification of research problem and formulation of hypothesis. Research Designs, A brief introduction to mixed methods - Primary data, Secondary data, Design of questionnaire; Sampling fundamentals and sample designs. Attributes and variables, Measurement and Scaling Techniques, Data Processing. Qualitative Interviews and Case as Research methods, Interviewing techniques and etiquette.

Module-II:

Descriptive Data Analysis (students can be given sample primary and secondary data sets; or students can learn to generate primary data through Google forms survey data) Inferential/predictive statistical data analysis. Sampling theory: Hypothesis testing, Z-test, t-test, F-test, chi-square test. Analysis of variance (One and Two way). Non-parametric tests (brief concepts of tests like Sign Test, Run test, Krushall – Walli's test).

Module III:

Advanced Data Analysis: Factor analysis, Multiple Regressions Analysis. Discriminant Analysis (Concept only). Analyzing Qualitative Data - Introduction to content analysis Report writing and presentation: Research Report, Types and significance, Structure of research report, Presentation of report, Research Ethics. Case study.

It may be emphasized on practical aspects such as:

Use of software package (Excel/SPSS) to learn the following :-

- (I) Draw frequencies, bar charts, histogram.
- (ii) Creating and editing graphs and charts.
- (iii) Bi-variate correlation.
- (iv) The t-test procedure.
- (v) Non-parametric Tests : Chi-square Test.
- (vi) One way ANOVA Procedure.
- (vii) Simple Regression, Multiple Regression, Reliability Analysis, Factor Analysis.

Writing Up / Discussion of Mixed Methods Studies

- Presenting and writing up results
- Research Ethics

Suggested Readings:

- Neuman, W.L. (2007). Basics of social research: Qualitative and quantitative approaches. Boston: Pearson Education
- Sage Handbook of Qualitative Research by Denzin & Lincoln 2018.
- Research Methodology by Kothari, Newage.

Management Research Methodology- Krishnaswamy

#7. Minor Course-2

#8. Minor Course-3

-----**END OF THIRD SEMESTER**-----

FOURTH SEMESTER

#1: Disaster Management

Code: CUDM2361

Credit: 1 (1-0-0)

Objective

- To provide students an exposure to disasters, their significance, types & Comprehensive understanding on the concurrence of Disasters and its management.
- To ensure that students begin to understand the relationship between vulnerability, disasters, disaster prevention, risk reduction and the basic understanding of the research methodology for risk reduction measures.
- Equipped with knowledge, concepts, and principles, skills pertaining to Planning, Organizing, Decision-making and Problem-solving methods for Disaster Management.
- Structural and non-structural elements of risk reduction and climate change adaptation.

Learning Outcome

- Students having acquired on the basic knowledge and information on DRR and CC are well prepared to respond to such hazards.
- Students disseminate the acquired knowledge, skills and techniques with the people living in and around them.
- Better safeguard their lives structural and non-structural elements at risk in pre, during and post disasters situation with the knowledge acquired.

Syllabus

Module I- Introduction to Disaster Management

India vulnerable to multiple natural hazards; Concepts and Definitions; Hazard, Risk, Vulnerability, Capacity, Disaster & Equations of Disaster Management; Factors responsible for disasters like flood, cyclone, and Earthquake; Causes of disasters.

Module II- Types & Classification of Disasters

Hydrological and Meteorological related disasters, Geological related disaster, accident-related disaster, Biological related disaster; Global warming and Climate Change; Causes, effect,

consequences and how to say no to global warming; Disaster Verses Development; Phases of Development

Module III- Disaster Risk Reduction and Planning Management

Community Managed Disaster Risk Reduction (CMDRR); CMDRR and its process of achieving it; Hazard, Vulnerability, Capacity mapping and tools used for mapping; Community Contingency Plan; Rapid Need Assessment and its importance; Role and responsibilities of various stakeholders, PRI, Task Force, ODRAF, NDRF, SDMA, NDMA; Disaster Management Cycle; Phases of Disasters; Prevention, Mitigation Preparedness, Warning, Response, Rehabilitation, Reconstruction; Stress Management; First Aid - support to life; Water Sanitation and Hygiene; Minimum Standard; Health in Emergency; Fire safety and risk reduction measures; Introduction on fire safety and Chemistry and Physics of Fire; Types Of Fires & Importance of Fire Safety; Types Of Fire Extinguishers & Fire Extinguisher Components.

Module IV- Development vs Sustainable Development

Disaster Resilient Development; Climate Change and Development; Sustainable Development Goal; Urban Disasters and its permanent measures; Role of Social Capital for DRR.

Suggested Reading

1. A.K. Srivastava (2021), Textbook of Disaster Management, Scientific Publishers.
2. O S Dagur (2011), Disaster Management: An Appraisal of Institutional Mechanisms in India, KW Publishers Pvt Ltd.
3. S.C. Sharma (2008), Disaster Management, Khanna Publishing House.

#2: Minor Course-4

#3. Thesis/ Research

----- **END OF FOURTH SEMESTER** -----

SYLLABUS OF MINOR COURSES

#1. Food Technology and Processing Management

Course Code: CUTM4068

Credit Hours: 3 (2-0-1)

Course Objectives

As a discipline, Food Technology is the combination of engineering, food science, hotel management, and home science. It is an advanced study of the technology and processing methods used to develop, research, manufacture, produce, preserve, and process food with related substances.

Course Outcomes

Food Technology is the application of food science to the selection, preservation, processing, packaging, distribution, and use of safe, wholesome, and nutritious food. The food processing industry covers a range of food products.

Course Outline

Module 1: Food Technology

Unit 1: Food Industry in India: Present status of food industry in India; Organization in food industry; Introduction to operations of food industry; Deteriorative factors and hazards during processing, storage, handling, and distribution.

Module 2: Processing Management

Unit 2: Basics of Food Processing: Basic principles of food processing and food preservation through technology interventions; Application of energy, radiations, chemicals, and other agents for food preservation; aseptic modes of processing freezing, quick, cryogenic, high pressure, membrane technology; Packaging of foods, labelling techniques, advanced technologies for packaging.

Unit 3: Food Safety and Costs Analysis: Analysis of costs; risk management; Laws and regulations w.r.t to food industry including production, processing, and marketing; Food Safety and Quality Standards-AGMARK, BIS/ISO, FPO, FSSAI, TQM, HACCP, etc.

Unit 4: Case studies on project formulation in various types of food industries:

Discussion sessions and analysis of Case studies related to dairy, cereal milling, sugarcane production; baking/confectionary, vegetable storage, handling, egg processing, fish, and meat products; Cases related HACCP.

Learning outcome

After completion of this course, the students are expected to be able to acquaint the students with different food processing techniques and their management.

Suggested Reading

- Acharya SS and Aggarwal NL. 2004. Agricultural Marketing in India. Oxford & IBH.
- Early R. 1995. Guide to Quality Management Systems for Food Industries. Springer
- Jelen P. 1985. Introduction to Food Processing. Reston Publishing.
- Potly VH and Mulky MJ. 1993. Food Processing. Oxford & IBH
- Fellows PJ. 2016. Food Processing Technology Principles and Practice, Woodhead Publishing, 4th Edition
- Potter NN. 2018. Food science. McGraw-Hill Education, 6th Edition
- Singh RP, Heldman DR. 2013. Introduction to Food Engineering. Elsevier Inc., 5th Edition
- Smith JS, Hui YH. 2013. Food Processing: Principles and Applications, Wiley

#2. Fertiliser Technology and Management

Course Code: CUTM4069

Credit Hours: 3 (2-0-1)

Course Objectives

Provide exposure to most recent Nitrogenous and Complex fertilizer production technologies. Improve participants' technical knowledge over a varied range of fertilizer production techniques.

