

# **FACULTY OF AGRICULTURAL SCIENCES**

## **SYLLABUS**

**MBA (Agribusiness)  
(2023-24)**



**SHREE GURU GOBIND SINGH TRICENTENARY UNIVERSITY  
GURUGRAM (DELHI-NCR)**

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## 1. Executive Summary

Agri-Business Management is actually a career-focused programme. This will provide young agricultural graduates with new opportunities. On the one hand, they will discover employment opportunities in both public and private sector businesses. On the other hand, they might feel motivated and prepared to launch their own businesses. This programme will provide numerous managerial, executive, and officer positions in both the corporate and public sectors.

- This curriculum will also equip students to launch their own businesses.
- In addition to upgrading and adding core management stream courses, applied courses have been established to address the demands of diverse stakeholders and sectors in the agricultural sector.
- The requirement for mandatory summer training or industrial attachment will give students actual experience in real-world scenarios.
- Course goals and suggested readings have also been supplied for each course to assist the students.
- A list of journals has also been provided so that you can stay up to date on recent advancements in the field.

### 1.1. Organization of Course Contents & Credit Requirements

#### 1.1.2. General Information about Course Contents

The contents of each course have been organized into:

- (i) Objective (s) – to elucidate the basic purpose.
- (ii) Theory units – to facilitate uniform coverage of syllabus for paper setting.
- (iii) Suggested Readings – to recommend some standard books as reference material. This does not unequivocally exclude other such reference material that may be recommended according to the advancements and local requirements.

#### 1.1.3. Minimum Credit Requirement

Subject*	Master's Programme
Major	20
Minor	8
Supporting	6
Seminar	01
Summer Internship	10
Research Project	20
Total Credits	70
Compulsory Common Courses	05

**Note:** The course code ABM will be for MBA (Agribusiness). Each course will be of 100 marks (70 external and 30 internal) **except Project**.

\* All Students will go for 6-8 week practical summer training in companies after completion of the first year second semester. Students have to present and submit the training report to the Department which will be evaluated internally.

\*\*Every student will take up a research project in consultation with the advisor/head of the department and will submit a written report to the department before the commencement of second semester examination of second year. **External examiner** will evaluate and also conduct viva voce based on project report and award marks out of 100.

## 2. MAJOR SUBJECT

### 2.1. Courses' Structure at a Glance

S. No.	Course Code (ICAR)	Course Code (SGTU)	Course Title	Credits
1	ABM 501		Principles of management and organizational behavior	3+0
2	ABM 502		Managerial accounting and control	3+0
3	ABM 503		Applied Agribusiness economics	2+0
4	ABM 504		Human Resource Management for Agricultural Organizations	2+0
5	ABM 505		Production and Operations Management	2+0
6	ABM 506		Agricultural and Food Marketing Management- I	2+0
7	ABM 507		Agricultural and Food Marketing Management- II	2+0
8	ABM 508		Agri Supply Chain Management	2+0
9	ABM 509		International Trade for Agricultural Products	2+0
10			Seminar	1(1+0)
11			Project	20

Major subject: The subject (discipline) in which the students take admission.

Minor subject: The subject closely related to major subject.

Supporting subject: The subject not related to the major subject. It could be any subject considered relevant for student's research work.

**Non-Credit Compulsory Courses: Please see Section 5 for details. Six courses are of general nature and are compulsory for Master's programme.**

#### 2.1.1. Course Content

##### **Principles of management organizational behaviour**

**Paper code:**

**Credits: 3 (3+0)**

##### **Contents**

**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

**Unit III:** Nature, Scope and Significance of Organizational Behavior; 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, teambuilding and developing collaboration, leadership styles and influence process, leadership theories, leadership styles and effective leader

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

### **Suggested Readings**

- Robbins SP, Coulter M and Vohra N. 2010. *Management*. Pearson Edu.
- Wehrich 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. 2017, *Organizational behavior*, 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 Weighrlich K. 2010. *Essentials of Management*. Tata McGraw Hill

## **Managerial Accounting and Control**

**Paper code:**

**Credits: 3(3+0)**

### **Contents**

**Unit I:** Financial Accounting- Meaning, Need, Accounting principles: Accounting Concepts and Conventions; Branches of Accounting, Users of Accounting information, Advantages and Limitations of Financial Accounting, Accounting Standards

**Unit II:** The Double Entry System- Its Meaning and Scope, The Journal, Cash Book, Ledger, Trial Balance, Trading Account Profit and Loss Account, Balance Sheet, entries and adjustments of different heads in different Books and Accounts, Introduction of Company Accounts, Use of Accounting Software

**Unit III:** Management Accounting-Meaning, Functions, Scope, Utility, Limitations and Tools of Management Accounting, Analysis of Financial Statements- Ratio, time series, common size and Du pont Analysis, Comparative and Common Size Statements, Cash Flow and Fund Flow Analysis

**Unit IV:** Cost Accounting–Nature, Course, Significance of Cost Accounting; Classification of Cost, Costing for Material; Labour and overheads; Marginal Costing and cost volume profit Analysis- Its Significance, Uses and Limitations; Standard Costing – Its Meaning, Uses and Limitations, Determination of Standard Cost, Variance Analysis-Material, Labour and Overhead.

**Unit V:** Budget and Budgetary Control- Meaning, Uses and Limitations, Budgeting and Profit planning, Different Types of Budgets and their Preparations: Sales Budget, Purchase Budget, Production Budget, Cash Budget, Flexible Budget, Master Budget, Zero Based Budgeting. Mergers and Acquisition, Tax System- GST

### **Suggested Readings**

- Jain SP and Narang KL. 2014. *Financial Accounting*. 12th Edition. Kalyani publisher
- Sharma and Gupta. 2018. *Management Accounting* 13th Edition, Kalyani Publisher
- Maheshwari SN and Maheshwari SK. 2018. *Financial Accounting*. 6th Ed. Vikas Publ. House.

## Applied Agribusiness Economics

**Paper code:**

**Credits: 2(2+0)**

### Contents

**Unit I:** Scope of managerial economics, objective of the firm and basic economic principles; mathematical concepts used in managerial economics. Introduction to behavioral economics

**Unit II:** Indifference curves and budget sets - Demand analysis - meaning, types and determinants of demand; demand function; demand elasticity; demand forecasting-need and techniques.

**Unit III:** Production, cost and supply analysis- production function, Multi period production and cost least-cost input combination, factor productivities and returns to scale, cost concepts, cost-output relationship, short and long-run supply functions.

