Faculty of Management Studies

Master of Business Administration (Integrated) (Sem - VI)

In Effect from Academic Year 2023-24

Branch Name:	Management (Business Analytics)
Program Code:	MS301
Course Name:	Operation and Supply Chain Analytics
Course Code:	2MS3010643T
Pre-requisite Course:	Basics of production and operation management

Course Objectives:

1) To provide foundational knowledge associated with the operations analytics
2) To provide foundational knowledge associated with the supply chain analytics
3) To describe the various tools and techniques for implementation of analytics based on the
4) supply chain drivers such as location, logistics and inventory
5) To describe the various techniques for analytics based on the Multi Attribute Decision Making (MADM) and risk
6) To provide the applications of analytics in operations and supply chain

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
				Theory (Marks)		Practical (Marks)		Total
Lecture (L)	Tutorial (T)	Practical (P)	Credit	University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	(Marks)
4	-	-	4	60	40	-	-	100

Subject Contents:

Sr No.	Topic	Total Hours	Weightage (%)
1	**Warehousing Decisions** Warehousing Decisions, Mathematical Programming Models, P-Median Methods, Guided LP Approach, Balmer –Wolfe Method, Greedy Drop Heuristics, Dynamic Location Models, Space Determination and Layout Methods	10	20
2	**Inventory Management** Inventory Management, Inventory aggregation Models, Dynamic Lot sizing Methods, Multi-Echelon Inventory models, Aggregate Inventory system and LIMIT, Transportation Network Models, Notion of Graphs, Minimal Spanning Tree	10	20
3	**Path Algorithms** Shortest Path Algorithms, Maximal Flow Problems, Multistage Transshipment and Transportation Problems, Set covering and Set Partitioning Problems, Traveling Salesman Algorithms, Advanced Vehicle Routing Problem Heuristics, Scheduling Algorithms-Deficit function Approach and Linking Algorithms	10	20
4	**Data Envelopment Analysis** Analytic Hierarchy Process, Data Envelopment Analysis, Risk Analysis in Supply Chain, Measuring transit risks, supply risks, delivering risks	10	20
5	**Application in SCM** Risk pooling strategies, Fuzzy Logic and Techniques-Application in SCM	08	20

Text Books:

Sr. No.	Books
1	Khalid Zidan, Supply Chain Management: Fundamentals, Strategy, Analytics & Planning for Supply Chain & Logistics Management, CreateSpace Independent Publishing Platform, 2016.
2	Chan, Hing Kai, Subramanian, Nachiappan, Abdulrahman and Muhammad Dan-Asabe, Supply Chain Management in the Big Data Era, IGI Global. 2016

Reference Books:

Sr. No.	Books
1	Gerad Feigin, Supply Chain planning and analytics – The right product in the right place at the right time, Business Expert Press, 2011
2	Robert Penn Burrows, Lora Cecere, Gregory P. Hackett, The Market-Driven Supply Chain: A Revolutionary Model for Sales and Operations Planning in the New On-Demand Economy, AMACOM Div American Mgmt Assn, 2001
3	Peter Bolstorff, Robert G. Rosenbaum, Supply Chain Excellence: A Handbook for Dramatic Improvement Using the SCOR Model, AMACOM Div American Mgmt Assn, 2007

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Understand and Apply Warehousing Decision Models	Understand
CLO2	Analyze Inventory Management and Optimization Techniques	Analyse
CLO3	Solve Path and Routing Optimization Problems	Evaluate
CLO4	Perform Data Envelopment Analysis (DEA) for Efficiency Measurement	Analyze
CLO5	Implement Advanced Supply Chain Risk Management Strategies	Evaluate
CLO6	Use Analytics and Optimization Techniques in Supply Chain Applications	Apply

Mapping of CLOs with Pos & PSOs

Course Learning Outcomes	Program Outcomes (POs)								Program Specific Outcomes (PSOs)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CLO1	H	H	H						M	H
CLO2	H	M	M						M	H
CLO3	M	L	M					M	H	L
CLO4	L	M	M	H				H	M	M
CLO5	M	M	H	L	L	L	H	M	M	L
CLO6	M	L	L	H		H	L	M	M	M

H: High, M: Medium, L: Low

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