

DEPARTMENT OF MANAGEMENT STUDIES
NATIONAL INSTITUTE OF TECHNOLOGY
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COURSE PLAN – PART I

Course Title	Supply Chain Analytics		
Course Code	MB 825	No. of Credits	2
Course Code of Pre-requisite subject(s)	MB 821 & MB 824		
Session	October 2023 – February 2024	Section	NA
Name of Faculty	Dr. Malolan Sundararaman	Department	MBA
Email	malolan@nitt.edu	Telephone No.	+91-431-250371
Name of Course Coordinator(s) (if, applicable)	NIL		
Course Type	<input type="checkbox"/> Core course	<input checked="" type="checkbox"/> Elective course	

SYLLABUS

Unit I Demand Planning

Demand Planning- Review of Forecasting and planning concepts- Defining KPIs-Forecasting Model building-Discrete and continuous manufacturing- case studies

Unit II Supply planning

Supply planning- Procurement and Strategic Sourcing - Inventory Modeling-aggregate planning and resource allocation decisions- Procurement Analytics- Production modelling - case studies

Unit III Demand Fulfillment

Demand Fulfillment- DC location and network design-optimizing inventory levels in distribution network- Logistics & Network Modeling- Transportation modelling- delayed differentiation, mass customization- case studies

Unit IV Integrated supply chain

Advanced and business supply chain related topics like CPFR, DDSN, Make/Buy Case Study-Total Supply Chain Cost- computation of transfer prices -revenue management-yield management -product changes/economies of scale-case studies

Unit V Project Development-

Undertaking projects with industry inputs- validation of models- frameworks- Review of data analytics techniques-choice of tools and designing solution approach to specific application review.

COURSE OBJECTIVES

To create an understanding of designing and managing supply chain networks.

COURSE OUTCOMES (CO)

Course Outcomes	Aligned Programme Outcomes (PO)
1. Implement the previously learned concepts to solve case studies	1, 3, 4
2. Identify real-life supply chain problems and address them	2, 3, 7

COURSE TEACHING AND LEARNING ACTIVITIES

Sl. No.	Week	Topic	Mode of Delivery
1.	1 st week of November	- Introduction to the course and course structure	Case study discussion

	2022 Class – 1 st week (3 Contact Hours)	- Understanding the first case study - Course Participation (*Assessment-3 begins)	(Whiteboard formulation)
2.	Class- 2 nd week (3 Contact Hours)	- Aggregate Planning & Allocation Models - Case Study-1: Formulation o Theoretical & Mathematical	Case study discussion (Whiteboard formulation)
3.	Class- 3 rd week (3 Contact Hours)	- Case Study-1 (Assignment-1A) o Solution Development o Solution Implementation	Case study discussion (Whiteboard formulation)
4.	Class- 4 th week (3 Contact Hours)	- Inventory Concepts o Newsvendor Problem o Deterministic Dynamic Inventory (Bellman equation)	Whiteboard lecture
5.	Class- 5 th week (3 Contact Hours)	- Inventory Concepts (Assignment-1B) o Stochastic Inventory (Bellman equation)	Whiteboard lecture
6.	Class- 6 th week (3 Contact Hours)	- Demand Fulfilment (Assignment-2A) o Travelling Salesman Problem o Chinese Postman Problem o Vehicle Routing Problem	Whiteboard lecture
7.	7 th week (3 Contact Hours)	- Demand Planning (Assignment-2B) o ARIMA and Croston Forecasting Models	Whiteboard lecture and formulation Hands-on Coding
8.	Class- 8 th week (3 Contact Hours)	- Case Study-2 o Formulation o Solution Development o Solution Implementation	Case study discussion (Whiteboard formulation)
9.	Class – 9 th week (3 Contact Hours)	- Case Study-3 o Formulation o Solution Development o Solution Implementation	Case study discussion (Whiteboard formulation)
10.	Class - 10 th week (3 Contact Hours)	- Flexible and Inflexible Supply Chains o Case on “Apparel” and “Shoe” retailers	Class reading activity and discussion
11.	Class – 11 th week (3 Contact Hours)	Back-up sessions in case any classes are cancelled.	
12.	week February 2021	Trimester Exam Begins (*Final Exam)	

COURSE ASSESSMENT METHODS

Sl. No.	Mode of Assessment	Week / Date	Remarks	% Weightage
1.	Assignment–1	Course 3 rd and 5 th Weeks	The solution to Case-1 and problems related to inventory concepts	22%
2.	Assignment–2	Course 5 th Week & 7 th Week	Routing and forecasting problems	18%
3.	Assignment-3	Course 8 th – 10 th Week	Visualization assignment (Process Mining)	10%
4.	Final Exam	TBD (In February)	End Trimester 180 minutes	50 %

Note:

1. Attending all the assessments (Assessment 1 to 4) is MANDATORY for every student.
2. Every student must score a minimum of 35% (i.e., 35 marks) to pass the course. Otherwise, the student would be declared fail, and an ‘F’ grade would be awarded.
3. A student must score at least 30% (15 marks) in the Final Exam to pass the course

COURSE EXIT SURVEY

- Feedbacks are collected before the final examination through MIS, which is accessible to all registered students
- Students, either directly or through their Class Representatives, may give their feedback at any time to the course faculty, which will be duly addressed
- The students may also give their feedback during Class Committee Meetings.

ATTENDANCE:

- Minimum of 75% is mandatory to write the trimester examination. Students with attendance of 65% to 74% are eligible for the end-trimester exam only after attending the extra classes and submitting assignments. Students must redo the course if they have less than 65% attendance.
- Medical Certificate / On Duty Certificate should be submitted immediately after rejoining.
- Attendance will be taken as electronic dump 15 minutes after class commences during online lectures in MS Teams.

COMPENSATION ASSESSMENT:

- No compensation assessments will be given for Assessments as they are all submissions with at least a week duration. Hence, all students must submit the internal evaluation components on or before the specified deadlines.

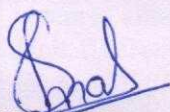
ACADEMIC HONESTY & PLAGIARISM:

- Avoid usage of electronic devices during classes, tests and exams.
- The students (and teams) are expected to come out with their original solutions for the problems given in the assignment. If found to copy from the internet/other students (teams), marks will be reduced without intimation.
- Need to maintain honesty & discipline in the classroom and exam hall.

ADDITIONAL INFORMATION

- The students can clarify their doubts at any time with their faculty member with a prior appointment.
- If arranged, the guest lecture date will be intimated based on expert availability
- Submission of all assignments should be on the date informed. No late submission is allowed.

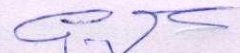
FOR APPROVAL



Dr. Manojan Sundararaman
Course Faculty



Dr. J. Kirubakaran
Chairman (Class Committee)



Dr. G. Muruganatham
HoD

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