**Unit IV:** Pricing-determinants of price - pricing under different market structures, pricing of joint products, pricing methods in practice, government policies and pricing. Price discrimination (First, Second and Third level)

**Unit V:** The national income; circular flow of income: consumption, investment and saving: money-functions, factors influencing demand for money & supply of money; inflation; economic growth; business cycles and business policies; business decisions under certain and uncertain situations

### Suggested Readings

- Dwivedi DN. 2015. *Managerial Economics*. 8th Edition, Vikash Publishing
- Gupta GS. 2015. *Managerial Economics*. Tata McGraw Hill
- Savatore D. Srivastav R. 2012. *Managerial Economics*. 7th Edition, Oxford University Press
- Suma Damodaran. 2010. *Managerial Economics*. Oxford

## Human Resource Management for Agricultural Organisations

**Paper code:**

**Credits: 2(2+0)**

### Contents

**Unit I:** Strategic Human Resource Management, Human Resource Planning-Nature and Significance, Job Analysis and talent management process, Job Description, job Specification, Job enlargement, Job enrichment, Job rotation

**Unit II:** Recruitment and Selection Process, Induction, Training and Human Resource Development-Nature, Significance, Process and Techniques, e- recruitment, use of Big Data for recruitment, use of Artificial Intelligence and machine learning tools in recruitment practices Career planning and Development Internal mobility including Transfers, Promotions, employee separation.

**Unit III:** Performance Appraisal-Significance and methods, Compensation management, Strategic pay plans, Job Evaluation, Wage and Salary Administration; Wage Fixation; Fringe Benefits, Incentive Payment, bonus, and Profit Sharing

**Unit IV:** Role and Status of Trade Unions; Collective Bargaining; Worker's Participation in Management, employee retention. Quality of work life, employee welfare measure, work life balance, Disputes and Grievance Handling Procedures; Arbitration and Adjudication; Health and Safety of Human Resources;

**Unit V:** Ethical issues in HRM, Managing Global Human Resources, Managing Human Resources in Small and Entrepreneurial firms, Human Resources accounting, Human Resources outsourcing. HR Information System, Human Resource Metrics and Workforce Analytics, Future trends in workforce technologies.

### **Suggested Readings**

- Gary Dessler&BijuVarkkey 2016, *Human Resource Management*, XIV Edition, Pearson India
- VSP Rao. 2010, *Human Resource Management, Text and Cases*, 3rd Edition, Excel Books
- Ashwathapa K. 2016. *Human Resource Management, Text and Caes*. Tata McGraw Hill
- Michael J. Kavanagh, Mohan Thite& Richard D. Johnson. 2016, *Human ResourceInformation Systems*, Sage Publications
- SubbaRao P. 2004. *Essentials of Human Resource Management and Industrial Relations*. Himalaya Publ. House.

## **Production and Operations Management**

**Paper code:**

**Credits: 2(2+0)**

### **Contents**

**Unit I:** Nature Concept and Scope of Production and Operations Management; Factors Affecting System; Facility location, Types of Manufacturing Systems and Layouts, Process Selection and Facility Layout, Layout Planning and Analysis, Forecasting

**Unit II:** Operations Strategy: Operations Strategy, Competitive Capabilities and Core Competencies, Operations Strategy as a Competitive Weapon, Linkage Between Corporate, Business, and Operations Strategy, Developing Operations Strategy, Elements or Components of Operations Strategy, Competitive Priorities, Manufacturing Strategies, Service Strategies, Global Strategies and Role of Operations Strategy.

**Unit III:** Productivity Variables and Productivity Measurement, Production Planning and Control, Mass Production, Batch Production, Job Order Manufacturing, Product Selection, Product Design and Development, Process Selection, Capacity planning.

**Unit IV:** An Overview of Inventory Management Fundamentals, Determination of Material Requirement, Safety Management Scheduling, Maintenance Management Concepts, Work Study, Method Study, Work Measurement, Work Sampling, Work Environment, Production Planning and Control (PPC) Industrial Safety, human- machine interface, types of interface designs. Cloud operations management

**Unit V:** Quality Assurance, Accepting Sampling, Statistical Process Control, Total Quality Management, ISO standards and their Importance, Introduction to re- engineering, value engineering, check sheets, Pareto charts, Ishikawa charts, JIT Engineering, Safety Engineering, Fault Tree Analysis.

### **Suggested Readings**

- William J. Stevenson. 2014. *Operations Management*, 12th Edition, McGraw-Hill
- Panneerselvam K. 2012. *Production and Operations Management* 3rd Edition, Prentice Hall India Learning Private Limited
- S. N Chary, 2017. *Production and Operations Management*, McGraw Hill Education; 5 edition

# Agricultural And Food Marketing Management-I

**Paper code:**  
**Credits: 2(2+0)**

## Contents

**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

**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

**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

**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

## Suggested Readings

- Kotler P, Keller K, Koshy A and Jha M. 2013. *Marketing Management–Analysis, Planning, Implementation and Control*. Pearson Education.
- Ramaswamy VS. 2017. *Marketing Management: A Strategic Decision Making Approach*
- McGraw Hill Education
- Saxena R. 2009. *Marketing Management*. McGraw Hill. 4th Edition
- William Perreault Jr., McCarthy E. Jerome., 2006, *Basic Marketing: A Global Marketing Approach*, Tata McGraw Hill
- Gay R, Cjarlesworth 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

## **Agricultural and Food Marketing Management-II**

**Paper code:**

**Credits: 2(2+0)**

### **Contents**

**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, Co-operatives in the agriculture and food sectors, Control and management of secondary co-operatives, The weaknesses of co-operatives, Selling arrangements between co-operatives 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

**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 behavior: 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

**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

### **Suggested Readings**

- Acharya SS and Agarwal NL. 2011. *Agricultural Marketing in India*. 4th Ed. Oxford and IBH  
 Kohls RL and Uhj JN. 2005. *Marketing of Agricultural Products*. 9th Ed. Prentice Hall.  
 Sharma Premjit. 2010. *Agri-Marketing Management*, Daya Publishing House

## **Agri Supply Chain Management**

**Paper code:**

**Credits: 2(2+0)**

**Unit 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

**Unit 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.

**Unit 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).

**Unit 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.

**Unit 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 Readings**

- Acharya SS and Agarwal NL. 2011. *Agricultural marketing in India*. Oxford and IBH.
- Altekar RV. 2006, *Supply Chain Management: Concepts and Cases*. PHI
- 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.
- Singh S. 2004. *Organic Produce Supply Chains in India-Organisation and governance*. Allied Publ.

## **International Trade in Agricultural Products**

**Paper code:**

**Credits: 3(3+0)**

**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

**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 and documentations.

### **Suggested Readings**

- 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*.

