Department of BMS (Agri Storage & Supply Chain)
Programme: BMS CBCS Syllabus – Outcome Based Education (OBE)
(For those who have joined during the Academic Year 2025-2026 onwards) **SEMESTER–I**

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
BMSUG2021	**U25BM1**	**Core**	**Introduction to Agri Logistics**	**Lecture**	**5**	**4**

Course Description:
To impart knowledge on the role of logistics in agriculture.

Course Objectives

- Understand the significance of Agri-logistics in the entire process of supply chain.
- Enable students to select and gainfully use various types of logistics resources.
- Explain the digital tools, which improve the effectiveness of Agri-logistics.
- Know the application of information technology in Agri-logistics.
- Analyze various components of Agri-logistics and their application in the effective supply chain management.
- Identify challenges and opportunities in agri logistics and suggest effective strategies and innovations in the supply chain system.

UNIT I: Introduction to Agri Logistics **(12 Hours)**
Concept and Definition of Logistics and Supply Chain Management, Role and Importance of Supply Chain Management in Agriculture, Difference between Logistics and Supply Chain Management, Produce Grown in Different Parts of the Country, Evolution and Growth of Agri Logistics in India, Outsourcing in Supply Chain - #3PLs and 4PLs, Reverse Logistics, *Opportunities and Challenges in Agri Logistics Management.

UNIT II: Elements of Agri Logistics Management **(14 Hours)**
Need for Agri Logistics During Procurement, Processing and Packaging, Storage and Inventory Management, #Handling and Transportation of Agricultural Produce, Distribution Management, Delivery Practices for Agri. Produce, Grouping Agri Produce by Shelf Life, Distribution for Meeting Demands during Deficient Periods, *Challenges Faced and Suggested Strategies, Market driven Supply Chain Activities.

UNIT III: Procurement Processing and Packaging **(10 Hours)**
Different Types of Purchases of Agricultural Produce, Post-harvest Processing and Value Addition, Packing and Packaging of Agricultural Produce, Laws relating to Packaging of Goods.

UNIT IV: Handling and Transport system in Agri Logistics **(12 Hours)**

Role of Handling and Transport System in Effective Supply Chain Management. System for Handling of Agri produce during Different Stages of Supply Chain, *Transport Systems - Air Freight/Sea Freight/Roadways and Railways, Reefer Logistics, Terminologies Used in Transportation Sector, Significance of Integrated Logistics, #Multi-modal Transportation and its Advantages, Laws Governing Transport and Shipping of Goods, INCOTERMS 2010.

UNIT V: IT Integration in Agri Logistics **(12 Hours)**

Importance of Information in Logistics Management, *Concept of E- Logistics, MIS for Effective Logistics Management, Important IT Tools for Improving Effectiveness of Agri-Logistics, # GPS Technology in Agri Logistics.

Extra Credit:

Case Study

* Self-Learning

Activities: 1.Quiz 2.Group Discussion

Text Books

1. Sundharam, K.P.M. and Sundharam., E.N. Business Economics, Sultan Chand and Sons, New Delhi-2, 2010.
2. Aryamala, T. Business Economics,Vijay Nichole Imprints Pvt. Ltd.,Chennai, 2012.

Books for Reference

1. Sankaran, S. Business Economics, Margham Publications, Chennai -17,2013.
2. Appannaiah and Reddy, Economics for Business,Himalaya Publishing, Mumbai,2013.
3. Ahuja, H.L. Business Economics, S.Chand and Co, New Delhi, 2016.
4. Lipsey, R.G. and Chrystal, K.A. ……Of Economics, Oxford: University Press, 2011.
5. Ramsfield, E. Micro Economics, W.W Norton and Company, New York, 2012.

Online Resources:

Swayam course	• http://ugcmoocs.inflibnet.ac.in/ugcmoocs/view_module_pg.php/1109
E-Content	1. https://www.youtube.com/watch?v=_sdw5brJWD0 2. https://www.youtube.com/watch?v=356_pioFiss
Other online resources	• http://sucommerce.org/download/sem1/Managerial%20Economics%20.pdf • https://cablogindia.com/business-economics-notes-for-ca-foundation/ • https://www.tutorialspoint.com/managerial_economics/managerial_economics_tutorial.pdf • https://examupdates.in/bcom-economics-notes/ • http://www.ddegjust.ac.in/studymaterial/bba/bba-103.pdf

Course Outcomes (COs)

CO	Course Outcome	Knowledge Level
CO1	Define logistics and supply chain management concepts and explain their importance in agriculture.	K1
CO2	Analyze the role of procurement, packaging, storage, transportation, and delivery systems in agri logistics.	K2
CO3	Demonstrate knowledge of packaging laws, shelf-life considerations, and post-harvest processing and value addition in agri logistics.	K3
CO4	Examine various handling and multi-modal transport systems and their integration in agri logistics.	K4
CO5	Evaluate IT integration in agri logistics including GPS, MIS, and E-logistics for improved decision-making.	K5
CO6	Identify challenges and opportunities in agri logistics and suggest effective strategies and innovations in the supply chain system.	K6

Relationship Matrix for COs and POs

Course Out comes	Programme Outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	3	3	3	3	1	1
CO2	3	3	3	3	1	1
CO3	3	9	9	3	1	3
CO4	3	3	3	3	1	3
CO5	3	9	9	9	1	9
CO6	3	9	9	9	9	9
Weight age	**18**	**36**	**36**	**30**	**14**	**26**
Weighted Percentage of Course Contribution to	**11.3**	**22.5**	**22.5**	**18.8**	**8.8**	**16.3**

Notes: (0–NoCorrelation; 1–Low; 3–Medium; 9–High)

Course Outcome mapped with Knowledge Level and POs

CO/K-Level	Level of Correlation		
	Low	**Medium**	**High**
CO1/K1	PO5,PO6	PO1,PO2,PO3,PO4	-
CO2/K2	PO5,PO6	PO1,PO2,PO3,PO4	-
CO3/K3	PO5	PO1,PO4	PO2,PO3
CO4/K4	PO5	PO1,PO2,PO3,PO4,PO6	-
CO5/K5	PO4	PO1	PO2,PO3,PO5,PO6
CO6/K6	-	PO1	PO2,PO3,PO4,PO5,PO6

Course Outcome (CO) Attainment Assessment Tools &Evaluation Procedure

K Levels	C1	C2	C3	Total Scholastic marks	Non Scholastic Marks C5	CIA Total	% of Assessment
	T1 4 Marks	T2 10 Marks	Assignment 6 Marks	 20 Marks	 5 Marks	 25 Marks	
K1	1	1	1	3		3	12
K2	1	1	1	3		3	12
K3	1	2	1	4		4	16
K4	1	2	1	4		4	16
K5	-	2	1	3		3	12
K6	-	2	1	3		3	12
Non Scholastic	--	--	--	--		5	20
Total	4	10	6	**20**	**5**	**25**	**100%**

The COs and POs for the **Introduction to Agri Logistics** course in the **BMS** Degree Programme is effective matched by the course in-charge	
Signature of the Course In-Charge	Signature of the HoD

Department of BMS (Agri Storage & Supply Chain)
Programme: BMS CBCS Syllabus – Outcome Based Education (OBE)
(For those who have joined during the Academic Year 2025-2026 onwards) **SEMESTER–I**

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
BMSUG2021	**U25BM2**	**Core**	**Post Harvest Management**	**Lecture**	**6**	**4**

Course Description:

To familiarize the post- harvest management practices and related technologies.

Course Objectives:

- Understand the introduction and principles of post-harvest management
- Enable post-harvest handling practices and pack house operations
- Explain the post-harvest physiology, packaging and storage methods.
- Use of post-harvest management quality and standards
- Acquire various components of post-harvest management best practices for flowers, tubular and grain crops.
- Propose sustainable and safe post-harvest handling strategies that minimize losses and improve quality across crop types.

UNIT – I: Introduction and Principles of Post-Harvest Management **(13 hours)**

Introduction - Horticulture Geography, Area, production and statistics of horticulture and agriculture in India. *Pre-harvest Operations, Field Handling of Agriculture and horticultural produce Scope and importance of post-harvest handling of fruits and vegetables - Scenario of post-harvest sector – global and national level – Pre and post-harvest losses - #Factors influencing Pre and post-harvest losses.

UNIT – II: Post-Harvest Handling Practices and Pack house operations **(14 hours)**

Maturity indices - harvesting methods– mechanical harvesting. #Field packing, Pack house operations- Pre-cooling – *cooling methods-cold chain. Post harvest treatments to enhance shelf life-heat treatments, fungicides and biologically safe chemical treatments -irradiation, curing, sorting, grading and waxing-methods.

UNIT – III: Post Harvest Physiology, packaging and storage **(11 hours)**

Post-harvest Physiological and Biochemical Changes after Harvest in Horticultural Produce - Ripening –Role of ethylene in post-harvest technology –*Packaging - Post harvest disorders.

UNIT – IV: PHM Quality and Standards **(10 hours)**

*Pack house hygiene standards, safety and quality standards adopted for Fruits - Banana, Mango, Apple, Oranges and Grapes; Vegetables –Tomato, Potato and Onion.

UNIT – V: PH Management Best Practices for Flowers, Tubular and Grain Crops **(12 hours)**

Post-Harvest practices adopted for Flowers, Gerberas, Roses; Tubular crops Cassava, and PH Storage of Grain crops-maize and Corn-#Minimal processing of spice and plantation crops.

Extra Credit:

Case Study

* Self-Learning Activities: 1. Quiz 2. Data Collection

Text Book

1. Course Material Prepared by LSC

Reference Books

1 Kadar,A.A.1992. Post-harvest Technology of Horticultural Crops.2nd Edition.University of California.

2 Gross,K.C.,Wang,C.Y.,and Salt veit,M.E.(Eds.).(2016).The commercial storage of fruits,vegetables, and florist and nursery stocks. United States Department of Agriculture, Agricultural Research Service.

3 Teutsch, BandKitinoja,L.(2019)100under$100:Tools for reducing postharvest losses. The Post-harvest Education Foundation,Oregon, USA.

4 Rolle,R.S.(2012)Good practices in design ,management and operation of fresh produce pack house, Food and Agriculture Organization of the United Nations, Regional Office for Asia and the Pacific, Bangkok.

Online Resources:

Swayam course	• https://www.examrace.com/SWAYAM/SWAYAM-Past-Papers/Post-Harvest-Management-of-Fruits-and-Vegetables/
E-Content	• https://www.youtube.com/watch?v=VJ5e_effZV8
Other online resources	• http://ecoursesonline.iasri.res.in/course/view.php?id=164 • https://postharvest.ucdavis.edu/Library/

Course Outcomes

CO	Course Outcome Statement	Knowledge Level
CO1	Explain the scope, significance, and factors influencing post-harvest management in agriculture and horticulture at national and global levels.	K1
CO2	Apply harvesting, field handling, and pack house operations, including pre-cooling and post-harvest treatments for horticultural produce.	K2
CO3	Analyze physiological and biochemical changes post-harvest and determine proper packaging methods for extending shelf life.	K3
CO4	Evaluate hygiene, safety, and quality standards in post-harvest handling for key fruits and vegetables.	K4
CO5	Demonstrate best practices in post-harvest management for flowers, tuber, and grain crops, including minimal processing for spices and plantations.	K5
CO6	Propose sustainable and safe post-harvest handling strategies that minimize losses and improve quality across crop types.	K6

Relationship Matrix for COs and POs

Course Outcomes	Programme Outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	3	3	3	3	9	3
CO2	1	1	1	3	9	3
CO3	3	3	3	3	9	9
CO4	3	9	9	9	9	9
CO5	3	9	9	9	9	9
CO6	3	9	9	9	9	9
Weight age	**16**	**34**	**34**	**36**	**54**	**42**
Weighted Percentage of Course Contribution to	**7.4**	**15.7**	**15.7**	**16.7**	**25.0**	**19.4**

Notes :(0–NoCorrelation;1–Low;3–Medium;9–High)

Course Outcome mapped with Knowledge Level

CO/K-Level	Level of Correlation		
	Low	**Medium**	**High**
CO1/K1		PO1,PO2,PO3,PO4,PO6	PO5
CO2/K2	PO1,PO2,PO3	PO4,PO6	PO5
CO3/K3	-	PO1,PO2,PO3,PO4	PO5,PO6
CO4/K4	-	PO1	PO2,PO,PO4,PO5,PO6
CO5/K5	-	PO1	PO2,PO,PO4,PO5,PO6
CO6/K6	-	PO1	PO2,PO,PO4,PO5,PO6

Course Outcome (CO) Attainment Assessment Tools & Evaluation Procedure

K Levels	C1	C2	C3	Total Scholastic marks	Non Scholastic Marks C5	CIA Total	% of Assessment
	T1 4 Marks	T2 10 Marks	Assignment 6 Marks	20 Marks	5 Marks	25 Marks	
K1	1	1	1	3		3	12
K2	1	1	1	3		3	12
K3	1	2	1	4		4	16
K4	1	2	1	4		4	16
K5	-	2	1	3		3	12
K6	-	2	1	3		3	12
Non Scholastic	--	--	--	--		5	20
Total	4	10	6	20	5	25	100%

The COs and POs for the **Post Harvest Management** course in the **BMS** Degree Programme is effective matched by the course in-charge	
Signature of the Course In-Charge	Signature of the HoD

Department of BMS (Agri Storage & Supply Chain)
Programme: BMS CBCS Syllabus – Outcome Based Education (OBE)
(For those who have joined during the Academic Year 2025-2026 onwards) **SEMESTER–I**

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
BMSUG2021	**U25ABM1**	**Allied**	**Retail Logistics**	**Lecture**	**5**	**4**

Course Description:

To understand the fundamental concepts and strategies in retail logistics and supply chain management.

Course Objectives:

- To explain the principles of retail logistics and their significance in supply chain management.
- To analyze inventory control, transportation, and warehousing practices in retail logistics.
- To evaluate the impact of technology and data analytics in enhancing retail operations.
- To design efficient logistics strategies to meet customer demands and ensure timely delivery.
- To develop problem-solving skills for addressing challenges in the retail logistics sector.
- Formulate sustainable and responsive logistics systems for managing waste and reducing environmental impact in retail logistics.

SYLLABUS

Unit	Contents	
I	Retail Logistics And Supply Chain Transformation-Buyer/Seller Relationships-Role Of Logistics Service Providers-Retail Formats And Associated Logistics Functions - Macro And Micro Aspects - Peculiarities And Diversity Of Needs Of Logistics For Retailing.	**(13 hours)**
II	Packaging Logistics And Fresh Food Retailing -Logistics Service For Food Retail Locations–Packaging Aspects Of Retail Logistics-Returnable Packaging-Embedded Integration Technology-Collaborative Tools	**(11 hours)**
III	Automotive Logistics Solutions-Fleet Management-Milk Run Concept-Optimal Efficiencies In Automotive Logistics-Pricing Aspects By Logistics Service Providers-Collaborating Strategies In Automotive Supply Chain	**(12 hours)**

(11 hours)

IV The Internationalization Of The Retail Supply Chain-International Sourcing-Distribution Strategies And Associated Infrastructure-Role Of Culture In International Retail Markets-Internationalization Of Logistics Practices

(13 hours)

V Emerging Aspects In Retail Logistics - Development Of E-Tail Logistics - Growth Of E-Commerce - Home Delivery Channel -*Rapid Home Delivery – Impact Of RFID Technology*-Environmental Aspects Of Retail Logistics– Logistics For Managing Waste Within The Retail Sector.

Text Book(s):

1. John Fernie, Leigh Sparks, Logistics and Retail Management, Kogan Page,5th Edition, 2018
2. JamesB.Ayers, Mary AnnOdegaard, Retail Supply Chain Management, CRCPress,2nd Edition, (2017)

Reference Book(s):

1. Alan Rushton , International Logistics and Supply Chain Outsourcing: From Local to Global, 1st edition, Kogan Page Publishers.UK, 2007.
2. Herbert Kotzab, Mogens Bjerre, Retailing in a SCM-perspective, 1st edition, Copenhagen Business School Press, 2005.
3. Kerstin Gustafsson,Gunilla Jönson ,Retailing Logistics and Fresh Food Packaging: Managing Change in the Supply Chain,1st edition, Kogan Page Publishers, 2006.
4. Logistics and Retail Management: Emerging Issues and New Challenges in the Retail Supply Chain, 2018.
5. Ganapathi Logistics Management, Oxford University Press, 2015.

Web Resource(s):

1. https://www.shipbob.com/blog/retail-logistics/
2. https://www.onlinemanipal.com/blogs/role-of-logistics-in-retail-industry

Course Outcomes (COs)

CO	Course Outcome	Knowledge Level
CO1	Understand the transformation of retail logistics and supply chain relationships, including macro and micro aspects and logistics needs diversity.	K1
CO2	Apply packaging and logistics services to fresh food retailing using returnable packaging and collaborative integration technologies.	K2

CO	Course Outcome	Knowledge Level
CO3	Analyze automotive logistics systems, including fleet management, milk run, pricing, and collaborative strategies for optimal efficiency.	K3
CO4	Evaluate the internationalization of retail supply chains considering sourcing, infrastructure, cultural, and logistics practices.	K4
CO5	Discuss the development of e-tail logistics, home delivery models, and the influence of e-commerce and RFID technology in retail logistics.	K5
CO6	Formulate sustainable and responsive logistics systems for managing waste and reducing environmental impact in retail logistics.	K6

Relationship Matrix for COs and POs

Course Outcomes	Programme Outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	3	3	3	1	1	1
CO2	3	3	3	3	1	9
CO3	3	3	3	1	3	9
CO4	3	3	3	1	3	9
CO5	3	1	3	1	3	9
CO6	3	9	9	3	9	9
Weight age	**18**	**22**	**24**	**10**	**20**	**46**
Weighted Percentage of Course Contribution to	**12.9**	**15.7**	**17.1**	**7.1**	**14.3**	**32.9**

Notes :(0–NoCorrelation; 1–Low; 3–Medium; 9–High)

Course Outcome mapped with Knowledge Level

CO/K-Level	Level of Correlation		
	Low	**Medium**	**High**
CO1/K1	PO4,PO5,PO6	PO1,PO2,PO3	-
CO2/K2	PO5	PO1,PO2,PO3,PO4	PO6
CO3/K3	PO4	PO1,PO2,PO3,PO5	PO6
CO4/K4	PO4	PO1,PO2,PO3,PO5	PO6
CO5/K5	PO2,PO4	PO1,PO3,PO5	PO6
CO6/K6	-	PO1	PO2,PO3,PO4,PO5,PO6

Course Outcome (CO) Attainment Assessment Tools & Evaluation Procedure

K Levels	C1	C2	C3	Total Scholastic marks	Non Scholastic Marks C5	CIA Total	% of Assessment
	T1 4 Marks	T2 10 Marks	Assignment 6 Marks	20 Marks	5 Marks	25 Marks	
K1	1	1	1	3		3	12
K2	1	1	1	3		3	12
K3	1	2	1	4		4	16
K4	1	2	1	4		4	16
K5	-	2	1	3		3	12
K6	-	2	1	3		3	12
Non Scholastic	--	--	--	--		5	20
Total	4	10	6	**20**	**5**	**25**	**100%**

The COs and POs for the **Retail Logistics** course in the **BMS** Degree Programme is effective matched by the course in-charge	
Signature of the Course In-Charge	Signature of the HOD

Department of BMS (Agri Storage & Supply Chain)
Programme: BMS CBCS Syllabus – Outcome Based Education (OBE)
(For those who have joined during the Academic Year 2025-2026 onwards) **SEMESTER–II**

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
BMSUG2021	**U25BM3**	**Core**	**Trading in Agri Commodities**	**Lecture**	**6**	**3**

Course Description:
To provide knowledge on the basics of trading with commodities

Course Objectives:

- To understand the structure and dynamics of agricultural commodity markets including spot, futures, and derivatives markets.
- To analyze price trends and volatility in agri commodities using fundamental and technical tools.
- To explore government policies, regulations, and their impact on agri commodity trading and marketing.
- To gain practical knowledge of commodity exchanges like NCDEX and MCX, and the trading mechanisms involved.
- To develop risk management strategies through hedging, speculation, and arbitrage in agricultural commodities.
- To build competency in using trading platforms and tools for agri commodity price discovery, contract analysis, and portfolio management.

