



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Agriculture
Choice Based Credit System (CBCS) Scheme in the light of NEP-2020
Undergraduate Multi-Disciplinary Generic Elective Course

AGGE703: Digital Agriculture and Artificial Intelligence (3+0=3)

Course Code	Course Name	TEACHING & EVALUATION SCHEME							
		THEORY			PRACTICAL		L	P	CREDITS
		END SEM University Exam	Two term exam*	Teachers Assessment*	END SEM University Exam	Teachers Assessment*			
AGGE703	Digital Agriculture and Artificial Intelligence	60	20	20	00	00	3	0	3

1. **Legends:** L - Lecture; P– Practical; C-Credit.

2. ***Teacher Assessment** shall be based on following components: Quiz / Assignment / Project / participation in class.

Course Objective:

1. Introduce the concepts of digital agriculture and artificial intelligence.
2. Explain the role of digital technologies in sustainable food systems.
3. Develop awareness of emerging technologies used in agriculture and natural resource management.
4. Understand the societal, environmental, and economic impacts of digital agriculture.
5. Explore future opportunities and challenges of AI-driven agriculture.

Course Outcomes:

CO1: Explain the basic concepts of digital agriculture and artificial intelligence.

CO2: Describe the role of digital technologies in improving agricultural and environmental sustainability.

CO3: Identify major digital tools used for resource management and decision-making.

CO4: Discuss the applications of AI and smart technologies in food systems and environmental management.

CO5: Appreciate the future potential and ethical challenges of digital technologies in agriculture.

Unit-I: Agriculture in the Digital Age

Evolution of agriculture, concept of digital agriculture, digital transformation in agriculture, agricultural data and information, Information and Communication Technology (ICT), digital initiatives in agriculture, role of digital technologies in modern agriculture.

Unit-II: Smart Technologies in Agriculture

Artificial intelligence, Internet of Things (IoT), sensors, drones, robotics, automation, mobile applications, smart farming technologies.

Unit-III: Digital Tools for Agriculture

Geographic Information System (GIS), Global Positioning System (GPS), remote sensing, weather information systems, digital mapping and monitoring, smart irrigation, precision farming.

Unit-IV: Digital Applications and Decision Support



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Applications of digital technologies in crop production, soil and water management, Agriculture Expert Systems, Soil Information Systems, Decision Support Systems, crop planning and crop calendars, digital advisory services, farm decision-making.

Unit-V: Digital Agriculture for Sustainable Development

Climate-smart agriculture, food security, sustainable resource management, Digital Agriculture Mission and Digital India initiatives, data privacy and ethics, challenges and future opportunities in digital agriculture.

Suggested References

1. Indian Council of Agricultural Research (ICAR). *Sixth Deans' Committee Report*. ICAR, New Delhi.
2. Food and Agriculture Organization (FAO). *Digital Technologies in Agriculture and Rural Areas*. FAO, Rome.
3. Zhang, Q. *Precision Agriculture Technology for Crop Farming*. CRC Press.
4. Erickson, B., Widmar, D., & Chlapecka, J. *Precision Agriculture Basics*. Purdue University Extension.
5. Ministry of Agriculture & Farmers Welfare, Government of India. *Digital Agriculture Mission*.
6. Ministry of Electronics and Information Technology (MeitY), Government of India. *Digital India Programme*.

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Board of Studies,
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

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Shri Vaishnav Vidyapeeth
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