### 3. MINOR SUBJECT (AGRIBUSINESS MANAGEMENT)

#### 3.1. Courses' Structure at a Glance

Course Code (ICAR)	Course Code (SGTU)	Course Title	Credits
<b>Agribusiness Management</b>			
ABM 510		Food Technology and Processing Management	3+0
ABM 511		Rural Marketing	3+0
ABM 512		Fertiliser Technology and Management	3+0
ABM 513		Management of Agro-Chemical Industry	3+0
ABM 514		Seed Production Technology Management	3+0
ABM 515		Technology Management for Livestock Products	3+0
ABM 516		Fruit Production & Post Harvest Management	3+0
ABM 517		Farm Power & Machinery Management	2+0
ABM 518		Food Retail Management	2+0
ABM 519		Management of Agricultural Input Marketing	2+0
ABM 520		Feed Business Management	2+0
ABM 521		Management of Veterinary Hospitals	2+0
ABM 522		Poultry And Hatchery Management	2+0
ABM 523		Management Of Floriculture And Landscaping	2+0
ABM 524		Risk Management In Agri Business	2+0
ABM 525		Management Of Agri-Business Co-Operatives	2+0
ABM 526		Business Analytics for Agriculture	2+0
ABM 527		Dairy Business Management	2+0
ABM 528		Agri Extension Management	2+0
ABM 529		Renewable Energy Sources Management	2+0
ABM 530		Quality Management for Agri Business	2+0
ABM 531		Advertising And Brand Management	2+0
ABM 532		Agri Infrastructure and Warehousing Management	2+0
ABM 533		Contract Farming	2+0
ABM 534		Human Resource Competence And Capacity Building Systems	2+0
ABM 535		Agri Commodity Markets And Futures Trading	2+0

### 3.1.1 Course Content

#### Food Technology and Processing Management

**Paper code:**

**Credits: 3(3+0)**

##### Contents

**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.

**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.

##### Suggested Readings

- 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

#### Rural Marketing

**Paper code:**

**Credits: 3(3+0)**

##### Contents

**Unit 1:** Rural Market Concept & Scope: Concept, Definition and Scope of rural marketing, nature and characteristics of rural markets, potential of rural markets in India, rural V/S urban market.

**Unit 2:** Environmental factors: Socio-cultural, economic, demographic, technological and other environmental factors affecting rural marketing.

**Unit 3:** Rural finance: Concept, demand, banking model; Finance Schemes of NABARD, Other Schemes of State Govt, Central Govt.

**Unit 5:** Rural consumer's behavior: Behavior of rural consumers and farmers; buyer characteristics and buying behavior; customer relationship management, rural market research.

**Unit 6:** Rural Product strategy: Marketing of consumer durable and non-durable goods and services in the rural markets with special reference to product planning; marketing mix, product mix.

**Unit 7:** Pricing for rural markets: Pricing policy and pricing strategy, distribution strategy, Rural retailing and modern store formats in rural areas.

**Unit 8:** Promotion and communication strategy: Media Planning, Distribution channels, personal selling strategies in rural markets, innovations in rural marketing

#### **Suggested Readings**

- Krishnamacharyulu and Ramakrishnan. 2010. *Rural Marketing: Text and Cases*: Pearson Education. 2nd edition
- Singh S. 2004. *Rural Marketing: Focus on Agricultural Inputs*, Vikas Publishing
- Kashyap P. 2011. *Rural Marketing*. Pearson Education
- Kumar D and Gupta P. 2017. *Rural Marketing: Challenges and Opportunities*. Sage Publications.

### **Fertilizer Technology and Management**

**Paper code:**

**Credits: 3(3+0)**

#### **Contents**

**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

**Unit 4:** Testing facilities; constraints in fertilizer use; assessment of demand and supply of different fertilizers, fertilizer distribution, fertilizer storage.

**Unit 5:** Field trials and demonstrations; environmental pollution due to fertilizers

#### **Suggested Readings**

- 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

### **Management of Agro Chemical Industry**

**Paper code:**

**Credits: 3(3+0)**

#### **Contents**

**Unit 1:** Introduction: Agro-chemicals: Definition and classification; Basic knowledge of agro- chemicals; 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 equipments.

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

**Unit 4:** Insecticide Act: Introductory knowledge about development of agro- chemicals; Insecticidal poisoning, symptoms and treatment; Main features of Insecticide Act.

**Unit 5:** Plant Protection: Directorate of Plant Protection, Quarantine and Storage– A brief account of its organizational set up and functions; IPM Concept – Bio- pesticides – Plant products.

#### Suggested Readings

- Dhaliwal GS, Singh R and Chhillar BS. 2014. *Essentials of Agricultural Entomology*. Kalyani Publishers.
- Hayes WT and Laws ET. 1991. *Hand Book 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.

### **Seed Production Technology Management**

**Paper code:**

**Credits: 3(3+0)**

#### **Contents**

**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.

**Unit 2:** 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 3:** Maintenance of genetic purity: Minimum seed certification standard and Management of breeders & Nucleus seed; Management of seed testing laboratory and research and development.

**Unit 4:** Management of seed processing plant seed storage management; seed packaging and handling.

**Unit 5:** 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.

#### Suggested Readings

- 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.

### **Technology Management for Livestock Products**

**Paper code:**

**Credits: 3(3+0)**

#### **Contents**

**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 by- products, 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.

**Unit 4:** Total quality management in processing Total quality management in processing of milk and its byproduct, meat and byproduct, value added egg and

wool, Quality control measures during storage transit; extent of losses during storage and transport, management measures to minimize the loss.

**Unit 5:** 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.

Suggested Readings

- 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.

## **Fruit Production and Post-Harvest Management**

**Paper code:**

**Credits: 3(3+0)**

### **Contents**

**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.

**Unit 3:** 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 4:** Post harvest management in horticulture process: Application of growth regulators for quality assurance, post-harvest treatments: pre cooling, heat treatments (hot water, hot air and vapor heat), fungicides & biologically safe chemicals, irradiation, curing, pulsing *etc.* Packingline 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 5:** Marketing of fruits: Problems in marketing of fruits, and government policy; quality standards for domestic and international trade.

Suggested Readings

- 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

## **Farm Power and Machinery Management**

**Paper code:**

**Credits: 2(2+0)**

### **Contents**

**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, trawlers 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.

**Unit 4:** Agricultural equipments industry: Agricultural equipments production, marketing and constraints; establishment of agricultural engineering enterprises (agro service centers, etc.). Equipment for land development and farm machinery selection: Equipment for land development and soil conservation.