UNIT – I: Agricultural Marketing: **(12 hours)**
Concepts and Definitions of Market, Marketing, #Agricultural Marketing, Market Structure, Marketing Mix and Market Segmentation, Classification and Characteristics of Agricultural Markets; Demand, Supply and Producer's Surplus of Agri-commodities: * Nature and Determinants of Demand and Supply off Arm Products.

UNIT – II: Producer's Surplus and Marketing Process **(13 hours)**
Producer's surplus - meaning and its types, marketable and marketed surplus, factors affecting marketable surplus of agri-commodities; cost based and competition based pricing; market promotion-advertising, personal selling, sales promotion and publicity- their meaning and merits &demerits; marketing process and functions: Marketing process-concentration, dispersion and equalization; *exchange functions - buying and selling; physical functions storage, #transport and

processing; facilitating functions-packaging, branding, grading, quality control and labeling (Ag mark)

UNIT – III: Market functionaries and marketing channels: **(12 hours)**
Types and importance of agencies involved in agricultural marketing; meaning and definition of marketing channel; #number of channel levels; marketing channels for different farm products; Integration, efficiency, costs and price spread: Meaning, definition and types of market integration; marketing efficiency; marketing costs, margins and price spread; factors affecting cost of marketing; reasons for higher marketing costs of farm commodities; *Way so reducing marketing costs.

UNIT – IV: Agricultural prices and policy: **(11 hours)**
Meaning and functions of price; administered prices; need for agricultural price policy. *Study of relationship between market arrivals and prices of some selected commodities; Computation of marketable and marketed surplus of important commodities; Study of price behavior over time for some selected commodities.

UNIT – V: International Trade: **(12 hours)**
Concept of International Trade and its need, theories of absolute and comparative advantage. Present status and prospects of international trade in agri-commodities; GATT and WTO; *Agreement on Agriculture (AoA) and its implications on Indian agriculture; IPR GST. Practical Plotting and study of demand and supply curves and calculation of elasticity; #Construction of index numbers; Application of principles of comparative advantage of international trade.

Extra Credit:

Case Study
* Self-Learning
Activities: 1. Quiz 2. Data Collection in GDP and NNP 3.Group Discussion

Text & Reference Books:

1. Course Material Prepared by LSC

Online Resources:

Swayam course	• https://www.classcentral.com/course/swayam-commodity-derivatives-and-risk-management-6563 • https://www.google.com/search?q=trading+in+agri+commodities+swayam&ei=oLyVYtagH_bC4-
E-Content	• https://www.youtube.com/watch?v=_9PwVSCfGFc
Other online resources	• https://www.cmegroup.com/markets/agriculture.html • https://extension.missouri.edu/publications/g603

Course Outcomes (Cos)

CO	Course Outcome	Knowledge Level
CO1	Define the concepts of market, marketing, agricultural marketing, and classify agricultural markets with respect to structure and segmentation.	K1
CO2	Explain producer's surplus, pricing strategies, and various functions of agricultural marketing including exchange, physical, and facilitative functions.	K2
CO3	Identify and analyze marketing channels, cost components, and price spread in agricultural commodity marketing.	K3
CO4	Evaluate agricultural prices and policy mechanisms including surplus estimation and price behavior of selected commodities.	K4
CO5	Discuss and interpret international trade theories, GATT, WTO, and AoA with implications on Indian agriculture.	K5
CO6	Apply trade and pricing tools such as demand/supply curves, index number construction, and elasticity calculations in agri-marketing scenarios.	K6

Relationship Matrix for COs and POs

Course Outcomes	Programme Outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	1	3	3	1	1	3
CO2	3	9	9	9	1	3
CO3	3	3	3	3	1	3
CO4	3	9	3	3	3	3
CO5	3	9	9	9	3	9
CO6	9	9	3	9	3	9
Weight age	**22**	**42**	**30**	**34**	**12**	**30**
Weighted Percentage of Course Contribution to	**12.9**	**24.7**	**17.6**	**20.0**	**7.1**	**17.6**

Notes :(0–NoCorrelation;1–Low;3–Medium;9–High)

Course Outcome mapped with Knowledge Level

CO/K-Level	Level of Correlation		
	Low	**Medium**	**High**
CO1/K1	PO1,PO4,PO5	PO2,PO3,PO6	-
CO2/K2	PO5	PO1,PO6	PO2,PO3,PO4
CO3/K3	PO5	PO1,PO2,PO3,PO4,PO6	-
CO4/K4	-	PO1,PO3,PO4,PO5,PO6	PO2
CO5/K5	-	PO1,PO5	PO2,PO3,PO4,PO6
CO6/K6	-	PO3,PO5	PO1,PO2,PO4,PO6

Course Outcome (CO) Attainment Assessment Tools &Evaluation Procedure

K Levels	C1	C2	C3	Total Scholastic marks	Non Scholastic Marks C5	CIA Total	% of Assessment
	T1 4 Marks	T2 10 Marks	Assignment 6 Marks	20 Marks	5 Marks	25 Marks	
K1	1	1	1	3		3	12
K2	1	1	1	3		3	12
K3	1	2	1	4		4	16
K4	1	2	1	4		4	16
K5	-	2	1	3		3	12
K6	-	2	1	3		3	12
Non Scholastic	--	--	--	--		5	20
Total	4	10	6	**20**	**5**	**25**	**100%**

The COs and POs for the **Trading in Agri Commodities** course in the **BMS** Degree Programme is effective matched by the course in-charge	
Signature of the Course In-Charge	Signature of the HOD

Department of BMS (Agri Storage & Supply Chain)
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(For those who have joined during the Academic Year 2025-2026 onwards) **SEMESTER–II**

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
BMSUG2021	**U25ABM2**	**Allied**	**Quality control , Assurance & Audit**	**Lecture**	**5**	**3**

Course Description:

To understand the basic concept of quality and systems of quality management.

Course Objectives:

- Acquaint basic concepts of quality and systems of quality management.
- Understand quality control in agri supply chain
- Explain the Quality Assurance
- Analyze the use of quality management systems
- State the various components of Quality Audit
- Design and implement quality audits to ensure compliance with quality system standards in agricultural operations.

UNIT – I: Introduction to Quality Management: **(12 hours)**
Definition of Quality, Evolution of Quality, *Components of Quality, Quality Control, Quality Assurance and Quality Management Systems, Total Quality Management, Monitoring and reporting of quality

UNIT – II: Quality Control in Agri Supply Chain **(12 hours)**
Concept and Process of Quality Control, Attributes of Quality of Agricultural Produce, Quality Standards, #Quality evaluation and Reporting, Factors affecting grain quality during to rage. Maintaining quality during storage

UNIT – III: Quality Assurance **(12 hours)**
Concept And process of Quality Assurance, *Management System for Quality Assurance, Different types of Quality Assurance, Quality Assurance during different stages of operation, Quality Planning

UNIT – IV Quality Management Systems **(13 hours)**

Concept of Quality Management System, Different Types of Quality System Standards, ISO – Benefits and types of ISO Standards, ISO Certification requirements and process, #HACCP – Benefits and Process of HACCP Certification, OHSAS Certification

UNIT – V Quality Audit **(11 hours)**

Significance of Quality Auditing in the Agri Supply Chain, #Components of Quality Audit, Audit for compliance to Quality System Standards like ISO, OHSAS and HACCP0.

Extra Credit:

Case Study

* Self-Learning

Activities: 1. Quiz 2. Data Collection 3.Group Discussion

Textbooks:

1. Course Material Prepared by LSC
2. Total Quality Management: PN Mukherjee

Reference Books:

1. A Practical Guide for Implementation of Integrated ISO9001; HACCP System for the Food Processing Industry: Sohrab
2. Grain storage engineering and technology: S. Vijayaraghavan

Online Resources:

Swayam course	• https://www.classcentral.com/tag/quality-assurance
E-Content	• https://www.youtube.com/watch?v=fQC3NzkfsSM
Other online resources	• https://safetyculture.com/topics/quality-assurance-and-quality-control/ • https://www.isotracker.com/blog/quality-control-and-quality-assurance-whats-the-difference/ • https://www.iata.org/en/training/courses/security-audit-virtual/tscs10/en/

Course Outcomes (COs)

CO	Course Outcome	Knowledge Level
CO1	Define the concept of quality and understand the evolution, components, and systems of quality including Total Quality Management (TQM).	K1
CO2	Apply quality control principles in agri supply chains and evaluate the quality of agricultural	K2

CO	Course Outcome	Knowledge Level
	produce during storage and handling.	
CO3	Explain the principles and types of quality assurance systems and apply them at different stages of agri operations.	K3
CO4	Analyze different types of quality management system standards such as ISO, HACCP, and OHSAS and interpret their certification requirements.	K4
CO5	Evaluate the benefits and processes of ISO, HACCP, and OHSAS in the context of agri supply chains.	K5
CO6	Design and implement quality audits to ensure compliance with quality system standards in agricultural operations.	K5

Relationship Matrix for COs and POs

Course Outcomes	Programme Outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	3	3	3	3	9	3
CO2	1	1	1	3	9	3
CO3	3	3	3	3	9	9
CO4	3	9	9	9	9	9
CO5	3	9	9	9	9	9
CO6	3	9	9	9	9	9
Weight age	**16**	**34**	**34**	**36**	**54**	**42**
Weighted Percentage of Course Contribution to	**7.4**	**15.7**	**15.7**	**16.7**	**25.0**	**19.4**

Notes :(0–NoCorrelation;1–Low;3–Medium;9–High)

Course Outcome mapped with Knowledge Level

CO/K-Level	Level of Correlation		
	Low	**Medium**	**High**
CO1/K1		PO1,PO2,PO3,PO4,PO6	PO5
CO2/K2	PO1,PO2,PO3	PO4,PO6	PO5
CO3/K3	-	PO1,PO2,PO3,PO4	PO5,PO6
CO4/K4	-	PO1	PO2,PO,PO4,PO5,PO6
CO5/K5	-	PO1	PO2,PO,PO4,PO5,PO6
CO6/K6	-	PO1	PO2,PO,PO4,PO5,PO6

Course Outcome (CO) Attainment Assessment Tools & Evaluation Procedure

K Levels	C1	C2	C3	Total Scholastic marks	Non Scholastic Marks C5	CIA Total	% of Assessment
	T1 4 Marks	T2 10 Marks	Assignment 6 Marks	20 Marks	5 Marks	25 Marks	
K1	1	1	1	3		3	12
K2	1	1	1	3		3	12
K3	1	2	1	4		4	16
K4	1	2	1	4		4	16
K5	-	2	1	3		3	12
K6	-	2	1	3		3	12
Non Scholastic	--	--	--	--		5	20
Total	4	10	6	20	5	25	100%

The COs and POs for the **Quality control , Assurance & Audit** course in the **BMS** Degree Programme is effective matched by the course in-charge	
Signature of the Course In-Charge	Signature of the HOD

Department of BMS (Agri Storage & Supply Chain)
Programme: BMS CBCS Syllabus – Outcome Based Education (OBE)
(For those who have joined during the Academic Year 2025-2026 onwards)

SEMESTER–II

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
BMSUG2021	**U25ABM3**	**Allied**	**Human Resource Management**	**Lecture**	**3**	**2**

Course Description:

To help the students understand about human resource Management and their application in day to day business.

Course Objectives

- Think and integrate the activities of HR with the organization's goals and explain the functions of HRM
- Understand Factors influencing HRP and summarize the factors determining recruitment.
- Prepare the selection process and construct the training methods for work arrangement.
- Compile the job analysis process and express the advantages of Job Evaluation.
- Examine the Performance and generalize the need and importance of motivation.
- Summarize the Factors responsible for growing importance of Qualities of Work life

UNIT I: HRM Introduction

Human Resource Management – Scope of HRM – Characteristics of HRM – Objectives HRM– Role and Structure of Personnel Department – Functions of HRM – Managerial Function# and Operative Function.

UNIT II: Human Resource Planning

Human Resource Planning – Need* and Characteristics of HRP – Process of HRP – Factors influencing HRP – Internal and External Factors – Recruitment – Sources of Recruitment– Factors determining recruitment –

UNIT III: Selection and Training

Selection – Selection Process# – Steps involved in Selection of Candidate –Training – Objectives of Training – Need for Training* – Methods of Training – Separation – Transfer – Job Specification – Job Description – Job Rotation

UNIT IV: Job Analysis and Evaluation

Job Analysis –Advantages of Job Analysis – Job Description – Job Specification – Job Evaluation# – Advantages of Job Evaluation* – Job Rotation — Collective Bargaining – Characteristics – Objectives of Collective Bargaining.

UNIT V: Performance Appraisal

Performance Appraisal – Objectives of Performance Appraisal – Motivation – Nature and Character of Motivation – Importance of Motivation* – Human Resource Audit – Need and Important of HR Audit –

Grievance – Characteristics of Grievance – Causes of Grievance – Steps involved in Grievance Procedure# – Qualities of Work life – Factors responsible for growing importance of Qualities of Work life – Importance of WPM (Workers Participation in Management**)**

Extra Credit:

 # Case Study

*** Self-Learning**

Activities 1.Quiz 2.Group Discussion

Text Book:

1. C.B.Memoria, Personnel Management, Himalaya Publishing, 2020.

Books for Reference:

1. Gary Dessler, Human Resource Management, Pearson Chennai, 2020. (16th Edition)
2. Arun Monappa,Mirza Saiyadian, Personnel Management Tata McGraw Hill
3. Human Resource Management:
4. K.K.Ahuja, Personnel Management Kalyani Publishers.
5. P.C.Tripathi, Personnel Management and Industrial Relations Sultan chand.
6. S.S.Khanka , Human Resource management Himalaya Publishing House 2018

Online Resources:

Swayam Course	• https://onlinecourses.swayam2.ac.in/cec21_mg06/preview • https://ugcmoocs.inflibnet.ac.in/index.php/courses/view_ug/237
E-Content	• https://www.youtube.com/watch?v=Nhzzjqorkh0 • https://www.youtube.com/watch?v=mE51hXXJkq4 • https://www.youtube.com/watch?v=kBSfxbv7CcM
Other online resources	• https://brauss.in/hrm-basic-notes.pdf • http://www.mim.ac.mw/books/Armstrong's%20Strategic%20Human%20Resou rce%20Management.pdf • https://www.ftms.edu.my/images/Document/MOD001180%20%20Managing% 20Human%20Resources/Revision%20HR%202.pdf • https://www.hcipress.org/uploads/4/2/1/1/42111735/free_strategic_human_reso urce_management_e-text.pdf

Course Outcomes (COs)

Course Outcome	Course outcome	Knowledge Level
CO1	Understand the scope, objectives, and functions of Human Resource Management along with the structure and role of the Personnel Department.	K1
CO2	Analyze the need, process, and factors influencing Human Resource Planning and Recruitment strategies in organizations.	K2
CO3	Apply the concepts of selection, training, job specification, job rotation, and	K3

	employee transfer processes in HR operations.	
CO4	Examine job analysis techniques, job evaluation, and collective bargaining processes, including their advantages and characteristics.	K4
CO5	Evaluate the objectives and importance of performance appraisal systems, motivation, HR audits, and grievance redressal mechanisms.	K5
CO6	Design strategies for improving quality of work life and implementing workers' participation in management for better organizational outcomes.	K6

Relationship Matrix for COs and POs

Course Out comes	**Programme Outcomes**					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	3	3	3	3	1	1
CO2	3	3	3	3	1	1
CO3	3	9	9	3	1	3
CO4	3	3	3	3	1	3
CO5	3	9	9	9	1	9
CO6	3	9	9	9	9	9
Weight age	**18**	**36**	**36**	**30**	**14**	**26**
Weighted Percentage of Course Contribution to	**11.3**	**22.5**	**22.5**	**18.8**	**8.8**	**16.3**

Notes: (0–NoCorrelation; 1–Low; 3–Medium; 9–High)

Course Outcome mapped with Knowledge Level and POs

CO/K-Level	**Level of Correlation**		
	Low	**Medium**	**High**
CO1/K1	PO5,PO6	PO1,PO2,PO3,PO4	-
CO2/K2	PO5,PO6	PO1,PO2,PO3,PO4	-
CO3/K3	PO5	PO1,PO4	PO2,PO3
CO4/K4	PO5	PO1,PO2,PO3,PO4,PO6	-
CO5/K5	PO4	PO1	PO2,PO3,PO5,PO6
CO6/K6	-	PO1	PO2,PO3,PO4,PO5,PO6

Course Outcome (CO) Attainment Assessment Tools &Evaluation Procedure

K Levels	C1	C2	C3	Total Scholastic marks	Non Scholastic Marks C5	CIA Total	% of Assessment
	T1 4 Marks	T2 10 Marks	Assignment 6 Marks	 20 Marks	 5 Marks	 25 Marks	
K1	1	1	1	3		3	12
K2	1	1	1	3		3	12
K3	1	2	1	4		4	16
K4	1	2	1	4		4	16
K5	-	2	1	3		3	12
K6	-	2	1	3		3	12
Non Scholastic	--	--	--	--		5	20
Total	4	10	6	**20**	**5**	**25**	**100%**

The COs and POs for the **Human Resource Management** course in the **BMS** Degree Programme is effective matched by the course in-charge	
Signature of the Course In-Charge	Signature of the HoD

BMS (Agri Storage & Supply Chain)
Programme: BMS CBCS Syllabus – Outcome Based Education (OBE)
(For those who have joined during the Academic Year 2025 – 2026 onwards) **SEMESTER–III**

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
BMSUG2021	**U25BM4**	**Core**	**Cold Chain Technology**	**Lecture**	**3**	**2**

Course Description:

To make students understand the establishment of a strong cold chain facility for agricultural horticultural, diary, fish& marine, poultry &meat products by starting linkage from framer gate to the consumer, end to end, and reducing losses through efficient storage, transportation, and distribution.

Course Objectives:

- Acquaint basic concepts of cold chain technology.
- Understand the cold chain technology
- Explain the cold chain technology
- Analyze the use of cold chain technology systems
- State the various components of cold chain technology
- Design traceable and standardized cold chain protocols ensuring compliance with export and quality regulations.

UNIT – I: Introduction to Cold Chain: **(11 hours)**

Preservation of Agricultural Produce, Respiration of Fresh Produce, Role of Temperature and Humidity, Storage conditions, Integrity of Cold Chain.

UNIT – II: Cold Chain Infrastructure **(13 hours)**

Cold Chain Components, Refrigeration and Insulation systems, Pre cooling in Farm, Cold Storage Types, and Special Technologies adopted in Cold storages, Distribution centres, ripening systems

UNIT – III: Cold Chain Monitoring Systems **(10 hours)**

Temperature and Relative Humidity Measurement in Cold Chain, Automated Monitoring and Recording Systems, Remote monitoring systems

UNIT – IV: Reefer Logistics **(13 hours)**

Reefer Container in Agri logistics, working principles, chilled and Frozen Cargos, Transporting Fruits and Vegetables, Transporting Dairy products, Reefer Cargo ISO containers, Mixed loads, Good Transporting practices.

UNIT – V: Good practices adopted in Cold Chain **(13 hours)**

Cold Chain practices adopted for Fresh Fruits and Vegetables to Domestic and Export Markets, SOP for Selected F &V commodities, Traceability.

