Course Title:	Supply Chain Modeling
Course Code:	SM622
Department:	Operations and Supply Chain

HSM Vision

HSM envisions its success in the sustainable contribution that it will make to the industry, academia and research in public and private sector. HSM will lead by providing professionally competent and ethically conscious human resources engaged in the global and local context to foster socio-economic growth and sustainability for the society. HSM envisages having faculty with high research potential and a deep desire for cutting edge research including collaboration with national and international partners.

HSM Mission

Being a research-oriented and student-centric business school, we emphasize research publications in impact journals as well as state-of -the-art learning methodologies. We will prepare our students to become the future ethical business leaders and the guiding post for the society, while equipping them with the knowledge and skills required by world-class professionals. We will be the leading choice for organizations seeking highly talented human resource. HSM will foster internationalization with key stakeholders and actively work to exchange best practices with business schools across Pakistan through collaborations, workshops, conferences and other means.

CAPSULE STATEMENT

A supply chain manager is involved in planning, design, and control of flows of materials, information and funds along the supply chain to deliver the right product or service, at right

place, at right time to the end consumer. Success of a supply chain depends heavily on the decisions made in these aspects. While, quantitative methods have always played an important role in managerial decision making, however, with recent development in information technology, the role of quantitative techniques in decision making has increased manifold. More and more managers are using normative and descriptive modelling techniques to complement their experience and expertise in business world to come up with better decisions. This course is aimed to develop modelling skills and to provide new concepts and problem-solving tools that are applicable to the design and planning of supply chains. Participants will learn to formulate the real life supply chain problems into mathematical models, solve them, and interpret their results. By the end of the course, they should have developed abilities to use analytical tools to design and optimize a supply chain.

LEARNING OBJECTIVES

Upon successful completion of this course, the participants will be able to:

1. Appreciate the important role that mathematical models play in decision making in supply chain management.

2. Transform a real life supply chain problem in a mathematical model.

3. Solve and interpret these models using variety of techniques.

4. Utilise these solutions in making better decisions

LEARNING METHODOLOGY

Lectures	In-class Skill Development Exercises	Simulation
Case Studies		Textbook

ASSESSMENT

COURSE EVALUATION WEIGHTAGE

          Case Studies 20%

          Assignments 35%

          Short Tests   45%

RECOMMENDED TEXT BOOKS

1. Modelling the Supply Chain, 2nd Edition, by Jeremy F. Shapiro

2. Handouts

COMPUTER APPLICATIONS

Software packages like Excel, Minitab, Lindo and other mathematical modeling tools will be extensively used.

COURSE CONTENTS

Week	Topics	Activities
1.	Introduction to Modeling in Supply Chains, Linear Programming	
2.	Linear Programming continues…	Assignment
3.	Mixed Integer Programming	
4.	Mixed Integer Programming continues…	Assignment
5.	**SHORT TEST 1**	
6.	Newsvendor Model	Case Study
7.	Queuing Models, Waiting Lines	
8.	Markov Analysis	Assignment
9.	Decision Theory	
10.	Decision Theory continues	Case Study
11.	**SHORT TEST 2**	
12.	Simulation Models	Assignment
13.	Simulation Models continues	
14.	Inventory Models	
15.	Forecasting Models	Case Study
16.	**SHORT TEST 3**	

CLASS POLICY

Participation

1. Participants are expected to come prepared for each session and participate fully in the class activities.

Attendance and Punctuality

1. Participants are expected to attend the classes regularly.
2. Any participant who fails to attend a session will be marked ABSENT.

Assignments

1. Assignments should be submitted at the START of the session on the due date.
2. Any assignment submitted during or after the session will be considered LATE.
3. The penalty of a LATE assignment will range from 20 % loss of score, to the assignment being NOT ACCEPTED at all! The extent of penalty is entirely at the discretion of the Resource Person, and will depend on the nature of the assignment and other circumstances.
4. In case an individual participant or a team requires extension in the due date, prior permission should be sought BEFORE the due date. Any request for extension made AFTER the due date will NOT be entertained.

Cheating

- COPYING in grading instruments (e.g., tests, assignments, etc) is NOT PERMISSIBLE.
- Any individual or team failing to comply will receive ZERO in that particular instrument, and will also face disciplinary charges.