**Unit 5:** 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

### Suggested Readings

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

## **Food Retail Management**

**Paper code:**

**Credits: 2(2+0)**

### **Contents**

**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.

**Unit 3:** 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 4:** Managing Retail Operations: Managing Retailers' Finances, Merchandise buying and handling, Logistics, procurement of Food products and Handling Transportation of Food Products.

**Unit 5:** 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.

#### Suggested Readings

- 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.

## **Management of Agricultural Input Marketing**

**Paper code:**

**Credits: 2(2+0)**

#### **Contents**

**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.

**Unit 2:** 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 3:** 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 4:** 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 5:** 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.

### Suggested Readings

- 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.

## **Food Technology and Processing Management**

**Paper code:**

**Credits: 2(2+0)**

### **Contents**

**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.

**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.

### Suggested Readings

- 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

## **Feed Business Management**

**Paper code:**

**Credits: 2(2+0)**

### **Contents**

**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.

**Unit 3:** 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 4:** 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 5:** Feed Distribution: Distribution channels, regulations relating to manufacture and sale of feed stuffs.

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.

#### Suggested Readings

- 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

### **Management of Veterinary Hospitals**

**Paper code:**

**Credits: 2(2+0)**

#### **Contents**

**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).

**Unit 4:** 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 5:** 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.

### **Poultry and Hatchery Management**

**Paper code:**

**Credits: 2(2+0)**

#### **Contents**

**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 equipments and physical facilities; organizing and managing a poultry farm and hatchery. Incubation and hatching Production of quality chicks and eggs; factors affecting hatchability; bio-security and hatchery sanitation; handling of hatching eggs; maintaining chick quality-chick grading, sexing, packing, dispatch, transportation and chick delivery.

**Unit 3:** 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 4:** 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.

#### Suggested Readings

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

## Management of Floriculture and Landscaping

**Paper code:**

**Credits: 2(2+0)**

#### Contents

**Unit 1:** Introduction: Introduction, importance and scope of floriculture industry and landscaping; Recent advances in floriculture industry.

**Unit 2:** Indoor and ornamental plants: Raising of foliage plants in pots, production technology of ornamental plants, commercial cultivation of flower crops (rose, jasmine gladiolus, tuberose, marigold, aster, carnation, gerbera, cillum chrysanthemum; special techniques for forcing of flowers for export.

**Unit 3:** Introduction: Drying and dehydration of flowers; bonsai; scope of landscaping, response of flowering plants to environmental stresses;

**Unit 4:** Landscape gardening: Styles of gardening; modern and traditional garden planning; Socio-aesthetic planning; use of computers in designing gardens; planning towns

**Unit 5:** Value Addition in floriculture: Extraction, purification and storage of

essential oils and perfumes; post-harvest storage changes; packing techniques of produce harvesting of flowers for export and home use, Export-Import trade in flowers and their specifications along major trading countries.

#### Suggested Readings

- Banker N. 2011. *Landscape gardening*, IBDC publishers, Lucknow
- Misra RL and Misra S. 2012. *Landscape gardening*, Westville Publishing House, New Delhi
- Chadha KL and Choudhary B. 2006, *Ornamental Horticulture in India*. ICAR. New Delhi
- Grindal EW. *Every Day Gardening in India*. DB Tarporevala Sons.
- Randhawa GS and Mukhopadhyay A. 1998, *Floriculture in India*. Allied Publ., New Delhi

## Risk Management in Agri Business

**Paper code:**

**Credits: 2(2+0)**

#### Contents

**Unit 1.** Financial Intermediation, Indian Financial system, Origin and Growth of Banking. RBI and its functions. Principles of Banking, Banking Law and Practice. Nationalization of Banks in India, Deposit Products, Lending Activities, Retail Banking, Wealth Management, Financing SMEs, Corporate

Banking, Forex Management, Fee-Based & Subsidiary Services, Plastic Money, Role of Central Banks, Emerging Trends in Banking, Fundamentals of International Banking.

**Unit 2:** Strategic Issues in Bank Marketing, Positioning Bank Services in the Market, New Product Development, Pricing and Launching, New Distribution Channels for Bank Marketing, Communicating and Promoting Bank Services, Improving Quality and Productivity, Customer Relationship Management in Banks, Globalizing Bank Services, Opportunities and Challenges in Bank Marketing.

**Unit 3:** Credit Policy in Banks, Principles of Credit Management, Objectives of Credit Management, Credit Disbursal and Monitoring, Credit Deployment and Types of Borrowers, Follow up and Recovery Management, Treasury Operations, Introduction to Risk Management in Banks, Rural Banking in India, Security Considerations, Control System in Banks, Corporate Governance in Banks, Annual Reports and Statutory Audit.

**Unit 4:** Introduction to Banking Operations, Front Office and Back Office Operations, Operational Controls, Demand Forecasting and Resource Allocation, Policy Framing – Deposits, Advances and Investments, Services Design and Delivery Strategies in Banks, Service Quality Metrics, Work Measurement and Quality Assurance, Payment and Settlement Systems, RTGS and Clearing House, Cash Management Services, Facilities Planning, ERP in Banks, BPR in Banks, IT Enabled Supply Chain Management, Disaster and Recovery Management.

**Unit 5:** Introduction to Risk, Risk Management Essentials, Measurement of Risk, Loss Exposure, Risk Management – Non-insurance Techniques, Introduction to Insurance, Principles of Insurance, Insurance Industry, Insurance Market, Insurance as Risk Management Techniques, Selection and Implementation of Risk Management Techniques.

#### Suggested Readings

- Sethi J and Bhatia N. 2012. Elements of Banking and Insurance. PHI Learning
- Jian W and Rehman A. 2016. Risk Management in Agriculture: Theories and Methods. Science Publishing group
- Hardaker JB, Huirne RBM, Anderson JR and Lien G. 2004. Coping With Risk in Agriculture, CABI Publishing, 2nd Edition
- Rose PS and Hudgins SC. 2006. Bank Management & Financial Services. Mcgraw-Hill College; 7th edition

## **Management of Agribusiness Cooperatives**

**Paper code:**

**Credits: 2(2+0)**

#### **Contents**

**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.

**Unit 3:** Cooperative Movement: The state and cooperative movement, effects of cooperative law in management, long range planning for cooperative expansion, policy making.

**Unit 4:** Human resource management: Placement and role of board of directors in cooperative management.

**Unit 5:** Overview of agribusiness cooperative: Credit cooperatives, cooperative marketing, dairy cooperative; financing agribusiness cooperative.