Textbooks:

1. Course Material Prepared by LSC

Reference Books:

1. Industrial Refrigeration, Principles, Design and Applications, P.C. Koelet. Publishers, Marcel Dekkar Inc.

Online Resources:

Swayam course	• https://www.classcentral.com/tag/coldchain technology
E-Content	• https://transportgeography.org/contents/applications/cold-chain-logistics/cold-chain-techology/ • https://www.youtube.com/watch?v=2OqQ2cUm-Zg

Course Outcomes (COs)

CO	Course Outcome	Knowledge Level
CO1	Explain the importance of cold chain in preserving agricultural produce and the effects of temperature and humidity on produce respiration.	K1
CO2	Identify and describe infrastructure components including refrigeration systems, pre-cooling, cold storage, and ripening systems.	K2
CO3	Apply and analyze cold chain monitoring systems including temperature and RH logging, automated and remote systems.	K3
CO4	Understand the principles and best practices in reefer logistics for transporting various categories of perishable products.	K4
CO5	Evaluate cold chain practices for domestic and export supply of fruits and vegetables and prepare SOPs for selected commodities.	K5
CO6	Design traceable and standardized cold chain protocols ensuring compliance with export	K6

CO	Course Outcome	Knowledge Level
	and quality regulations.	

Relationship Matrix for COs and POs

Course Outcomes	Programme Outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	3	3	3	1	1	1
CO2	3	3	3	3	1	9
CO3	3	3	3	1	3	9
CO4	3	3	3	1	3	9
CO5	3	1	3	1	3	9
CO6	3	9	9	3	9	9
Weight age	**18**	**22**	**24**	**10**	**20**	**46**
Weighted Percentage of Course Contribution to	**12.9**	**15.7**	**17.1**	**7.1**	**14.3**	**32.9**

Notes:(0–NoCorrelation;1–Low;3–Medium;9–High)

Course Outcome mapped with Knowledge Level

CO/K-Level	Level of Correlation		
	Low	**Medium**	**High**
CO1/K1	PO4,PO5,PO6	PO1,PO2,PO3	-
CO2/K2	PO5	PO1,PO2,PO3,PO4	PO6
CO3/K3	PO4	PO1,PO2,PO3,PO5	PO6
CO4/K4	PO4	PO1,PO2,PO3,PO5	PO6
CO5/K5	PO2,PO4	PO1,PO3,PO5	PO6
CO6/K6	-	PO1	PO2,PO3,PO4,PO5,PO6

Course Outcome (CO) Attainment Assessment Tools & Evaluation Procedure

K Levels	C1	C2	C3	Total Scholastic marks	Non Scholastic Marks C5	CIA Total	% of Assessment
	T1 4 Marks	T2 10 Marks	Assignment 6 Marks	20 Marks	5 Marks	25 Marks	
K1	1	1	1	3		3	12
K2	1	1	1	3		3	12
K3	1	2	1	4		4	16
K4	1	2	1	4		4	16
K5	-	2	1	3		3	12
K6	-	2	1	3		3	12
Non Scholastic	--	--	--	--		5	20
Total	4	10	6	**20**	**5**	**25**	**100%**

The COs and POs for the **Cold Chain Technology** course in the **BMS** Degree Programme is effective matched by the course in-charge	
Signature of the Course In-Charge	Signature of the HOD

Department of BMS (Agri Storage & Supply Chain)
Programme: BMS CBCS Syllabus – Outcome Based Education (OBE)
(For those who have joined during the Academic Year 2025-2026 onwards) **SEMESTER–III**

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
BMSUG2021	**U25BM5**	**CORE**	**Pest Management**	**Lecture**	**2**	**2**

Course Description:

To get knowledge about various types of pests associated with stored produces.
To learn about various methods for managing insect and non-insect pests during the storage of agricultural produces.

Course Objectives:

- Understand the need for pest management
- Find storage pests and their significance in the supply chain
- Explain the methodology for control of insect pests
- Determine the methodology for control of non-insect pests
- Understand various components of integrated pest management in storage
- Understand and apply integrated pest management Techniques.

UNIT – I: Introduction to Pest and need for their Management **(10 hours)**
Definition of Pest, Major categories of Pests, Significance of Pests in Storage and handling of Agricultural Produce Laws concerning Pests in Storage– #Food Safety and Standards Act, 2006, Insecticides Act, 1968

UNIT – II: Important Storage Pests and their Significance in Supply Chain **(14 hours)**
Micro-organisms – Fungi and Bacteria in Storage, Nature of Damage of Fungi and Bacteria, Insects and Mites Storage Pests,* Category of Insect Pests, Important Insect Pests and their characteristics, Sources of Insect Infestation and detection of Hidden Infestation, Nature of Damage of Insects and Mites, Important Rodent Pests, their habits and biology, Nature of Damage of Rodents, Important Birds Pests, Causes and Nature of Bird Infestation

UNIT – III: Methodology for control of Insect Pests **(12 hours)**
Prophylactic treatment for Insect control, Important insecticides, *Formulations of insecticides, Insecticide application equipment, dosage and frequency of important in pesticides for

prophylactic treatment, Precaution during spraying of Insecticides, Fumigation for curative treatment of food grains in storage, types of fumigation, important fumigants and their dosages/ exposure period, #Fumigation Equipment, Fumigation process, Precautions during Fumigation

UNIT – IV: Methodology for control of Non-Insect Pests **(12 hours)**
Management of Fungi and Bacteria during storage, management of Rodent Pests, Signs of Rodent attack, *Preventive control of Rodent Pests, Mechanical control of Rodents, Chemical Control of Rodents, Poison Baiting, Burrow Fumigation for Rodent Control, #Methods for Physical and Mechanical Control of Birds in Storage.

UNIT – V: Integrated Pest Management in Storage **(12 hours)**
What is IPM, Components of IPM, #Ideal conditions for Pest Development, Components of IPM – Sanitation, Understanding relation between temperature/moisture and pest population, monitoring pests, adoption of preventive methods, judicious application of curative methods of pest management, *Management of pests in the supply chain, Strategies for IPM

Extra Credit:

Case Study
* Self-Learning
Activities: 1. Quiz

Textbooks:

1. Course Material Prepared by LSC
2. Pests of Stored Grains and their Management - M.C. Bhargava, Publ. NIPA

Reference Books:

1. Insect Pests of Stored Grain-Biology, Behavior and Management Strategies- Ranjeet Kumar, Apple Academic Press.

Online Resources:

Swayam course	• http://www.aau.in/training-programme-integrated-pest-management-ipm
E-Content	• https://www.classcentral.com/course/youtube-agriculture-integrated-pest-management-ipm-47912
Other online resources	• https://nptel.ac.in/courses/126104003 • https://www.epa.gov/ipm/integrated-pest-management-tools-resources-support-ipm-implementation

Course Outcomes (COs)

CO	Course Outcome	Knowledge Level
CO1	Understand the concept of pests, their classification, and the legal framework related to pest control in storage.	K1
CO2	Identify major storage pests (insects, rodents, birds, fungi, bacteria) and analyze their characteristics, damage, and impact on agri-supply chains.	K2
CO3	Demonstrate knowledge of methods for prophylactic and curative control of insect pests including fumigation techniques and safe chemical applications.	K3
CO4	Evaluate methods to control non-insect pests such as rodents, fungi, and birds using mechanical, chemical, and biological methods.	K4
CO5	Apply integrated pest management (IPM) techniques considering environmental factors, pest monitoring, and preventive control strategies.	K5
CO6	Design and recommend a sustainable pest management plan to maintain food quality and safety across the supply chain.	K6

Relationship Matrix for COs and POs

Course Outcomes	Programme Outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	3	3	3	1	3	9
CO2	3	3	3	1	9	9
CO3	9	3	3	9	9	9
CO4	3	9	3	9	9	9
CO5	3	9	3	3	9	3
CO6	9	9	3	3	9	3
Weight age	**30**	**36**	**18**	**26**	**48**	**42**
Weighted Percentage of Course Contribution to	**15.0**	**18.0**	**9.0**	**13.0**	**24.0**	**21.0**

Notes:(0–NoCorrelation;1–Low;3–Medium;9–High)

Course Outcome mapped with Knowledge Level

CO/K-Level	Level of Correlation		
	Low	**Medium**	**High**
CO1/K1	PO4	PO1,PO2,PO3,PO5	PO6
CO2/K2	PO4	PO1,PO2,PO3	PO5,PO6
CO3/K3	-	PO2,PO3	PO1,PO4,PO5,PO6
CO4/K4	-	PO1,PO3	PO2,PO4,PO5,PO6
CO5/K5	-	PO1,PO3,PO4,PO6	PO2,PO5
CO6/K6	-	PO3,PO4,PO6	PO1,PO2,PO5

Course Outcome (CO) Attainment Assessment Tools & Evaluation Procedure

K Levels	C1	C2	C3	Total Scholastic marks	Non Scholastic Marks C5	CIA Total	% of Assessment
	T1 4 Marks	T2 10 Marks	Assignment 6 Marks	20 Marks	5 Marks	25 Marks	
K1	1	1	1	3		3	12
K2	1	1	1	3		3	12
K3	1	2	1	4		4	16
K4	1	2	1	4		4	16
K5	-	2	1	3		3	12
K6	-	2	1	3		3	12
Non Scholastic	--	--	--	--		5	20
Total	4	10	6	20	5	25	100%

The COs and POs for the **Pest Management** course in the **BMS** Degree Programme is effective matched by the course in-charge	
Signature of the Course In-Charge	Signature of the HOD

Department of BMS (Agri Storage & Supply Chain)
Programme: BMS CBCS Syllabus – Outcome Based Education (OBE)
(For those who have joined during the Academic Year 2025-2026 onwards) **SEMESTER–III**

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
BMSUG2021	**U25BM6**	**Core**	**Handling of Fresh Produce- Value Chain**	**Lecture**	**2**	**2**

Course Description:
To develop a knowledge and understanding of the market requirements for fresh produce.

Course Objectives:

- Familiarize the concept of the fresh market in the pack house
- Able to understand important value addition of fresh produce
- State the value creation systems
- Examine suitable methodologies for fresh-cut packing
- Know various components of e-commerce delivery
- Design an integrated post-harvest to consumer value system using best practices in packing, handling, and delivery of fresh produce.

UNIT – I: Introduction to Fresh Produces **(10 hours)**
Introduction, Preparation for the Fresh market in Pack house, categories for Fresh Produce.

UNIT – II: Value Addition of Fresh Produce **(12 hours)**
Sanitation, *Pre-cutting, Canning, Dehydration, Solar drying, Blanching, and steaming

UNIT – III: Value Creation Systems **(12 hours)**
Tropical Fruits Ripening, Degreening, #Color Sorting and grading techniques

UNIT – IV: Fresh Cut Packing **(13 hours)**
Retail packing for Fresh F & V, cartons and crates, *Special packing techniques MAP, Shrink Wrapping

UNIT – V: E-commerce Delivery **(13 hours)**
Ecommerce for Fresh produce, #Opportunities and Challenges in last mile delivery systems.

Extra Credit:

Case Study

* Self-Learning

Activities: 1. Quiz

Text Books

1. Course Material Prepared by LSC.

Online Resources:

Swayam course	• https://naip.icar.gov.in/download/naip-value-chain-2.pdf • https://www.google.com/search?q=handling+of+fresh+produces+%E2%80%93+value+chain+managemen+swyamt
E-Content	• https://www.youtube.com/watch?v=iOyPNhqLGBQ • https://www.youtube.com/watch?v=L-GST2KvDgQ
Other online resources	• https://www.routledge.com/Cold-Chain-Management-for-the-Fresh-Produce-Industry-in-the-Developing/Tokala-Mohammed/p/book/9780367498191

Course Outcomes (COs)

CO	Course Outcome	Knowledge Level
CO1	Explain the categories and preparation steps of fresh produce for the market.	K1
CO2	Describe and apply value addition methods like pre-cutting, dehydration, blanching, steaming, solar drying, and canning.	K2
CO3	Analyze ripening techniques, Degreening processes, and sorting/grading of tropical fruits.	K3
CO4	Understand and evaluate packaging systems including retail packing, MAP, and shrink wrapping.	K4
CO5	Assess the role of e-commerce in fresh produce marketing and evaluate the logistics involved in last-mile delivery systems.	K5
CO6	Design an integrated post-harvest to consumer value system using best practices in packing, handling, and delivery of fresh produce.	K6

Relationship Matrix for COs and POs

Course Outcomes	Programme Outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	1	1	1	3	1	1
CO2	1	9	9	9	1	1
CO3	3	9	9	9	3	1
CO4	1	9	9	9	9	1
CO5	1	9	9	9	9	1
CO6	1	1	3	9	9	9
Weight age	**8**	**38**	**40**	**48**	**32**	**14**

Weighted Percentage of Course Contribution to	**4.4**	**21.1**	**22.2**	**26.7**	**17.8**	**7.8**

Notes:(0–NoCorrelation;1–Low;3–Medium;9–High)

Course Outcome mapped with Knowledge Level

CO/K-Level	**Level of Correlation**		
	Low	**Medium**	**High**
CO1/K1	PO1,PO2,PO3, PO4,PO5	-	PO6
CO2/K2	PO1,PO5,PO6	-	PO2,PO3,PO4
CO3/K3	PO6	PO1,PO5	PO2,PO3,PO4
CO4/K4	PO1,PO6	-	PO2,PO3,PO4,PO5
CO5/K5	PO1,PO6	-	PO2,PO3,PO4,PO5
CO6/K6	PO1,PO2	PO3	PO4,PO5,PO6

Course Outcome (CO) Attainment Assessment Tools & Evaluation Procedure

K Levels	**C1**	**C2**	**C3**	**Total Scholastic marks**	**Non Scholastic Marks C5**	**CIA Total**	**% of Assessment**
	T1 **4 Marks**	**T2** **10 Marks**	**Assignment** **6 Marks**	**20 Marks**	**5 Marks**	**25 Marks**	
K1	1	1	1	3		3	12
K2	1	1	1	3		3	12
K3	1	2	1	4		4	16
K4	1	2	1	4		4	16
K5	-	2	1	3		3	12
K6	-	2	1	3		3	12
Non Scholastic	--	--	--	--		5	20
Total	4	10	6	**20**	**5**	**25**	**100%**

The COs and POs for the **Handling of Fresh Produce Value Chain** course in the **BMS** Degree Programme is effective matched by the course in-charge	
Signature of the Course In-Charge	Signature of the HOD

Department of BMS (Agri Storage & Supply Chain)
Programme: BMS CBCS Syllabus – Outcome Based Education (OBE)
(For those who have joined during the Academic Year 2025-2026 onwards) **SEMESTER–III**

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
BMSUG2021	**U25ABM4**	**Allied**	**Mechanization in Agri Logistics**	**Lecture**	**2**	**2**

Course Description

To familiarize with the various mechanizes and innovative technologies adopted in agri logistics.

Course Objectives:

- Know the concept of mechanization in agri logistics.
- Comprehend the mechanization in product handling and transportation.
- Provide knowledge on the advancement in automated systems for storage management.
- Understand the methodology for automation in tracking and traceability.
- Equip the role of block chain technology in agriculture.
- Develop innovative strategies to integrate advanced mechanization and block chain technologies for future-ready agri-logistics systems

UNIT - I: Introduction to Mechanization in Agri-Logistics
Introduction to mechanization in agriculture–field logistics–transforming agriculture through mechanization–transportation method for different commodities– *benchmarking.

UNIT - II: Mechanization in Product Handling and Transportation
Product handling methods at farm level for Food grains -Automated system for Cleaning/ grading, Testing, Weighing, Packaging, Loading/ Unloading, Transportation and in transit (containerization, trailers, shuttle systems), #Traceability Options (Quick response (QR) code, Bar Code, RFID Tagging)

UNIT - III: Advancement in automated systems for storage management
Automated system for storage management including Strapping/Wrapping, Palletisation, Warehouse automation systems - Forklifts, Pallet Trucks, Docklevellers, Mobile Bag Stackers, Trolleys, Conveyors, Silos, #Automated Storage and Retrieval Systems (AS&RS)

UNIT - IV: Automation in Tracking and Traceability
Vehicle tracking and monitoring (GPS), Radio – Frequency Identification (RFID), Automatic Guided Vehicle System (AGVS), Real Time Warehouse Control Systems (RTWCS), #Computer Integrated Warehousing (CIW), Radio Frequency Data Terminals (RFDT).

UNIT - V: Introduction to Block chain Technology
Block chain technology- Block chain in agriculture- sustainable and industrial agriculture –transparency and trust in agri food – *Future of block chain in agriculture.

Extra Credit:

Case Study

* Self Learning

Activities: 1. Quiz 2. Data Collection in GDP and NNP 3.Group Discussion

Textbooks:

1. Course Material Prepared by LSC

Online Resources:

Swayam course	• https://agricultureandfoodsecurity.biomedcentral.com/articles/10.1186/s40066-018-017 • https://www.classcentral.com/course/swayam-farm-machinery-14050
E-Content	• https://www.youtube.com/watch?v=FnpUw_aLIBA • https://www.youtube.com/watch?v=
Other online resources	• https://www.jica.go.jp/jica ri/publication/booksandreports/l75nbg0000004ae

Course Outcomes

CO	Course Outcome	Knowledge Level
CO1	Define the concept of mechanization in agriculture and explain its role in transforming field logistics and commodity transportation.	**K1**
CO2	Describe and interpret various mechanized product handling and transportation systems including automated grading, weighing, and traceability methods.	**K2**
CO3	Apply automated systems in storage management using forklifts, conveyors, silos, and AS&RS for effective warehouse operations.	**K3**
CO4	Analyze automation technologies in vehicle tracking, traceability, and computer-integrated warehousing for enhanced logistics efficiency.	**K4**
CO5	Evaluate the role and benefits of block chain in enhancing transparency, trust, and sustainability in agricultural logistics.	**K5**
CO6	Develop innovative strategies to integrate advanced mechanization and block chain technologies for future-ready agri-logistics systems.	**K6**

Relationship Matrix for COs and POs

Course Outcomes	Programme Outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	3	3	3	3	9	3
CO2	1	1	1	3	9	3
CO3	3	3	3	3	9	9
CO4	3	9	9	9	9	9
CO5	3	9	9	9	9	9
CO6	3	9	9	9	9	9
Weight age	**16**	**34**	**34**	**36**	**54**	**42**

Weighted Percentage of Course Contribution to	**7.4**	**15.7**	**15.7**	**16.7**	**25.0**	**19.4**

Notes :(0–NoCorrelation;1–Low;3–Medium;9–High)

Course Outcome mapped with Knowledge Level

CO/K-Level	**Level of Correlation**		
	Low	**Medium**	**High**
CO1/K1		PO1,PO2,PO3,PO4,PO6	PO5
CO2/K2	PO1,PO2,PO3	PO4,PO6	PO5
CO3/K3	-	PO1,PO2,PO3,PO4	PO5,PO6
CO4/K4	-	PO1	PO2,PO,PO4,PO5,PO6
CO5/K5	-	PO1	PO2,PO,PO4,PO5,PO6
CO6/K6	-	PO1	PO2,PO,PO4,PO5,PO6

Course Outcome (CO) Attainment Assessment Tools & Evaluation Procedure

K Levels	**C1**	**C2**	**C3**	**Total Scholastic marks**	**Non Scholastic Marks C5**	**CIA Total**	**% of Assessment**
	T1 **4 Marks**	**T2** **10 Marks**	**Assignment** **6 Marks**	**20 Marks**	**5 Marks**	**25 Marks**	
K1	1	1	1	3		3	12
K2	1	1	1	3		3	12
K3	1	2	1	4		4	16
K4	1	2	1	4		4	16
K5	-	2	1	3		3	12
K6	-	2	1	3		3	12
Non Scholastic	--	--	--	--		5	20
Total	4	10	6	**20**	**5**	**25**	**100%**

The COs and POs for the **Mechanization in Agri Logistics** course in the **BMS** Degree Programme is effective matched by the course in-charge

Signature of the Course In-Charge	Signature of the HoD

Department of BMS (Agri Storage & Supply Chain)

Programme: BMS CBCS Syllabus – Outcome Based Education (OBE)

(For those who have joined during the Academic Year 2025-2026 onwards) **SEMESTER–III**

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
BMSUG2021	**U25ABM5**	**Allied**	**Production Management**	**Lecture**	**3**	**2**

Course Description:

To help the students to understand the nature and importance of Production Management

Course Objectives:

- Summarize the concept in Production Management
- Paraphrasing the factors influencing Plant location and infer the Plant location Issues.
- Interpret the importance of work-study and summarize basic Procedure of Work Study
- Compute the work measurement by techniques and examine the relationship Between Productivity & work-study.
- Construct Quality control standards and Produce it for Quality accreditation.
- Design effective quality control and production strategies integrating layout, work study, and control tools for productivity improvement.

