



**INTERNATIONAL MANAGEMENT INSTITUTE, BHUBANESWAR**  
**POST GRADUATE DIPLOMA IN MANAGEMENT (PGDM)**  
**SUPPLY CHAIN ANALYTICS – IS610**  
**CREDIT: (1.5 CREDITS)**  
**SESSION DURATION: 60 MINUTES**

**TERM: V**  
**ACADEMIC YEAR: 2020-2021**  
**Batch: PGDM (2019-2021)**

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**Course Introduction:** Supply Chain Management (SCM) is critical for many businesses in the manufacturing and services sector. With ever increasing competition in the face of globalization, the difficulty of managing supply chains is also increasing. The advent of the digital age has alleviated the problem to some extent by giving supply chain managers the tools that can be used to solve some of these problems. Supply Chain Analytics (SCA) helps in improving operational efficiency and effectiveness with its focus on fact-based data-driven decisions at strategic, operational and tactical levels. Therefore, SCA has emerged as a key area for business organization, in the fierce competition in the today's global market. The program covers such tools and techniques that can be used to solve real life problems using the data rich environment of the digital age.

**Learning Outcomes (LO):**

- LO-1: Developing conceptual understanding of quantitative aspects of supply chain management.
- LO-2: Teaching analytics techniques/computer-based techniques for addressing supply chain problems.
- LO-3: To understand the concept of supply chain risk using decision tree.
- LO-4: To develop analytical skills for demand forecasting in supply chain.
- LO-5: To understand the aggregate planning, sales and operations planning in a supply chain.
- LO-6: To understand pricing and revenue management in a supply chain.

**Course Pedagogy:** The sessions will be a blend of interactive lectures and discussions and will be supplemented by cases and class exercises. **Students are expected to come prepared and participate in the discussions.**

**Course Readings:**

1. Chopra, S., Meindl, P. & Kalra, D.V. (2010). *Supply Chain Management: Strategy, Planning & Operation*. Pearson. (SCM)

**Reference Books:**

1. Taylor, B.W. (2017). *Introduction to Management Science*. Pearson Education. (IMS)
2. Simchi-Levi, D., Kaminsky, P., Simchi-Levi, E., & Shankar, R. (2008). *Designing and Managing the Supply Chain: Concepts, Strategies and Case Studies*. Tata McGraw-Hill Education. (DMSC)

**Course Evaluation criteria:**

Evaluation Component(s)	Learning Outcomes	Weightage (%)
Class Participation (Including class exercise, case discussion and Assignment)	LO-1, 2, 3, 4, 5, 6	20
Quiz	LO-3, 4, 5, 6	20
Group Presentation	LO-2, 3, 4, 5, 6	20
End-Term	LO-2, 3, 4, 5, 6	40
<b>Total</b>		<b>100</b>

**Session Plan:**

Session	Topic	Learning Outcomes	Reading
1-2	Introduction to supply chain analytics <ul style="list-style-type: none"> <li>Basics of analytics: descriptive, predictive, and prescriptive analytics</li> <li>Big data analytics and supply chain management</li> </ul>	LO – 1 LO – 2 LO – 4	<b>Text Book:</b> (Supply Chain Analytics by Souza 2014) or Refer Reading Material (PPTs).
3-5	Supply chain network analytics <ul style="list-style-type: none"> <li>Evaluating network design decisions using decision trees</li> <li>Evaluation of global supply chain design decisions under uncertainty</li> </ul>	LO – 1 LO – 2 LO – 3	<b>Text Book:</b> (SCM: Ch-6, Pages 173-192) (IMS: Ch-12, Pages 567-601) <b>Problems:</b> D-Solar Onshore/Offshore (Excel-based); Trips Logistics problem
6-7	Demand forecasting in a supply chain <ul style="list-style-type: none"> <li>The role of forecasting in a supply chain</li> <li>Time-series forecasting methods</li> <li>Measures of forecast error</li> </ul>	LO – 1 LO – 2 LO – 4	<b>Text Book:</b> (IMS: Ch-15, Pages 720-741) (SCM: Ch-7, Pages 202-224) <b>Problems:</b> Excel / Computer based.
8-10	Aggregate planning in a supply chain <ul style="list-style-type: none"> <li>The role of aggregate planning in a supply chain</li> <li>The aggregate planning problem</li> <li>Aggregate planning using linear programming</li> <li>Aggregate planning in excel</li> </ul> Sales and operations planning: planning supply and demand analytics <ul style="list-style-type: none"> <li>Responding to predictable variability in the supply chain</li> <li>Managing supply and demand analytics</li> </ul>	LO – 2 LO – 5	<b>Text Book:</b> (SCM: Ch-8, Pages 231-245) <b>Case:</b> Red Tomato's Problem (Excel-based) (SCM: Ch-9, Pages 253-266)
11-13	Pricing and revenue analytics	LO – 2	<b>Text Book:</b>

	<ul style="list-style-type: none"> <li>• Pricing and revenue management for multiple customer segments</li> <li>• Pricing and revenue management for perishable assets</li> <li>• Pricing and revenue management for bulk and spot contracts</li> </ul>	LO – 6	(SCM: Ch-15, Pages 470-487) <b>Problems:</b> Excel Solver / Computer based.
14-15	Simulation modeling	LO – 1 LO – 2 LO – 3	(IMS: Ch-14, Pages 668-698) <b>Problems:</b> Demand and Inventory Simulation Modeling through Excel / Computer based.
16-17	Group Presentation		

### Academic integrity

**a) Plagiarism** is the use of or presentation of ideas, works that are not one's own and which are not common knowledge, without granting credit to the originator. Plagiarism is unacceptable in IMI and will invite penalty. Type and extent of penalty will be at the discretion of the concerned faculty.

**b) Cheating** means using written, verbal or electronic sources of aid during an examination/ quiz/ assignment or providing such assistance to other students (except in cases where it is expressly permitted by the faculty). It also includes providing false data or references/list of sources which either do not exist or have not been used, having another individual write your paper or assignment or purchasing a paper for one's own submission. Cheating is strictly prohibited at IMI and will invite penalty as per policies of the Institute.