#### Suggested Readings

- Kamat GS. 2011. *New Dimensions of Cooperative Management*. Himalaya Publ. House.
- Ansari AA. 1990. *Cooperative Management Patterns*. Anmol Publ.
- 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.

## **Business Analytics for Agriculture**

**Paper code:**

**Credits: 2(2+0)**

### **Contents**

**Unit 1:** Introduction to data science, evolution of data science, work profile of a data scientist, career in data science, nature of data science, typical working day of a data scientist, importance of data science in agribusiness; defining algorithm, big data, business analytics, statistical learning, defining machine learning, defining artificial intelligence, data mining; difference between analysis and analytics, business intelligence and business analytics, typical process of business analytics cycle.

**Unit 2:** Fundamental of Research Fundamentals of R and RStudio, fundamentals of packages of RStudio, data manipulations, data transformations, normalization, standardization, missing values imputation, dummy variables, data visualization (2D and 3D), basic architecture of machine learning analytical cycle, descriptive analytics-case study covering data manipulation, measures of central tendency, measures of dispersion, measures of distribution, measures of associations, t-test, f-test, ANOVA, Chi-square test, basic statistical modeling framework.

**Unit 3:** Supervised machine learning: Basic framework, regression models and classification models. Linear regression, nonlinear regression, multiple regression, polynomial regression, lasso regression, ridge regression, stepwise regression, quantile regression, logistic regression.

**Unit 4:** Supervised machine learning: Linear discriminant analysis, principal component analysis, factor analysis, support vector machines, naïve Bayes, nearest neighbors, decision trees, random forest, ensemble methods, *k*-fold cross validation, X gradient boosting. Unsupervised machine learning—basic framework, concept of clustering, k-means, c-means, hierarchical clustering, hidden markov models, forecasting models (AR, MA, ARMA and ARIMA).

**Unit 5:** Deep learning: Basic framework of neural nets, types of neural nets, computer vision, object detection and localization, gradient descent optimization for loss function, regularization L1 and L2, feed forward neural nets, back propagation, recurrent neural nets, convolutional neural nets, reinforcement neuralnet, concurrent net, introduction to IoT. All the illustrations used in the syllabus of Data Science in Agribusiness will be primarily from agribusiness domains and RStudio will be used for practical purposes.

### **Suggested Readings**

- *Deep Learning with R*. MEAP Edition, Manning Early Access Program. Version 1, © 2017, Manning Publication.
- James RG, Witten D, Hastie T and Tibshirani R. 2017. *An Introduction to Statistical Learning with Application*. Springer Publication
- Millstein F. 2018. *Machine Learning With Tensorflow: A Deeper Look At Machine Learning With Tensor Flow* Frank Millstein
- Stanton J. 2012. *Introduction to Data Science*. Version 3, SAGE Publications, Inc.

## **Dairy Business Management**

**Paper code:**

**Credits: 2(2+0)**

### **Contents**

**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.

**Unit 3:** 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 4:** 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; Compliance Systems in Dairy Industry

**Unit 5:** 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

Suggested Readings

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

## **Agri Extension Management**

**Paper code:**

**Credits: 2(2+0)**

### **Contents**

**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

**Unit 3:** 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 4:** 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.

#### Suggested Readings

- Bagchi J. 2007. *Agriculture and WTO Opportunity for India*.
- Sanskruti Chambers R, Pacy A and Thrupp LA. 1989. *FarmersFirst*. Intermediate Technology Publ.
- 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. *Text Book of Extension Education*. Himanshu Publ.
- Narasaiah ML. 2005. *Agricultural Development and World Trade Organization*. Discovery Publ.
- Talwar S. 2007. *WTO Intellectual Property Rights*. Serials Publ.
- Van den Ban BW and Hawkins BS. 1998. *Agricultural Extension*. S.K. Jain Publ.
- Venkaiah S. 2001. *New Dimensions of Extension Education*. Anmol Publ.

## **Renewable Energy Sources Management**

**Paper code:**

**Credits: 2(2+0)**

#### **Contents**

**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.

**Unit 3:** Institutional Framework: MNRE, CREDA-Renewable Energy Development Authority, State level Renewable Energy Development Agency, Society of Renewable Energy.

**Unit 4:** Devices for renewable energy development: Biogas plant, Wind Mills, Solar Cells – Solar Pumps, Solar Dryers, Solar water heating system, etc.

#### Suggested Readings

- 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

## **Quality Management for Agribusienss**

**Paper code:**

**Credits: 2(2+0)**

#### **Contents**

**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.

**Unit 3:** 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 4:** 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 5:** Food quality standards: Food quality standards and world food trade. HACCP, ISO9000, auditing and certification.

#### Suggested Readings

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

## **Advertising and Brand Management**

**Paper code:**

**Credits: 2(2+0)**

#### **Contents**

**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.

**Unit 4:** 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 5:** 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.

#### Suggested Readings

- Keller KL. *Strategic Brand Management*; Pearson education, New Delhi Verma, Harsha: *Brand Management*; Excel Books; New Delhi
- Kapferer JN. *Strategic Brand Management*; Kogan Page; New Delhi
- Kumar S. Ramesh; *Marketing and Branding–The Indian Scenario*; Pearson Education; New Delhi Kapoor, Jagdeep; *24 Brand Mantras*, Sage Publications; New Delhi
- Sengupta S. *Brand Positioning: Strategies for competitive advantage*; Tata McGrawHill; New Delhi.
- Clifton R and Simmons J. *Brands and Branding*; The Economist; Delhi

## **Agri Infrastructure and Warehousing Management**

**Paper code:**

**Credits: 2(2+0)**

#### **Contents**

**Unit 1:** Agricultural Infrastructure in India: Incentive schemes, Agri-infra fund, Agri-market Infrastructure, Agri-technological infrastructure fund, Central Government policy on Infrastructure promotion for the

development of primary sector such as Irrigation, Watershed development, Rural electrification, Connectivity, Communication and Markets in coordination with the Institutional framework.

**Unit 2:** Warehouse Functions: Meaning of Warehousing - Importance –Functions:Receiving: Logistics support for Inward Transportation, Unloading, Inspection, Acceptance and Recording; Storing: Space allocation, Facilitation to stocking, Guarding &Recording; Risk bearing- Processing- Grading and branding – Disinfecting services -Issuing: Order preparation, Picking, Dispatching/ Delivery & Recording- Handling, Transportation & Storage of ISO Containers– Utility and Advantages of warehouses- Problems and issues in receiving processes.