UNIT I: Introduction to Production Management **(12 hours)**

Production Management– Scope and Function of Production Management –Factors of Production Problems of Production Management#–Relationships of production with other functions (Marketing, Finance and Human Resource) –Production management strategies– Decision involved in Production Management**.**

UNIT II: Plant Location **(13 hours)**

Plant location– Factors influencing plant location – Plant layout# – objectives of Plant Layout – Characteristics of an efficient layout – Steps involved in Plant Layout– Types of Plant Layout – product or line layout – Functional or Process Layout –Difference between Product Layout and Process Layout– Stationary or Fixed or Static Layout – Combination or Mixed layout– Advantages and limitations plant Layout.

UNIT III: Work Study **(11 hours)**

Work study – objectives and importance of Work Study – significance of Work Study – major components of Work Study – Basic procedure for work study– benefits of work study – Relationship between Productivity & work study.

UNIT IV: Method Study **(12 hours)**

Method study– scope and procedure of Method Study – Work measurement# – objectives and techniques of Work Measurement – Time study – procedure of work measurement – analytical approach of method study – symbols method study.

UNIT V: Quality Control **(12 hours)**

Quality– Quality control–objectives of Quality Control–principles of Quality Control–quality management techniques – importance and advantages of Quality Control System*

Extra Credit

#Case Study

*Self-Learning

Activities: 1.Quiz 2.Industrial visit

Photo collection of different industries on production Department

Text Book:

P.Saravanavel, S.Sumathi Production and Materials Management,, Margham Publications,Chennai

Reference Book:

1. B.S.Goel,ProductionandOperationManagement,SultanChand&Sons,NewDelhi,
2. Panneerselvam,ProductionandOperationManagement,PrenticeHallofIndia
3. K.Aswathappa, Production and Operation Management Himalaya Publishing House.NewDelhi–2000
4. M.M. Varma Material Management,, Sultan Chand&Sons,NewDelhi,2008,15thedi.
5. SwamiAnubhavananda& Prof. Arya Kumar, Ethics in Management, Ane Books India, New Delhi.
6. B.Mahadevan, operations management, Library of Congress cataloging in publication data, New Delhi.

Online Resources:

Swayam course	• https://onlinecourses.swayam2.ac.in/nou20_cs07/preview • https://ugcmoocs.inflibnet.ac.in/index.php/courses/view_ug/240
E-content	• https://www.youtube.com/watch?v=HMH3XPVC1Hg • https://www.youtube.com/watch?v=YR5jjIeIoTg
Other onli ne resources	• https://www.ddegjust.ac.in/studymaterial/bba/bba-303.pdf • https://www.nsam.ac.in/pdf/lecture-notes/bba/Production%20and%20Operations%20Management.pdf

Course Outcomes (COs)

CO	Course Outcome	Knowledge Level
CO1	Understand the scope, functions, and strategic decisions of production management and its relationship with other functional areas.	K1
CO2	Analyze factors influencing plant location and compare different types of plant layouts and their characteristics.	K2
CO3	Explain the objectives, components, and procedures of work study and its role in improving productivity.	K3
CO4	Apply method study and work measurement techniques and analyze time study procedures in a production environment.	K4
CO5	Understand quality control principles and evaluate different quality management techniques used in production systems.	K5
CO6	Design effective quality control and production strategies integrating layout, work study, and control tools for productivity improvement.	K6

Relationship Matrix for COs and POs

Course Outcomes	Programme Outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	3	3	9	3	1	1
CO2	3	9	3	3	1	1
CO3	3	1	9	3	3	1
CO4	1	3	9	9	3	1
CO5	1	3	3	3	9	3
CO6	9	3	9	9	3	9
Weight age	3	3	9	3	1	1
Weighted Percentage of Course Contribution to	3	9	3	3	1	1

Notes :(0–NoCorrelation; 1–Low; 3–Medium; 9–High)

Course Outcome mapped with Knowledge Level

CO/K-Level	Level of Correlation		
	Low	**Medium**	**High**
CO1/K1	PO5,PO6	PO1,PO2,PO4	PO3
CO2/K2	PO5,PO6	PO1,PO3,PO4	PO2
CO3/K3	PO2,PO6	PO1,PO4,PO5	PO3
CO4/K4	PO1,PO6	PO2,PO5	PO3,PO4
CO5/K5	PO1	PO2,PO3,PO4,PO6	PO5
CO6/K6	-	PO2,PO5	PO3,PO4,PO6

Course Outcome (CO) Attainment Assessment Tools & Evaluation Procedure

K Levels	C1	C2	C3	Total Scholastic marks	Non Scholastic Marks C5	CIA Total	% of Assessment
	T1 4 Marks	T2 10 Marks	Assignment 6 Marks	20 Marks	5 Marks	25 Marks	
K1	1	1	1	3		3	12
K2	1	1	1	3		3	12
K3	1	2	1	4		4	16
K4	1	2	1	4		4	16
K5	-	2	1	3		3	12
K6	-	2	1	3		3	12
Non Scholastic	--	--	--	--		5	20
Total	4	10	6	20	5	25	100%

The COs and POs for the **Production Management** course in the **BMS** Degree Programme is effective matched by the course in-charge	
Signature of the Course In-Charge	Signature of the HOD

Department of BMS (Agri Storage & Supply Chain)
Programme: BMS CBCS Syllabus – Outcome Based Education (OBE)
(For those who have joined during the Academic Year 2025-2026 onwards) **SEMESTER–III**

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
COMUG1952	**U22NME2:1**	**NME**	**Principles of Accountancy**	**Lecture**	**2**	**2**

Course Description:
To learn basic principles of accountancy and to prepare of sole trader

Course Objectives:

- Understand the basic concepts and conventions of accounting and apply the double-entry system for recording business transactions through journal and ledger.
- Prepare and maintain subsidiary books such as Purchase Day Book, Sales Day Book, Cash Book, and Petty Cash Book.
- Analyze and prepare a Bank Reconciliation Statement to reconcile bank balances with cash book entries. *(Simple problems only)*
- Explain the concept, causes, and methods of depreciation and apply Straight Line and Written down Value methods in solving basic problems.
- Prepare final accounts of a sole trader including necessary adjustments and closing entries. *(Simple problems only)*
- Develop foundational accounting skills and apply them to practical business scenarios for accurate financial reporting and decision-making.

UNIT – I: Journal and Ledger **(14 hours)**
Definition of Accounting - Accounting Concepts and Conventions-Double entry system-Rules - Advantages-Journal -Ledger -Trial Balance.

UNIT – II: Subsidiary Books **(10 hours)**
Purchase Day Book-Sales Day Book-Cash Book-Petty Cash Book.

UNIT – III: Bank Reconciliation Statement **(10 hours)**
Bank Reconciliation Statement - Purpose- Preparation (Simple Problems Only).

UNIT – IV: Depreciation Accounting **(12 hours)**
Depreciation Accounting-Meaning -Causes-Methods -Straight Line Method-Written Down Value

Method (Simple Problems Only)

UNIT – V **(14 hours)**

Final Accounts of Sole Trader- Adjustment and Closing Entries-(Simple Problems Only).

Extra Credit:

Case Study
* Self-Learning
Activities: 1. Quiz 2. Group Discussion 3. Chart Work

Marks Scheme

Theory:20% Marks Problems:80%	Total 75 Marks

Text Book

*Reddy, T.S., & Murthy, Y.(2021).Financial Accounting, Margham Publications, Chennai.

Reference Books

- Jain,S.P.,& Narang,K.L.(2022).Financial Accounting, Kalyani Publications, Ludhiana
- Gupta,R.L & Radhaswamy, M. (2021).Financial Accounting ,Sultan Chand & Sons.
- Gupta,R.L and Gupta, V.K.(2019).Financial Accounting ,Sultan Chand & Sons,
- New Delhi.
- Shukla,M.C., Grewal T.S.,& Gupta, S.P.(2021),Advanced Accounts ,S. Chand & Co., New Delhi.

Online Resources

Swayam course	• https://onlinecourses.swayam2.ac.in/cec20mg23/preview • https://onlinecourses.swayam2.ac.in/cec20mg02/preview
E-Content	• https://www.youtube.com/watch?v=nUgQYs47w2U • https://www.youtube.com/watch?v=vuetn • https://www.youtube.com/watch?v=Y4azRCTTWoU • https://www.learnpick.in/prime/documents/ppts/details/4026/accounting-concepts-principles •
Other online resources	• https://drive.google.com/file/d/0B V4Kkm2koFqOUk3 VDBlb0hNUEk/view • https://icmai.in/upload/Students/Syllabus-2012/Study Material New/Foundation-paper2-Revised.pdf

Course Outcomes (COs)

CO	Course Outcome	Knowledge Level
CO1	Understand accounting principles, concepts, double-entry system, and preparation of journal, ledger, and trial balance.	K1
CO2	Prepare subsidiary books like purchase, sales, cash book, and petty cash book.	K2
CO3	Prepare a bank reconciliation statement and explain its purpose.	K3
CO4	Explain depreciation, its causes, and apply basic methods like Straight Line and Written Down Value method.	K4
CO5	Prepare final accounts of a sole trader including adjustments and closing entries.	K5
CO6	Analyze financial statements and demonstrate ability to solve simple accounting problems and apply core financial concepts.	K6

Relationship Matrix for COs and POs

Course Outcomes	Programme Outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	3	1	1	1	3	3
CO2	3	1	1	1	9	3
CO3	3	1	3	3	9	3
CO4	9	1	3	3	3	9
CO5	9	1	3	3	9	9
CO6	1	9	9	9	9	1
Weight age	**28**	**14**	**20**	**20**	**42**	**28**
Weighted Percentage of Course Contribution to	**18.4**	**9.2**	**13.2**	**13.2**	**27.6**	**18.4**

Notes:(0–NoCorrelation;1–Low;3–Medium;9–High)

Course Outcome mapped with Knowledge Level

CO/K-Level	Level of Correlation		
	Low	**Medium**	**High**
CO1/K1	PO2,PO3,PO4	PO1,PO5,PO6	-
CO2/K2	PO2,PO3,PO4	PO1,PO6	PO5
CO3/K3	PO2	PO1,PO3,PO4,PO6	PO5
CO4/K4	PO2	PO3,PO4,PO5	PO1,PO6
CO5/K5	PO2	PO3,PO4	PO1,PO5,PO6
CO6/K6	PO1,PO6	-	PO2,PO3,PO4,PO5

Course Outcome (CO) Attainment Assessment Tools & Evaluation Procedure

K Levels	C1	C2	C3	Total Scholastic marks	Non Scholastic Marks C5	CIA Total	% of Assessment
	T1 4 Marks	T2 10 Marks	Assignment 6 Marks	20 Marks	5 Marks	25 Marks	
K1	1	1	1	3		3	12
K2	1	1	1	3		3	12
K3	1	2	1	4		4	16
K4	1	2	1	4		4	16
K5	-	2	1	3		3	12
K6	-	2	1	3		3	12
Non Scholastic	--	--	--	--		5	20
Total	4	10	6	**20**	**5**	**25**	**100%**

The COs and POs for the **Principles of Accountancy** course in the **BMS** Degree Programme is effective matched by the course in-charge	
Signature of the Course In-Charge	Signature of the HOD

Department of BMS (Agri Storage & Supply Chain)
Programme: BMS CBCS Syllabus – Outcome Based Education (OBE)
(For those who have joined during the Academic Year 2025-2026 onwards) **SEMESTER–IV**

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
BMSUG2021	**U25BM7**	**CORE**	**Agricultural Exports and Imports**	**Lecture**	**4**	**3**

Course Description:

To familiarize students with procedures for export and import of agricultural produces.

Course Objectives:

- Understand the basic concept of international trade
- Acquire the knowledge on the development of trade policy
- Explain the export procedure and documentation
- Know the strategies of international marketing
- Introduce supporting agencies for export finance
- Evaluate emerging issues and risks in international trade and propose strategies to manage international marketing and financial risks.

UNIT – I: Introduction to international trade **(12 hours)**

Meaning and Scope of International trade – Growth of International Trade– challenges in international Trade - Inco terms -Theory of International Trade - Absolute and Comparative advantage – Competitive Advantage -*Trade in agricultural commodities

UNIT – II: Trade Policy **(12 hours)**

Trade Policy Instruments – #Trade policy impacts of Taxes - subsidies and quotas - welfare effect to free trade –Trade protection measures namely tariffs - quotas and subsidies - voluntary export restraint – GATT and Trade Liberalization – WTO – UNCTAD – Functions and Basic principles– Agreement on Agriculture – Impact on Indian Agriculture.

UNIT – III: Export Procedure and Documentation **(12 hours)**

Export documents – Procedure for exporting–Sanitary and Phyto sanitary measures – Insurance-Trade promotion organizations – Scanning the International Marketing Environment- *Social, Cultural, Economic, Legal and Political.

UNIT – IV: International Marketing Strategy **(12 hours)**

International Marketing Research – International Market Identification – Segmentation and Selection of Markets - *Entering International Market- Mode of Entry -Product Strategy for International Markets - Standardization and Adaptation - #Building Global Brands - Pricing Decisions - International Logistics and Promotion.

UNIT – V: Export Finance **(12 hours)**

Export Finance - Pre-shipment and Post-shipment Credit - Terms of Payment in International Transaction -Risks in International Transaction-Measures and Managing Risk in International Marketing – Emerging Issues in International trade.

Extra Credit:

Case Study

* Self-Learning

Activities: 1. Quiz 2. Data Collection in Procedure for exporting

Text and Reference Book

1. Course material from LSC

Online Resources:

Swayam course	• https://www.naukri.com/learning/agro-export-certification
E-Content	• https://www.youtube.com/watch?v=AYx3mw_f-DU
Other online resources	• https://www.indiabudget.gov.in/budget_archive/es2000-01/chap820.pdf • https://www.nal.usda.gov/legacy/topics/distribution-imports-and-exports

Course Outcomes (COs)

CO	Course Outcome	Knowledge Level
CO1	Understand the scope, growth, and challenges of international trade with reference to agricultural commodities and trade theories.	K1
CO2	Analyze trade policies, instruments, protection measures, and the roles of international organizations like WTO, GATT, and UNCTAD.	K2
CO3	Apply knowledge of export procedures, documentation, and international marketing environment including legal, social, and phytosanitary standards.	K3
CO4	Formulate international marketing strategies considering market research, segmentation, entry modes, branding, logistics, and promotion.	K4
CO5	Understand export finance mechanisms including pre-shipment and post-shipment credit, risk management, and payment terms.	K5
CO6	Evaluate emerging issues and risks in international trade and propose strategies to manage international marketing and financial risks.	K6

Relationship Matrix for COs and POs

Course Outcomes	Programme Outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	9	3	9	1	1	3
CO2	3	9	3	1	1	9
CO3	3	1	9	3	3	1

CO4	1	3	9	9	3	9
CO5	3	1	1	3	9	3
CO6	3	9	3	1	9	9
Weight age	**22**	**26**	**34**	**18**	**26**	**34**
Weighted Percentage of Course Contribution to	**13.8**	**16.3**	**21.3**	**11.3**	**16.3**	**21.3**

Notes:(0–NoCorrelation;1–Low;3–Medium;9–High)

Course Outcome mapped with Knowledge Level

CO/K-Level	**Level of Correlation**		
	Low	**Medium**	**High**
CO1/K1	PO4,PO5	PO2,PO6	PO1,PO3
CO2/K2	PO4,PO5	PO1,PO3	PO2,PO6
CO3/K3	PO2,PO6	PO1,PO4,PO5	PO3
CO4/K4	PO1	PO2,PO5	PO3,PO4,PO6
CO5/K5	PO2,PO3	PO1,PO4,PO6	PO4
CO6/K6	PO4	PO1,PO3	PO2,PO5,PO6

Course Outcome (CO) Attainment Assessment Tools & Evaluation Procedure

K Levels	**C1**	**C2**	**C3**	**Total Scholastic marks**	**Non Scholastic Marks C5**	**CIA Total**	**% of Assessment**
	T1 **4 Marks**	**T2** **10 Marks**	**Assignment** **6 Marks**	**20 Marks**	**5 Marks**	**25 Marks**	
K1	1	1	1	3		3	12
K2	1	1	1	3		3	12
K3	1	2	1	4		4	16
K4	1	2	1	4		4	16
K5	-	2	1	3		3	12
K6	-	2	1	3		3	12
Non Scholastic	--	--	--	--		5	20
Total	4	10	6	**20**	**5**	**25**	**100%**

The COs and POs for the **Agricultural Exports and Imports** course in the **BMS** Degree Programme is effective matched by the course in-charge	
Signature of the Course In-Charge	Signature of the HOD

Department of BMS (Agri Storage & Supply Chain)
Programme: BMS CBCS Syllabus – Outcome Based Education (OBE)
(For those who have joined during the Academic Year 2025-2026 onwards) **SEMESTER–IV**

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
BMSUG2021	**U25BM8**	**Core**	**Packing Technology**	**Lecture**	**3**	**2**

Course Description:

To know the importance and different packaging techniques of food packaging.

Course Objectives:

- Know materials used in the packaging of agri products.
- Familiarize with the wood and paper packaging
- Explain the glass and metal packaging
- Sate the various types of packaging of foods
- Understand the different packaging methods
- Understand and apply active, intelligent, and smart packaging technologies including edible coatings and CAP/MAP systems.

UNIT – I: Introduction to Agri-products Packaging **(12 hours)**

History – Importance - and functions of Food and agri - products packaging - Properties of packaging material in Relation to these functions, package design - *Tests for flexible packaging materials - Materials used in packaging – Rigid - Semi-rigid and flexible - #Types of containers – primary & secondary - flexible & rigid - hermetic & non-hermetic.

UNIT – II: Wood and Paper Packaging **(12 hours)**

Packaging materials: Wood-structure – types - properties and wooden containers used in packaging - types of Wooden boxes. Paper and paperboard – structure – making - properties types and uses of paper and paperboard - CFB boxes and their comparison with wooden containers.

UNIT – III: Glass and Metal Packaging **(12 hours)**

Packaging materials: Glass-composition, properties, structure, types & manufacture of glass containers, their uses, breakage in glass, closure for glass containers. Metals-properties of metals, different metals used in food packaging, steel plate and functions of various constituents of steel, formation of two-piece and three-piece cans, tinning process, tin-free steel, aluminum containers, lacquering–type and applications, aluminum foil, corrosion of metal cans.

UNIT – IV: Packaging of Foods **(12 hours)**

Packaging Rules – Labeling techniques and procedures -Packaging Techniques and usage of

technology - Bar coding Packaging Practices followed for fruits and vegetables and their products, Packaging machines (FFS), Filling machines, vacuum packaging machines.