Course Outcomes

Enhance the participants' analytical and trouble-shooting skills by generating awareness to identify and resolve operational inefficiencies, if any, of their facilities.

Course Outline

Module 1: Fertilizer Production

Unit 1: Fertilizer development: Concept, scope, need, resource availability; import and export avenues for fertilizer; types of fertilizers, grading and chemical constituents, role of fertilizers in agricultural production, production, and consumption of fertilizer in India.

Unit 2: Raw material Supply; Principles of manufacturing-potassic fertilizers, secondary and micro-nutrient formulations.

Unit 3: Production efficiency: Production efficiency and capacity utilization; quality control and legal aspects fertilizer control order

Module 2: Testing and Field Trials

Unit 1: Testing facilities; constraints in fertilizer use; assessment of demand and supply of different fertilizers, fertilizer distribution, fertilizer storage.

Unit 2: Field trials and demonstrations; environmental pollution due to fertilizers.

Teaching methods/activities

- Lecture and Discussion
- Case Study
- PPT presentation

Learning outcome

Provide a platform to exchange ideas on a varied range of production topics, opportunity for active interaction with leading technology experts and to acquaint the students in latest advances in fertilizer technology management.

Suggested Reading

- Brady NC & Weil RR. 2002. The Nature and Properties of Soils. 13th Ed. Pearson Edu.
- Fertilizer Control Order (different years). Fertilizer Association of India, New Delhi.
- Fertilizer Statistics (different years). Fertilizer Association of India, New Delhi
- Indian Journal of Fertilizers (different years). Fertilizer Association of India, New Delhi.
- San Chilli V. 1960. Chemistry and Technology of Fertilizers. American Chemical Soc. Monograph Series. Reinhold Publ. Corp.
- Tisdale SL, Nelson WL, Beaton JD & Havlin JL. 2002. Soil Fertility and Fertilizers. 5th Ed. Prentice Hall

#3. Management of Agro Chemical Industry

Course Code: CUTM4070

Credit Hours: 3 (2-0-1)

Course Objective

The agrochemicals (pesticides, hydrogels, plant growth regulators etc.) have played a pivotal role in the past in increasing agricultural productivity and production, and in protecting and preserving the human and animal food, feed, health, and the belongings.

Course Outcome

Plant protection chemicals have and will continue to play a crucial role in meeting the food, feed and fibre needs of the mankind.

Course Outline

Module-I: Agro Chemicals

Unit 1: Introduction: Agro chemicals: Definition and classification; Basic knowledge of agrochemicals; role and status of agro-chemical industry in India; Pesticides –Classification and Introduction, knowledge of different pesticides.

Unit 2: Insecticides: Insecticides – Definition and classification based on (a) Mode of Entry (b) Mode of Action and(c) Chemical Structure with example; Insecticidal formulation; preliminary knowledge of mode of action of insecticides; knowledge of plant protection equipment.

Unit 3: Fungicides: Fungicides – Classification and preliminary knowledge of commonly used fungicides; Biomagnifications of pesticides and pesticidal pollution.

Module-2: Insecticide Act and Plant Protection

Unit 1: Insecticide Act: Introductory knowledge about development of agrochemicals. Insecticidal poisoning, symptoms, and treatment; Main features of Insecticide Act.

Unit 2: Plant Protection: Directorate of Plant Protection, Quarantine and Storage–A brief account of its organizational set up and functions; IPM Concept – Biopesticides– Plant products.

Teaching methods/activities

- Lecture and Discussion

- Case Study
- PPT presentation

Learning outcome

To familiarize the students with the agrochemicals, their structure, classification and development and management of agro-chemical industry.

Suggested Reading

- Dhaliwal GS, Singh R and Chhillar BS. 2014. Essentials of Agricultural Entomology. Kalyani Publishers.
- Hayes WT and Laws ET. 1991. Handbook of Pesticides. Academic Press.
- Matsumura F. 1985. Toxicology of Insecticides. 2nd Ed. Plenum Publ.
- Rajeev K and Mukherjee RC. 1996. Role of Plant Quarantine in IPM. Aditya Books.

#4. Seed Production Technology Management

Course Code: CUTM4071

Credit Hours: 3 (2-0-1)

Course Objective

The course covers a wide range of seed science and technology issues related to production of high-quality seeds, processing, testing, certification, quality control, seed policies and regulations, variety release and registration, seed quality management in seed multiplication systems, seed storage, marketing.

Course Outline

Module-I: Seed Technology

Unit 1: Seed Technology: Role of Seed Technology, its Course Objective and goal, Seed Industry in India, National Seed Corporation – Tarai Seed Development, Corporation, State Seed Corporations, National Seed Project and State Farms and their role.

Module-II: Seed Management

Unit 1: Development and Management of Seed Programmes: Seed Village Concept, Basic Strategy of Seed Production and Planning and Organization of Seed Programme; Types of Seed Programme–Nucleus seed, Breeders seed, Foundation seed and Certified seed etc.

Unit 2: Maintenance of genetic purity: Minimum seed certification standard and Management of breeders & Nucleus seed; Management of seed testing laboratory and research and development.

Unit 3: Management of seed processing plant seed storage management; seed packaging and handling.

Unit 4: Seed Marketing: GM Crop seed, IPR, PBR, Patents and related issues and their impact on developing countries; Statutory intervention in the seed industry; Seed legislation and seed law enforcement, Seed act; Orientation and visit to seed production farms, seed processing Units, NSC, RSSC, RSSCA and seed testing laboratories.

Teaching methods/activities

- Lecture and Discussion
- Case Study

- PPT presentation

Learning outcome

To apprise students regarding principles and efficient management of seed production technology.

Suggested Reading

- Agrawal RL. 2017. Seed Technology. Oxford & IBH.
- Desai BB, Katecha PM and Salunkhe DK. 2009. Seed Handbook: Biology, Production, Processing and Storage. Marcel Dekker.
- Kelly A. 1988. Seed Production of Agricultural Crops. Longman.
- McDonald MB Jr. and Copeland LO. 2012. Seed Production: Principles and Practices. Chapman & Hall.

#5. Technology Management for Livestock Products

Course code: CUTM4072

Credit Hours: 3 (2-0-1)

Course Objective

Students may study two major topics include meat technology and dairy technology. They may also do research activities on product development, development of functional meat, an extension of shelf life, and development of milk products.

Course Outcome

The main aim of this course is to disseminating knowledge about hygienic milk production, hygienic slaughter, utilization of slaughterhouse by-products, preparation of value-added meat products, preparing of value-added indigenous as well as milk products, and dressing of food animals.

Course Outline

Module-I: Livestock Product and Technology

Unit 1: Present status of livestock products industry in India: Dairy, meat, skin and hides, wool, etc; SWOT analysis of livestock product industry, importance of value addition of livestock products, Concept of organic milk and meat. New techniques of biotechnology for improving food value.

