

**AURO UNIVERSITY**  
**(INDIA)**

**The**  
**School of Information Technology**  
**and**  
**School of Business**

**Online Certificate**  
**in**  
**Supply Chain and Blockchain Technology**  
**in Retail Industry**

**Module Leaders**  
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**and**  
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## Course Description

- This course provides a holistic overview in the field of Blockchain Technology. The course is designed to provide a dynamic learning experience where students or participants can explore foundational Blockchain principles, architecture, types, challenges, and applications in different sectors.
- Moreover, learn about what it takes to manage and focus on retail sector domain and its applications. Explore the challenges Blockchain professionals face related to security, and implementation challenges.

## Objectives

- The aim of this certificate course is to understand the major concepts of Blockchain and to bring awareness about supply chain, retail sector and different opportunities and applications used in our daily life by people for different purposes.
- Also, to make them familiar with how Blockchain technology can bring the trust in the customers by providing the transparency about any particular product between the organisation and the customers.

## Learning Outcomes:

At the end of this certificate course students will be able to:

- Differentiate the various types of Blockchain applications with their key features.
- Describe basic features of Blockchain technology and key technologies behind it.
- Identify several use cases and case studies of Blockchain in the Retail industry.
- Identify potential security issues and challenges.

## Pre-requisite

Fundamental knowledge of internet and computer fundamentals. No other pre-requisite to complete this module.

## Total Duration: 30 hours.

4 Hours weekly.

## Assessment

It will be in the form of MCQ and Quiz. There will be graded quiz after every Unit. Total Evaluation will be of 50 Marks and 4 credits.

## Syllabus

### Unit-1:

15 Hours

Introduction to Retail – new retail formats ,In-Store Retail Tech ,E-commerce – cross-border payments , future of delivery , Phygital retail technologies - creating an omnipresence experience ,Intelligent Retail - AI and robotics in retail ,Introduction to Supply Chain Management, Retailing Classification and Stock Keeping Units, Challenges of Retail Supply Chain, Relationships in the supply chain, Internationalization of the Retail Supply Chain, Retail and Logistics: Logistic Mixes, Retail SC Transformation. Cases in Retail and Supply Chain.

### Unit-II:

6 Hours

Introduction to Blockchain Technology, History, Basic Characteristics, Key technologies behind Blockchain, Bitcoin and Cryptocurrencies, Basic Features: Distributed, P2P network, Decentralized, Enhanced Security, Consensus, Benefits of using Blockchain Technology, Uses Cases: Retail, eCommerce, Banks, Telecom, FMCG, Manufacturing, Healthcare, IoT etc, Types of Blockchain: Private, Public, Hybrid, Components of Blockchain Ecosystem Blocks, Wallets and Addresses, Working model of Blockchain application, Use of Cryptography in Blockchain implementation, Transaction execution & distribution.

### Unit-III:

4 Hours

Mining Concept, Working Principle of Mining, Smart Contracts and use cases, Frameworks and Tools for creating a Blockchain application, AWS Blockchain-as-a-Service(BaaS), IBM Blockchain Services, Key Challenges and Opportunities, Supply Chain Management & Blockchain Integration Overview, Supply Chain Management Traditional Architecture,

### Unit- IV:

5 Hours

Supply Chain Management Blockchain Architecture, Blockchain Deployment Stages, Use cases: Food Industry, Pharmaceuticals, Automobile Industry, Real World Case Study (IBM/Walmart and VeChain).

## References:

1. Arvind Narayanan, Joseph Bonneau, Edward Felten, "Bitcoin and Cryptocurrency Technologies", Princeton University Press
2. Vincenzo Morabito, Business Innovation Through Blockchain, Springer
3. Tiana Laurence, Blockchain for Dummies, John Wiley & Sons
4. <https://www.ibm.com/blockchain/industries/retail> (online)
5. [www.blockchain-council.org/certifications/certified-blockchain-supply-chain-expert](http://www.blockchain-council.org/certifications/certified-blockchain-supply-chain-expert) (online)
6. <https://aws.amazon.com/blockchain/> (online)

## Course Plan:

Sr No	Topic	Duration (hrs)	Assessment
1	<b>Unit-I</b> Introduction to Retail – new retail formats In-Store Retail Tech E-commerce – cross-border payments , future of delivery Phygital retail technologies - creating an omnipresence experience Intelligent Retail - AI and robotics in retail	6	<b>MCQ QUIZ</b>
2	Introduction to Supply Chain Management , Retailing Classification and Stock Keeping Units Challenges of Retails Supply Chain Relationships in the supply chain , Internationalization of the Retail Supply Chain, Retail and Logistics: Logistic Mixes , Retail SC Transformation	9	
3	<b>Unit-II:</b> Introduction to Blockchain Technology, History, Basic Characteristics, Key technologies behind Blockchain, Bitcoin and Cryptocurrencies, Basic Features: Distributed, P2P network, Decentralized, Enhanced Security.	2	
4	Consensus concept, Benefits of using Blockchain Technology, Uses: Retail, eCommerce, Banks, Telecom, FMCG, Manufacturing, Healthcare, IoT etc, Types of Blockchain: Private, Public, Hybrid, Blockchain,	2	
5	Components of Blockchain Ecosystem Blocks, Cryptography and Blockchain, Transaction execution & distribution.	2	
6	<b>Unit-III:</b> Mining Concept, Working Principle of Mining, Smart Contracts and use cases, Frameworks and Tools for creating a Blockchain application, AWS Blockchain-as-a- Service(BaaS), IBM Blockchain Services, Key Challenges and Opportunities	2	
7	Supply Chain Management & Blockchain Integration Overview, Supply Chain Management Traditional Architecture.	2	<b>MCQ Quiz</b> <b>Duration 30 Minute</b>
8	<b>Unit-IV:</b> Supply Chain Management Blockchain Architecture, Blockchain Deployment Stages, Use cases: Food Industry, Pharmaceuticals, Automobile	2	

	Industry		<b>MCQ Quiz</b>
9	Real World Blockchain Case Studies( IBM/Walmart and VeChain).	3	<b>Duration 1 Hr</b>