UNIT – V: Packaging Methods **(12 hours)**

Aseptic packaging of foods: sterilization of packaging material, food contact surfaces & aseptic packaging systems. Active food packaging – definition, scope, physical and chemical principles involved. Edible films and coatings. Intelligent/ Smart/ Active packaging systems and their food applications, CAP/ MAP.

Extra Credit:

Case Study

* Self-Learning

Activities: 1. Quiz 2. Data Collection in GDP and NNP 3.Group Discussion

Text and Reference Book

- Course Material Prepared by LSC
- Robertson, G.L.(2006). Food Packaging: Principles and Practice (3rded.) published by CRC, Taylor and Francis Group Bocaraton, London NewYorkpress (UnitI,IIIII, IV)
- Food Packaging Technology-Edited by Richard coles, Derek Mc Dowell and Mork J Kirwan published by Blackwell publishing CRC Press (Unit I)
- Food Science by B. Shrilakshmi published by New Age International, 2003 (Unit II, III, IV)
- Novel Food Packaging Techniques-Edited by Raija Ahvenainen published by Wood head Publishing Limited
- Richard Coles, Berek McDowell and Mark J.Kirwan. 2003. Food Packaging Technology. Blackwell Publishing Ltd., Oxford, UK

Online Resources:

Swayam course	• https://www.classcentral.com/course/swayam-electronic-packaging-and-manufacturing-13021 • https://onlinecourses.swayam2.ac.in/cec20_ag06/preview
E-Content	• https://www.youtube.com/watch?v=ARxFwDnj_2c
Other online resources	• https://polymerinnovationblog.com/wp-content/uploads/2017/02/Food-Packaging-Technology.pdf • https://onlinelibrary.wiley.com/journal/10991522

Course Outcomes (COs)

CO	Course Outcome	Knowledge Level
CO1	Understand the history, importance, functions, and types of packaging materials and containers for agri-food products.	K1
CO2	Explain the properties and types of wood, paper, and paperboard packaging materials used in agri-product packaging.	K2
CO3	Analyze the composition, properties, and manufacturing processes of glass and metal packaging, including corrosion and closure systems.	K3
CO4	Apply labeling, bar coding, and packaging techniques for fruits, vegetables, and processed agri-products.	K4
CO5	Evaluate aseptic and vacuum packaging methods, packaging machines, and sterilization procedures for food contact surfaces.	K5
CO6	Understand and apply active, intelligent, and smart packaging technologies including edible coatings and CAP/MAP systems.	K6

Relationship Matrix for COs and POs

Course Outcomes	Programme Outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	3	3	3	3	1	1
CO2	3	3	3	3	1	1
CO3	3	9	9	3	1	3
CO4	3	3	3	3	1	3
CO5	3	9	9	9	1	9
CO6	3	9	9	9	9	9
Weight age	**18**	**36**	**36**	**30**	**14**	**26**
Weighted Percentage of Course Contribution to	**11.3**	**22.5**	**22.5**	**18.8**	**8.8**	**16.3**

Notes :(0–NoCorrelation; 1–Low; 3–Medium; 9–High)

Course Outcome mapped with Knowledge Level and POs

CO/K-Level	Level of Correlation		
	Low	**Medium**	**High**
CO1/K1	PO5,PO6	PO1,PO2,PO3,PO4	-
CO2/K2	PO5,PO6	PO1,PO2,PO3,PO4	-
CO3/K3	PO5	PO1,PO4	PO2,PO3
CO4/K4	PO5	PO1,PO2,PO3,PO4,PO6	-

CO5/K5	PO4	PO1	PO2,PO3,PO5,PO6
CO6/K6	-	PO1	PO2,PO3,PO4,PO5,PO6

Course Outcome (CO) Attainment Assessment Tools & Evaluation Procedure

K Levels	C1	C2	C3	Total Scholastic marks	Non Scholastic Marks C5	CIA Total	% of Assessment
	T1 4 Marks	T2 10 Marks	Assignment 6 Marks	20 Marks	5 Marks	25 Marks	
K1	1	1	1	3		3	12
K2	1	1	1	3		3	12
K3	1	2	1	4		4	16
K4	1	2	1	4		4	16
K5	-	2	1	3		3	12
K6	-	2	1	3		3	12
Non Scholastic	--	--	--	--		5	20
Total	4	10	6	**20**	**5**	**25**	**100%**

The COs and POs for the **Packing Technology** course in the **BMS** Degree Programme is effective matched by the course in-charge	
Signature of the Course In-Charge	Signature of the HOD

Department of BMS (Agri Storage & Supply Chain)
Programme: BMS CBCS Syllabus – Outcome Based Education (OBE)
(For those who have joined during the Academic Year 2025-2026 onwards)

SEMESTER IV

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
BMSUG2021	**U25ABM6**	**Allied**	**Organizational Behavior**	**Lecture**	**4**	**3**

Course Description

To enable the students to understand the fundamental principles of individual and organizational behavior

Course Objectives

- Enumerate the Basic Ideas, Models, Disciplines and Hawthorne studies in organizational behavior and describe the importance of organizational behavior
- Analyze inefficiency and weakness in individuals and apply various measures to improve it in the organization.
- Summarize the concept of Leadership theories and adapt the Qualities of effective leaders.
- Distinguish between Power & Authority.
- Analyze the theories of learning, theories of motivation and how they are practiced in the organization.

UNIT I: Introduction **(12 hours)**

Organizational behavior – Nature, Elements & foundation of OB – OB models – Autocratic#, Custodial, Supportive, Collegial & System Model – Importance of organizational behavior* – Disciplines contributing towards Organizational behavior – Psychology, Sociology, Political Science, Social Psychology, Anthropology – Hawthorne Experiment.

UNIT II: Individual and Group (**12 hours)**

Individual behavior – Factors influencing Individual behavior – Personalities – Characteristics of Personality – Big 5 Personality Traits – Theories of personalities – Psychoanalytic theory, Self theory, Social learning Theory, Perception – Attitude –Values – Group behavior – Group dynamics –Transaction Analysis, Johari Window Model– Group cohesiveness – Group decision making – Team Building# – Basics of Team Building – Group vs Team – Elements of Team Building – Factors contributing to the effective team building*.

UNIT III: Leadership **(12 hours)**

Leadership# – Concept, Nature and Objectives of Leadership – Role of a leader – Difference between the leader and manager – Qualities of effective leader* – Leadership styles –Autocratic –Democratic –Laissez Faire – Theories of leadership – Trait theory – Situational leadership theory –Contingency theory – Transformational Leadership, and Transactional Leadership – Contemporary Leadership Roles – Challenges to the Leadership Construct – Substitutes and Neutralizers to Leadership.

UNIT IV: Organization Power & Politics **(12 hours)**

Power# – Types of power – Authority – Characteristics of authority– Types of authority – Distinguish between Power & Authority* – Organizational Culture – Concept of Organizational Culture – Dominant Culture – Strong vs Weak Cultures – Creating and Sustaining Culture – Organizational Changes – Concept and Forces for Change – Managing Planned Changes – Resistance to Change – Approaches to Manage Organizational Change – Organizational Development.

UNIT V: Learning and Motivation **(12 hours)**

Learning – Essential elements of learning process –Learning Principles – Participation, Repetition, Relevance Transference ,Feedback –Stages of Learning –Cognitive, Associative , Autonomous – Theories of Learning – Conditioning – Social Learning – Managerial Implication of Learning Theories. Motivation# – Characteristics, Nature and Benefits of Motivation* – Process of Motivation– Theories of motivation –Maslow's theory – Mc. Gregor's theory X and Theory Y – ERG Theory –Herzberg Two factor theory – Motivation in modern context – Motivation in Industrial Sector – Case study on manufacturing industries in India.

Extra Credit:

 # Case Study

*** Self-Learning**

Activities: 1. Collect diagram of various motivation theory 2.Quiz

Text Book:

1. K.Aswathappa , Organisational Behaviour, Himalaya Publication House PVT Ltd,2020

Books for Reference:

1. L.M. Prasad, Organisational Behaviour, Sultan Chand & Sons Publication,2019
2. Shashi K.Gupta& Rosy Joshi–Organisational Behaviour, KalyaniPublishers,2013
3. J. Jayasankar,Organisational Behaviour, MarghamPublishers,2015
4. Dr SS Khanka, Organizational Behavior, S. Chand & Co, New Delhi, 2008.
5. Sanghi Seema, Organizational Behavior, Pearson, 2011.

6. Dr. Niraj Kumar –Organisational Behaviour, Himalaya Publications,2010.

Online Resources :

Swayam course	• https://ugcmoocs.inflibnet.ac.in/index.php/courses/view_ug/331 • https://ugcmoocs.inflibnet.ac.in/index.php/courses/view_ug/229
E-content	• https://www.youtube.com/watch?v=QixeP0oy0xk • https://www.youtube.com/watch?v=rqoMeEAFxMo
Other online resources	• https://www.iedunote.com/organizational-behavior • https://www.economicsdiscussion.net/management/organisational-behaviour/31869 • http://www.simplynotes.in/organisational-behaviour/ • https://sol.du.ac.in/SOLSite/Courses/UG/StudyMaterial/02/Part1/BOM/English/SM- 1.pdf • https://www.researchgate.net/profile/Vijay_Kaul9

CO	Course Outcome	Knowledge Level
CO1	Understand the nature, elements, and foundational models of Organizational Behavior and its interdisciplinary roots.	K1
CO2	Analyze individual and group behavior, personality traits, attitudes, perception, and group dynamics to build effective teams.	K2
CO3	Evaluate leadership styles, theories, and roles and distinguish between leadership and management to enhance leadership effectiveness.	K3
CO4	Differentiate between power and authority, understand types of organizational culture, and manage resistance to organizational change.	K4
CO5	Apply learning principles and motivation theories in organizational contexts to enhance workforce efficiency.	K5
CO6	Develop integrated insights from all OB concepts to solve behavioral challenges through case analysis and organizational improvement strategies.	K6

Relationship Matrix for COs and POs

Course Out comes	Programme Outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	3	3	3	3	1	1
CO2	3	3	3	3	1	1
CO3	3	9	9	3	1	3
CO4	3	3	3	3	1	3
CO5	3	9	9	9	1	9
CO6	3	9	9	9	9	9
Weight age	**18**	**36**	**36**	**30**	**14**	**26**

Weighted Percentage of Course Contribution to	**11.3**	**22.5**	**22.5**	**18.8**	**8.8**	**16.3**

Notes: (0–NoCorrelation; 1–Low; 3–Medium; 9–High)

Course Outcome mapped with Knowledge Level and POs

CO/K-Level	**Level of Correlation**		
	Low	**Medium**	**High**
CO1/K1	PO5,PO6	PO1,PO2,PO3,PO4	-
CO2/K2	PO5,PO6	PO1,PO2,PO3,PO4	-
CO3/K3	PO5	PO1,PO4	PO2,PO3
CO4/K4	PO5	PO1,PO2,PO3,PO4,PO6	-
CO5/K5	PO4	PO1	PO2,PO3,PO5,PO6
CO6/K6	-	PO1	PO2,PO3,PO4,PO5,PO6

Course Outcome (CO) Attainment Assessment Tools &Evaluation Procedure

K Levels	**C1**	**C2**	**C3**	**Total Scholastic marks**	**Non Scholastic Marks C5**	**CIA Total**	**% of Assessment**
	T1 **4 Marks**	**T2** **10 Marks**	**Assignment** **6 Marks**	**20 Marks**	**5 Marks**	**25 Marks**	
K1	1	1	1	3		3	12
K2	1	1	1	3		3	12
K3	1	2	1	4		4	16
K4	1	2	1	4		4	16
K5	-	2	1	3		3	12
K6	-	2	1	3		3	12
Non Scholastic	--	--	--	--		5	20
Total	4	10	6	**20**	**5**	**25**	**100%**

The COs and POs for the **Organizational Behavior** course in the **BMS** Degree Programme is effective matched by the course in-charge	
Signature of the Course In-Charge	Signature of the HoD

Department of BMS (Agri Storage & Supply Chain)
Programme: BMS CBCS Syllabus – Outcome Based Education (OBE)
(For those who have joined during the Academic Year 2025-2026 onwards) **SEMESTER–IV**

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
BMSUG2021	**U25ABM7**	**Allied**	**Entrepreneurial Development**	**Lecture**	**3**	**2**

Course Description:

To enrich the students towards the knowledge of entrepreneurial skills and to make the students understand the approaches to attain the goal of the business.

Course Objectives:

- To introduce the concept of entrepreneurship, its characteristics, types, and functions, and to highlight its significance in economic development and employment generation.
- To develop understanding of key entrepreneurial skills, motivational factors, and challenges/barriers faced by entrepreneurs in their journey.
- To explain the objectives, phases, and importance of Entrepreneurial Development Programmes (EDPs) and to familiarize students with supporting institutions like NIESBUD, ITCOT, SIPCOT, and SISI.
- To equip students with knowledge of project management techniques, including idea generation, project identification, formulation, report preparation, and appraisal.
- To explore special issues in entrepreneurship, focusing on the challenges and development strategies for rural and women entrepreneurs.
- To provide awareness about industrial sickness and introduce students to modern trends in intelligent, smart, and active packaging systems and their relevance in entrepreneurship and the food industry.

Unit I: Introduction (**12 hours)**

Entrepreneur–Functions of Entrepreneur–Entrepreneurship–Characteristics of entrepreneurship–, Types of entrepreneurship–, Importance of entrepreneurship* , Functions of entrepreneurship– Constraints in entrepreneurship– Role of entrepreneurship in economic development#.

Unit II: Entrepreneurs Skills and Barriers **(12 hours)**

Managerial Skills of Entrepreneurs#–Factors influencing entrepreneurship–Entrepreneurial Motivation– Importance of motivating Entrepreneurs*– Barriers in Entrepreneurship

development.

Unit III: Roles and Phases of EDP **(12 hours)**

Entrepreneurial Development Programme–Need for EDPs*–Objectives and Roles of EDP–Phases of EDP – EDP Institutions in India and their functions – NIESBUD, ITCOT, SIPCOT# and SISI.

Unit IV: Project Management (12 hours)

Project Management*– Sources of a business idea– Project Identification– Project formulation– Project Report– Project Appraisal.

Unit V: Issues in Entrepreneurship (12 hours)

Special Issues in Entrepreneurship – Rural Entrepreneurs – Women Entrepreneurs# – Steps to encourage women entrepreneurs–Problems faced by rural entrepreneurs*–Problems faced by women entrepreneurs– Industrial Sickness – Reason for Industrial Sickness Coatings. Intelligent/ Smart/ Active packaging systems and their food applications, CAP/ MAP.

Extra Credit:

Case Study

* Self-Learning

Activities: 1. Quiz 2. Data Collection in GDP and NNP 3.Group Discussion

Text and Reference Book

1. Course Material Prepared by LSC
2. Robertson, G.L.(2006). Food Packaging: Principles and Practice (3rded.) published by CRC, Taylor and Francis Group Bocaraton, London New York press (Unit I,II, III, IV)
3. Food Packaging Technology-Edited by Richardcoles, Derek Mc Dowell and Mork J Kirwan published by Blackwell publishing CRC Press (UnitI)
4. Food Science by B.Shrilakshmi published by New Age International, 2003 (UnitII, III, IV)
5. Novel Food Packaging Techniques-Edited by RaijaAhvenainen published by Wood head Publishing Limited
6. Richard Coles, Berek McDowell and Mark J. Kirwan. 2003. Food Packaging Technology. Blackwell Publishing Ltd., Oxford, UK

Online Resources:

Swayam course	• https://www.classcentral.com/course/swayam-electronic-packaging-and-manufacturing-13021 • https://onlinecourses.swayam2.ac.in/cec20_ag06/preview
E-Content	• https://www.youtube.com/watch?v=ARxFwDnj_2c
Other online resources	• https://polymerinnovationblog.com/wp-content/uploads/2017/02/Food-Packaging-Technology.pdf • https://onlinelibrary.wiley.com/journal/10991522

Course Outcome (COs)

CO	Course Outcome	Knowledge Level
CO1	Understand the concept, characteristics, types, and importance of entrepreneurship, and its role in economic development.	K1
CO2	Analyze the skills and motivational factors essential for entrepreneurs and identify the barriers in entrepreneurship development.	K2
CO3	Explain the significance of Entrepreneurial Development Programmes (EDPs), their phases, and the roles of institutions like NIESBUD, ITCOT, SIPCOT & SISI.	K3
CO4	Apply the knowledge of project management in identifying, formulating, and appraising new business ideas and project reports.	K4
CO5	Evaluate the challenges faced by rural and women entrepreneurs and suggest steps to overcome them.	K5
CO6	Create awareness on industrial sickness and explore innovations like intelligent and smart packaging systems in modern entrepreneurship.	K6

Relationship Matrix for COs and POs

Course Outcomes	Programme Outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	3	3	9	3	1	1
CO2	3	9	3	3	1	1
CO3	3	1	9	3	3	1
CO4	1	3	9	9	3	1
CO5	1	3	3	3	9	3
CO6	9	3	9	9	3	9
Weight age	**20**	**22**	**42**	**30**	**20**	**16**
Weighted Percentage of Course Contribution to	**13.3**	**14.7**	**28.0**	**20.0**	**13.3**	**10.7**

Notes:(0–NoCorrelation;1–Low;3–Medium;9–High)

Course Outcome mapped with Knowledge Level

CO/K-Level	Level of Correlation		
	Low	**Medium**	**High**
CO1/K1	PO5,PO6	PO1,PO2,PO4	PO3
CO2/K2	PO5,PO6	PO1,PO4,PO5	PO2
CO3/K3	PO2,PO6	PO1,PO4,PO5	PO3
CO4/K4	PO1,PO6	PO2,PO5	PO3,PO4
CO5/K5	PO1	PO2,PO3,PO4,PO6	PO5
CO6/K6	-	PO2,PO5	PO1,PO3,PO4,PO6

Course Outcome (CO) Attainment Assessment Tools & Evaluation Procedure

K Levels	C1	C2	C3	Total Scholastic marks	Non Scholastic Marks C5	CIA Total	% of Assessment
	T1 4 Marks	T2 10 Marks	Assignment 6 Marks	20 Marks	5 Marks	25 Marks	
K1	1	1	1	3		3	12
K2	1	1	1	3		3	12
K3	1	2	1	4		4	16
K4	1	2	1	4		4	16
K5	-	2	1	3		3	12
K6	-	2	1	3		3	12
Non Scholastic	--	--	--	--		5	20
Total	4	10	6	**20**	**5**	**25**	**100%**

The COs and POs for the **Entrepreneurial Development** course in the **BMS** Degree Programme is effective matched by the course in-charge	
Signature of the Course In-Charge	Signature of the HOD

Department of BMS (Agri Storage & Supply Chain)
Programme: BMS CBCS Syllabus – Outcome Based Education (OBE)
(For those who have joined during the Academic Year 2025-2026 onwards
SEMESTER–IV

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
BMSUG2021	**U25BM9E**	**Elective**	**Dairy Value Chain & Marketing**	**Lecture**	**2**	**2**

Course Description:

To expose knowledge on dairy operations, processing, and milk products.

Course Objectives:

- Get exposure on the status of dairy production across the world.
- Enable important clean milk production and procurement.
- Explain the dairy operations, processing, and milk products.
- Know the marketing of milk and milk products.
- Understand the functions of milk value chain.
- Examine the role of emerging technologies and case studies in strengthening dairy marketing and value chain systems.

UNIT – I: Dairy production status **(12 hours)**

Trend and status of dairy products in India and the World; History of dairy development in India – Before and after Operation Flood; Dairy farming in India - Distinctive features; Milk production and consumption. Properties of milk; Composition and components of milk; Nutritional values of milk.

UNIT – II: Clean milk production and procurement **(12 hours)**

Clean milk; Importance of clean milk; Sources of milk contamination; Microbes in milk; Steps for clean milk production, Cleanliness, Milking process environment; Procurement of milk - Milk collection systems and pricing policies in India.