**Unit 3:** Warehouse Types, Characteristics: Warehouse Types, Characteristics of ideal warehouses- Warehouse Layout-Principles and Facilities- Types, Internal Operations: Measures and metrics of warehouse operations, Logistics in the warehouse- Localization of materials in a warehouse, Identification and classification of Materials and products in the warehouse, Managing the material/products turns in warehouse (FIFO/LIFO) - Problems and issues in shipment processes. Warehousing Equipment, Inventory management.

**Unit 4:** IT for Warehouse Management (WM): Warehouse documentation- Information flows in the warehouse- ERP-WMS - Bar code – RFID- Organization Data- Warehouse Structure- Warehouse Master Data - WM Material master view- Organization Data- Define Warehouse structure, Warehouse number - Storage type- Storage section - Storage Bin - Picking Area -Storage unit – Quantity- Creating Transfer requirement automatically/ manually – Creating Transfer requirement for storage.

**Unit 5:** Agri-warehousing Management in India: Agri-warehousing in India, capacity development and utilisation, Role and significance of Central Warehousing Corporation, State warehousing Corporation, Private sector in Agri-warehousing. Status of Warehousing Industry:Agri-warehousing organisations in India, e-NAM to promote agri-warehouse.

#### Suggested Readings

- Study materials of NABARD as well as by the Ministry of Rural development
- Edward F. 2001. *World-Class Warehousing and Material Handling*, McGraw Hill
- Jeroen P. Van Den Berg. 2009. *Integral Warehouse Management*, Management Outlook Max Muller. 2009. *Essentials of Inventory Management*. AMACOM
- Steven M. Bragg. 2011. *Inventory Best Practices*. Wiley

## **Contract Farming**

**Paper code:**

**Credits: 2(2+0)**

#### **Contents**

**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.

**Unit 2:** Policies for promoting contract farming: Agreement for contract farming- parties, duration, produce and quality specification, delivery arrangements pricing, insurance, support services, etc.

**Unit 3:** 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 4:** Global issues: lobal issues in contract farming, Contract farming and WTO agreement

#### Suggested Readings

- Sharma P. 2007, *Contract Farming*, Genetech Books
- KuzilwaJA, FoldA, HenningsenAand LarsenMN. *Contractfarmingandthedevelopmentofsmallholderagri culturalbusiness*. Routledge
- KumaravelKS2006. *ContractfarminginIndia-AnIntroduction*.

## Human Resource Competence and Capacity Building Systems

**Paper code:**

**Credits: 2(2+0)**

### Contents

**Unit 1:** Human Resource competence: Concept and rationale; processes, Organization and Management of competence and competency mapping.

**Unit 2:** Competency modelling and assessment: Approaches, tools and techniques, competency based human resource management applications.

**Unit 3:** Competency based training and development: Training methods compared with objectives, learning process and facilities, Developing Group and the Climate: the social process – indicators of group development, the training climate, Trainers And Training Style: Post training support for improved performance at work.

**Unit 4:** Performance Management System: Establishing and operationalising performance management system; measuring performance- results and behaviour; conducting performance review discussions; harnessing performance management system for performance improvement.

**Unit 5:** Capacity building systems in agriculture and agri business: Capacity building of farmers and agri stakeholders through e-learning, knowledge management for agri business.

### Suggested Readings

- Kandula SR. 2013. *Competency Based Human Resource Management*. PHI
- Noe RA and Kodwani AD. 2012. *Employee Training and Development*. McGraw Hill Education. Fifth Edition
- Saks AM and Haccoun RR. 2013. *Managing Performance through Training and Development*. Cengage Learning. Sixth Edition

## Agri-Commodity Markets and Futures Trading

**Paper code:**

**Credits: 2(2+0)**

### Contents

**Unit I:** Introduction to commodity derivatives and price risk management in agricultural markets; organizational setup of exchanges and specifications of futures contracts in world's leading commodity exchanges

**Unit II:** Futures trading; hedging price risk using futures contracts; option transaction and forward transaction – concept and mechanism, price discovery mechanism and market efficiency

**Unit III:** Clearinghouse and margin system; clearing, settlement and delivery of contracts

**Unit IV:** Market surveillance and risk control; trading in warehouse receipts (WRs): WRs and collateralized commodity financing

**Unit V:** Regulation of futures and trading practices in leading national and regional exchanges in India.

### Suggested Readings

- Hull, John C. 2017. *Fundamentals of futures and options markets*, Boston, Pearson publication.
- Ram PV and Bala SD. 2016. *Strategic Financial Management*. Snow White Publ. 80.

## 4. SUPPORTING COURSES

### 4.1. Courses' Structure at a Glance

Course Code (ICAR)	Course Code (SGTU)	Course Title	Credits
ABM 536		Strategic Management for Agri Business Enterprises	2(2+0)
ABM 537		Operations Research	2(2+0)
ABM 538		Financial Management in Agri Business	2(2+0)

#### 4.1.1 Course Content

##### Strategic Management for Agri Business Enterprises

**Paper code:**

**Credits: 3(3+0)**

##### Contents

**Unit I: Introduction** - Concepts in Strategic Management, Strategic Management Process; Corporate Governance, Social Responsibility and Ethics in strategic management, Environment Scanning and Industry analysis

**Unit II: Organization appraisal and strategy formulation:** organizational dynamics and structuring organizational appraisal, business models and Value chain analysis, Strategy formulation- corporate level strategies and business strategies, Generic Strategies- Types of Strategies, tools and techniques for strategic analysis.

**Unit III: Turnaround and Diversification Strategies:** Turnaround strategy - Management of Strategic Change, Strategies for Mergers, Acquisitions, Takeovers and Joint Ventures - Diversification Strategy

**Unit IV: Strategy implementation and control:** aspects, structures, design and change: behavioural implementation-leadership, culture, value and ethics, strategic evaluation and control-an overview and techniques of strategic evaluation and control.

**Unit V:** Strategic issues in managing technology & innovation, entrepreneurial ventures and small businesses, Cases in strategic management

##### Suggested Readings

- Wheelen TL and Hunger JD. 2012. *Strategic Management & Business Policy, towards Global Sustainability*, Pearson India Edn. Thirteenth Edition
- David FR and David FR. 2016. *Strategic Management, Concept and Cases*, Pearson India Edn, Fifteenth Edition
- Thompson Jr. AA, Peteraf M and Gamble JE. 2015. *Crafting and Executing Strategy*. McGraw Hill, Irwin.
- Stead JG and Stead EW. 2014, *Sustainable Strategic Management*. Routledge Taylor & Francis Group.
- KazmiAzhar. 2015. *Strategic Management*. Mcgraw Higher Ed. 4th Edition
- Srinivasan R. 2014. *Strategic Management*. PHI Learning 5th Edition

##### Operations Management

**Paper code:**

**Credits: 2(2+0)**

##### Contents

**Unit 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.

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

**Unit 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.

**Unit IV:** Decision making under Risk and uncertainties, 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.

**Unit V:** Game Theory - Two -Person Zero-Sum Game, Simulation, Network analysis– PERT& CPM. Financial Engineering

### **Suggested Readings**

- 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.

