COURSE DESCRIPTION

This course introduces students to the principles and practices of supply chain management and analytics, emphasizing data-driven decision-making to optimize supply chain performance. Topics include customer and supplier management, demand forecasting, inventory and warehouse management, and transportation and logistics. Students will learn to apply Python and essential python libraries to analyze and solve real-world supply chain problems. The course combines theoretical insights with practical applications, equipping students with the skills necessary for managing complex supply chains in a globalized environment.

EXPECTED LEARNING OUTCOMES

- Understand fundamental concepts of supply chain management, including customer, supplier, demand, inventory, and logistics management.
- Apply Python and key libraries (e.g., NumPy, Pandas, Matplotlib) to analyze and visualize supply chain data.
- Develop and implement quantitative models for forecasting, optimization, and decision making in supply chain contexts.
- Work both individually and collaboratively on projects to solve complex supply chain problems, integrating technical and managerial perspectives.

COURSE FORMAT

- In-Person | **15-week** semester
- Tailored to your **professional needs**
- **3-credit** hour | You may apply it towards SIE MS and PhD programs
- SIE 305, SIE 340. Basic knowledge of mathematical programming, probability, statistics, and algebra. Prior computer programing experience is a plus.

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PROGRAM DIRECTOR
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ENROLLMENT
Graduate Coordinator
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COURSE SCHEDULE

INTRODUCTION TO SUPPLY CHAIN

PYTHON BASICS

DATA MANIPULATION AND VISUALIZATION

CUSTOMER MANAGEMENT
- ▶ Customers in Supply Chain
- ▶ Cohort Analysis
- ▶ RFM Analysis
- ▶ Clustering Algorithms

SUPPLY MANAGEMENT
- ▶ Supplier Selection and Evaluation
- ▶ Supplier Relationship Management
- ▶ Supplier Risk Management
- ▶ Regression Algorithms

DEMAND MANAGEMENT
- ▶ Demand Forecasting
- ▶ Time Series Forecasting

WAREHOUSE AND INVENTORY MANAGEMENT
- ▶ Warehouse Management
- ▶ Inventory Management
- ▶ Optimization using Linear Programming
- ▶ Classification Algorithms

TRANSPORTATION AND LOGISTICS MANAGEMENT
- ▶ Logistics Management
- ▶ Transportation in Logistics
- ▶ Logistics Network Design
- ▶ Route Optimization

Real-World Application

Flexible/Interactive Learning

Bridge Theory & Practice

Innovative Curriculum

Distinguished Faculty

FROM EFFICIENCY TO INNOVATION—LEAD THE FUTURE OF INDUSTRIAL ENGINEERING.