GANPAT UNIVERSITY

FACULTY OF ENGINEERING & TECHNOLOGY

Programme	Diploma in Agricultural Engineering		
Semester	II	Version	1.0.0.0
Effective from Academic Year	2025-26	Effective for the batch Admitted in	JULY 2025
Course code	1AE2103	Course Name	Agriculture Informatics

I.TEACHING-LEARNING AND ASSESSMENT SCHEME

Course Type	Course Code	Learning Scheme						Assessment Scheme										
		Actual Contact Hrs./Week			SLH	NLH	Credits	Theory				Practical				Based on SL		Total Marks
		CL	TL	LL				FA-TH	SA-TH	TOTAL		FA-PR	SA-PR	TOTAL		SLA		
								MAX	MAX	MAX	MIN	MAX	MAX	MAX	MIN	MAX	MIN	
DSC	Agriculture Informatics	1	0	2	3	6	3	40	60	100	40	30	20	50	20	20	8	170

Abbreviation:	**CL-** Classroom Learning	**TL -** Tutorial Learning	**LL -** Laboratory Learning
	SLH - Self Learning Hours	**NLH -** Notional Learning Hours	**SLA -** Self Learning Assessment
	FA - Formative Assessment (Term work +Mid Sem Exam +Attendance)		**SA -** Summative Assessment

II. PRE-REQUISITES

To acquaint students with the application of software in agriculture.
To highlight the importance of ICT in agriculture for decision-making and data management.

III. INDUSTRY / EMPLOYER EXPECTED OUTCOMES

Apply ICT tools and software in agriculture for data management and decision-making. Use MS Office and database management systems to organize and analyze agricultural information. Utilize web development skills to present agricultural data effectively. Implement geospatial technologies and modeling tools for crop planning and farm management. Employ ICT solutions for irrigation, postharvest management, and market advisory services. Demonstrate practical skills in using software and applications relevant to modern agricultural operations.

IV. COURSE LEARNING OUTCOMES

At the end of the course, students will be able to achieve the following course learning outcomes:
CO1: To understand the basics of computers and operating system
CO2: To comprehend the applications of MS office in agriculture
CO3: To know the importance of DBMS in handling large data in agriculture
CO4: Use of IT application for farm advice, market price and postharvest management.
CO5: Use of geospatial technology in agriculture.

V. THEORY LEARNING OUTCOMES AND ALIGNED COURSE CONTENT:

Name of Unit	Theory Learning outcomes (TLO's) aligned to CO's	Learning Content mapped with Theory Learning outcomes (TLO's) & CO's	Marks	Hours
Unit 1: Introduction	**TLO 1.1:** Understand basic computer concepts and operating systems **TLO 1.2:** Apply MS Word for document creation and editing **TLO 1.3:** Use MS PowerPoint for data presentation **TLO 1.4:** Use MS Excel for basic statistical analysis and graph creation	**1.1** Introduction to Computers and Operating Softwar **1.2** MS Word: creating and editing document **1.3** MS PowerPoint: presentation of data and information **1.4** MS Excel: basic statistical analysis and graph creation	**15**	**5**
Unit 2: Web Development	**TLO 2.1:** Understand basics of WWW and HTML	**2.1** Introduction to World Wide Web (WWW)	**15**	**4**

and Database Management	**TLO 2.2:** Create simple websites using online tools **TLO 2.3:** Introduction to Visual Basic and other computer languages **TLO 2.4:** Understand DBMS concepts and MS Access	**2.2** Introduction to HTML Creation of Website using online tools **2.3** Introduction to Visual Basic and other languages **2.4** Introduction to DBMS (MS Access)		
Unit 3: ICT Applications in Agricultural Water Management	**TLO 3.1:** Understand the use of ICT in agriculture **TLO 3.2:** Apply software for computing evapotranspiration and crop water requirement **TLO 3.3:** Use smartphone apps for crop and weather information	**3.1** Use of ICT in Agriculture **3.2** Software for computation of evapotranspiration and crop water requirement **3.3** Smartphone Apps for information on crops and weather	**15**	**3**
Unit 4: Geospatial Technologies and Modeling in Crop Planning	**TLO 4.1:** Use geospatial tools for area estimation and coordinates identification **TLO 4.2:** Apply models and IT tools for crop planning	**4.1** Use of Google Earth Engine and other mobile apps for identifying coordinates and estimation of area **4.2** Introduction to various models Crop planning using IT tools	**15**	**3**