UNIT – III: Dairy operations, processing, and milk products **(12 hours)**

Milk collection, Chilling, and milk storage; Milk processing; Market milk–variants and standards, special milk; Milk products -Traditional Products, Fat-Rich Dairy Products. Cleaning- Protocols for cleaning and sanitation; Packaging of milk; Quality assurance and assessment; Preservatives, neutralizers, and adulterants in milk – Deduction; Quality and safety regulations.

UNIT – IV: Marketing of milk and milk products **(12 hours)**

Dairy market structure; Market segmentation; Milk marketing in India – channels, efficiency and integration; Peculiarities and constraints in dairy products marketing; Milk distribution; Price determination.

UNIT – V: Value Chain **(12 hours)**

Functionaries in Milk Value Chain in India; Government policies on dairy production and marketing; International dairy marketing Regulations, Status and Trends; Technologies in milk marketing; Case studies.

Extra Credit:

Case Study
* Self-Learning

Activities: 1. Quiz 2. Data Collection in GDP and NNP 3.Group Discussion

Text and Reference Book

1. Course material from LSC
2. HarryS. Mustard. (1960) An Introduction to Public Health, The Macmillan Co., NewYork.
3. SukumarDe (1980), Outlines of Dairy Technology, Oxford University Press, New Delhi
4. V.K.Muthu., (2005) A Short Book of Public Health, JAPEE Brother Medical Pub.(P)Ltd New Delhi.
5. Walstra,P. Wouters, J.T.M. and Geurts, T.J. 2006. Dairy Science and Technology. CRC Press, New York.

Online Resources:

Swayam course	• https://www.intechopen.com/chapters/56732 • https://www.tandfonline.com/doi/abs/10.1080/08974438.2020.180538
E-Content	• https://www.youtube.com/watch?v=idL_Um0PmqE
Other online resources	• https://www.eajournals.org/wp-content/uploads/Marketing-Framework-in-the-Dairy-Value-Chain-for-Food-Security.pdf • https://core.ac.uk/download/pdf/234685538.pdf

Course Outcomes (COs)

CO	Course Outcome	Knowledge Level
CO1	Understand the trends, status, and nutritional significance of dairy production in India and globally.	K1
CO2	Explain the concept of clean milk production, sources of contamination, and milk procurement systems in India.	K2
CO3	Analyze milk processing, traditional dairy products, packaging, quality standards, and detection of adulterants.	K3
CO4	Evaluate the marketing structure, segmentation, pricing, and distribution of milk and dairy products in India.	K4
CO5	Understand value chain actors, government policies, and international regulations in dairy marketing.	K5
CO6	Examine the role of emerging technologies and case studies in strengthening dairy marketing and value chain systems.	K6

Relationship Matrix for COs and POs

Course Outcomes	Programme Outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	3	3	3	3	9	3
CO2	1	1	1	3	9	3
CO3	3	3	3	3	9	9
CO4	3	9	9	9	9	9
CO5	3	9	9	9	9	9
CO6	3	9	9	9	9	9

Weight age	**16**	**34**	**34**	**36**	**54**	**42**
Weighted Percentage of Course Contribution to	**7.4**	**15.7**	**15.7**	**16.7**	**25.0**	**19.4**

Notes :(0–NoCorrelation; 1–Low; 3–Medium; 9–High)

Course Outcome mapped with Knowledge Level

CO/K-Level	**Level of Correlation**		
	Low	**Medium**	**High**
CO1/K1		PO1,PO2,PO3,PO4,PO6	PO5
CO2/K2	PO1,PO2,PO3	PO4,PO6	PO5
CO3/K3	-	PO1,PO2,PO3,PO4	PO5,PO6
CO4/K4	-	PO1	PO2,PO,PO4,PO5,PO6
CO5/K5	-	PO1	PO2,PO,PO4,PO5,PO6
CO6/K6	-	PO1	PO2,PO,PO4,PO5,PO6

Course Outcome (CO) Attainment Assessment Tools & Evaluation Procedure

K Levels	**C1**	**C2**	**C3**	**Total Scholastic marks**	**Non Scholastic Marks C5**	**CIA Total**	**% of Assessment**
	T1 **4 Marks**	**T2** **10 Marks**	**Assignment** **6 Marks**	**20 Marks**	**5 Marks**	**25 Marks**	
K1	1	1	1	3		3	12
K2	1	1	1	3		3	12
K3	1	2	1	4		4	16
K4	1	2	1	4		4	16
K5	-	2	1	3		3	12
K6	-	2	1	3		3	12
Non Scholastic	--	--	--	--		5	20
Total	4	10	6	**20**	**5**	**25**	**100%**

The COs and POs for the **Dairy Value Chain & Marketing** course in the **BMS** Degree Programme is effective matched by the course in-charge	
Signature of the Course In-Charge	Signature of the HOD

Department of BMS (Agri Storage & Supply Chain)
Programme: BMS CBCS Syllabus – Outcome Based Education (OBE)
(For those who have joined during the Academic Year 2025-2026 onwards)

SEMESTER–IV

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
COMUG1952	U25NME2:2	NME	Principles of Management	Lecture	2	2

Course Description:

To develop basic knowledge on principles of management.

Course Objectives:

- To understand the fundamental concepts, nature, and scope of management and its evolution.
- To explain the importance and characteristics of planning, and describe different types of plans.
- To understand organizational structure, principles, types, and key elements like delegation and decentralization.
- To understand the purpose and functions of staffing and its role in effective human resource management.
- To analyze recruitment and selection processes, including internal and external sources.
- To evaluate the significance and methods of training as part of the employee development process.

UNIT – I: Introduction to Management **(12 Hours)**

Definition -Nature-Functions of Management- F.W. Taylor's Scientific Management-Henry Fayol's Principles of Management

UNIT – II: Planning **(14 Hours)**

Definition- Nature- objectives-Characteristics of Planning- Types of Plans-Steps in planning.

UNIT – III: Organisation **(10 Hours)**

Organisation- Meaning- Principles - Importance - Organisation Structure-Types of Organisation-Organisation Chart-Departmentation-Delegation-Decentralisation-Meaning -Activities.

UNIT – IV: Staffing **(12 Hours)**

Staffing - Meaning - Nature-Elements/Functions-Purpose/Importance-Essentials of a Good Staffing Policy-Processing of Staffing.

UNIT – V: Recruitment, Selection and Training **(12 Hours)**

Recruitment: meaning of Recruitment -Sources of Recruitment #, Internal Sources#, Advantages and Disadvantages of Internal Sources, External Sources, #, Advantages and Disadvantages: Meaning, Importance, Stages in Selection Procedure. Training: Meaning, Elements of Training, Importance of Training, Types of Training.

Extra Credit:

Case Study

* Self-Learning

Activities: 1. Draw the flow chart of various types of organisation and Organisation Structure.

Text Book:

* Gupta, C.B.(2021).Business Organisation and Management, Sultan Chand & Sons, New Delhi.

Reference Books

1. Bhushan,Y.K.(2021). Fundamentals of Business Organisation & Management, Sultan Chand & Sons,New Delhi.
2. Dinkar Pagare. 2019, Business Management, Sultan Chand & Sons, New Delhi.
3. Prasad,L.M.(2020).Principles of Management, Sultan Chand & Sons, New Delhi.
4. Chandran,D.(2020).Management Concepts, Himalaya Publishing House, Mumbai.

Online Resources:

Swayam course	• https://onlinecourses.swayam2.ac.in/imb19 mg09/preview • https://www.classcentral.com/course/nyif-capital-markets-18369
E-Content	• https://www.youtube.com/watch?v=CmC8UaCNQFc • https://www.youtube.com/watch?v=16C1DIRfzA
Other online resources	• https://www.himpub.com/documents/Chapter1383.pdf • https://www.himpub.com/documents/Chapter1696.pdf • https://www.himpub.com/documents/Chapter458.pdf • https://www.himpub.com/documents/Chapter1383.pdf • https://www.tutorialspoint.com/recruitment and selection/ recruitment and selection tutorial.pdf

Course Outcomes (COs)

CO	Course Outcome	Knowledge Level
CO1	Understand the nature, scope, and functions of management including contributions by Taylor and Fayol.	K1
CO2	Explain the concept, importance, types, and steps involved in planning.	K2
CO3	Analyze organizational structures, principles, and concepts like Departmentation, delegation, and decentralization.	K3
CO4	Describe the staffing process, its functions, and the essentials of good staffing policy.	K4
CO5	Compare internal and external sources of recruitment along with their advantages and disadvantages.	K5
CO6	Evaluate and apply the procedures for selection and types of training programs required in organizations.	K6

Relationship Matrix for COs and POs

Course Outcomes	Programme Outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	3	3	3	1	1	1
CO2	3	3	3	3	1	9
CO3	3	3	3	1	3	9
CO4	3	3	3	1	3	9
CO5	3	1	3	1	3	9
CO6	3	9	9	3	9	9
Weight age	**18**	**22**	**24**	**10**	**20**	**46**
Weighted Percentage of Course Contribution to	**12.9**	**15.7**	**17.1**	**7.1**	**14.3**	**32.9**

Notes:(0–NoCorrelation;1–Low;3–Medium;9–High)

Course Outcome mapped with Knowledge Level

CO/K-Level	**Level of Correlation**		
	Low	**Medium**	**High**
CO1/K1	PO4,PO5,PO6	PO1,PO2,PO3	-
CO2/K2	PO5	PO1,PO2,PO3,PO4	PO6
CO3/K3	PO4	PO1,PO2,PO3,PO5	PO6
CO4/K4	PO4	PO1,PO2,PO3,PO5	PO6
CO5/K5	PO2,PO4	PO1,PO3,PO5	PO6
CO6/K6	-	PO1	PO2,PO3,PO4,PO5,PO6

Course Outcome (CO) Attainment Assessment Tools & Evaluation Procedure

K Levels	C1	C2	C3	Total Scholastic marks	Non Scholastic Marks C5	CIA Total	% of Assessment
	T1 4 Marks	T2 10 Marks	Assignment 6 Marks	20 Marks	5 Marks	25 Marks	
K1	1	1	1	3		3	12
K2	1	1	1	3		3	12
K3	1	2	1	4		4	16
K4	1	2	1	4		4	16
K5	-	2	1	3		3	12
K6	-	2	1	3		3	12
Non Scholastic	--	--	--	--		5	20
Total	4	10	6	**20**	**5**	**25**	**100%**

The COs and POs for the **Principles of Management** course in the **BMS** Degree Programme is effective matched by the course in-charge	
Signature of the Course In-Charge	Signature of the HOD

Department of BMS (Agri Storage & Supply Chain)
Programme: BMS CBCS Syllabus – Outcome Based Education (OBE)
(For those who have joined during the Academic Year 2025-2026 onwards)

SEMESTER–IV

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
BMSUG2021	U25BMNME:1	NME	**Agripreneurship and Innovation**	Lecture	2	2

Course Description:

To learn about various processes involved in the development of agripreneurship venture.

Course Objectives:

- To introduce the concept, significance, and qualities of entrepreneurs with special focus on agripreneur and their role in agricultural development.
- To equip students with skills for developing an agri-venture including idea generation, feasibility analysis, and financial planning.
- To explore and evaluate various agripreneurship opportunities across crop production allied sectors, post-harvest, and agri-services.
- To identify and analyze challenges faced by agripreneur, especially in rural contexts, and strategies to overcome them.
- To understand the governmental and institutional support systems, policies, and programs aimed at promoting agripreneurship.
- To encourage sustainable and innovative thinking in agri-business planning, resource mobilization, and long-term venture sustainability.

UNIT – I: Introduction to Entrepreneurship **(12 Hours)**

Concept of Entrepreneurship - role - significance and qualities of successful entrepreneurs - various categories of entrepreneurs - growth and development of entrepreneurship in India - need for entrepreneurship development in agriculture - *characteristics of an agripreneur

(12 Hours)

UNIT – II: Development of an Agri-venture Innovative thinking and business development plan - selection of potential agri - venture - SWOT analysis - operational and market feasibility - developing a financially viable project - developing organizational framework - #mobilizing resources - financial management - diversification - and sustainability of the agri - venture.

UNIT – III: Opportunities in Agripreneurship **(12 Hours)**

Key ingredients of a viable agri - preneurship option - #potential agri - preneurship opportunities in crop/ horticulture production - Input management - Post-harvest processing and value addition, warehousing - marketing and logistics - allied sector opportunities - livestock and poultry - *agri-tourism, agri - advisory services. Economics of a potential agri - venture

UNIT – IV: Challenges in Agripreneurship (**12 Hours)**

Challenges in rural areas - Key challenge of agripreneur - lack of entrepreneurial culture - financial - infrastructural and market risks - lack of skilled manpower management issues - #technology issues, policy environment - strengthening agripreneurship in the country.

UNIT – V: Governmental initiatives towards agripreneurship development: (**12 Hours)**

Development of agripreneur in rural areas - efforts required to wards agripreneurship development - important programmes launched for promotion and development of agripreneurship - institutional support towards agripreneurship - and # regulatory framework for agripreneurship development.

Extra Credit:

Case Study

* Self-Learning

Activities: 1. Quiz 2. Data Collection in GDP and NNP 3.Group Discussion

Text Books

- Course Material Prepared by LSC (Agripreneurship)
- Entrepreneurship Development in Agriculture: Rashmi Singh, Biotech Books

Reference Books

- Entrepreneurship Development: SS Khanka, Chand Publishing
- Rural Entrepreneurship: MukeshUpadhyaya, Prateeksha Publications

Online Resources:

Swayam course	• https://www.amazon.in/-/hi/G-Valentina/dp/9380222602
E-Content	• https://www.ramauniversity.ac.in/news-the-new-age-of-agripreneurship-12-49-771
Other online resources	• https://www.g-fras.org/en/agripreneurship/resources.html • https://www.researchgate.net/publication/339843368_What_is_AGRIPRENEURSHIP

Course Outcomes (COs)

CO	Course Outcome	Knowledge Level
CO1	Understand the concept, role, and types of entrepreneurship with a focus on agripreneurship in India.	K1
CO2	Develop a business development plan for an agri-venture using SWOT analysis and resource mobilization techniques.	K2
CO3	Identify and evaluate opportunities in agripreneurship including input, production, and allied services like agri-tourism and logistics.	K3
CO4	Analyze the key challenges faced by agripreneur in rural areas, including technology, market access, and financial limitations.	K4
CO5	Understand and evaluate government policies, programs, and institutional support systems for agripreneurship development.	K5
CO6	Propose strategies to overcome challenges and sustain agripreneurial ventures	K6

CO	Course Outcome	Knowledge Level
	through innovation, diversification, and policy utilization.	

Relationship Matrix for COs and POs

Course Outcomes	Programme Outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	1	3	3	1	1	3
CO2	3	9	9	9	1	3
CO3	3	3	3	3	1	3
CO4	3	9	3	3	3	3
CO5	3	9	9	9	3	9
CO6	9	9	3	9	3	9
Weight age	**22**	**42**	**30**	**34**	**12**	**30**
Weighted Percentage of Course Contribution to	**12.9**	**24.7**	**17.6**	**20.0**	**7.1**	**17.6**

Notes :(0–NoCorrelation; 1–Low; 3–Medium; 9–High)

Course Outcome mapped with Knowledge Level

CO/K-Level	Level of Correlation		
	Low	**Medium**	**High**
CO1/K1	PO1,PO4,PO5	PO2,PO3,PO6	-
CO2/K2	PO5	PO1,PO6	PO2,PO3,PO4
CO3/K3	PO5	PO1,PO2,PO3,PO4,PO6	-
CO4/K4	-	PO1,PO3,PO4,PO5,PO6	PO2
CO5/K5	-	PO1,PO5	PO2,PO3,PO4,PO6
CO6/K6	-	PO3,PO5	PO1,PO2,PO4,PO6

Course Outcome (CO) Attainment Assessment Tools & Evaluation Procedure

K Levels	C1	C2	C3	Total Scholastic marks	Non Scholastic Marks C5	CIA Total	% of Assessment
	T1 4 Marks	T2 10 Marks	Assignment 6 Marks	20 Marks	5 Marks	25 Marks	
K1	1	1	1	3		3	12
K2	1	1	1	3		3	12
K3	1	2	1	4		4	16
K4	1	2	1	4		4	16
K5	-	2	1	3		3	12
K6	-	2	1	3		3	12
Non Scholastic	--	--	--	--		5	20
Total	4	10	6	20	5	25	100%

The COs and POs for the **Agripreneurship and Innovation** course in the **BMS** Degree Programme is effective matched by the course in-charge	
Signature of the Course In-Charge	Signature of the HOD

Department of BMS (Agri Storage & Supply Chain)
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(For those who have joined during the Academic Year 2025-2026 onwards)
SEMESTER–V

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
BMSUG2021	**U25BM9:1**	**Core**	**Documentation for Exports & Imports**	**Lecture**	**8**	**2**

Course Description:

To familiarize the student with the basic concept of formalities for export trade, and the documentation process required for import and export.

Course Objectives:

- Get exposure about the export trade and its concepts
- Recognize the impact of information and communication technologies, especiallyof theInternet in business operations.
- State about the methods of payments and Finance Recognize the fundamental principles of E-Business and e-commerce.
- Explain about quality and pre shipment inspection
- Know the customs clearance and insurance procedures
- Demonstrate the step-by-step processing of an export order in compliance with major governing laws.

Unit	Topics
I	Introduction to Export and Import **(12 Hours)** Basics of Exports-Classification of goods-Preparation for Exports- Methods of Exporting - Export Marketing Organizations - Functions - Registration formalities IEC Number -Procedure of obtaining IECN umber-RCMC (Registration Cum Membership Certificate)–Export Credit Guarantee Council (ECGC)- Application for import and export of restricted items.
II	Documentation Framework and Contracts **(12 Hours)** Aligned Documentation System: Commercial Documents - Auxiliary Commercial Documents - Regulatory Documents - Documents related to goods - Documents related to Shipment - Documents related to Payments - Documents related to Inspection - Documents related to Excisable Goods - Types of Contracts - Export Contracts.
	(12 Hours)

III Payments and Finance Factors - Methods of receiving Payment - Instruments of Payments-Letter of Credit Pre-shipment Finance - Post-shipment Finance - Post-shipment Credit in Foreign Currency - Negotiation of documents with bank - CENVAT - Duty Draw back

IV Quality Control and Clearance of Cargo **(12 Hours)**

Objective of Quality Control - Methods - Procedure for Pre-shipment Inspection - Role of Clearing and Forwarding Agents – Role of Inspection Agents- Clearance of Cargo Central Excise Clearance Procedure - Central Excise Clearance Option - Shipment of Export Cargo.

V Customs Clearance, Risk and Insurance Policy **(12 Hours)**

Customs Clearance of Export Cargo - Customs Clearance of Import Cargo - Risk: Types - Types of cover issued by ECGC - Cargo Insurance. Processing of an export order - Major laws governing export contract.

Text & Reference Books:

1. RAMA, GOPALC.(2008) Export Import Procedures Documentation and Logistics. New Age International Publishers: New Delhi.
2. KHUSHPAT,S.J.(2013)Export Import Procedures and Documentation. Himalaya Publishing House: New Delhi.
3. PAWAN,KUMAR(2001)Export of India's Major Products Problems and Prospects. New Century Publications: New Delhi.
4. KAPOOR,D.C.(2002)Export Management. Vikas Publications: New Delhi.
5. CHERUNILAM,F.(2004) International Trade and Export Management. Himalaya Publications: New Delhi.

