SUPPLY CHAIN MANAGEMENT
23MEOE322

(COURSE HANDBOOK)

Department of Mechanical Engineering

COURSE COORDINATOR:

Dr. Shivaramu H T
Sr. Assistant Professor

1. GENERAL INFORMATION

Welcome to Supply Chain Management!

This course provides a foundational understanding of supply chain management, equipping students with the knowledge and skills required to plan and manage supply chains in today's competitive and global business environment. It introduces key concepts related to the flow of materials, information, and finances across organizations, with emphasis on strategic decision-making and performance improvement.

The curriculum is structured into five modules. It begins with the role and significance of supply chain management in the economy and organizations, covering fundamentals, evolution, strategy, and performance measurement. The course then explores outsourcing and make-versus-buy decisions, focusing on core process identification and sourcing strategies. Subsequent modules address inventory management, including inventory types, costs, and control techniques, followed by supply chain integration, highlighting internal and external coordination, demand volatility, and the bullwhip effect. The final module focuses on supply chain restructuring, including supply chain mapping, postponement strategies, and the application of information technology in supply chain operations.

Through problem-solving, discussions, and case-based learning, students develop analytical and decision-making skills applicable to real-world supply chain scenarios. On completion of the course, students will be able to assess supply chain performance, make appropriate sourcing and inventory decisions, and familiarize the role of integration and information technology in achieving efficient and responsive supply chains.

We look forward to an engaging semester that prepares students to address practical supply chain management challenges effectively

1.1.Course Objectives

This course is designed to

- Impart knowledge of supply chain management in economy and organization
- Provide the concepts of make versus buy decisions in supply chain management
- Familiarize the inventory management techniques, associated costs for optimum utilization of the inventory. integration of internal and external supply chains
- Impart knowledge of information technology in enhancing supply chain execution, collaboration, decision support, and performance measurement

1.2.Course Outcomes

At the end of the course, the student will be able to

1. Articulate fundamental supply chain concepts, role of make-versus-buy decisions, and inventory management principles in improving organizational performance.
2. Apply the essential concepts of supply chain management to find its impact on organizational performance and economic growth

3. Apply inventory management principles to optimize stock levels and minimize costs
4. Articulate the internal and external supply chain integration to minimize demand and supply distortion
5. Eloquent the concepts of supply chain mapping, postponement strategies, and the role of information technology in supply chain

1.3. Set Text and Suggested Sources

All the below mentioned books are available in the 1st Floor Library.

Key Text Books:

1. Janat Shah, "Supply Chain Management", 2nd Edition, Pearson Education, 2016
2. Sunil Chopra and Peter Meindl, "Supply Chain Management-Strategy Planning and Operation", 6th Edition, PHI Learning / Pearson Education, 2014

Reference Books:

1. David Simchi Levi, Philip Kaminsky, Edith Simchi Levi, "Designing and Managing the Supply Chain: Concepts, Strategies, and Cases", 3rd Edition, Tata McGraw-Hill, 2007
2. Ballou Ronald H, "Business Logistics and Supply Chain Management", 5th Edition, Pearson Education, 2003
3. Michael H. Hugos, "Essentials of Supply Chain Management", 1st Edition, Wiley, 2003

2. THE COURSE

2.1.Course Description

SUPPLY CHAIN MANAGEMENT			
Semester	**VI**	CIE Marks	**50**
Course Code	**23MEOE322**	SEE Marks	**50**
Teaching Hrs/Week (L:T:P)	**3:0:0**	Exam Hrs	**03**
Total Hrs	**42**	Credits	**03**

The Supply Chain Management course is designed to provide students with comprehensive knowledge of supply chain concepts, strategies, and decision-making frameworks required to manage and optimize supply chains effectively. The course runs for 14 weeks during Semester VI and consists of five modules covering fundamental and advanced topics in supply chain management relevant to modern organizations. Each week includes three lectures, delivered by Dr. Shivaramu H T & Dr. Prashantha, focusing on theoretical concepts, practical applications, case studies, and course-related activities. Spanning a total of 42 contact hours, this 3-credit course is assessed through Continuous Internal Evaluation (CIE) for 50 marks and a Semester-End Examination (SEE) for 50 marks, ensuring a balanced and engaging learning experience for students.

