

SEMESTER-IV

GANPAT UNIVERSITY									
FACULTY OF MANAGEMENT STUDIES									
Program	MBA		Branch/Spec.		MBA (Agribusiness) Elective Subject				
Semester	IV				Version	1.0.0.0			
Effective from Academic Year			2025-26		Effective for the batch Admitted in			June 2025	
Subject code		IVA01ARG		Subject Name		Agri Analytics, Remote Sensing and GIS			
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	2	0	0		2	Theory	100		100
Hours	2	0	0		30	Practical			
Objective:									
To equip Agribusiness students with a strategic framework to leverage agri-analytics, remote sensing, and GIS for data-driven decision-making, optimizing the agrifood value chain, and driving sustainable competitive advantage.									
Course Outcome:									
CO 1: The students will be able to explain the fundamental concepts and strategic role of agri analytics in transforming modern agriculture and enhancing decision-making across the agri-food value chain.									
CO 2: The students will be able to analyze how different types of agri-analytics can be applied to enhance farm-level productivity and financial performance.									
CO 3: The students will be able to evaluate the business applications of remote sensing and GIS for large-scale crop monitoring, risk management, and supply chain logistics.									
CO 4: The students will be able to formulate a strategic roadmap for implementing data-driven technologies in an agribusiness, considering business models, ROI, and ethical challenges.									
Theory syllabus									
Unit	Content								Hrs
1	Fundamentals of Agri Analytics, Strategic Role of Agri Analytics in Modern Agriculture, Managerial Applications of Agri Analytics, Sources and Types of Agricultural Data, Data Collection Techniques in Agriculture, Data Quality and Management, Predictive Analytics in Crop Yield, Prescriptive Analytics for Farm Management, Financial Analytics in Agribusiness, Use of Big Data in Agriculture, Integration of IoT Data for Analytics, Decision Support Systems in Agriculture, Business Impact of Data-Driven Farming, Challenges and Ethical Issues in Agri Analytics.								6
2	Agri-Analytics for Farm-Level Decision Making, Precision Agriculture Principles: - Variable Rate Technology (VRT) Concepts, Farm Operations Analytics: - Yield Prediction & Forecasting Models - Input Optimization (Seed, Fertilizer, Water) - Pest & Disease Management Analytics, Farm Financial Analytics: - Farm Profitability Mapping & Cost Analysis, The Role of Farm Management Information Systems (FMIS), Livestock Analytics (Conceptual), Case Study: Calculating the ROI of Precision Agriculture								8
3	Remote Sensing & GIS for Macro-Level Strategy, Remote Sensing Applications: - Satellite Imagery for								8

	Crop Health Monitoring (NDVI) - Drone Applications: Scouting, Spraying, Assessment - Soil & Water Management using Geospatial Data, GIS Applications: - Supply Chain & Logistics Route Optimization - Site Selection for Processing Plants & Warehouses - Market Analysis & Mapping Potential, Risk Management Applications: - Crop Insurance & Damage Assessment, Case Study: A Food Company Monitoring its Global Sourcing	
4	Strategic Implementation and the Future of Agri-Tech, Agri-Tech Business Models: - SaaS, Data-as-a-Service, Outcome-based, Building a Business Case for Agri-Tech Investment, Change Management & Overcoming Farmer Adoption Barriers, Data Governance, Privacy & Ownership in Agriculture, Analytics for Sustainable Farming & ESG Reporting, Food Traceability with Digital Technologies (Blockchain), Future Trends: AI, Robotics, Vertical Farming, Capstone: Designing a Digital Strategy for an Agribusiness Firm	8
Practical content		
Reference Books		
1.	Marr, Bernard. Data Strategy: How to Profit from a World of Big Data, Analytics and the Internet of Things. Kogan Page, 2017.	
2.	King, Andrew. Technology in Agriculture: A Farmer's Perspective. Routledge, 2021.	
3.	Downey, Greg, and Dobermann, Achim (Eds.). The Digitization of the World's Agriculture: A Review of Issues, Evidence, and Panels. MIT Press, 2020.	
4.	Srinivasan, Ancha (Ed.). Precision Agriculture for Small-Scale Farming. CRC Press, 2021.	
5.	Longley, Paul A., et al. Geographic Information Science & Systems. 4th Edition, Wiley, 2015. (For conceptual reference).	
6.	Campbell, James B., and Wynne, Randolph H. Introduction to Remote Sensing. 5th Edition, The Guilford Press, 2011. (For conceptual reference).	
7.	Boehlje, Michael D., and Gloy, Brent A. Agribusiness Management. 5th Edition, Wiley, 2018.	
8.	Iansiti, Marco, and Lakhani, Karim R. Competing in the Age of AI: Strategy and Leadership When Algorithms and Networks Run the World. Harvard Business Review Press, 2020.	
9.	Rogers, David L. The Digital Transformation Playbook: Rethink Your Business for the Digital Age. Columbia Business School Publishing, 2016.	
10.	Sila, Vincent, and Rono, B. K. Agricultural Value Chain Finance: Tools and Lessons. Practical Action Publishing, 2017.	
11.	Miller, Donald. Building a StoryBrand: Clarify Your Message So Customers Will Listen. HarperCollins Leadership, 2017.	