# Lesson Plan: Logistics & Supply Chain Management – Mech VII (MEC 702)

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|  | **INTRODUCTION** | 05 |  |
| **MODUL - 01** | Why Supply Chain? Is it something New?  Is it different from Production Management & Operations? | L1 |  |
| What’s the objective of Supply Chain?  Is it only for the Product or Services as well? |  |
| Three phases of Supply Chain: Strategic, Planning & Operations | L2 |  |
| Cycle view of Supply Chain – Push Vs Pull SCM |  |
| Value Chain Process and Dimension of Logistics  Inbound logistics – Outbound – and Logistics in Total  Macro and Micro dimension of Logistics and interfaces with Finance, Marketing and Operations | L3 |  |
| Drivers of Supply Chain and Obstacles in Supply Chain | L4 |  |
| Uncertainty in Supply Chain: Implied Demand Uncertainty |  |
| Achieving Strategic Fit – Responsiveness, Cost, Efficiency | L5 |  |
| *Supplier Selection, Supplier quality audits, Contract management, Non- Disclosure Agreement (NDA), Make & Buy Decision while in-out sourcing* | L6 |  |
|  | **Supply Chain Performance:** | 09 |  |
| **MODULE - 02** | Bullwhip effect and reduction | L7 |  |
| Performance measurement: Dimension, Tools of performance measurement – Balance Delay Score Card | L8 |  |
| SCOR (Supply Chain Operation Reference Model) | L9 |  |
| Demand chain management | L10 |  |
| Global Supply chain- Challenges in establishing Global Supply Chain |  |
| Factors that influence designing Global Supply Chain Network. | L11, L12 |  |
| Supply Chain Risk Management (Risks involved in supply chain which  includes Supplier Financial Risk, Performance Risk, Compliance Risk,  Country specific Risk, Cyber Security | L13, L14 |  |
| Supplier performance measurement (Delivery & Quality performance,  schedule adherence, Goods receipt compliance etc), Supplier Capacity  Analysis, Supplier Score card. | L15 |  |
|  | **Inventory management:** | **06** |  |
| **Module - 03** | Definition of Inventory,  Inventory types & functions; | L16 |  |
| EOQ Model and Buffer Stock, | L17 |  |
| Instantaneous Replenishment case | L18 |  |
| Demand and production rate are different,  when backorders are allowed - Buffer Stock and ROL | L19 |  |
| Replenishment systems (Q and P system) Inventory Control | L20 |  |
| ABC Analysis, Numerical problems on ABC analysis, VED Analysis | L21 |  |
|  | **Logistics Management and Outsourcing:** | **08** |  |
| **Module - 04** | Evolution, Objectives, Components and Functions of Logistics anagement | L22 |  |
| Distribution related Issues and Challenges, Gaining competitive advantage through Logistics Management | L23 |  |
| Transportation- Functions, Costs, and Mode; Network and Decision,  Containerization, Cross docking. | L24, L25 |  |
| Warehousing: Concept and types, Warehousing strategy, Warehouse facility location & network design | L26, L27 |  |
| Part Packaging, Use of Returnable pallets, ASN (Advance Shipment  Notification). | L28 |  |
| Reverse logistics: Outsourcing - Nature and concept, Strategic decision to Outsourcing, Third party logistics(3PL), Fourth party logistics(4PL), Cold chain operations in Supply chain. | L29 |  |
|  | **Digitization in supply chain Management and Sustainability:** | **04** |  |
| **Module - 05** | Role of IT in a supply chain, The supply chain IT framework | L30 |  |
| Application of Bar coding, Significance of SAP/RFID, Supply chain IT in practice | L31 |  |
| TMS (Transport Management System), WMS (Warehouse Management System) | L32 |  |
| Green supply chain management, Supply Chain sustainability, Supply Chain sustainability index measurement, Social aspects of supply chain (CSR), Environment aspects of supply chain (CO2 emission), resource utilization, recycling. | L33 |  |
|  | **Supply Chain Network Design:** | **07** |  |
| **Module - 06** | Factors influencing distribution network design | L34 |  |
| Design options for distribution network | L35 |  |
| Introduction to mathematical modelling, considerations in modelling SCM systems, | L36 |  |
| Overview of the Transportation models, Transportation problem | L37 |  |
| Vehicle routing problem, Travelling salesman problem, Capacitated  transhipment problem, shortest path problem. | L38, L39 |  |
| Value Stream Mapping (VSM), | L40 |  |
| Order Fulfillment Process Flow |  |
| Understanding the terms related to Supply chain- Lead Time, Takt Time ,Minimum Order Quantity (MOQ), Manufacturing Critical Path Time (MCT) |  |