Online Resources:

Swayam course	• https://www.classcentral.com/course/swayam-international-trade-theory-and-empirics-23010
E-Content	• https://www.mlsu.ac.in/econtents/1198_e-book%20on%20export%20import%20procedure.pdf
Other online resources	1. www.cbec.gov.in/customs/cs-act/cs-act-idx.htm(CentralBoardofExciseandCustoms-CustomsAct,1962,CustomsTariffAct–1975,OtherActs) 2. www.epckenya.org/(ExportPromotionCouncil) 3. Commerce.nic.in/MOC/index.asp(MinistryofCommerceandIndustry) 4. www.dgft.gov.in/(DirectorateGeneralofForeignTrade)

Course Outcomes (COs)

CO	Course Outcome Statement	Knowledge Level
CO1	Understand basic concepts of export-import, classification of goods, IEC and regulatory formalities.	K1
CO2	Identify and classify different types of export documents and contracts.	K2
CO3	Analyze the different payment methods and export finance mechanisms including credit instruments and incentives.	K3
CO4	Explain the process and purpose of quality control, pre-shipment inspection, and cargo clearance procedures.	K4
CO5	Evaluate customs procedures for import/export and understand associated risks and insurance requirements.	K5
CO6	Demonstrate the step-by-step processing of an export order in compliance with major governing laws.	K6

Relationship Matrix for COs and POs

Course Outcomes	Programme Outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	1	1	1	3	3	3
CO2	1	1	1	3	3	1
CO3	1	3	3	3	9	3
CO4	3	3	3	3	9	9
CO5	3	3	9	3	9	9
CO6	1	1	9	3	9	9
Weight age	**10**	**12**	**26**	**18**	**42**	**34**
Weighted Percentage of Course Contribution to	**7.0**	**8.5**	**18.3**	**12.7**	**29.6**	**23.9**

Notes :(0–NoCorrelation;1–Low;3–Medium;9–High)

Course Outcome mapped with Knowledge Level

CO/K-Level	Level of Correlation		
	Low	**Medium**	**High**
CO1/K1	PO1,PO2,PO3	PO4,PO5,PO6	-
CO2/K2	PO1,PO2,PO3,PO6	PO4,PO5	-
CO3/K3	PO1	PO2,PO3,PO4,PO6	PO5
CO4/K4	-	PO1,PO2,PO3,PO4	PO5,PO6
CO5/K5	-	PO1,PO2,PO4	PO3,PO5,PO6
CO6/K6	PO1,PO2	PO4	PO3,PO5,PO6

Course Outcome (CO) Attainment Assessment Tools & Evaluation Procedure

K Levels	C1	C2	C3	Total Scholastic marks	Non Scholastic Marks C5	CIA Total	% of Assessment
	T1 4 Marks	T2 10 Marks	Assignment 6 Marks	20 Marks	5 Marks	25 Marks	
K1	1	1	1	3		3	12
K2	1	1	1	3		3	12
K3	1	2	1	4		4	16
K4	1	2	1	4		4	16
K5	-	2	1	3		3	12
K6	-	2	1	3		3	12
Non Scholastic	--	--	--	--		5	20
Total	4	10	6	**20**	**5**	**25**	**100%**

The Cos and Pos for the **Documentation for Exports & Imports** course in the **BMS** Degree Programme is effective matched by the course in-charge	
Signature of the Course In-Charge	Signature of the HOD

Department of BMS (Agri Storage & Supply Chain)
Programme: BMS CBCS Syllabus – Outcome Based Education (OBE)
(For those who have joined during the Academic Year 2025-2026 onwards)
SEMESTER–V

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
BMSUG2021	**U25BM9:2**	**Core**	**International Logistics Management**	**Lecture**		

Course Description:

To understand the principles and practices of managing logistics in a global context.

Course Objectives:

- To comprehend the fundamentals of international logistics and its role in global trade.
- To analyze international transportation systems, freight forwarding, and multimodal transport.
- To evaluate trade policies, customs procedures, and global logistics documentation.
- To design efficient logistics strategies for managing cross-border supply chain complexities.
- To apply risk management techniques and technology-driven solutions in international logistics operations.
- Examine packaging, customs clearance, and global logistics infrastructure including brokerage practices.

Unit	Topics
	(12 Hours)
I	International Logistics: Definition, Evolution, Concept, Components, Importance, Objectives; Logistic Sub sectors; The work of Logistics; Integrated Logistics; Barrier to Internal Integration.
	(14 Hours)
II	Customer Focused Marketing; International Marketing: Introduction, Definition, Basis for International Trade, Process, Importance; International Marketing Channel: Role of Clearing Agent, Various Modes of Transport, Choice and Issues for Each Mode, Transport Cost etc.
	(10 Hours)
III	Transportation Functionality and Principles; Multimodal Transport: Modal Characteristics; Modal Comparisons; Legal Classifications; International Air Transport; Air Cargo Tariff Structure; Freight: Definition, Rate; Freight Structure and Practice

(12 Hours)

IV Containerization: Genesis, Concept, Classification, Benefits and Constraints; Inland Container Depot (ICD): Roles and Functions, CFS, Export Clearance at ICD; CONCOR; ICDs under CONCOR; Chartering: Kinds of Charter, Charter Party, and Arbitration.

(12 Hours)

V International commercial documents - International contracts, terms of payments, international insurance, packaging for export, custom clearance and infrastructure: transportation, communication and utilities -Brokerage

Text & Reference Books:

1. Course Material Prepared by LSC
2. International Marketing by Gupta and Varshing, Publisher: Sultan Chand and Sons
3. International logistics by Pierre David, Publisher: Biztantra
4. Logistic Management and World Sea Borne Trade by Multiah Krishnaveni, Publisher: Himalaya Publication
5. Logistic and Supply Chain Management by Donald J. Bowerson, Publisher: Prentice Hall of India

Extra Credit:

Case Study

* Self-Learning

Activities: 1. Quiz 2. Data Collection in GDP and NNP 3.Group Discussion

Text book & Reference

1. Course Material from LSC

Online Resources:

Swayam course	• https://onlinecourses.nptel.ac.in/noc22_ce70/preview • https://archive.nptel.ac.in/courses/105/105/105105204/
E-Content	• https://www.dgshipping.gov.in/Content/PageUrl.aspx?page_name=ShipManualChap23
Other online resources	• https://transportgeography.org/contents/chapter5/intermodal-transportation-containerization/multimodal-transport-system/ • https://intellias.com/multimodal-transportation/

Course Outcomes (COs)

CO	Course Outcome	Knowledge Level
CO1	Understand the fundamentals of international logistics, including its evolution, components, and integration.	K1
CO2	Explain customer-focused international marketing and various modes of global transport.	K2
CO3	Analyze transportation functions, air cargo tariff structures, and multimodal transport systems.	K3
CO4	Evaluate containerization systems, ICD operations, and chartering practices.	K4

CO	Course Outcome	Knowledge Level
CO5	Describe and assess international commercial documents, payment terms, and insurance systems.	K5
CO6	Examine packaging, customs clearance, and global logistics infrastructure including brokerage practices.	K6

Relationship Matrix for Cos and POs

Course Outcomes	Programme Outcomes					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	9	3	1	1
CO2	3	9	3	3	1	1
CO3	3	1	9	3	3	1
CO4	1	3	9	9	3	1
CO5	1	3	3	3	9	3
CO6	9	3	9	9	3	9
Weight age	3	3	9	3	1	1
Weighted Percentage of Course Contribution to	3	9	3	3	1	1

Notes:(0–NoCorrelation;1–Low;3–Medium;9–High)

Course Outcome mapped with Knowledge Level

CO/K-Level	Level of Correlation		
	Low	Medium	High
CO1/K1	PO5,PO6	PO1,PO2,PO4	PO3
CO2/K2	PO5,PO6	PO1,PO3,PO4	PO2
CO3/K3	PO2,PO6	PO1,PO4,PO5	PO3
CO4/K4	PO1,PO6	PO2,PO5	PO3,PO4
CO5/K5	PO1	PO2,PO3,PO4,PO6	PO5
CO6/K6	-	PO2,PO5	PO3,PO4,PO6

Course Outcome (CO) Attainment Assessment Tools & Evaluation Procedure

K Levels	C1	C2	C3	Total Scholastic marks	Non Scholastic Marks C5	CIA Total	% of Assessment
	T1 4 Marks	T2 10 Marks	Assignment 6 Marks	20 Marks	5 Marks	25 Marks	
K1	1	1	1	3		3	12
K2	1	1	1	3		3	12
K3	1	2	1	4		4	16
K4	1	2	1	4		4	16
K5	-	2	1	3		3	12
K6	-	2	1	3		3	12
Non Scholastic	--	--	--	--		5	20
Total	4	10	6	20	5	25	100%

The Cos and Pos for the **International Logistics Management** course in the **BMS** Degree Programme is effective matched by the course in-charge	
Signature of the Course In-Charge	Signature of the HOD

Department of BMS (Agri Storage & Supply Chain)
Programme: BMS CBCS Syllabus – Outcome Based Education (OBE)
(For those who have joined during the Academic Year 2025-2026 onwards)

SEMESTER–V

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
BMSUG2021	**U25BM10E**	**Elective**	**Warehouse Automation**	**Lecture**	**7**	**4**

Course Description:

To understand the principles and importance of automation in warehouse operations.

Course Objectives:

- To explain the concepts and scope of warehouse automation in modern supply chains.
- Describe and compare different types of storage and retrieval automation technologies.
- Explain material flow automation tools such as conveyors, lifts, AGVs, and monorails.
- Analyze outbound automation systems such as Pick/Put-to-Light and automated order selection tools.
- Evaluate automated data collection tools including RFID and measurement systems.
- Assess unique automation solutions like Kiva Robots, drones, and warehouse building management systems.

Unit	Topics
	(12 Hours)
I	Overview of the Traditional Warehouse Operations-Warehouse Automation Systems: Over- view, Applications, Costs, Benefits, ROI – Receiving Automation: Pallet Inverter - Palletizes
	(12 Hours)
II	Storage and Retrieval Automation: Vertical and Horizontal Carrousels - Vertical Lift Module - Orbital Shuttle Systems - AS/RS Mini Load - AS/RS Unit Load - Garments on Hangers
	(12 Hours)
III	Material Flow Automation-Conveyors- Lifts-Automated Guided Vehicles- Monorail

(12 Hours)

IV Picking/Out bound Automation: Pick/Put To Light-A Frame-Automated Order Selection–Pick-N-Go-Outbound Sorters - Automatic Truck Loading.

(12 Hours)

V Automating Data Collection: RFID-Automated Measurements Systems-Unique Solution Providers: Kiva Robot-Auto Store-Additional Automation Around the Warehouse Building Management System: Weight scales - Delivery Drones - Delivery Robots.

Text & Reference Books:

1. Course Material Prepared by LSC
2. Industrial Automation and Robotics : A. K. Gupta and SK Arora
3. Advanced Industrial Automation and its Application : Ravindra Sharma
   Industrial Control Electronics Devices, Systems,& Applications 3D Edition Author: Terry Bartler Publisher: Delmar

Extra Credit:

Case Study

* Self-Learning

Activities: 1. Quiz 2. Data Collection in GDP and NNP 3.Group Discussion

Course Outcomes (COs)

CO	Course Outcome	Knowledge Level
CO1	Understand traditional warehouse operations and identify the need, cost, and ROI of warehouse automation systems.	K1
CO2	Describe and compare different types of storage and retrieval automation technologies.	K2
CO3	Explain material flow automation tools such as conveyors, lifts, AGVs, and monorails.	K3
CO4	Analyze outbound automation systems such as Pick/Put-to-Light and automated order selection tools.	K4
CO5	Evaluate automated data collection tools including RFID and measurement systems.	K5
CO6	Assess unique automation solutions like Kiva Robots, drones, and warehouse building management systems.	K6

Relationship Matrix for COs and POs

Course Outcomes	Programme Outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	3	3	3	1	3	9
CO2	3	3	3	1	9	9
CO3	9	3	3	9	9	9
CO4	3	9	3	9	9	9
CO5	3	9	3	3	9	3
CO6	9	9	3	3	9	3
Weight age	**30**	**36**	**18**	**26**	**48**	**42**

Weighted Percentage of Course Contribution to	**15.0**	**18.0**	**9.0**	**13.0**	**24.0**	**21.0**

Notes:(0–NoCorrelation;1–Low;3–Medium;9–High)

Course Outcome mapped with Knowledge Level

CO/K-Level	**Level of Correlation**		
	Low	**Medium**	**High**
CO1/K1	PO4	PO1,PO2,PO3,PO5	PO6
CO2/K2	PO4	PO1,PO2,PO3	PO5,PO6
CO3/K3	-	PO2,PO3	PO1,PO4,PO5,PO6
CO4/K4	-	PO1,PO3	PO2,PO4,PO5,PO6
CO5/K5	-	PO1,PO3,PO4,PO6	PO2,PO5
CO6/K6	-	PO3,PO4,PO6	PO1,PO2,PO5

Course Outcome (CO) Attainment Assessment Tools & Evaluation Procedure

K Levels	**C1**	**C2**	**C3**	**Total Scholastic marks**	**Non Scholastic Marks C5**	**CIA Total**	**% of Assessment**
	T1 **4 Marks**	**T2** **10 Marks**	**Assignment** **6 Marks**	**20 Marks**	**5 Marks**	**25 Marks**	
K1	1	1	1	3		3	12
K2	1	1	1	3		3	12
K3	1	2	1	4		4	16
K4	1	2	1	4		4	16
K5	-	2	1	3		3	12
K6	-	2	1	3		3	12
Non Scholastic	--	--	--	--		5	20
Total	4	10	6	**20**	**5**	**25**	**100%**

The COs and POs for the **Warehouse Automation** course in the **BMS** Degree Programme is effective matched by the course in-charge	
Signature of the Course In-Charge	Signature of the HOD

Department of BMS (Agri Storage & Supply Chain)
Programme: BMS CBCS Syllabus – Outcome Based Education (OBE)
(For those who have joined during the Academic Year 2025-2026 onwards)

SEMESTER–V

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
BMSUG2021	**U25BMAPS1**	**Apprenticeship**	**Apprenticeship 1**	**Training**	**7**	**22**

The Logistics Sector Skill Council for Apprenticeship Training would on board the students in Logistics Processes of companies. The duration of Apprenticeship Training is 6 months. During Apprenticeship Training companies would assign students on-the-job-training. Being a legal engagement, students would receive a monthly stipend during Apprenticeship Training as per the existing norms.

On completion of the Apprenticeship Training, students shall submit Apprenticeship Report in the form of Work Diary to the Collaborating Institutions. The Report would be evaluated and Viva conducted by the Collaborating Institution

Department of BMS (Agri Storage & Supply Chain)
Programme: BMS CBCS Syllabus – Outcome Based Education (OBE)
(For those who have joined during the Academic Year 2025-2026 onwards)
SEMESTER–V

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
BMSUG2021	**U25BMNME:2**	**NME**	**Basics of Agricultural Supply Chain**	**Lecture**	**2**	**2**

Course Description:
To impart knowledge on the role of logistics in agriculture.

Course Objectives:

- Understand the significance of Agri-logistics in the entire process of supply chain.
- Enable students to select and gainfully use various types of logistics resources.
- Explain the digital tools, which improve the effectiveness of Agri-logistics.
- Know the application of information technology in Agri-logistics.
- Analyze various components of Agri-logistics and their application in the effective supply chain management.
- Demonstrate the application of IT tools and e-logistics in agricultural supply chain management.

UNIT I: Introduction to Agri Logistics **(12 Hours)**
Concept and Definition of Logistics and Supply Chain Management, Role and Importance of Supply Chain Management in Agriculture, Difference between Logistics and Supply Chain Management, Produce Grown in Different Parts of the Country, Evolution and Growth of Agri Logistics in India.

UNIT II: Elements of Agri Logistics Management **(12 Hours)**
Need for Agri Logistics During Procurement, Processing and Packaging, Storage and Inventory Management, #Handling and Transportation of Agricultural Produce, Distribution Management, Delivery Practices for Agri. Produce, Grouping Agri Produce by Shelf Life, Distribution for Meeting Demands during Deficient Periods.

UNIT III: Procurement Processing and Packaging **(12 Hours)**
Different Types of Purchases of Agricultural Produce, Post-harvest Processing and Value Addition, Packing and Packaging of Agricultural Produce, Laws relating to Packaging of Goods.

UNIT IV: Handling and Transport system in Agri Logistics **(12 Hours)**
Role of Handling and Transport System in Effective Supply Chain Management. System for Handling of Agri produce during Different Stages of Supply Chain, *Transport Systems - Air Freight/Sea Freight/Roadways and Railways, Reefer Logistics,

Terminologies Used in Transportation Sector, Significance of Integrated Logistics.

UNIT V: IT Integration in Agri Logistics **(12 Hours)**

Importance of Information in Logistics Management, *Concept of E- Logistics, MIS for Effective Logistics Management, Important IT Tools for Improving Effectiveness of Agri-Logistics, # GPS Technology in Agri Logistics.

Extra Credit:

Case Study

* Self-Learning

Activities: 1.Quiz 2.Group Discussion

Text Books

1. Course Material Prepared by Logistics Sector Skill Council (Introduction to Agri Logistics)
2. Sundharam, K.P.M. and Sundharam., E.N. Business Economics, Sultan Chand and Sons, New Delhi-2, 2010.
3. Aryamala, T. Business Economics, Vijay Nichole Imprints Pvt. Ltd., Chennai, 2012.
4. Books for Reference
5. Sankaran, S. Business Economics, Margham Publications, Chennai -17, 2013.
6. Appannaiah and Reddy, Economics for Business, Himalaya Publishing, Mumbai,2013.
7. Ahuja, H.L. Business Economics, S. Chand and Co, New Delhi, 2016.
8. Lipsey, R.G. and Chrystal, K.A. …… Of Economics, Oxford: University Press, 2011.
9. Ramsfield, E. Micro Economics, W.W Norton and Company, New York, 2012.

Online Resources:

Swayam course	• http://ugcmoocs.inflibnet.ac.in/ugcmoocs/view_module_pg.php/1109
E-Content	3. https://www.youtube.com/watch?v=_sdw5brJWD0 4. https://www.youtube.com/watch?v=356_pioFiss
Other online resources	• http://sucommerce.org/download/sem1/Managerial%20Economics%20.pdf • https://cablogindia.com/business-economics-notes-for-ca-foundation/ • https://www.tutorialspoint.com/managerial_economics/managerial_economics_tutorial.pdf • https://examupdates.in/bcom-economics-notes/ • http://www.ddegjust.ac.in/studymaterial/bba/bba-103.pdf

Course Outcomes (COs)

CO	Course Outcome	Knowledge Level
CO1	Understand the concept, evolution, and significance of agri logistics and supply chain management.	K1
CO2	Analyze the core elements involved in agri logistics such as procurement, storage, and distribution.	K2
CO3	Explain different procurement, post-harvest, and packaging processes of agricultural produce.	K3
CO4	Evaluate various handling and transportation systems including reefer logistics and integrated logistics.	K4
CO5	Apply appropriate transport systems and understand the terminologies in agri logistics.	K5
CO6	Demonstrate the application of IT tools and e-logistics in agricultural supply chain management.	K6

Relationship Matrix for COs and POs

Course Outcomes	Programme Outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	1	1	1	3	1	1
CO2	1	9	9	9	1	1
CO3	3	9	9	9	3	1
CO4	1	9	9	9	9	1
CO5	1	9	9	9	9	1
CO6	1	1	3	9	9	9
Weight age	**8**	**38**	**40**	**48**	**32**	**14**
Weighted Percentage of Course Contribution to	**4.4**	**21.1**	**22.2**	**26.7**	**17.8**	**7.8**

Notes:(0–NoCorrelation;1–Low;3–Medium;9–High)

Course Outcome mapped with Knowledge Level

CO/K-Level	Level of Correlation		
	Low	**Medium**	**High**
CO1/K1	PO1,PO2,PO3, PO4,PO5	-	PO6
CO2/K2	PO1,PO5,PO6	-	PO2,PO3,PO4
CO3/K3	PO6	PO1,PO5	PO2,PO3,PO4
CO4/K4	PO1,PO6	-	PO2,PO3,PO4,PO5
CO5/K5	PO1,PO6	-	PO2,PO3,PO4,PO5
CO6/K6	PO1,PO2	PO3	PO4,PO5,PO6

Course Outcome (CO) Attainment Assessment Tools & Evaluation Procedure

K Levels	C1	C2	C3	Total Scholastic marks	Non Scholastic Marks C5	CIA Total	% of Assessment
	T1 4 Marks	T2 10 Marks	Assignment 6 Marks	20 Marks	5 Marks	25 Marks	
K1	1	1	1	3		3	12
K2	1	1	1	3		3	12
K3	1	2	1	4		4	16
K4	1	2	1	4		4	16
K5	-	2	1	3		3	12
K6	-	2	1	3		3	12
Non Scholastic	--	--	--	--		5	20
Total	4	10	6	**20**	**5**	**25**	**100%**

The COs and POs for the **Basics of Agricultural Supply Chain** course in the **BMS** Degree Programme is effective matched by the course in-charge	
Signature of the Course In-Charge	Signature of the HOD

Department of BMS (Agri Storage & Supply Chain)
Programme: BMS CBCS Syllabus – Outcome Based Education (OBE)
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SEMESTER–VI

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
BMSUG2021	**U25BM10:1**	**Core**	**Seafood and Aquaculture Value Chain**	**Lecture**	**8**	**2**

Course Description:

To impart knowledge on value chains relating to seafood & aquaculture and egg & poultry products.