2.2.Initiating Contact with Staff and Other Students

We promote open communication and welcome your questions about the course. The best ways to inquire are during class time or during faculty office hours. Due to the large number of students enrolled, we recommend reviewing the online materials, such as this handbook and the official website, to see if your question can be addressed there. Furthermore, we encourage you to engage with your peers for discussions and collaborative learning, as this will deepen your understanding of the course content and help build a supportive academic community.

2.3.Resources

Being an institute emphasizing on research and development, students are provided access to a variety of resources that not only facilitate learning but also spark curiosity and provide valuable insights. The resources include dynamic tools such as digital libraries, e-learning platforms, and research databases, offering anytime, anywhere access to academic materials and interactive courses.

Through the college website, students can explore resources like the VTU Consortium, e-learning platforms, and open-access repositories such as NPTEL and NDLI. These digital tools grant access to e-books, research papers, video lectures, and interactive tutorials, creating a flexible and enriching learning environment.

E-learning and digital library can be accessed via the college website https://mite.ac.in/ (Campus Life section > Library > VTU Consortium/e-learning platforms/additional sources).

2.4. Staff

Course Faculty: Dr. Shivaramu H T
Cabin: 1st floor, PG Block
Email: shivaramu@mite.ac.in

Course Faculty: Dr. Prashantha
Cabin: 1st floor, PG Block
Email: prashanth@mite.ac.in

2.5. Topics and Reading materials for each module

Module 1 *No. of Hours: 8*

- **Topic: Introduction to Supply Chain Management**
  - The Role of Supply Chain Management in Economy and organization: Fundamentals of Supply Chain, evolution, decisions, importance, enablers of supply chain performance, supply chain performance in India.
  - Supply Chain Strategy and Performance Measure: Customer service and cost trade-offs, Supply chain performance using financial data

- **Activities:**
  - Students study a real-world product or organization to understand its supply chain

and how key decisions affect cost and customer service. Simple performance measures and service-cost examples help students understand the impact of supply chain management on organizational efficiency and economic growth.

- **Essential Readings:**
  - Janat Shah, "Supply Chain Management", 2nd Edition, Pearson Education, 2016, Chapter 1 & 2
  - Sunil Chopra and Peter Meindl, "Supply Chain Management-Strategy Planning and Operation", 6th Edition, PHI Learning / Pearson Education, 2014, Chapter 1- Section 1.4, 1.5, Chapter 3- Section 3.2, 3.3

Module 2 *No. of Hours: 8*

- **Topic: Outsourcing: Make Versus Buy**
  - Identifying core processes: the business process route, the product architecture route
  - Market versus hierarchy: economies of scale, agency cost, transaction cost, incomplete contracts, integrative framework of market versus hierarchy
  - The make versus buy continuum: tapered integration, collaborative relationship
  - Sourcing strategy portfolio approach: reconfiguration of the supply base

- **Essential Reading:**
  - Janat Shah, "Supply Chain Management", 2nd Edition, Pearson Education, 2016, Chapter 3
  - Sunil Chopra and Peter Meindl, "Supply Chain Management-Strategy Planning and Operation", 6th Edition, PHI Learning / Pearson Education, 2014, Chapter 15, Section-15.1, 15.2, 15.3,15.5

Module 3 *No. of Hours: 9*

- **Topic: Inventory Management**
  - Types of inventory: cycle inventory, safety stock, decoupling stocks, anticipation inventory, pipeline inventory, dead stock
  - Inventory related costs: ordering cost, inventory-carrying cost, stock out costs
  - Managing cycle stock: cycle stock inventory model
  - Managing safety stock: capturing uncertainty, impact of service level on safety stock
  - Managing seasonal stock: planning for seasonal demand
  - Multiple item multiple location inventory management: selective inventory control techniques

- **Activities:**
  - Students work on numerical and scenario-based problems to classify inventory types and calculate ordering, carrying, and stock-out costs. Through basic inventory models and service-level scenarios, students apply inventory control techniques to determine optimal stock levels and reduce total inventory cost.