## **Financial Management in Agribusiness**

**Paper code:**

**Credits: 2(2+0)**

### **Contents**

**Unit I:** Meaning, importance, nature and scope of financing in India, agribusiness financing in India; classification and credit need in changing agriculture scenario; finance functions, investment financing, Risk and return concept & analysis

**Unit –II:** Business Financing System in India, Money and Capital Markets, Regional and All -India Financial Institutions; venture capital financing and its stages, International financial management.

**Unit III:** Features, types and Techniques of capital budgeting decision. Cost of Capital, Leverage analysis, Capital structure. Theory and Policy, Sources of Long and Short term finance, Dividend Theory, Dividend Policy.

**Unit IV:** Management of Working Capital, Management of Receivables, Management of cash; Cash budget, Management of collections and disbursement, Investment of Surplus cash.

**Unit V:** Perspectives and operational aspects of Micro finance: Definition, Scope and importance of Micro Finance, Evolution of Micro Finance in India, Micro Finance credit lending models: - Association model, Community Banking model, Credit union model, Co-operative model, SHG model, Village Banking model.

### **Suggested Readings**

- Nelson AG & Murrey WG. 1988. *Agricultural Finance*. Kalyani Publ.
- Gordon and Natarajan. 2016. *Financial Markets and Services*. Himalaya Publishing House; 10<sup>th</sup> Edition
- Machiraju HR. 2010. *Indian Financial System*. Vikas Publishing House
- Pandey IM. 2015. *Essentials of Financial Management*, Vikas Publishing House
- Khan and Jain. 2014. *Financial Management*. McGraw Higher Education
- Srivastav and Misra. 2010. *Financial Management*, Oxford University Press; Second edition
- Reddy GS. 2010. *Financial Management*, Himalaya Publishing House

## 5. BASIC COURSES FOR SUMMER INTERNSHIP AND PROJECT

### 5.1. Courses' Structure at a Glance

S. No.	Course Code (ICAR)	Course Code (SGTU)	Course Title	Credits
1	ABM 539		Communication for Management and Agri Business	3+0
2	ABM 540		Research Methodology for Agri Business Mgmt	3+0
3	ABM 541		Computer Applications for Agri Business*	2+0
4	ABM 542		Project Management and Agri Business Entrepreneurship*	2+0
5	ABM 543		Agribusiness Environment and Policy*	2+0
6	ABM 544		Agri Business Laws and Ethics*	2+0

#### 5.1.1 Course Content

### Communication for Management and Business

**Paper code:**

**Credits: 3(3+0)**

#### Contents

**Unit I:** Communication process, barriers to communication, methods of communication, effective communication, assertive communication, types of organisational communication. Listening skills, active listening, barriers to effective listening, Non Verbal Communication

**Unit II:** Reading comprehension and techniques, rules of good writing, business letter writing, e-mail writing, crafting messages for electronic media, social media, business blogs, podcasts, employment messages

**Unit III:** Visual presentation, oral presentation skills, conducting business meetings, brainstorming sessions and presentations, public speaking skills, Communicating across cultures, Various forms of scientific writings, theses, technical papers, reviews, manuals, research work, various parts of thesis and research communication Title page, authorship, contents, preface, introduction, review of literature, material and methods, experimental results and discussion, Technical Writing Style and Editing, Writing Introductions & Conclusions, Editing and Proof reading, Writing a review article and book summary

**Unit IV:** Developing interpersonal skills (transactional analysis), Business Etiquettes, essentials of business conversations. Business meeting agenda and minutes, circulars and sales letters, notices, overview of business proposals Unit V: Developing self awareness (Johari Window), solving problems analytically and creatively, introduction to case method of learning, case reading, approaches and analysis

#### Suggested Readings

- Cardon PW. 2015. *Business Communication, Developing leaders for a networked world* McGraw Hill Education
- Chaturvedi PD and Chaturvedi M. 2017. *Business Communication, Skills, Concepts, Cases and Applications*, Pearson India Education
- Bovee CL, Thill JV and Chaterjee A. 2013. *Business Communication Today*, Pearson Education, Tenth Edition

## Research Methodology for Agri Business Management

**Paper code:**

**Credits: 3(3+0)**

### Contents

**Unit I:** Meaning, Course Objective, types, and process of research; research Methodology in management- exploratory, descriptive, experimental, diagnostic, Problem formulation, setting of Course Objective, formulation of hypotheses, models, types of models, process of modeling.

**Unit II:** Scales of measurement - nominal, ordinal, interval, ratio, Likert scale and other scales; Primary and secondary data, sources of data, Questionnaire Designing, instruments of data collection, data editing, classification, coding, validation, tabulation, presentation, analysis, development process of scale, identification of variables, variable measurement, variable standardization and dummy variables.

**Unit III:** introduction to multivariate statistical analysis techniques, Multivariate linear regression models, principal component analysis, linear discriminant analysis, factor analysis, evaluation matrices and model diagnostics for regression models. Unit IV: Logistic regression, decision trees, cluster analysis, random forest, GARCH, CART models, support vector machines, Forecasting techniques (AR, MA, ARMA and ARIMA models)

**Unit V:** Definition, scope and importance, machine learning, types of machine learning, linear and nonlinear models in machine learning, introduction to deep learning, basic differences in machine learning and deep learning, concept of cloud machine learning, Big data analysis.

### Suggested Readings

- Cooper DR and Schindler PS. 2006. *Marketing Research Concepts and Cases*. TMH
- Kumar R. 2014. *Research Methodology*, Sage publications, 4th Edition
- Glenn JC. 2010. *Hand book of Research Methods*. OXFORD.
- Kothari CR. 2018. *Research Methodology- Methods and Techniques*. New Age International Publishers; Fourth edition

## Computer Applications for Agri Business

**Paper code:**

**Credits: 3(3+0)**

### Contents

**Unit I:** Concept of Computers- Brief History of Computers, Generation and Its Evolution, Characteristics of Computers, Main Areas of Computers and their Applications; Classification of Computers, Input-Output Devices, Memory Types (Cache, RAM, ROM), Memory Units,

**Unit-II:** System Software and Application Software, Open source software, introduction to computer languages, Introduction to Operating Systems – Functions, Features and Types., MS Windows and LINUX. Data Base Management System, MS Office (MS Word, MS Power Point, MS Excel, MS-Access and use of various management software Like SPSS, SAS etc.