Course Objectives:

- To implement the food systems and seafood value chains, in particular, are increasingly contributing to the economic growth and achieving the Sustainable Development Goals.
- To expose the Globalization and the increasing complexity of markets, along with international concerns
- To understand the required improved knowledge about how seafood value chains are functioning
- Analyze the dynamics of price-cost margins along the value chains.
- Recognize how the value chain analysis approach assists managers and decision-makers develop and implement both strategies and policies.
- Understand and analyze the seafood and aquaculture value chain, including production, processing, distribution and marketing.

UNIT – I **(12 Hours)**

Seafood supply chain – main activities - vessels, permits, equipment, fishing, off-loading, processing, distribution#, marketing, wholesale & retail buyers, consumers, wastes; Aqua culture supply chain–Equipment& system for production, supply of feed and seed, farming, processing, distribution, marketing, wholesale & retail buyers, consumers, wastes; Value chain activities–transportation Cold chain*,infrastructure, finance, marketing, advertisement, procurement; Impacting factors– collaboration, government regulations, market assess.

UNIT – II **(12 Hours)**

Sea food supply chain management– IUU fishing –Routes of IUU fishing–Third country processors– High Sea Task Force(HSTF)–Regional Fisheries Management Organization (RFMOs)*– Catch & Trade documentation scheme (CDS)–Export Inspection Council–Trade document scheme–Failure of documentation scheme–Mislabeling, transshipment, -Need for electronic documentation.

UNIT – III **(12 Hours)**

Marine Steward Council (MSE) – Chain of custody certification management program – Eco labeling –Third-party independent certification; FAO Code of Conduct for Responsible Fisheries; European Fish Processors Association (AIPCE); Marine Products Export Development Authority (MPEDA): Corporate Social responsibility#.

UNIT – IV **(12 Hours)**

Traceability – Definitions; Product recall; Traceability legislations – EU, US, FSSAI; Voluntary labels – Types of traceability – internal & external; Traceability systems# – paper-based, electronic – RFID, wireless sensor networks (WSN); Components of traceability systems – compatibility, data standard, traceable resource units; Data base systems.

UNIT – V **(12 Hours)**

Block chain technology – Principles, Types of block chain - public, consortium, private block chains; asset ownership programme; Block chain in the supply chain; Block chain platforms–Bitcoin, Ethereal, Hyper ledger; Smart contracts (agreement/ execution);Development and operation considerations ; Regulatory and private; Types of states for data source–private certifications #,NGOs; Public policy implications.

Extra Credit:

Case Study

* Self-Learning

Activities: 1. Quiz 2. Data Collection in GDP and NNP 3.Group Discussion

List of Textbooks

1. Carole R.Engle, Kwamena K.Quagrainie, and MadanM. Dey, 016. Sea food and Aqua culture Marketing Hand book,Wiley-Black well(Publisher)P .416.
2. Miriam Green wood.2019.Sea food Supply Chains: Governance, Power and Regulation (Routledge Studies in Food, Society and the Environment),P 326, Routledge (5 February 2019)
3. Swapnil Shirke,Nalini Ranjan Kumar,Monalisha devi Sukham,2012. Marine Fish Supply Chain Management in Mumbai, LAP Lambert Academic Publishing (10May 2012) P104,
4. Carole R. Engle,2020. Aqua culture Businesses: A Practical Guide to Economics and Marketing, 5m Publishing (28 February 2020),
5. Francisco Blaha and Kenneth Katafono,2020. Block chain application in sea food value chain,CircularNo.1207FAO Fisheries and Aqua culture Circular. FAO of the UN, Rome 2020

Online Resources:

Swayam course	• http://www.aau.in/training-programme-integrated-pest-management-ipm
E-Content	• https://www.classcentral.com/course/youtube-agriculture-integrated-pest-management-ipm-47912
Other online resources	• https://nptel.ac.in/courses/126104003 • https://www.epa.gov/ipm/integrated-pest-management-tools-resources-support-ipm-implementation

Course Outcomes (COs)

CO	Course Outcome	
CO1	Understand the components, activities, and value chain of seafood and aquaculture supply chains.	K1
CO2	Analyze issues in seafood supply chain governance such as IUU fishing and documentation practices.	K2
CO3	Describe international seafood standards, certification bodies, and global initiatives like MSC, FAO, and MPEDA.	K3
CO4	Apply traceability systems and assess legal frameworks including RFID and WSN-based solutions across global markets.	K4
CO5	Evaluate the use of block chain technology in seafood traceability and supply chain transparency, including policy implications.	K5

Relationship Matrix for COs and POs

Course Outcomes	Programme Outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	9	3	9	1	1	3
CO2	3	9	3	1	1	9
CO3	3	1	9	3	3	1
CO4	1	3	9	9	3	9
CO5	3	1	1	3	9	3
CO6	3	9	3	1	9	9
Weight age	**22**	**26**	**34**	**18**	**26**	**34**
Weighted Percentage of Course Contribution to	**13.8**	**16.3**	**21.3**	**11.3**	**16.3**	**21.3**

Notes:(0–NoCorrelation;1–Low;3–Medium;9–High)

Course Outcome mapped with Knowledge Level

CO/K-Level	Level of Correlation		
	Low	**Medium**	**High**
CO1/K1	PO4,PO5	PO2,PO6	PO1,PO3
CO2/K2	PO4,PO5	PO1,PO3	PO2,PO6
CO3/K3	PO2,PO6	PO1,PO4,PO5	PO3
CO4/K4	PO1	PO2,PO5	PO3,PO4,PO6
CO5/K5	PO2,PO3	PO1,PO4,PO6	PO4
CO6/K6	PO4	PO1,PO3	PO2,PO5,PO6

Course Outcome (CO) Attainment Assessment Tools & Evaluation Procedure

K Levels	C1	C2	C3	Total Scholastic marks	Non Scholastic Marks C5	CIA Total	% of Assessment
	T1 4 Marks	T2 10 Marks	Assignment 6 Marks	20 Marks	5 Marks	25 Marks	
K1	1	1	1	3		3	12
K2	1	1	1	3		3	12
K3	1	2	1	4		4	16
K4	1	2	1	4		4	16
K5	-	2	1	3		3	12
K6	-	2	1	3		3	12
Non Scholastic	--	--	--	--		5	20
Total	4	10	6	**20**	**5**	**25**	**100%**

The Cos and Pos for the **Seafood and Aquaculture Value Chain** course in the **BMS** Degree Programme is effective matched by the course in-charge	
Signature of the Course In-Charge	Signature of the HOD

Department of BMS (Agri Storage & Supply Chain)
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SEMESTER–VI

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
BMSUG2021	**U25BM10:2**	**Core**	**Introduction to E-Commerce Logistics**	**Lecture**		

Course Description:

To understand the fundamentals of logistics and its significance in the e-commerce industry.

Course Objectives:

- To comprehend the basics of e-commerce logistics and its impact on the digital marketplace.
- To analyze various e-commerce supply chain models and inventory management techniques.
- To evaluate packaging, warehousing, and fulfillment strategies for e-commerce operations.
- To design efficient last-mile delivery systems and understand the role of third-party logistics providers.
- To apply technology and data-driven solutions for enhancing e-commerce logistics efficiency.
- Integrate and optimize agri-logistics operations to meet market demands efficiently.

Unit	Topics
I	Basics of E-Commerce Logistics **(12 Hours)** What is 'e-commerce logistics' - Changing dynamics of e-commerce logistics.- Challenges in e-commerce logistics: Regulatory, technical and economic challenges.-Impact and contribution of e-commerce logistics on the world and global trade. -E-commerce logistics management.
II	Types of E-Commerce Logistics in India **(12 Hours)** Road map of e-commerce in India.-E-commerce business models-Regulatory policies and impact one-commerce logistics. -Disruption in e-commerce logistics. Types of E-Commerce Logistics in India
III	**(12 Hours)** Business to Consumer (B2C) - Business model and challenges. -Business to Business (B2B) - Business model and challenges.- Consumer to Consumer (C2C)- Business model and challenges.- Other E-Commerce Models: Govt to Consumer (G2C), Govt to Business (G2B) and Govt to Govt (G2G)-Major Indian players in

e-commerce logistics.

IV Impact of Technology on E-Commerce Logistics **(12 Hours)**

Role and advantages of technology in e –commerce logistics.-Technology disruption and innovation in e-commerce logistics- Challenges in adopting technology in Indian e-commerce logistics. -Major upcoming technologies and systems in e-commerce logistics

V Future of E-Commerce in India **(12 Hours)**

Growth projections for-commerce in India Upcoming regulations and their likely impact one-commerce logistics-Global research one-commerce logistics. Technologies under development for e-commerce logistics:

- GPS tracking.
- Drone delivery.
- Electric vehicle delivery systems

Text books &Suggested Readings:

1. Course Material Prepared by LSC
2. E-Commerce an Indian Perspective P.T. Joseph, S.J.-PHI publication
3. ITEncyclopedia.Com: Volume 8: Parag Diwan & Sunil Sharma: E-commerce-Pentagon Press.
4. E-Commerce Strategies: Charles Trepper –PHI
5. S.R Bhansali, Information Technology Act, 2000, University Book House Pvt. Ltd., Jaipur.
6. EssentialCybersecurityScience,JosiahDykstra,2017–O'Reilly

Extra Credit:

Case Study

* Self-Learning

Activities: 1. Quiz 2. Data Collection in GDP and NNP 3.Group Discussion

CO	Course Outcome	Knowledge Level
CO1	Understand the fundamental concepts of agri-logistics and supply chain management.	K1
CO2	Apply logistics principles during procurement, storage, packaging, and distribution of produce.	K2
CO3	Analyze post-harvest processing, packaging systems, and relevant legal aspects.	K3
CO4	Evaluate various handling and transport systems including reefer logistics.	K4
CO5	Utilize IT tools including e-logistics and GPS for effective logistics management.	K5
CO6	Integrate and optimize agri-logistics operations to meet market demands efficiently.	K6

RelationshipMatrixforCOsandPOs

CourseOutcomes	ProgrammeOutcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	3	3	9	3	1	1
CO2	3	9	3	3	1	1
CO3	3	1	9	3	3	1
CO4	1	3	9	9	3	1
CO5	1	3	3	3	9	3
CO6	9	3	9	9	3	9
Weightage	**20**	**22**	**42**	**30**	**20**	**16**
WeightedPercentageof courseContributionto	**13.3**	**14.7**	**28.0**	**20.0**	**13.3**	**10.7**

CourseOutcomemappedwithKnowledgeLevel

CO/K-Level	LevelofCorrelation		
	Low	**Medium**	**High**
CO1/K1	PO5,PO6	PO1,PO2,PO4	PO3
CO2/K2	PO5,PO6	PO1,PO4,PO5	PO2
CO3/K3	PO2,PO6	PO1,PO4,PO5	PO3
CO4/K4	PO1,PO6	PO2,PO5	PO3,PO4
CO5/K5	PO1	PO2,PO3,PO4,PO6	PO5
CO6/K6	-	PO2,PO5	PO1,PO3,PO4,PO6

CourseOutcome(CO) AttainmentAssessment Tools&Evaluation Procedure

KLevels	C1	C2	C3	Total Scholastic marks	Non ScholasticMarks C5	CIA Total	% of Assessment
	T1 4 Marks	T2 10 Marks	Assignment 6 Marks	20 Marks	5 Marks	25 Marks	
K1	1	1	1	3		3	12
K2	1	1	1	3		3	12
K3	1	2	1	4		4	16
K4	1	2	1	4		4	16
K5	-	2	1	3		3	12
K6	-	2	1	3		3	12
Non Scholastic	--	--	--	--		5	20
Total	4	10	6	20	5	25	100%

The COs and POs for the **Introduction to E-Commerce Logistics** course in the **BMS** Degree Programme is effective matched by the course in-charge	
Signature of the Course In-Charge	Signature of the HOD

Department of BMS (Agri Storage & Supply Chain)
Programme: BMS CBCS Syllabus – Outcome Based Education (OBE)
(For those who have joined during the Academic Year 2025-2026 onwards)

SEMESTER–VI

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
BMSUG2021	**U25BM11E**	**Elective**	**Multi modal Transportation**	**Lecture**	**8**	**4**

Course Description:

Introduce aboutMulti-modal and Inter modal Transport concepts.

Course Objectives:

- Introduce Multi-modal and Inter modal Transport concepts.
- Explain Regulatory frame work and policies for Multi-modal transportation.
- Describe Indian Railways' initiatives to promote Multimodal Logistics in India.
- Overview evolution of infrastructure facilitating Multi-modal Logistics in India.
- Indian Government's policies and vision R for development of seam less multi-modal transport.
- Apply concepts of multimodal logistics to case studies and real-world trade/transport scenarios.

Unit	Topics
	(12 Hours)
I	Transportation Systems & Multi modal Transport –Concept of Multi modal & Intermodal Transport introduction to Multimodal transport ,the difference between Multimodal and Inter modal transport-Type of transport Modes– Detail and characteristics of air, road, rail, water, pipelines, package carriers-Need, Aim and Key Issues of Multi modal transport.
	(12 Hours)
II	How to organize Multi modal transport-Role of Containerization in MMT- history, utility, types, ease of handling, cost saving- Types of Multi modal transport–combined container transport, rolling Road & forwarding of trailers, RORO & LASH transportation-National Multimodal Transport Committee (NMTC) and Logistics Policy of India–key features and importance

(12 Hours)

III Multi modal Transportation Act & Procedures-MMTG Act of 1993-Custom procedures for Export & Import - Bill Of Lading – Hague Rules, Visby Rules, Hamburg Rules, Voyage by Sea-INCOTERMS – meaning, explanation, list, and types

(12 Hours)

IV MMT and Indian Railways-PFT Policy–maintenance of rolling stock, cargo handling, customs, etc-Warehousing Policy–stuffing, de-stuffing, stacking, use of MHE, etc-Layout and design of Multimodal Logistic sparks

(12 Hours)

V Multi modal transport & Practice Today-India's growing conflict between Trade & transport – issues, policy, problems & pricing-Integrated Transport – Bharatmala, Sagarmala, IWT, DFC, the concept of ICP (International Check Posts-Scenario in India and neighboring countries with a case study

Extra Credit:

Case Study

* Self-Learning

Activities: 1. Quiz 2. Data Collection in GDP and NNP 3.Group Discussion

Text book &Reference

1. Course Material from LSC

Online Resources:

Swayam course	• https://onlinecourses.nptel.ac.in/noc22_ce70/preview • https://archive.nptel.ac.in/courses/105/105/105105204/
E-Content	• https://www.dgshipping.gov.in/Content/PageUrl.aspx?page_name=ShipManualChap23
Other online resources	• https://transportgeography.org/contents/chapter5/intermodal-transportation-containerization/multimodal-transport-system/ • https://intellias.com/multimodal-transportation/

Course Outcomes (COs)

CO	Course Outcome	Knowledge Level
CO1	Understand the concept, types, and characteristics of different transport modes and multimodal/intermodal transport systems.	K1
CO2	Explain how multimodal transport is organized, including containerization and its impact.	K2
CO3	Describe key procedures, acts, and international shipping conventions relevant to multimodal transport.	K3
CO4	Analyze the integration of multimodal transport with Indian Railways and warehousing policy.	K4
CO5	Evaluate policy frameworks and infrastructure projects such as Bharatmala, Sagarmala, ICP, etc.	K5
CO6	Apply concepts of multimodal logistics to case studies and real-world trade/transport scenarios.	K6

Relationship Matrix for COs and POs

Course Outcomes	Programme Outcomes					
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	3	1	1	1	3	3
CO2	3	1	1	1	9	3
CO3	3	1	3	3	9	3
CO4	9	1	3	3	3	9
CO5	9	1	3	3	9	9
CO6	1	9	9	9	9	1
Weight age	**28**	**14**	**20**	**20**	**42**	**28**
Weighted Percentage of Course Contribution to	**18.4**	**9.2**	**13.2**	**13.2**	**27.6**	**18.4**

Notes:(0–NoCorrelation;1–Low;3–Medium;9–High)

Course Outcome mapped with Knowledge Level

CO/K-Level	Level of Correlation		
	Low	**Medium**	**High**
CO1/K1	PO2,PO3,PO4	PO1,PO5,PO6	-
CO2/K2	PO2,PO3,PO4	PO1,PO6	PO5
CO3/K3	PO2	PO1,PO3,PO4,PO6	PO5
CO4/K4	PO2	PO3,PO4,PO5	PO1,PO6
CO5/K5	PO2	PO3,PO4	PO1,PO5,PO6
CO6/K6	PO1,PO6	-	PO2,PO3,PO4,PO5

Course Outcome (CO) Attainment Assessment Tools & Evaluation Procedure

K Levels	C1	C2	C3	Total Scholastic marks	Non Scholastic Marks C5	CIA Total	% of Assessment
	T1 4 Marks	T2 10 Marks	Assignment 6 Marks	20 Marks	5 Marks	25 Marks	
K1	1	1	1	3		3	12
K2	1	1	1	3		3	12
K3	1	2	1	4		4	16
K4	1	2	1	4		4	16
K5	-	2	1	3		3	12
K6	-	2	1	3		3	12
Non Scholastic	--	--	--	--		5	20
Total	4	10	6	**20**	**5**	**25**	**100%**

The COs and POs for the **Multi modal Transportation** course in the **BMS** Degree Programme is effective matched by the course in-charge	
Signature of the Course In-Charge	Signature of the HOD

Department of BMS (Agri Storage & Supply Chain)
Programme: BMS CBCS Syllabus – Outcome Based Education (OBE)
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SEMESTER–VI

PROGRAMME CODE	COURSE CODE	COURSE TYPE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
	U25BMAPS2	**Apprenticeship**	**Apprenticeship 2**	**Training**	**7**	**22**

The Logistics Sector Skill Council for Apprenticeship Training would on board the students in Logistics Processes of companies. The duration of Apprenticeship Training is 6 months. During Apprenticeship Training companies would assign students on-the-job-training. Being a legal engagement, students would receive a monthly stipend during Apprenticeship Training as per the existing norms.

On completion of the Apprenticeship Training, students shall submit Apprenticeship Report in the form of Work Diary to the Collaborating Institutions. The Report would be evaluated and Viva conducted by the Collaborating Institution