

**XAVIER INSTITUTE OF MANAGEMENT
XIM UNIVERSITY, BHUBANESWAR**

Course Name	Supply Chain Analytics
Programme	EMBA -BM
Batch	2023-2024
Term	IV
Credits	3
Course Instructor	Prof. Soumyajyoti Datta <i>Office: 2nd floor administrative building, XIM Campus</i> <i>Email: soumyajyoti@xim.edu.in</i>

Course Introduction and Objectives

This course will provide the participants with unique, in-depth insight into four areas of supply chain Management: understanding the fundamentals of supply chain analytics, data driven decision making, solving practical business problems and familiarization with relevant software, and current industry best practices. Each of the four aspects are heavily emphasized to develop the knowledge, skills, and attitude for the participants to meet the demands in today's job market and to begin a successful career. The course has been designed with one simple focus: to prepare the participants for a career in current and emerging supply chain practices. The business concepts, problem solving approach, technical skills, and business practices dealt with in this course will prepare you for the appropriate supply chain career. The course will demonstrate and execute mathematical models —with emphasis on the practical, real-life applications of Supply chain management through the various readings, exercises and case studies.

Course Content

- a) Understanding the relevance of supply chain analytics and the significance of data driven decision making
- b) Understanding the concepts of risk pooling, supply chain risk, resilience, disruption, agility, and adaptability
- c) Understanding of the Bullwhip effect, risk pooling strategy, information asymmetry
- d) Understand financial supply chain management.
- e) Understanding digital supply chain management
- f) Explain the importance of single period news vendor model.
- g) Relevant software to deal with supply chain analytic problems

Course Learning Outcomes (CLO)

CLO 1: Understanding the significance and relevance of supply chain analytics and the role it plays in transforming the business process.

CLO 2: Understanding the key concepts and terminologies involved in supply chain analytics for business and society.

CLO 3: Conceptualizing, operationalizing supply chain analytics problems through appropriate mathematical modeling, analysis and interpretation.

CLO 4: Understanding and the usage of a software tool to deal with supply chain analytics problems in

Reading and References

- a) Supply chain management : Strategy, Planning, and Operation by Sunil chopra and Kalra , 7th Edn
- b) Supply chain engineering by Ravi Ravindran and Warsing (CRC publisher)
- c) Principle inventory management by Muckstadt and Sapra (Springer)
- d) Supply chain analytics by TAS Vijayaraghavan

Additional Resources

- Articles/practice exercises/ case studies will be shared during the course as per the course learning outcomes.
- Guest speakers may be invited if found appropriate and suitable

Pedagogy and Students Workload

Pedagogy includes lectures, classroom problem solving, classroom activity, case studies, and projects. Students are expected to read through the materials given to them as and when required during the course as well as solve problems/numerical from the recommended textbook which amounts to significant preparation time of 4-5 hours per week (besides the session time). The instructor will share the details of pedagogical mode, evaluation components and deliverables in the initial couple of sessions.

It is expected that the student should connect with the faculty in case of any concern or doubt over e-mail or with prior appointment over e-mail.

Session Plan

Session	Topic	Session Learnings	Reading Materials
1	Supply chain analytics	Understanding the nuances between supply chain and supply chain analytics Relevance of supply chain analytics in contemporary business and society	Class notes and discussion
2	Performance drivers for supply chain	Key concepts and terminologies Key metrics and their business relevance	Class notes