**Unit III:** The business value of internet, Intranet, extranet and Internet,

Introduction to Web page design using HTML, Cloud Computing, Security and ethical challenges: Computer crime – Hacking, cyber theft, unauthorized use at work. Piracy – software and intellectual property. Health and Social Issues, Ergonomics and cyber terrorism.

**Unit IV:** The concept of MIS–Definition, importance, Course Objective, pre- requisites, advantages and challenges; Information Needs of organization, MIS and Decision – Making. Types/Classification of Information System for organizations; Introduction to Artificial Intelligence (AI), Neural Networks, Fuzzy logical control systems.

**Unit V:** e-business/ e-commerce: e-business models, e-commerce processes, electronic payments systems, e-commerce trends with special reference to agri business. Applications of MIS in the areas of Human

Resource Management, Financial Management, Production/Operations Management, Materials Management, Marketing Management.

#### Suggested Readings

- Laudon KC and Laudon JP. 2016. *Management Information Systems- Managing the digital Firm*, 14th Edition, Pearson India
- Turban, Volonino, Woods. Wali OP. 2015. *Information Technology for Management, Advancing Sustainable, Profitable Business Growth*, Wiley
- Jaiswal M and Mittal M. 2005. *Management Information System*, Oxford.

### **Project Management and Agribusiness Entrepreneurship**

**Paper code:**

**Credits: 3(3+0)**

#### **Contents**

**Unit I:** Concept, characteristics of projects, types of projects, project identification, and Project's life cycle. Project feasibility- market feasibility, technical feasibility, financial feasibility, and economic feasibility, social cost-benefit analysis, project risk analysis.

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

**Unit III:** Concept of Agri Entrepreneurship: Objective, Introduction to agri entrepreneurship, Entrepreneurial Development Models, Successful Models in Agro Entrepreneurship Intrapreneur, Development of women entrepreneurship with reference to SHGs, Social entrepreneurship

**Unit IV:** Creativity, Innovation and Agro Entrepreneur: Inventions and Innovation, The Environment and Process of Creativity, Creativity and the Entrepreneur, Innovative Approaches to Agro Entrepreneurship, Business Incubation, Steps and Procedure to start a new business, Business Opportunities in different field of Agriculture and Allied Sectors.

**Unit V:** Sources of Financing, Structure and Government Policy Support: Estimating Financial Requirements, Preparation of Detail Project Report, Project Appraisal, Sources of Long-Term Financing, Working Capital Financing, Venture Capitalist, Finance from Banking Institutions, Industrial Policy Resolutions in India, Incentives and Subsidies, Schemes for Incentives, Government Organisations like SIDO, DIC, KVIC, NSIC, SIDBI, NABARD and their role, Sick Industries and their Up gradation policy measures

#### Suggested Readings

- Arora R and Sood SK. *Fundamentals of Entrepreneurship and Small Business Management*. Kalyani Publishers, Ludhiana.
- Desai V. 2016. *Business Planning and Entrepreneurial Management*, Himalaya Publishing House, Mumbai.
- Ramachandaran K. *Managing a New Business Successfully*. Global Business Press, New Delhi.
- Shukla MB. *Entrepreneurship and Small Business Management*. KitabMahal, New Delhi.
- Dandekar VM and Sharma VK. 2016. *Agri-Business and Entrepreneurship Development*, Manglam Publications, New Delhi.
- Zimmerer TW, Scarborough NM. *Essentials of Entrepreneurship and small Business Management*, 5th Edition, PHI Learning Pvt Ltd
- Panigrahi SR and Singh B. 2017. *Agro Entrepreneurship*. Scientific Publishers (India)

## **Agribusiness Environment and Policy**

**Paper code:**

**Credits: 2(2+0)**

### **Contents**

**Unit I:** Role of agriculture in Indian economy; Problems of agriculture in India;

Agribusiness—definition and nature, Structure of Agriculture and linkages among sub-sectors of the agribusiness.

**Unit II:** Economic reforms: liberalization, privatization and globalization specifically affecting Agri Business; WTO Agreement on Agriculture and its compliances; changes in policies and regulations related to the sub sectors of agribusiness and its impact on agribusiness in India.

**Unit III:** Emerging trends in farm supplies, farm production, agricultural finance, agroprocessing, international trade etc.; reforms in agri output markets: private markets, contract farming, futures trading in agri commodities and e-NAM, etc. Pricing of agricultural outputs, public distribution system, imports and exports. **Unit IV:** Importance of food safety and quality management in agri business; Environmental issues and including carbon markets and Clean Development Management etc.

**Unit V:** Other major issues: Intellectual property rights, importance of cooperative or collective actions in present scenario with examples of mergers and acquisitions, Farmers Producer Organisations, etc.

### **Suggested Readings**

- Barnard FL, Akridge JT, Dooley FL, Foltz JC and Yeager EA. 2012. *Agribusiness Management*, Routledge, 4th Edition
- Aswathappa K. 2014. *Essentials of Business Environment*. Himalaya Publ.
- Francis Cherunilam 2003. *Business Environment*. Himalaya Publ.
- Kodekodi GK and Viswanathan B. 2009. *Agri. Development, Rural Institution & Economic Policy*, Oxford.

## **Agri Business Laws and Ethics**

**Paper code:**

**Credits: 2(2+0)**

### **Contents**

**Unit I:** Introduction to Indian legal system, The Indian Contract Act-1872: Contract meaning, types of contract, 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.

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

**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

### **Suggested Readings**

- 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.
- Tulsian PC and Tulsian B. 2015. *Business Law*. TMH, New Delhi.
- Singh Avtar. 2017. *Contract and Specific Relief*, Eastern Book Company; Twelfth edition
- Pathak A. 2015. *Legal Aspects of Business*. McGraw Hill Education. 6th Edition

## 6. COMPULSORY COMMON COURSES

### 6.1. Courses' Structure at a Glance

Course Code (ICAR)	Course Code (SGTU)	Course Title	Credits
PGS 501	11060111	Library and information services	1(0+1)
PGS 502	11060204	Technical writing and communications skills	1(0+1)
PGS 503	11060205	Intellectual property & its management in agriculture (e-course)	1(1+0)
PGS 505	11060306	Agricultural research, research ethics & rural development programmes (e-course)	1(1+0)
PGS 506	11060106	Disaster management (e-course)	1(1+0)