Unit 2: Manufacturing technologies: Dairy-Manufacturing technologies of various dairy products and byproduct utilization. Meat- Manufacturing technologies of meat and its products, industrial processing and utilization of wool and animal byproducts, Value added egg product development.

Unit 3: Milk and meat processing plant: Layout and designing of milk and meat processing plant, abattoir design, sanitation and basic slaughterhouse practices, Plant Management-Production, planning and control, packaging, preservation, and storage system for livestock products; transportation system for domestic markets and international markets.

Module-II: TQM and Marketing of Livestock Products

Unit 1: Total quality management in processing Total quality management in processing of milk and its byproduct, meat and byproduct, value added egg duct and wool, Quality control measures during storage transit; extent of losses during storage and transport, management measures to minimize the loss.

Unit 2: Marketing livestock products

Milk, meat, wool, fish etc and its byproduct, Marketing, and distribution system of animal products; National and international specifications and quality standards for various products; environmental and legal issues involved.

Teaching methods/activities

- Lecture and Discussion
- Case Study
- PPT presentation

Learning outcome

To impart knowledge about management of livestock products, product development, quality control, preservation, and marketing strategies for livestock products.

Suggested Reading

- Mandal PK and Biswas AK. 2014. Animal Products Technology, Studium Press (India) Pvt. Ltd.; 1st Edition
- Bishwas AK and Mandal PK. 2014. Textbook of Poultry, Egg, and Fish Processing Technology, Studium Press (India) Pvt. Ltd.

#6. Fruit Production and Post-Harvest Management

Course Code: CUTM4073

Course Credits: 3 (2-0-1)

Course Objective

Postharvest management of fruits and vegetable: A potential for reducing a minimum postharvest loss as well as can potentially reduce production cost.

Course Outcome

A dual purpose of preventing losses that occur due to harvest losses of fruits and vegetables vary from 25% to 40%, depending on the kind of produce and the pre- and post-harvest practices they are put through.

Course Outline

Module-I: Fruit Production

Unit 1: Introduction: Global and National Status of Horticultural production in India and emerging scenario.

Unit 2: Management of horticultural crops: Establishing an orchard, basic cultural practices, regulation of flowering, fruiting, and thinning, protection against insect pest, weeds: Maturity indices, Harvesting and its relationship with quality, sorting and grading, pre-harvest crop management practices and their influence on quality during storage and marketing.

Module-II: Post-Harvest Management

Unit 1: Post-harvest management in horticulture-procurement: Procurement management, important factors for marketing, standardization and quality control, packaging. Physiology of ripening and senescence. Storage system: on-farm storage-evaporatively cooled stores, ventilated storage, pit storage etc. Refrigerated storage refrigeration cycle, controlled/modified atmosphere, hypobaric storage.

Unit 2: Post harvest management in horticulture process: Application of growth regulators for quality assurance, post-harvest treatments: precooling, heat treatments (hot water, hot air and vapor heat), fungicides & biologically safe chemicals, irradiation, curing, pulsing etc. Packing line operations, packaging of horticultural produce. Transportation rail, road, sea, air. Codex norms for export of perishables. Development of fruit-based carbonated drinks, development of dehydrated products from some important fruits, storage of pulp in pouches, essential oils from fruit waste, dehydrated fruits. Market structure and export potential of fruits.

Unit 3: Marketing of fruits: Problems in marketing of fruits, and government policy; quality standards for domestic and international trade.

Teaching methods/activities

- Lecture and Discussion
- Case Study
- PPT presentation

Learning outcome

To impart knowledge about management of horticultural crops and post-harvest technologies

Suggested Reading

- Rathore NS, Mathur GK and Chasta SS. 2013. Post-Harvest Management and Processing of Fruits and Vegetables, ICAR.
- Chadha KL and Pareek OP. 1993. Advances in Horticulture. Vols. I-IV. Malhotra Publ. House.
- Kader AA. 1992. Post-harvest Technology of Horticultural Crops. Univ. of California. Div. of Agri. & Natural Resources.
- Jacob JP. 2012. Handbook on Post Harvest Management of Fruits and Vegetables, ASTRAL Publishing.
- NIIR Board of Consultants & Engineers. 2016. The Complete Technology Book on Processing, Dehydration, Canning, Preservation of Fruits & Vegetables, NIIR PROJECT CONSULTANCY SERVICES; 3rd Revised Edition
- Thompson K. 2003. Fruit and Vegetables: Harvesting, Handling and Storage, Wiley-Blackwell; 2nd Edition

#7. Farm Power and Machinery Management

Course Code: CUTM4074

Credit Hours: 2 (1-0-1)

Course Objective

The role of mechanization and its relationship to productivity, employment, social and technological change; performance and power analysis (Various sources of farm power, their availability and utilization) cost analysis of mechanized agriculture.

Course Outcome

Agricultural machinery management is the section of farm management that deals with the optimization of the equipment phases of agricultural production. It is concerned with the efficient selection, operation, repair and maintenance, and replacement of machinery.

Course Outline

Module-I: Farm Power and Machinery

Unit 1: Farm power and tractors: Farm power in India - sources, IC engines –working principles, two stoke and four stoke engines, IC engine terminology, different systems of IC engine. Tractors – types and utilities.

Unit 2: Tillage and Tillage machinery: Tillage – ploughing methods – primary tillage implements – mould board, disc plough and chisel plough – secondary tillage implements – cultivators, harrows and rotovators – wetland equipment – puddlers, trammers and cage wheels.

Unit 3: Sowing, Planting. and Intercultural Equipment: Sowing methods – seed drills, seed cum fertilizer drills – Paddy transplanters – nursery requirements –implements for intercultural operations – wet land, dry land and garden land intercultural tools. Plant Protection Gadgets, Harvesting Machinery and Horticulture tools: Plant protection equipment, tools for horticultural crops.

Module-II: Agricultural Equipment Industry and Cost Analysis of Operations

Unit 1: Agricultural equipment industry: Agricultural equipment production, marketing, and constraints; establishment of agricultural engineering enterprises (agro service centres, etc.). Equipment for land development and farm machinery selection: Equipment for land development and soil conservation.

Unit 2: Cost analysis of operations: Cost analysis of operations using different implements, economic performance of machines, optimization of tractor implements system and transport of farm produce. Cost of operation of farm machinery –Tractor and implement selection.

Teaching methods/activities

- Lecture and Discussion
- Case Study
- PPT presentation

Learning outcome

To equip the students with sufficient theoretical knowledge and practical skills about farm power and tractor power, implement resources used in agriculture, their cost of operation and selection.

Suggested Reading

- Senthilkumar T, Kavitha R and Duraisamy VM. 2015. A textbook of farm machinery, Thannambikkai Publications, Coimbatore.
- Jagadishwar S. 2010. Elements of agricultural engineering. Standard Publishers Distributors, New Delhi.

#8. Food Retail Management

Course Code: CUTM4075

Credit Hours: 2 (1-0-1)

Course Objective

Study a short course in Retail Management to learn how to run a retail store or department efficiently and to introduce you to key issues and concepts associated with the retail

environment. Topics covered in the course typically include business administration, visual merchandising, and marketing.

