Course Code	Course Name	Credits
26EC507	AGRICULTURAL ECONOMICS AND AI	04

Course Objectives

- Understand the foundational principles of agricultural economics and its role in economic development.
- Analyze agricultural finance systems, production management, and resource use for efficient farm operations.
- Evaluate the impacts of globalization and emerging technologies like AI on Indian agriculture.
- Apply theoretical models and practical tools to address real-world challenges in agricultural development.
- Develop strategies for sustainable agricultural growth in a globalized economy.

Learning Outcomes

Upon successful completion of this course it is intended that a student will be able to:

- Explain key models of agricultural development and their relevance to economic growth.
- Identify sources of agricultural finance and evaluate credit management strategies.
- Apply farm management principles and resource allocation techniques for productivity.
- Analyze the effects of WTO, globalization, and MNCs on Indian agriculture.
- Assess AI applications and their future role in transforming agricultural practices.

Unit 1 – Agriculture and Economic Development (12Hrs)

Nature and scope of agricultural economics; role of agriculture in economic development; models of agricultural development (Lewis model, Boserup's theory, Ranis-Fei model, Schultz theory, Mellor's model).

Unit 2 –Agricultural Finance and Credit (12Hrs)

Nature and scope of agricultural finance; sources of finance—institutional (commercial banks, cooperative banks, NABARD, microfinance) and non-institutional lenders; role of financial institutions in agriculture; credit needs of different agricultural sectors; concepts of working capital and term loans; credit management and monitoring; emerging trends in digital lending platforms and agri-fintech solutions.

Unit 3 – Agricultural Production and Resource Management (12Hrs)

Farm management principles; resource allocation and input-output analysis; law of diminishing returns; crop planning and diversification; cost-benefit analysis; efficiency in resource utilization; role of modern technology and innovation in improving agricultural productivity; farm budgeting; risk and uncertainty in agriculture (types and measures to mitigate); management of natural resources and sustainability practices.

Unit 4 –Agriculture and Globalization (12Hrs)

WTO and its impact on Indian agriculture; export and import performance of Indian agriculture; globalization of the Indian economy and its impact on agriculture; role of multinational corporations (MNCs); problems and prospects of Indian agriculture.

Unit 5 –AI in Agriculture (12Hrs)

AI applications in agriculture; AI in agriculture market; key factors affecting AI adoption in agriculture; implementing AI solutions for agriculture; applications and attributes of AI-enabled technologies in agriculture; benefits of AI in agriculture; future of AI in agriculture

Reference Books:

1. Sadhu, A.N. & A. Singh (2002): Fundamentals of Agricultural Economics, Himalaya Publishing House
2. R.K.Lekhi and Jogindersingh (2004) Agricultural Economics. Kalyani Publications, Liudhiana
3. Norten and Allwnding – The Introduction to Economic and Agricultural Development Mac Graw Hill Co. Publication, New Delhi
4. Bilgrami, S.A.R., An Introduction to Agricultural Economics, Himalaya Publishing House, Mumbai.
5. Potluri, S., Satpathy, B., Basa, R. &Zuorro, A. (2025): AI in Agriculture for Sustainable and Economic Management, Routledge
6. Raj, R. & S. K. Sharma (2023): Artificial Intelligence and Smart Farming, New India Publishing Agency

Websites and eLearning Sources:

1. https://www.researchgate.net/publication/216436248_A_Text_Book_Of_Agricultural_Economics
2. https://shop.elsevier.com/books/handbook-of-agricultural-economics/evenson/978-0-444-51874-3
3. https://www.rvskvv.net/images/Principles-of-Agricultural-Economics_17.04.2020.pdf
4. https://mis.alagappauniversity.ac.in/siteAdmin/
5. https://uni-goettingen.de/en/machine+learning+%26+ai+in+agricultural+economics/698038.html

COs and Bloom's Taxonomy Mapping – 26EC507		
Course Outcomes	**On successful completion of this course, students will be able to**	**BTL**
CO1	Recall and explain agriculture's role and development models.	K1, K2
CO2	Recall and identify agricultural finance sources and trends.	K1, K2, K3
CO3	Apply farm management principles and resource analysis.	K3, K4
CO4	Analyze globalization's impact on Indian agriculture.	K4
CO5	Evaluate AI applications in agriculture.	K5

BTL (Bloom's Taxonomy Level) - K1 – Remembering, K2 – Understanding, K3- Applying, K4 – Analyse, K5- Evaluate and K6 - Create

Relationship Matrix – 26EC507												
Course Outcomes	**Programme Outcomes (POs)**						**Programme Specific Outcomes (PSOs)**					**Mean Score of Cos**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	3	2	1	1	1	1	2	3	3	2	2	1.91
CO2	3	2	2	1	2	2	3	2	2	3	3	2.27
CO3	3	3	3	2	2	2	3	3	3	3	3	2.73
CO4	3	3	2	3	3	1	2	3	3	3	2	2.55
CO5	2	3	3	2	1	3	3	3	2	2	2	2.36
											Total	2.36

Mean Score: 3- High, 2- Medium/Moderate, 1-Low