

<b>COURSE TITLE</b>	<b>INFORMATION SECURITY &amp; CLOUD COMPUTING</b>
<b>COURSE CODE</b>	<b>05MF0306</b>
<b>COURSE CREDITS</b>	<b>2</b>

**Objective:**

- 1 To understand the fundamental concepts of information security and its importance in the financial sector.
- 2 To explore cloud computing models and their applications in secure financial transactions.
- 3 To examine blockchain technology and its role in enhancing financial security.
- 4 To develop secure financial applications using best coding practices and security measures.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Students will be able to identify and mitigate cybersecurity threats in financial transactions.
- 2 Students will understand and apply cloud computing security models in FinTech applications.
- 3 Students will analyze blockchain-based financial security mechanisms, including smart contracts and DeFi.
- 4 Students will develop secure financial applications by implementing API security, ethical hacking, and AI-driven fraud detection.

**Pre-requisite of course:**Fundamental of Python Programming

**Teaching and Examination Scheme**

<b>Theory Hours</b>	<b>Tutorial Hours</b>	<b>Practical Hours</b>	<b>ESE</b>	<b>IA</b>	<b>CSE</b>	<b>Viva</b>	<b>Term Work</b>
2	0	0	50	30	20	0	0

<b>Contents : Unit</b>	<b>Topics</b>	<b>Contact Hours</b>
1	<b>Fundamentals of Financial Information Security</b> Introduction to Cybersecurity in Finance, Encryption Techniques for Financial Data, Threats in Online Transactions, Identity Theft and Fraud Prevention, Security Standards and Regulations (GDPR, PCI DSS) , Case Study: Cyber Attacks in FinTech	6
2	<b>Cloud Computing in Finance</b> Cloud Models: SaaS, PaaS, IaaS , Cloud Storage and Data Protection, Secure Cloud Transaction Processing, Digital Identity and Authentication, Role of AI in Cloud Security, FinTech Cloud Case Studies	10

<b>Contents : Unit</b>	<b>Topics</b>	<b>Contact Hours</b>
3	<b>Blockchain for Financial Security</b> Fundamentals of Blockchain Technology, Smart Contracts and Crypto Security, Decentralized Finance (DeFi), Implementing Blockchain in Banking, Case Study: Bitcoin and Ethereum Security, Risk Management in Blockchain	7
4	<b>Secure Financial Application Development</b> Secure Coding Practices , API Security in Financial Apps , Ethical Hacking in FinTech, Network Security for Banks, Two-Factor Authentication (2FA) Implementation, AI-driven Fraud Detection	7
<b>Total Hours</b>		<b>30</b>

#### **Textbook :**

- 1 Cryptography and Network Security: Principles and Practice, William Stallings, Pearson, 2020
- 2 Cloud Computing: Principles and Paradigms, Rajkumar Buyya, James Broberg, Andrzej Goscinski, Wiley, 2011

#### **References:**

- 1 Blockchain Basics: A Non-Technical Introduction in 25 Steps, Blockchain Basics: A Non-Technical Introduction in 25 Steps, Daniel Drescher, Apress, 2017
- 2 Computer Security: Principles and Practice, Computer Security: Principles and Practice, William Stallings, Lawrie Brown, Pearson, 2023

#### **Suggested Theory Distribution:**

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery					
<b>Remember / Knowledge</b>	<b>Understand</b>	<b>Apply</b>	<b>Analyze</b>	<b>Evaluate</b>	<b>Higher order Thinking / Creative</b>
10.00	20.00	25.00	25.00	10.00	10.00

#### **Instructional Method:**

- 1 PPT
- 2 Board work
- 3 case study

#### **Supplementary Resources:**

- 1 <http://cloud.google.com/learn/what-is-cloud-security>
- 2 <https://www.ibm.com/think/topics/cloud-security>

**Supplementary Resources:**

- 3 [http://link.springer.com/chapter/10.1007/978-3-031-59170-9\\_5](http://link.springer.com/chapter/10.1007/978-3-031-59170-9_5)
- 4 <https://www.cloudwards.net/cloud-computing-security/>
- 5 <https://www.gartner.com/en/cybersecurity/topics/cloud-security>
- 6 <https://www.techtarget.com/searchsecurity/definition/cloud-security>