Course Outcome

Identify the most dramatic change in food retailing today; Assess the variety and define a target market; Explain why a retailer would want to meet the needs of a customer. Describe the steps to recruiting top talent; Identify selection and training.

Course Outline

Module-I: Introduction

Unit 1: Introduction to Food market: Introduction to International Food market, India's Competitive Position in World Food Trade, Foreign Investment in Global Food Industry, Retail management and Food Retailing, The Nature of Change in Retailing, Organized Retailing in India, E-tailing and Understanding food preference of Indian Consumer, Food consumption and Expenditure pattern, Demographic and Psychographic factors affecting Food Pattern of Indian Consumer.

Unit 2: Value Chain in Food Retailing: Value chain and value additions across the chain in food retail, Principal trends in food wholesaling and retailing, Competition and pricing in food retailing, various retailing formats, the changing nature of food stores, market implications of new retail developments, food service marketing.

Module-II: Retail Marketing Strategy

Unit 1: Marketing Mix in Food Retail Management: Merchandise Management, Pricing Strategies used in conventional and non-conventional food retailing, public distribution system, Promotion mix for food retailing, Management of sales promotion and Publicity, Advertisement Strategies for food retailers & Brand Management in Retailing.

Unit 2: Managing Retail Operations: Managing Retailers' Finances, Merchandise buying and handling, Logistics, procurement of Food products and Handling Transportation of Food Products.

Unit 3: Retail Sales Management: Types of Retail Selling, Salesperson selection, Salesperson training, Evaluation and Monitoring, Customer Relationship Management, Managing Human Resources in retailing, Legal and Ethical issues in Retailing.

Teaching methods/activities

- Lecture and Discussion
- Case Study
- PPT presentation

Learning outcome

It will equip the students with desired knowledge and skills for managing food retail operations.

Suggested Reading

- Singh S. 2011. Fresh food retails in India: Organisation and impacts, Allied publishers Pvt. Ltd., New Delhi
- Mahapatra. S, Food Retail Management, Kalyani Publishers

- Zentes, Joachim, Morschett, Dirk, Schramm-Klein, Hanna 2017. Strategic Retail Management: Text and International Cases, Springer Gabler.
- Agrawal N and Smith SA. 2015. Retail Supply chain Management: Quantitative Models and Empirical Studies, Springer; 2nd revised edition.

#9. Management of Agricultural Input Marketing

Course Code: CUTM4076

Credit Hours: 2 (1-0-1)

Course Objectives

It will help in gaining a deeper understanding of the four Ps of marketing as applied to agricultural input marketing and an exposure to social and ethical issues is oriented in the course.

Course Outcomes

The present course aims at familiarizing the participants with various aspects of agricultural input marketing in India.

Course Outline

Module-I: Introduction

Unit 1: Market for agricultural inputs: Nature of demand, promotional media, nature of competition, a framework for understanding the markets for inputs, agronomic potential, agro economic potential, effective demand, actual consumption.

Module-II: Marketing of Agricultural Inputs

Unit 1: Marketing of seeds: Government policy, product, trade practices in seed production, seed pricing, input costs, distribution system, management of seed distribution. proper storage of seeds, promotion, problems faced by seed industry, strategy for a seed enterprise, source of seeds, terms of transaction for seed procurements.

Unit 2: Marketing of fertilizers: Nature of Indian fertilizer market, product, fertilizer distribution, marketing cost and margins, credit, dealer selection and management, fertilizer promotion and extension, promotional program, advertising in fertilizers, emerging marketing mix in fertilizer, extension strategy for the future, marketing of biofertilizers, strategies for fertilizer marketing.

Unit 3: Marketing of pesticides: Market profile, structure of industry, farmer behaviour, problems of farmers in pesticide purchase and usage, marketing mix, bio pesticides market development and promotion activities, problems in marketing of bio pesticides. Integrated pest management.

Unit 4: Marketing of tractors: Segments in tractor market, market share, nature of demand, buyer behaviour, role of distribution, promotion, MNC's. Marketing of credit-Nature of market, market segment, market players, marketing mix, marketing options. Strategies for input marketing-Client and location specific promotion, joint promotion, interdependence of input markets, management of demands, developmental marketing, USP, extension services, ethics in business, sustainability.

Teaching methods/activities

- Lecture and Discussion
- Case Study
- PPT presentation

Learning outcome

To enhance the understanding and analytical capabilities with respect to products, market environment, and operational issues in marketing of agricultural inputs.

Suggested Reading

- Mahapatra. S. Management of Agricultural Inputs, NIPA Publishers
- Seetharaman SP.: Agricultural Input Marketing, Oxford & IBH Pub. Co.
- Krishnamacharyulu CSG.: Rural Marketing: Text and Cases, Pearson Education India
- Venugopal P. 2014. Agri-input Marketing in India, SAGE Publication; 1st Edition.

#10. Feed Business Management

Course Code: CUTM4077

Credit Hours: 2 (1-0-1)

Course Objectives

It will help in gaining a deeper understanding of the production, processing and marketing of cattle feed, poultry feed and fish feed.

Course Outcomes

The present course aims at familiarizing the participants with various aspects feed for livestock and poultry.

Course Outline**Module-I: Introduction**

Unit 1: Feed resources: Gap between demand and availability of nutrients; status of feed industry in India and world, constraints in the development of Indian feed industry.

Unit 2: Nutrients requirements of livestock and poultry: Knowledge about the quality of feed ingredients used in feed manufacturing. Procurement procedure of feed ingredients, scientific storage of feeds and feed ingredients. BIS, CLAFMA and all other commercial standards of all class of livestock and poultry feeds.

Module-II: Feed Preparation and Distribution

Unit 1: Feed preparation: Layout and design of feed plants, feed plant management; Basic principles of processing of feeds, Feed preparation for cattle and poultry and as specialty feeds for aqua and pet animals.

Unit 2: Importance of mineral mixture: Feed additives, supplements, and pass feed, to know the new technology regarding improving the feeding value of poor-quality roughages. To acquaint the concept of silage technology, complete feed block technology, hydroponics technology and UMMB technology.

Unit 3: Feed Distribution: Distribution channels, regulations relating to manufacture and sale of feed stuffs.

Teaching methods/activities

- Lecture and Discussion

- Case Study
- PPT presentation

Learning outcome

To acquaint the students with the role and importance of feed industry and the production of feed for livestock and poultry.

Suggested Reading

- Morrison FB. 1961. Feeds and Feeding, Abridged, Morrison Publishing; 9th edition John.
- Moran. 2005. Tropical Dairy Farming: Feeding Management for Small Holder Dairy Farmers in the Humid Tropics, Csiro Publishing.
- Moran J and McDonald S. 2010. Feedpads for Grazing Dairy Cows, Csiro Publishing.
- Kellems RO and Church DC. 2009. Livestock Feeds and Feeding, Pearson; 6th Edition

#11. Management of Veterinary Hospitals

Course Code: CUTM4078

Credit Hours: 2 (1-0-1)

Course Objectives

It will help in gaining a deeper understanding of the Veterinary Science is the science of treating and curing the diverse types of Animals.

Course Outline

Module-I: Veterinary Hospital Administration

Unit 1: Needs, aims and objectives: Objectives of Veterinary hospitals; the existing and simulated situations under which veterinary hospitals work or are to work.

