Supply Chain Modelling and Analytics

Course curriculum

Supply Chain performance, Drivers and Metrics

What is supply chain, recent trends and role of analytics in Supply Chain

Supply chain Push-Pull, strategies efficiency-responsiveness

Customer and supply chain uncertainty and tools for Supply Chain Management

Framework for structuring drivers

Designing the Supply chain or Distribution network

Distribution network design and parameters to decide suitable distribution

Gravity location models

Network optimisation for locating plants and warehouses simultaneously

Designing global supply chain networks

Planning and co-ordinating demand and supply

Demand forecasting basics

Global supply chain network designing

Time series analysis for forecasting in supply chain

Forecasting errors, tracking signal, sigma

Introduction of Python programming and its uses in forecasting

Aggregate planning in supply chain

Sales and operations planning

Planning supply and demand in a supply chain, cost of over-stocking and under-stocking

Planning demand and supply in a supply chain, role of aggregate planning, aggregate planning using linear programming,

Responding to predictable variability in supply chain

Implementing sales and operations

Lack of co-ordination in supply chain and its implications

Short term discounting

Managing uncertainties in supply chain

Lack to supply chain co-ordination and BULLWHIP

Managing uncertainties in a supply chain

Cycle service level

Impact of supply uncertainties on safety inventory

Determining optimal level of product availability

Impact of aggression on safety inventory

Impact of co-efficient of variation on value of aggression

Impact of product substitution on safety inventory

Optimal CSL for single order product

Evaluating the optimal service level for seasonal items

Determining the optimal level of product availability

How to improve supply chain profitability

Transportation in supply chain – impact of profit and inventories

Future issues in supply chain