

GANPAT UNIVERSITY									
FACULTY OF MANAGEMENT STUDIES									
Programme	MBA				Branch/Spec.	Innovation, Entrepreneurship and Venture Development (Minor Specialization - Operations and Supply Chain Management)			
Semester	IV				Version	2.0.0.0			
Effective from Academic Year			2026-27		Effective for the Batch admitted in			January 2026	
Course Code	IVA17SCD	Course Name			Supply Chain Analytics & Digital Technologies				
Teaching Scheme					Examination Scheme (Marks)				
(Per week)	Lecture (DT)		Practical (Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	4	0	0		4	Theory	60	40	100
Hours	4	0	0		4	Practical			
Pre-requisites									
Course Outcomes									
On successful completion of the course, the students will be able to:									
CO1	Understand the levels of analytics (descriptive, predictive, prescriptive) and their role in strategic supply chain decision-making.								
CO2	Interpret supply chain data and Key Performance Indicators (KPIs) to forecast demand, optimize inventory, and identify operational risks.								
CO3	Evaluate the business impact of Industry 4.0 technologies (IoT, Cloud, Automation) on logistics and warehouse efficiency.								
CO4	Formulate strategies for digital transformation using emerging tools like AI, Blockchain, and Digital Twins to gain competitive advantage.								
Theory Syllabus									
Unit	Content								Hrs.
1	Foundations of Supply Chain Analytics, Introduction to Business Analytics in SCM, The Journey from Data to Wisdom, Levels of Analytics (Descriptive Predictive Prescriptive), The Role of Data in Supply Chain Strategy, Key Performance Indicators (KPIs) for SCM, The SCOR Model and Metrics, Dashboard Design Principles for Managers, Data Visualization Basics, Storytelling with Data, Sources of Supply Chain Data (Internal vs External), Big Data in Logistics, Challenges in Data Adoption for Startups, Data Quality and Governance, Creating a Data-Driven Culture, Supply Chain Visibility, End-to-End Tracking Concepts..								15
2	Fundamentals of Predictive Insights & Decision Making, Demand Forecasting Fundamentals, Managerial Approaches to Forecasting, Seasonality and Trends Analysis, Inventory Optimization Concepts through Data, Safety Stock and Service Level Analysis, Network Design Analytics (Conceptual), Transportation Analytics, Route Optimization Principles, Supplier Performance Analytics, Spend Analysis, Customer Sentiment Analysis, Introduction to Data Visualization Tools (PowerBI/Tableau features overview), Scenario Planning and "What-If" Analysis, Risk Analytics, Decision Support Systems, Measuring Marketing and Logistics Interface.								15
3	Industry 4.0 in Supply Chain, The Internet of Things (IoT) in Logistics, Sensors and Connectivity, RFID and Barcoding Technologies, Cloud Computing in SCM, SaaS Models for Startups, Smart Warehousing Concepts, Warehouse Management Systems (WMS) Overview, Transportation Management Systems (TMS) Overview, Collaborative Robots (Cobots), Automation in Fulfillment Centers, Digital Platforms and Aggregators, ERP Systems Role in Integration, Omni-Channel Technology Infrastructure, Mobile Applications for Logistics.								15

4	Artificial Intelligence (AI) and Machine Learning (ML) Applications in SCM, Use Cases of AI (Chatbots Prediction Routing), Blockchain for Supply Chain Transparency and Trust, Smart Contracts Fundamentals, Digital Twins in Supply Chain, 3D Printing (Additive Manufacturing) and its Impact on Logistics, Autonomous Vehicles and Self-Driving Trucks, Drones for Last-Mile Delivery, Cyber Security Risks in Digital Supply Chains, Sustainability Analytics, Carbon Footprint Tracking Tools, The Future of Work in Supply Chain, Implementing Digital Change in Ventures.	15
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Practical, assignments and tutorials are based on above syllabus.		
Text Books		
1	Big Data Driven Supply Chain Management: A Framework for Implementing Analytics and Turning Information Into Intelligence by Nada R. Sanders	
Reference Books		
1	Supply Chain Analytics and Modelling: Quantitative Tools and Applications by Nicoleta Tipi	
2	The Digital Supply Chain: The Transformation of Business Supply Chains by Bart L. MacCarthy and Dmitry Ivanov	
3	Competing on Analytics: The New Science of Winning by Thomas H. Davenport and Jeanne G. Harris	
4	Supply Chain Management on Demand: Strategies, Technologies, Applications by Chae An and Yurong Yao	
5	Digital Supply Networks: Transform Your Supply Chain and Gain Competitive Advantage with Disruptive Technologies by Amit Sinha, Ed Bernardon, and Thorsten Schrader	
6	Essentials of Supply Chain Management by Michael H. Hugos	
7	Enterprise Resource Planning by Mary Sumner	
8	Blockchain and the Supply Chain: Concepts, Strategies and Practical Applications by Nick Vyas, Aljosja Beije, and Bhaskar Krishnamachari	
9	Artificial Intelligence for Supply Chain Management by Hokey Min	
10	Logistics and Supply Chain Innovation: Bridging the Gap between Theory and Practice by Henk Zijm, Matthias Klumpp, Uwe Clausen, and Michael ten Hompel	
11	Industry 4.0: Managing The Digital Transformation by Alp Ustundag and Emre Cevikcan	
ICT/MOOCs Reference		
1	Coursera: Supply Chain Analytics – Rutgers University	
2	Udemy: Supply Chain Analytics using Excel and Power BI	

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	P S O 1	P S O 2	P S O 3	P S O 4
CO1	3	3	2	–	–	–	2	3	2	2	3	3	–
CO2	3	3	2	–	–	–	2	3	3	2	3	3	–
CO3	3	3	2	2	–	–	3	3	3	3	3	3	–
CO4	3	3	3	2	–	2	3	3	3	3	3	3	2