Unit 2: Designing and planning an ideal hospital: Optimizing the use of resources- human, space, equipment, drugs, time, capital, etc.; Materials management and problems Normal purchase procedure. Receipt; storage and distribution of materials, cost reduction & scientific inventory control. Information system and materials management performance. Equipment maintenance, condemnation & disposal.

Unit 3: Authority, responsibility: Accountability of management for optimizing the use of skill, developing, and upgrading skills and technology; efficient system of record keeping and accounting; Concept of quality & Total quality management (TQM) Introduction to Veterinary audit, Statistical quality control (SQC), Quality control Circle (QCC).

Module-II: Information System & Quality Control

Unit 1: Hospital information system: Hospital information system as an aid to efficient controlling and monitoring; need for financial resources - investment and working capital; Records: Types & Methodology, Reports and Reporting system. Contemporary and need-based methods of accounting, General consideration. Need based information system. Applicability in surveillance & monitoring; planning & policy making; cost control.

Unit 2: Quality control system: Economic functions and quality control system; Animal health Economics: An introduction Need for financial resources (type and need). Investment planning

and working capital; Budgeting and cost cutting (cost control). legal aspects in the functioning of the hospital.

Learning outcome

The objective of this course is to acquaint the students about the designing, planning, organizing, and controlling the veterinary hospitals for optimizing the use of space, capital, skill, and other resources.

Teaching methods/activities

- Lecture and Discussion
- Case Study
- PPT presentation

#12. Poultry And Hatchery Management

Course Code: CUTM4079

Credit Hours: 2 (1-0-1)

Course Objectives

To give the opportunity for trainees to learn about raising chickens for their meat and eggs to manage a small-scale, commercial poultry enterprise that will be profitable.

Course Contents

Module 1: Introduction to Poultry and Hatchery Industry

Unit 1: Poultry and hatchery Business: Poultry and hatchery industry; Present scenario of Poultry industry, Integration in poultry farming, Scope and future perspective, role of management in poultry industry.

Unit 2: Poultry and hatchery unit: Planning and establishing a poultry and hatchery unit- location, size, and construction; farm and hatchery equipment and physical facilities; organizing and managing a poultry farm and hatchery.

Module 2: Hatcheries and Risk Management

Unit 1: Incubation and hatching Production of quality chicks and eggs; factors affecting hatchability; biosecurity and hatchery sanitation; handling of hatching eggs; maintaining chick quality-chick grading, sexing, packing, dispatch, transportation, and chick delivery.

Unit 2: Franchise hatcheries management: Custom hatching; brooding; growing and laying management; crisis management; industrial breeding, feeding, housing and disease management; waste management; Record management; cost accounting and budgetary control.

Unit 3: Personal management and insurance: Labour relations including wages and salaries, job evaluation and employee appraisal; marketing management direct sale and sale through franchisees/ agents, advertisement, sale and after sale services, other innovative sales strategies.

Teaching methods/activities

- Lecture and Discussion

- Case Study
- PPT presentation

Learning outcome

The course provides an insight into the importance of management in poultry industry, managing a poultry and hatchery enterprise, planning production of poultry products, financial, personnel and marketing management.

Suggested Reading

- Handbook of Poultry Science.
- Rathinam GK. 2015. Manual of Hatchery Management: For Poultry Professionals Hardcover.

#13. Management Of Agri-Business Co-Operatives

Course Code: CUTM4080

Credit Hours: 2 (1-0-1)

Course Objectives

These cooperatives were usually initiated by small scale farmers, as a response to their weak position in the market. By joining forces, they could improve this position and obtain better prices and services for the purchase of inputs and the marketing of produce.

Course Outline

Module 1: Introduction

Unit 1: Cooperative administration: Global perspective, ecology of cooperative administration, cooperative sector, and economic development.

Unit 2: Cooperative management: Nature, functions, and purpose of cooperatives—procurement, storage, processing, marketing, process of cooperative formation, role of leadership in cooperative management.

Module 2: Cooperative Movement and Management

Unit 1: Cooperative Movement: The state and cooperative movement, effects of cooperative law in management, long range planning for cooperative expansion, policy making.

Unit 2: Human resource management: Placement and role of board of directors in cooperative management.

Unit 3: Overview of agribusiness cooperative: Credit cooperatives, cooperative marketing, dairy cooperative; financing agribusiness cooperative.

Teaching methods/activities

- Lecture and Discussion
- Case Study
- PPT presentation

Learning outcome

To provide the students an understanding about the agribusiness cooperative organizations and their management.

Suggested Reading

- Kamat GS. 2011. New Dimensions of Cooperative Management. Himalaya Publ. House.
- Ansari AA. 1990. Cooperative Management Patterns. Anmol Publications.
- Ravichandran and Nakkiran. 2009. Cooperation (Theory & Practice) Neha Publishers & Distributors
- Sah AK. 1984. Professional Management for the Cooperatives. Vikas Publ. House.
- Anwar SA. HRM Practise in Cooperative Sector. Idea Publishing.

#14. Dairy Business Management

Course Code: CUTM4081

Credit Hours: 1 (0-0-1)

Course Objectives

To emphasize on the application of Principles of Management in dairy business with special emphasis on co-operative dairy units. The emphasis shall be on main functional areas like Finance, Marketing, Human Resources, Production, and Information Technology.

Course Outline

Module 1: Introduction

Unit 1: Dairy Development in India: Dairy organizations: functioning, Challenges and Opportunities, Anand pattern dairy Cooperatives: features and impact; Public sector dairy schemes, Dairy Development schemes, Dairy problems and policies, National Dairy Plan-I, Rise of Producer Companies. Policy Frameworks in context to dairying.

Unit 2: Dairy Plant Management System: Production Planning and control in dairy plants, milk procurement from the rural milk producer, milk processing and products manufacturing. Pricing and marketing of milk and milk products. Survey on milk production potential and marketed surplus of milk for setting up of milk plants, energy utilization, Conventional and nonconventional sources of energy used in dairy sector. Concept of Quality; TQM concept and Kaizen in Dairy Industry, new concepts in quality assurance (HACCP; ISO certification); patent laws, pollution control laws in relation to dairy plants. Guidelines for obtaining ISO/HACCP certification for dairy plants. SQC in dairy operations.

Module 2: Dairy Business Strategy:

Unit 1: Marketing Management, Supply Chain, and International Trade in Dairy sector: Marketing- mix in relation to dairy sector, marketing environment, Marketing Opportunities Analysis in Milk and Milk Products: Demand status of Milk and milk products in the country, growth rates, Marketing research and marketing information systems; Market measurement present and future demand; Market forecasting. Market segmentation, Product-mix; Promotion mix decisions; Advertising; Sales Promotion. Food and Dairy Products Marketing, Consumer Buying Behaviour; New product development process; Price determination and pricing policy;

International Marketing; Marketing, Composition & direction of Indian exports; Exports-Direct exports, indirect exports; WTO and its Implications; SPS/TBT; Supply chain Management in Dairy sector; Logistics Management: Primary and Secondary Markets; Distribution channels; chilling points.

