

Course Title	:	Inventory Management
Course Code	:	CDS352/CDS3352
No. Of Credit/Term	:	3
Mode of Tuition	:	Sectional Approach
Class Contact Hours	:	3 hours per week
Category in Major Prog.	:	Stream Elective – Logistics and Decision Science Stream
Prerequisite	:	BUS102/BUS1102 Statistics for Business or instructor's approval

### **Brief Course Description**

This course explains the dynamics of inventory management's principles, concepts, and techniques as they relate to the entire supply chain, including customer demand, distribution, and product transformation processes. The inter-relationships of all functions are examined. Emphasis is placed on the ramifications of inventory management. The methods and techniques for reducing the cost of holding goods while providing an efficient and effective service to their customers are covered.

### **Aims**

Our goal in this course is to let students understand how to use basic concepts, strategies and techniques to analyze a variety of inventory systems and make optimal decisions for the improvement of these systems. In addition, we emphasize the practical implementation of the strategies and techniques that are taught in this course.

### **Learning Outcomes**

On completion of this course, students will be able to:

1. comprehend the dynamics of inventory management's principles, concepts, and techniques as they relate to the entire supply chain (customer demand, distribution, and product transformation processes),
2. understand the methods used by organizations to obtain the right quantities of stock or inventory,
3. familiarize themselves with inventory management practices.

## **Measurement of Learning Outcomes**

1. Problem based continuous assessment is used to facilitate an understanding of principles, concepts, and techniques of inventory management formulation and implementation.
2. Final examination assesses the students' comprehension of inventory management and emphasizes supply chain management applications.
3. Case study requires students to apply different methods and practices to address inventory management problems.
4. Group project require students to integrate all their knowledge in inventory management and apply it to a large-scale case. Oral presentation of the results will be assessed.

## **Indicative Contents**

### Review And Overview Of The Basic Concepts

Inventory management defined  
Independent and dependent demands  
Deterministic and stochastic demands  
Different inventory systems  
Inventory costs  
Service level and safety stock  
Inventory policy, order quantity and reorder point

### One-Item Inventory Models

Deterministic demand model  
Stochastic demand model  
Newsvendor model  
Optimal solution and approximations

### Multi-Item Inventory Models

Independent and dependent demands  
ABC Analysis  
Joint replenishment inventory problem  
Series, assembly, tree and general production network systems  
Optimal solution, heuristics and approximation  
Bill of material and material requirements planning (MRP)  
Supply chain management  
Material management organization  
Centralized and decentralized management

### **Teaching Method**

Presentations will be used to introduce students to theories, concepts, and techniques. Cases, group discussions and exercises will address issues central to inventory management.

### **Assessment**

Continuous Assessment	60%
Final Examination	40%

### **Required/Essential Reading**

Toomey, J. W., *Inventory Management: Principles, Concepts and Techniques*. Kluwer Academic Publishers, 2000.

### **Recommended/Supplementary Readings**

Zipkin, Paul H., *Foundations of Inventory Management*. The McGraw-Hill Company, 2000.

Silver, E. A., Pyke, D. F. and Peterson, R., *Inventory Management and Production Planning and Scheduling*. 3<sup>rd</sup> Edition, Wiley, 1999.