Session	Topic	Session Learnings	Reading Materials
3	Understanding the role of demand management in supply chain	Significance of forecasting for supply chain analytics	<i>Class notes/class exercise</i>
4	Risk pooling in supply chain	What is meant by risk pooling? Key concepts and terminologies Practical demonstration of risk pooling	<i>Class notes/Class exercise</i>
5	Exploring bullwhip effect	Appreciate the presence of bull whip effect. Measuring, analyzing, and interpreting bullwhip effect.	<i>Article and Class exercise</i>
6	Role of different Logistics players	Difference between Third party, Fourth party and Fifth party logistics-relevance to business	<i>Article and class notes</i>
7	Inventory control and safety stock management	Understanding the multiple products in a SingleOrder. Understanding the key concepts and terminologies Understand the techniques to mitigate demand uncertainties.	<i>Class notes</i>
8	Single item, Single-periodproblem: the Newsvendor	Understanding news vendor problem-Analytics perspective	<i>Article and class notes</i>
9	News vendor problem	A business application	<i>Class exercise</i>
10	Power-two policyand Multi-echelonCycle Inventory	The basic framework of Power-two-policy(PO2) in Inventory management. Key definitions and their relevance to contemporary business	<i>Article and class notes</i>
11	Supply chain risk	Understand various risks in a supply chain Understanding supply chain resilience and responsiveness	<i>Class notes</i>
12	Supply chain adaptability and	Understanding the mechanisms for ensuring a	<i>Article and class notes</i>

Session	Topic	Session Learnings	Reading Materials
	agility	supply chain to become agile and adaptable	
13	Supply chain disruption	What is meant my supply chain disruption? Understanding the perils of supply chain disruption Preparing the managers for the next disruption	<i>Article and class notes</i>
14	Digital supply chain management	Definition of digital supply chain Feature of DSC Benefit of DSC Supply chain design for boosting resilience.	<i>Article and class notes</i>
15	Digital supply chain	A business application	<i>Class notes</i>
16	Supply chain contracts	Introduction to Supply contract Determine various types of supply chain contract. Contract with Asymmetric information	<i>Article and class notes</i>
17	Financial supply chain management	Understanding of financial supply chain management Trade-credit in supply chain management Application of factoring and reverse factoring in supply chain management Business application	<i>Class notes</i>
18	Emerging topics in supply chain analytics		<i>Class notes</i>
19	Group presentations	Presentation by group (details to be announced during the course)	
20	Course Wrap-Up	General doubt clearing-closing remarks	

Assessment Scheme

Component	Weightage (%)	Assessment of Course Learning Outcome(s) (CLO)
Class Participation	15%	CLO1 CLO2 CLO3 CLO4

Quizzes	25%	CLO1 CLO2 CLO3 CLO4
Assignment	10%	CLO1 CLO2 CLO3 CLO4
Group Project	20%	CLO1 CLO2 CLO3 CLO4
End Term	30%	CLO1 CLO2 CLO3 CLO4

Academic Discipline and Integrity

- Students are expected to come to class on time. Late coming to class is not accepted.
- Participants are expected to follow the evaluation plan and avoid any violation pertaining to the evaluation components. There is no provision of re-examination for the missed components.
- Utmost care will be taken to maintain class decorum, transparent conduction of evaluation components and follow the evaluation norms as per the manual of policy.
- There is ZERO tolerance for any malpractice during the classroom proceedings or the various evaluation components.
- The instructor reserves the right to modify the sequence of sessions and make minor alterations in course outline and/or evaluation component(s) during the timeline of the course administration.
- In case of online classes, students need to keep their cameras on all through the session and respond to the questions of the instructor, if a student is not responsive even after the instructor has called him or her, the student will receive ZERO grade in the class participation component.

Mapping Course Learning Outcomes (CLO) with the Program Learning Goals (PLG)

PLG#	Program Learning Goal	Trait	Addressed by Course	
			Yes	No
PLG1	Functional and Business Skills	The students will demonstrate understanding of elements of allfunctional areas	Yes	
PLG2	Analytical Skills	The students will use analytical techniques to identify a businessproblem, and suggest a solution	Yes	
PLG3	Collaboration and teamwork attributes	The students will exhibit voluntary cooperation and effective teamwork in a group setting	Yes	
PLG4	Ethical responsibility	The students will understand the ethical complexities of conducting business. The students will adopt techniques in scenarios involving ethical dilemma and offer resolution	Yes	

PLG#	Program Learning Goal	Trait	Addressed by Course	
			Yes	No
PLG5	Communication	The students will produce reasonably good quality business documents. The students will become effective and confident communicators	Yes	