Unit 2: Strategic, HR Management and Entrepreneurship in Dairy Sector: PESTLE analysis, BCG matrix, Strategic Management in dairy industry, Governance Structure in Dairy Sector, Management control System. Organisational Performance parameters – Quantitative and Financial, Use of Balanced Score card and other strategy control tools. HR management practices in dairy sector, Promotions, transfers employee remuneration and other HR benefits and problems. Motivation, turnover, employee capacity building, Training, and orientation etc. social and business economics; industrial relations and human values; labour laws; trade unionism Business Plan Preparation; TIDP plant setting; Compliances Systems in Dairy Industry.

Unit 3: Financial Management and Financial Analysis in dairy sector: Nature and uses of financial analysis, Liquidity ratios, Leverage ratios, Activity ratios, Profitability ratios, Utility of Ratio analysis. Sources of long-term capital in dairy Industry: Grants from NDDDB, Grants from NABARD, Government and Other Schemes, cost of debt, debentures, preference share capital, equity share capital & retained earnings, overall cost of capital. Capital budgeting in dairy Industry. Various techniques: NPV, IRR, etc. Financial Planning and control in dairy Industry: Budgeting process, Problems and practices in Budgeting and evaluation. Cost Volume – Profit analysis and operating leverage, Break-even analysis, Profit analysis and operating analysis, Utility of CVP analysis. Costing in Dairy sector: Costing Techniques and Costing of various dairy products – Milk costing based on Fat and SNF, Ice cream, milk, Paneer, etc. Essentials of sound costing system. Different methods of costing, elements of cost: Labour- recording of time, idle time, methods of remunerating labour, Premium & Bonus Plans, Materials, Overheads.

Teaching methods/activities

- Lecture and Discussion
- Case Study
- PPT presentation

Learning outcome

- To understand the overall scenario of dairy and develop insights in managing dairy as an entrepreneurial venture.
- To enhance the Decision making, Critical thinking and the problem-solving capabilities of the students.
- To bring out the hidden potential and entrepreneurship aptitude of the students and to encourage team building activities.

Suggested Reading

- Acharya R M and Kumar P. Dairy Production & Business Management EIRI, Dairy Farming
- Rao Venkateswara, Dairy Farm Business Management
- Singh Umashankar, Dairy Farming

#15. Agri Extension Management

Course Code: CUTM4082

Credit Hours: 1 (0-0-1)

Course Objectives

To equip the extension functionaries in latest tools and techniques for participatory decision making and to develop an insight into various extension models to enrich the agri - value chain.

Course Contents

Module 1: Introduction

Unit 1: 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 2: 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.

Module 2: Implications and Contemporary Issues

Unit 1: Implications of WTO: OA for extension services, re-orientation of extension services for agri-business and marketing activities, GOI- NGO collaboration to improve efficiency of extension.

Unit 2: 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.

Teaching methods/activities

- Lecture and Discussion
- Case Study
- PPT presentation

Learning outcome

By the end of the course student will be able to critically analyse 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.

Suggested Reading

- Bagchi J. 2007. Agriculture and WTO Opportunity for India.

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

#16. Renewable Energy Sources Management

Course Code: CUTM4083

Credit Hours: 1 (0-0-1)

Course Objectives

The course aims to provide fundamental clarity regarding various renewable & alternative energy sources/ technologies options available today, its usage potential & related aspects like cost, impact on environment, etc.

Course Outline

Module 1: Introduction

Unit 1: Introduction: Concept on alternate and non-conventional energy sources. Biofuels, Geothermal, Ocean, Hydropower, Biogas, Solar and Wind energy.

Unit 2: Commercial application: Commercial application of renewable energy sources and its benefits. Government Policy towards promoting renewable energy.

Module 2: Institutional Framework and Types

Unit 1: Institutional Framework: MNRE, CREDA-Renewable Energy Development Authority, State level Renewable Energy Development Agency, Society of Renewable Energy.

Unit 2: Devices for renewable energy development: Biogas plant, Windmills, Solar Cells – Solar Pumps, Solar Dryers, Solar water heating system, etc.

Teaching methods/activities

- Lecture and Discussion
- Case Study
- PPT presentation

Learning outcome

To provide an insight to the meaning and concepts of Renewable energy resources development and Institutional support as well as Government policy framework.

Suggested Reading

- Sorensen B. 2010. Renewable Energy: Physics, Engineering, Environmental Impacts, Economics and Planning, Elsevier Publishing; 4th Edition.
- Armaroli N, Balzani V and Serpone N. 2013. Powering Planet Earth–Energy Solutions for the Future, Wiley.
- Boyle G. 2012. Renewable Energy: Power for a Sustainable Future, Oxford; 3rd Edition.
- Twidell J, Weir T. 2013. Renewable Energy Resources, CRC Press; 3rd Edition.
- Ahmed AI. Renewable Energy Sources by Jain Brothers.

#17. Quality Management for Agri Business

Course Code: CUTM4084

Credit Hours: 1 (0-0-1)

Objectives

The focus of the process is to improve the quality of organizations outputs, including goods and services, through continual improvement of internal practices.

Course Outline

Block 1: Introduction

Unit 1: Basic concepts of quality management: importance of quality and the role of quality assurance in agribusiness.

Unit 2: Total Quality Management: TQM and business strategy. Quality control process and its relevance.

Module 2: Quality Grades, Standards and Control

Unit 1: Quality grades and standards: Overview and relevance, benefits to consumers, producers and food processors, food grades and standards for various food commodities; cereals, fruits and vegetables, meats, poultry products.

Unit 2: Statistical to quality control: Statistics relevant to quality control, quality control charts used in the food industry, process control to assure food quality, food processing.

Unit 3: Food quality standards: Food quality standards and world food trade. HACCP, ISO9000, auditing and certification.

Teaching methods/activities

- Lecture and Discussion
- Case Study
- PPT presentation

Learning outcome

The course will help the students to understand the quality standards in agribusiness.

Suggested Reading

- Luning PA, Marcelis WJ. 2009. Food Quality Management: Technological and Managerial Principles and Practices. Wageningen Academic Publishers
- Dale BG. 2004. Managing Quality. Blackwell Resources

#18. Advertising and Brand Management

Code: CUTM4085

Credit Hours: 1 (0-0-1)

Course Rationale

To impart basic understanding among the candidates about the advertising along with detailed aspects of brand management practices and techniques.

Course Objectives

It aims to ensure consistency of message and the complementary use of media in designing measurable, persuasive brand communication programs with consumers.

Course Contents

Module 1: Introduction

Unit 1: Introduction to Advertising Management: Integrated Marketing Communications, Setting Goals and Objectives, how advertising works: Segmentation and Positioning Assess the strengths, weaknesses, opportunities, and threats (SWOT) of different kinds of promotional campaigns.

Unit 2: Message Strategy: Attention and comprehension, advertising appeals, Associating Feelings with the Brand, Brand Equity, Image and Personality and Group Influence and word of mouth advertising, Media Planning and Media Strategy, Media Strategy and Tactics, Legal, Ethical and Social concerns of Advertising.

Unit 3: Consumer Promotions and Trade Promotions: Their purpose and types
How to plan and evaluate a successful promotion, The relationship between advertising and promotions, Introduction to Global Marketing, Advertising, and sales promotion.

Module 2: Branding Decision

Unit 1: Major Brand Concepts and branding Decision: Identifying and selecting brand name Building brand personality, image, and identity; Brand positioning and re-launch; Brand extension; Brand portfolio; communication for branding Enhancing brand image through sponsorship and even management.