- **Essential Reading:**
  - Janat Shah, "Supply Chain Management", 2nd Edition, Pearson Education, 2016, Chapter 4

- **Additional Reading:**
  - Sunil Chopra and Peter Meindl, "Supply Chain Management-Strategy Planning and Operation", 6th Edition, PHI Learning / Pearson Education, 2014, Chapter 11 & 12

Module 4 *No. of Hours: 9*

- **Topic: Supply Chain Integration**
  - Internal integration: centralized system, decentralized system, hybrid system
  - External integration: increase in demand volatility, impact of buyer, supplier practices, bullwhip effect, demand volatility and information distortions, remedial strategies
  - Building partnership and trust: steps in building relationships, effect of interdependence on relationships

- **Essential Reading**:
  - Janat Shah, "Supply Chain Management", 2nd Edition, Pearson Education, 2016, Chapter 9

- **Additional Reading:**
  - Sunil Chopra and Peter Meindl, "Supply Chain Management-Strategy Planning and Operation", 6th Edition, PHI Learning / Pearson Education, 2014, Chapter 10

Module 5 *No. of Hours: 8*

- **Topic: Supply Chain Restructuring**
  - Chain Mapping: value-addition curve, customer entry point, point of differentiation
  - Postpone the point of differentiation: postponement for reducing transportation cost, case studies, issues of postponement strategy
  - Information Technology in Supply Chain Management: enabling supply chain management, IT in supply chain transaction execution, collaboration and coordination, decision support, measurement and reporting

- **Essential Reading:**
  - Janat Shah, "Supply Chain Management", 2nd Edition, Pearson Education, 2016, Chapter 8&10
  - Sunil Chopra and Peter Meindl, "Supply Chain Management-Strategy Planning and Operation", 6th Edition, PHI Learning / Pearson Education, 2014, Chapter 17-Section 17.1, 17.2, 17.3, 17.4

3. ASSESSMENT

The assessment for the Supply Chain Management course is divided into two components: Continuous Internal Evaluation (CIE) and Semester End Examination (SEE), each accounting for 50% of the total marks.

Continuous Internal Evaluation (CIE) comprises two internal tests, scheduled for 8th and 14th week, which together contribute 30% of the total marks. Additionally, students can earn 20% through the completion of activity based assignments.

Semester End Examination (SEE) constitutes the remaining 50% of the total marks and is conducted as a 3 hour written examination. Key information regarding examination dates and related details can be accessed via the college website (Academics and Courses section > Calendar of Events > UG Even Sem).

Rubrics for Assignment Evaluation (Total: 20 Marks / 40% of CIE)

1. Supply Chain Mapping Activity

Supply Chain Mapping Activity (10 Marks)				
Criteria	**10 Marks (Excellent)**	**8 Marks (Good)**	**6 Marks (Fair)**	**3-5 Marks (Poor)**
Supply Chain Structure Identification	All supply chain stages clearly identified and correctly represented.	Most stages identified with minor errors.	Some stages identified but with gaps.	Supply chain stages poorly identified or incorrect.
Flow Representation (Material, Information, Financial)	All three flows clearly shown and correctly explained.	Two flows shown correctly.	One flow shown or explanation is unclear.	Flows not clearly represented.

2. Case Study on Product / Organization – Supply Chain Management (10 Marks)

Part A: Case Study Undertaking (5 Marks)				
Criteria	**5 Marks (Excellent)**	**4 Marks (Good)**	**3 Marks (Fair)**	**1-2 Marks (Poor)**
Selection & Understanding of Product/Organization	Appropriate product/organization selected, supply chain clearly understood and relevant	Suitable selection with good understanding of supply chain	Selection is acceptable but understanding is limited.	Inappropriate selection or very poor understanding
Analysis & Problem Identification	Clear identification of supply chain issues and performance impact	Issues identified but analysis is superficial	Issues vaguely identified	No clear issues identified

Part B: Report Submission (5 Marks)				
Criteria	**5 Marks (Excellent)**	**4 Marks (Good)**	**3 Marks (Fair)**	**1-2 Marks (Poor)**
Organization, Clarity & Presentation	Report is well-structured, clearly written, and neatly presented with appropriate tables/figures.	Good structure and clarity with minor presentation or language issues.	Weak organization and clarity; presentation needs improvement.	Poorly organized, unclear, and difficult to read.
Analysis, Conclusion & Learning Outcome	Clear analysis with well-justified conclusions linked to SCM concepts and course outcomes.	Analysis and conclusions are relevant but linkage to SCM concepts is limited.	Limited analysis with weak or unclear conclusions.	No meaningful analysis or conclusion.