VI. LABORATORY LEARNING OUTCOME AND ALIGNED PRACTICAL

Sr. No.	Practical/Laboratory Learning Outcome (LLO)	Practical Titles	Relevant Cos
1	**LLO 1.1:** Use basic MS DOS commands and integration with Windows.	Use of various commands in MS DOS and its integration with WINDOWS	**CO1**
2	**LLO 2.1:** Create formatted documents in MS Word.	Creation of documents using various formatting features in MS WORD	**CO2**
3	**LLO 3.1:** Prepare presentations using PowerPoint with animation and hyperlinks	Creation of presentation with various styles, layouts, hyperlinks, animation and narration recording	**CO2**
4	**LLO 4.1:** Analyze agricultural and meteorological data using MS Excel.	Analysis of agricultural and meteorological data using MS Excel	**CO2**
5	**LLO 5.1:** Create graphs representing agricultural data using MS Excel.	Creation of various graphs representing any data pertaining to agriculture using MS Excel	**CO2**
6	**LLO 6.1:** Use MS Access for database creation and queries	Use of MS Access as a database management system for query and data creation	**CO3**
7	**LLO 7.1:** Estimate evapotranspiration using CropWat software	Estimation of potential of evapotranspiration using CropWat software for a specified location	**CO4**
8	**LLO 8.1:** Calculate perimeter and area using Google Earth Engine and mobile apps	Calculation of perimeter and area using Google Earth Engine and a mobile based application	**CO5**
9	**LLO 9.1:** Create website using online tools	Creation of Website using online tools	**CO2**

VII. SUGGESTED MICRO PROJECT / ASSIGNMENTS / ACTIVITIES FOR SELF LEARNING / SKILL DEVELOPMENT (SELF LEARNING)

- Create a formatted document, presentation, and Excel sheet with agricultural data.
- Design a small website on crop information and create a database of farm records using MS Access.
- Use CropWat software or any app to compute crop water requirements for a selected location.
- Use Google Earth Engine or mobile apps to estimate farm area and plan crop rotation using IT tools

Mini projects

- Create a document, presentation, and Excel sheet with agricultural data.
- Design a small website and create a database of farm records using MS Access.
- Compute crop water requirements using CropWat software.
- Use Google Earth Engine or mobile apps to calculate farm area and plan crop rotation

VIII. LIST OF INSTRUMENTS / EQUIPMENT / TRAINER BOARD	
1	Computer / Laptop
2	MS OFFICE software
3	Internet / Browser
4	CropWat Software
5	Google Earth Engine / Mobile Apps
6	Website Builder Tools (e.g., Wix, WordPress)

IX. LIST OF REFERENCE BOOKS

Sr.No.	Title	Author	Publication
1	Introductory agri-informatics	Subrat K. Mahapatra, Subrata K Mohanty, JwelBhuiya and Jayashankar Pradhan	Jain Brothers.
2	Agro-Informatics	G. Vanitha, M. Kalpana	New India Publishing Agency
3	A Textbook Of Agri-Informatics	Kalpana M	Agrobios

X.LINK OF LEARNING WEB RESOURCE

1	https://ecourses.icar.gov.in/
2	https://www.w3schools.com/excel/
3	https://edu.gcfglobal.org/en/word/
4	https://edu.gcfglobal.org/en/powerpoint/
5	https://www.w3schools.com/html/
6	https://www.geeksforgeeks.org/dbms/
7	https://www.tutorialspoint.com/ms_access/index.htm
8	https://wordpress.com/learn/https://wordpress.com/learn/
9	https://www.fao.org/land-water/databases-and-software/cropwat/en/
10	https://play.google.com/store/apps/details?id=org.imdmausam.imdweather\&hl=en\&pli=1
11	https://play.google.com/store/apps/details?id=org.imdmausam.imdweather&hl=en&pli=1
12	https://www.icar.org.in/en/node/11787
13	https://earthengine.google.com/
14	https://gisgeography.com/
15	https://bhuvan.nrsc.gov.in/home/index.php
16	https://nptel.ac.in/courses/106106182
17	https://onlinecourses.swayam2.ac.in/cec24_cs09/preview

XI. SUGGESTED WEIGHTAGE TO LEARNING EFFORTS & ASSESSMENT PURPOSE

Unit	Unit Title	Aligned COs	Learning Hours	R-Level	U-Level	A-Level	Total Marks
1	Introduction	CO1	**5**	5	5	5	**15**
2	Web Development and Database Management	CO2	**4**	5	5	5	**15**
3	ICT Applications in Agricultural Water	CO3	**3**	5	5	5	**15**

	Management						
4	Geospatial Technologies and Modeling in Crop Planning	CO4,5	**3**	5	5	5	**15**
		Grand Total	15	20	20	20	60

XII. COs AND POs AND PSOs MAPPING

Course outcome (Cos)	**Programme Outcomes (POs)**							**Programme Specific Outcomes (PSOs)**		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	2	1	1	3	1	1	2	2	1	1
CO2	1	1	1	3	1	1	2	1	2	1
CO3	1	2	2	3	1	1	2	1	3	1
CO4	1	2	2	3	2	1	2	1	3	1
CO5	2	3	2	4	2	2	2	2	3	1

Legends: - *3- High 2-Moderate/Medium 1-Slight/Low 0-None*