Unit 2: Managing Brand Equity and Loyalty: Brand Building in Different Sectors
- Customers, industrial, retail and service brands. Building brands through Internet, social media. Building Indian brands for global markets.

Teaching methods/activities

- Lecture and Discussion
- Case Study
- PPT presentation

Learning outcome

This course investigates various promotional tools used in the communication mix, such as advertising, sales promotion, and publicity, to sell products and services. Concepts include advertising planning processes, determining advertising and promotional goals and objectives, control, and evaluation of advertising and

promotional programs, and regulatory issues. Students will develop a comprehensive advertising campaign for a real or imaginary product.

#19. Contract Farming

Course Code: CUTM4086

Credit Hours: 1 (0-0-1)

Objectives

The course provides an agreement between a farmer and a buyer. At the same time, the buyer also needs to provide the farmer with the necessary inputs required for the farm like land preparation, technical aspects etc. It is an effective means to develop markets and bring about crop rotation.

Course Outline

Module 1: Introduction

Unit 1: Need for contract farming: objectives and its definition; contract farming framework, contract farming arrangement-centralized model, nucleus estate model, multipartite model, informal model, intermediary model.

Unit 2: Project formulation and management: Coordination, crop husbandry, human resource. Advantages of contract farming for farmers and sponsors and the problems faced by them.

Module 2: Policies, Prospects and Global Issues

Unit 1: Policies for promoting contract farming: Agreement for contract farming parties, duration, produce and quality specification, delivery arrangements pricing, insurance, support services, etc.

Unit 2: Prospects of contract farming in India: Prospects of contract farming in India in view of interest for commercialization of agriculture. Active organizations in contract farming and their success stories.

Unit 3: Global issues: Global issues in contract farming, Contract farming and WTO agreement

Teaching methods/activities

- Lecture and Discussion
- Case Study
- PPT presentation

Learning outcome

To provide the students an understanding of concepts, policies, strategies, and decisions relating to marketing that can be associated with agribusiness organizations. It involves agricultural production being carried out based on an agreement between the buyer and farm producers. The farmer undertakes to supply agreed quantities of a crop or livestock product, based on the quality standards and delivery requirements of the purchaser.

Suggested Reading

- Sharma P. 2007, Contract Farming, Genetech Books
- Kuzilwa JA, Fold A, Henningsen A and Larsen MN. Contractfarming and the development of smallholder agricultural business. Routledge.
- Kumaravel KS 2006. Contract farming in India - An Introduction

#20. Agri-warehouse Management

Course Code: CUAB2324

Credit Hours: 2 (0-0-2)

Objectives:

To understand warehouse operations in agriculture, develop inventory management skills, enhance supply chain coordination, implement quality control measures, and foster innovation and sustainability in the agricultural value chain.

Course Contents

Module-I

Agri Warehouse Functions, Agri warehousing operations, Agri Warehouse Inventory Management.

Module-II

Agri warehouse storage and material handling, Agri Warehouse Management Systems,

Module-III

Agri warehouse costing (Categories of warehouse costs, Managing labour expenses, The importance of slotting),

Module-IV

Agri warehouse manager Roles, Safety and Health in Agri warehouses.

Project Work:

Visit to agricultural warehouse and submit a detailed report on various operations carried out in the same.

#21. Commodity Market and Trading

Course Code: CUDM2378

Credit Hours: 2 (0-0-2)

Course Objective

- Understand the intricacies of operating in commodity derivatives market.

Course Outcomes

- Understanding commodity trading ecosystem and standard procedures.
- Get a clear picture of hedging, speculating and arbitrage practices.

- Understand how to manage risk through hedging strategies.

Course Outline

Module-I

Commodity Markets: Key Characteristics, Market Participants, Commodity Investments, Commodity Return and Volatility, Commodity Return Correlations, Commodity Hedging. Commodity Indexes: Concepts, Index Composition, Index Weights, Index Rebalancing and Return and Volatility calculation of Commodity Indexes. Futures and Forwards on Commodities and its Indexes. Mechanics of Future Markets: Specification of futures contracts, margin money on Futures Contract, Daily Settlement of the contracts and margin call and Futures Clearing Corporation.

Module-II

Futures pricing and Hedging strategies using Futures. Difference between Futures and Forwards. Options on Commodities and its Indexes, Types of Options, Options Clearing Corporations, Trading Strategies involving options, Combinations of options –spreads, straddle, strips, straps and strangle. Pricing of options –Black & schools Model, Option Greeks, and Delta Hedging. Swaps, Modus Operandi of Swaps, Mechanics of Interest Rate Swaps, Valuation of Interest Rate Swaps, Credit Risk in Swaps.

Suggested Readings

- Guide to Indian Commodity Market-Ankit Gala & Jitendra Gala

#22. Financial Inclusion and Micro Finance

Course Code: CUTM1932

Credit Hours: 2 (0-0-2)

Course Objective

- To understand the role and operation of financial inclusion.
- To understand the principle and operation of micro finance industry.

Course Outcome

- The students will be able demonstrate knowledge and skills related to financial institutions, micro-insurance, and other financial products.

Course Outline

Module: I

- Financial inclusion: Definition, objectives of financial inclusion, Importance of FI in country like India, Govt. initiatives for FI, Pradhan Mantri Jan Dhan Yojana, Financial inclusion in digital age, FI and Direct Benefit transfer, Socio-economic implications of FI.

Module: II

- Basic principles, functions, and types of banking: Types of customers and their accounts, deposit accounts, loans & advances, know your customers, development banks, electronic banking. Lacuna in banking system.
- Micro finance concept, Micro banking, financial products and services, microfinance delivery methodologies, Types of micro finance institutions: Legal and regulatory framework, Funding sources for MFIs, MUDRA Bank, Challenges of MFIs, Impact of micro finance on poverty alleviation.
- Various micro insurance models: process of micro insurances, micro insurance products, issues, and challenges in micro insurance.

Suggested Readings

- Indian Institute of Banking & Finance, Micro-finance Perspectives and Operations, Macmillan India Ltd, New Delhi.
- K. G. Karmakar, Microfinance in India, SAGE Publications India, New Delhi.
- Orientation Manual on Micro Insurance for Microfinance Institutions, FWFB, Gujarat.

#23. Rural Marketing

Course Code: CUMM2360

Credit Hours: 4 (2-1-1)

Course Objectives

- To familiarize participants with environment, challenges, opportunities, strategies, and methodology for emerging markets.
- To sensitize the students towards the needs and behaviour of rural consumers and strategies implemented to fulfil them.
- To utilize the understanding on peculiarities of rural markets and the decision-making process involved.

Course Outcomes

- Students will be able to understand the concepts and techniques of marketing management and their application in rural marketing.
- It shall facilitate the student in understanding the rural marketing mix (4 A's) to meet the needs of rural consumers which will help the students in achieving employment in FMCG companies.
- It will help any student who wants to become an entrepreneur and he/she wants its product would enter the rural market for promotion of his products and services.

