Course Type	Course Code	Name of the Course	L	T	P	Credit
DE	NMSD532	Internet of Things and Blockchain for Business	3	0	0	3

Course Objective

The course introduces the students with the basic concepts of internet of things (IoT) and blockchain. The objective is to understand the approaches to IoT and blockchain applications in various business areas.

Learning Outcome

Upon completing this course, students will be able to: (a) Understand the necessary steps for successful implementation of IoT and blockchain in various business areas.(b) Develop skills to create a roadmap for successful implementation of IoT and blockchain application.

Unit No	Topics to be covered	Lecture hours	Learning Outcomes
1	**Introduction to IoT and Blockchain:** Defining IoT and blockchain and basic characteristics. IoT and blockchain market analysis. IoT architecture. Building blocks of blockchain framework. IoT and blockchain adoption strategies, factors, enablers, and barriers. Integration of IoT and blockchain. Case Studies.	10	After completing this section students will be able to: • Understand basic concepts of IoT and blockchain. • Understand market growth of IoT and blockchain. • Explain IoT architecture and core building blocks of blockchain. • Identify strategies, factors, enablers, and barriers in adoption of IoT and blockchain. • Identify advantages of integrating IoT and blockchain.
2	**Business Models for IoT and Blockchain:** Business models and business model innovation. Value creation in IoT and blockchain. Business model scenarios for IoT and blockchain. Case studies.	10	After completing this section students will be able to: • Outline building blocks needed for business model. • Understand importance of innovation in business model. • Summarize value propositions and value creation using IoT and blockchain. • Explain IoT and blockchain model scenarios.
3	**IoT and Blockchain Governance:** Background on governance, internet, and information technology governance. Governance structure and landscape. IoT governance models. Blockchain network governance. Case studies.	10	After completing this section students will be able to: • Understand the need for governing IoT and blockchain. • Develop governance framework for tacking various issues faced by IoT and blockchain.
4	**IoT and Blockchain Applications:** Industry-focused (logistics and supply chain, retail, and manufacturing). Society-focused (healthcare, smart cities, homes, and buildings). Environment-focused (disaster management, environment monitoring, smart	12	After completing this section students will be able to: • Examine complexity levels for implementation of IoT and blockchain applications. • Familiarize with the approaches towards IoT

	agriculture, smart grids, smart metering, and many more) applications. Case studies.		and blockchain applicationsin various business areas. • Create a roadmap for successful implementation of IoT and blockchainapplication.
	TOTAL	**42**	

Textbooks

1. Dirk Slama, Frank Puhlmann, Jim Morrish and Rishi M Bhatnagar, Enterprise IoT: Strategies and best practices for connected products and services, O'Reilly, 2016.
2. Nitin Gaur, Luc Desrosiers, Petr Novotny, Venkatraman Ramakrishna, Anthony O'Dowd, and Salman A Baset, Hands-on blockchain with Hyperledger, Packt Publishing, 2018.

Reference books

1. Raj Kamal, Internet of things: Architecture and design principles, Mc Graw Hill, 2018.
2. Rajkumar Buyya and Amir Vahid Dastjerdi, Internet of things: Principles and Paradigms, Elsevier Inc., 2016.
3. David Hanes, Gonzalo salgueiro, Patrick Grossetete, Rob Barton, Jerome Henry, IoT fundamentals: Networking technologies, protocols, and use cases for the Internet of things, Pearson India Educational Services, 2018.
4. Pethuru Raj and Anupama C Raman, The Internet of things: Enabling technologies, platforms and use cases, CRC Press, 2017.