Course Contents

Module-I: Rural Marketing Overview: Introduction to Rural Markets Rural India- a promising Market place, Rural Economy- A reality check, Issues and Challenges in marketing in rural India, Understanding 'Fortune at the bottom of Pyramid', Rural Market Environment: Rural Market Structure and Importance of Rural Markets, Factors of market environment, Rural Producers & Rural Consumers, Rural Consumer Behaviour: Factors affecting consumer behaviour, Characteristic of rural consumer, Opinion leadership process, Consumer buying process.

Module-II: Rural Marketing Strategy: Rural Market Segmentation, Conditions for Effective Market Segmentation, Approaches for Segmenting the Rural Market, Targeting and Selection of Segments, Positioning Rural Products, 4Ps of Marketing Mix and 4As of Rural Marketing mix. Rural Marketing Research: Process of Research in Rural Markets, Sources and Methods of Data Collection, Data Collection Approaches in Rural Markets.

Module-III: Rural Product Strategy: Market for Agricultural Inputs, Consumable inputs, Capital inputs, Marketing of agricultural produce, Regulated markets, Cooperative Marketing & Processing Societies, Corporate Sector in Agri-Business: Cultivation, Processing & Retailing, Rural Marketing of FMCGs, Durables & Financial Services. Rural Pricing: Production costs, Finalization of price, Rural pricing strategies and rural competition and pricing.

Module- IV: Rural Distribution: Distribution Patterns for Consumer and Industrial Goods, Customer Convenience Buying, Village retailers, rural hats and fairs, public distribution system (PDS), Cooperative societies, and prevalent distribution models (corporate). Rural Promotion: Rural Advertising, Advertising Mix Factors and Media Planning, Public Relations, Direct Marketing, Folk media, Melas. Innovations in rural markets: Role of innovations in rural markets, Importance of ICT, ICT initiatives in rural markets, Emergence of organized retailing.

Suggested Reading

- The Rural Marketing Book, Text, and Practices- Pradeep Kashyap& Siddhartha Raut, Biztantra.
- The Fortune at the Bottom of the Pyramid – Dr. C K Prahalad, 2005 Edition, Wharton School.
- Rural Marketing- Ramakrishnan. L, Krisnamacharyullu. C.S.G, Pearson Education.

#24. Agriculture Analytics

Course Code: CUTM2801

Credit Hours: 3 (0-2-1)

Objectives

The objective of this course is to develop analytical skills, understand agricultural systems, apply technology and tools, foster strategic decision making, and promote ethical and sustainable practices in agriculture.

Course Outline

Module-1

Basic Statistics review, Review of descriptive statistics, Interpretation, and visualization of agricultural data

Module-2

Inferential statistics involves generating, from a limited data set, Information about statistical relationships and estimates about a population, Hypothesis testing and ANOVA, Design of experiments.

Module-3

Simple linear regression, Multiple regression, Time series analysis, Growth and instability study in crop productivity, Response surface methodology for input output optimization.

Case study-

Statistical analysis on price index of different agricultural commodities.

Description: A price index is a normalized average (typically a weighted average) of price relatives for a given class of goods or services in each region, during a given interval of time. Price indices have several potential uses. For particularly broad indices, the index can be said to measure the economy's general price level or a cost of living. More narrow price indices can help producers with business plans and pricing. Sometimes, they can be useful in helping to guide investment.

Study under coverage- Consumer price index, producer price index, export and import price index for agriculture commodities.

Agriculture crop production modelling and forecasting

Description:

Modelling and forecasting of agricultural crop production is essential for policy maker and researcher to predict the future behaviour of production or productivity.

Study under coverage –

Different crop modelling and forecasting for area, production, productivity.

OTHER COURSES

#1. Strategic Management

Course Code: CUTM1929

Credit Hours- 4 (2-0-2)

Learning Outcome

- Analyse the main structural features of an industry and develop strategies that position the firm most favourably in relation to competition and influence industry structure to enhance industry attractiveness.
- Recognize the different stages of industry evolution and recommend strategies appropriate to each stage.
- Appraise the resources and capabilities of the firm in terms of their ability to confer sustainable competitive advantage and formulate strategies that leverage a firm's core competencies.
- Demonstrate an understanding of the concept of competitive advantage and its sources and the ability to recognize it in real-world scenarios.

- Distinguish the two primary types of competitive advantage: cost and differentiation and formulate strategies to create a cost and/or a differentiation advantage.
- Analyse dynamics in competitive rivalry including competitive action and response, first-mover advantage, co-opetition, and winner-take-all, and make appropriate recommendations for acting both proactively and defensively.
- Formulate strategies for exploiting international business opportunities including foreign entry strategies and international location of production.

Course Outline

Module 1: Concept of organization Strategy:

Definition, nature, scope, and importance of organization strategy, levels of strategy, the process of organization strategy, strategic intent: Vision, Mission, Business definition, Goals, and Objectives. Environmental Scanning – organization Flexibility & Environmental Impact. Environment Analysis – SWOT Analysis, 5C Analysis, PESTEL Analysis, Competitive Analysis – Porter’s Five Force Model, Internal Analysis – Porter’s Value Chain Analysis.

Practical:

1. Case Study analysis – Apple Inc., CleanSpritz.
2. Evaluate a company of your choice in the context of Porter’s Value Chain.

Module 2: Strategic Alternatives:

Organizational Level Strategies - Stability, Expansion, Retrenchment and Combination strategies. External Growth Strategy. Business Level Strategies - Porter’s framework of competitive strategies; Conditions, risks and benefits of Cost leadership, Differentiation and Focus strategies, Benchmarking, Functional Strategies – Finance, Marketing, HR, IT & Production Strategies.

Practical: 1. Case Study analysis – Colgate Max Fresh.

Module 3: Strategic Analysis:

Three-stage framework for choosing among alternative strategies. SWOT Matrix, SPACE Matrix, BCG Matrix, IE Matrix, and QSPM. Importance of behavioural, political, ethical, and social responsibility considerations in strategy analysis and choice, Role of intuition in strategic

analysis and choice, Role of organizational culture in strategic analysis and choice, Role of a board of directors in choosing among alternative strategies.

Practical: 1. Case Study analysis – Crescent Pure, McDonald's in India. 2. Evaluate any FMCG company in terms of the BCG Matrix.

Module 4: Organization Strategy Implementation:

Process, Issues and Resource allocation, Organization structure and systems in strategy implementation. Leadership and corporate culture, Values, Ethics, and social responsibility. Strategy Formulation vs. Strategic Implementation, Mintzberg Model, McKinsey 7-S framework model. Strategic Evaluation and Control – Overview, Criteria & Process of Strategic Evaluation, Strategic Evaluation Assessment Matrix. Requirements of Effective Evaluation, Strategic Control – Meaning, Types, Techniques of Strategic Evaluation & Control, Strategic Control vs Operational Control, Balance Scorecard approach to Strategy

Case Study analysis – Mountain Man Brewing Co.

Conduct a Strategic Audit for any company of your choice.

Suggested Readings

1. Fred R David, Forest R David. (2015). Strategic Management- Concepts and Cases, Pearson Education India, 15th Edition.
2. Kazmi, Azhar (2009). Business Policy and Strategic Management, Tata Hill, 2nd Edition McGraw.
3. G Hamel & C K Prahalad (2002). Competing for the Future, Tata McGraw Hill Publishing Co. Ltd.
4. Cherunilam, F. (2016). Strategic Management, Himalaya Publishing House.

