

As Per NEP 2020

University of Mumbai



Syllabus for Basket of OE/ Minor/AEC	
Board of Studies in Data Science	
UG First Year Programme	
Semester	II
Title of Paper	Credits 2/ 4
I. DS_Data Privacy and Security (Open Elective)[OE]	2
From the Academic Year	2024-2025

Name of the Course: DS_Data Privacy and Security

Sr.No.	Heading	Particulars
1	Description the course : Including but Not limited to:	This syllabus aimed to provide a comprehensive overview of data, its privacy and security. It covers various aspects of data privacy and security to minimize the risk associated with an information system.
2	Vertical :	Open Elective
3	Type :	Theory
4	Credits :	2 credits (1 credit = 15 Hours for Theory)
5	Hours Allotted :	30 Hours
6	Marks Allotted:	50 Marks
7	Course Objectives(CO): CO 1.To learn concepts associated with data and data explosion. CO 2. To understand the data privacy and its components. CO 3. To learn types of data privacy attacks and laws associated. CO 4. To explore different Vulnerabilities with Software and data. CO 5. To learn strategies for Analysing Information Risk CO 6. To understand the use and applications of cyber security tools.	
8	Course Outcomes (OC): OC 1. Ability to identify sources and nature of data. OC 2. Knowledge of making a data privacy policy. OC 3. Ability to make and practise data protection strategies. OC 4. Acquire knowledge of vulnerabilities. OC 5. To manage the risks associated with data. OC 6. To deploy data security and protection strategy with cyber security tools.	
9	Module 1: Concept of Data explosion, Nature of data, Causes of data explosion, Big Data explosion. Demographics and Uniqueness of data and Data explosion. Components of Data Privacy: confidentiality, integrity and availability. Need of data privacy and its importance for business. Concept of Data linking and Data profiling. Data Privacy Attacks: Stolen Information Ransomware, Password Guessing, Recording Keystrokes, Phishing, Malware or Virus and Distributed Denial of Service (DDoS). Data Protection policies for the use, monitoring, and management of data. HIPPA (Health Insurance Portability and Accountability Act) components. DISHA (Digital Information Security in Healthcare Act) act.	
	Module 2: Data security: Definition and importance. Levels of Data security: hardware security, software security, and legal security. Understanding security policy: Organizational, system specific and issue specific.	

	Software Vulnerabilities and its impact on data. Understanding the role of Data Privacy and Security for any organization Cyber security Risk management: Risk identification, threat modelling and preventive strategies Process of FAIR analysis (Factor Analysis of Information Risk) Different cyber security tools.	
10	Text Books 1. "Cyber Security and Data Privacy" by Krishan Kumar Goyal, Amit Garg and Saurabh Singhal. 2. "Cyber Security and Digital Privacy: A Universal Approach" by Gaurav K. Roy. 3. "DATA PRIVACY" by Ashwin Venkataramanan, Ashwin Shriram.	
11	Reference Books 1. "Mastering Your Introduction to Cyber Security" by Dr. Michael C Redmond. 2. "Cybersecurity for Information Professionals: Concepts and Applications" by Hsia-Ching Chang, Suliman Hawamdeh 3. "Security and Data Storage Aspect in Cloud Computing" by Prachi S. Deshpande, Subhash C. Sharma, Sateesh K. Peddoju Weblinks 1. https://compliance-group.com/disha-and-hipaa-how-do-they-compare/ 2. https://dataprivacymanager.net/8-best-online-resources-to-learn-more-about-data-privacy-security/ 3. https://safety.google/privacy/privacy-controls/	
12	Internal Continuous Assessment: 40%	Semester End Examination: 60%
13	Continuous Evaluation through: Class test of 1 of 15 marks Class test of 2 of 15 marks Average of the two: 15 marks Quizzes/ Presentations/ Assignments: 5 marks Total: 20 marks	Semester End Examination of 30 marks
14	Format of Question Paper: (Semester End Examination : 30 Marks. Duration:1 hour) Q1: Attempt any two (out of four) from Module 1 (15 marks) Q2: Attempt any two (out of four) from Module 2 (15 marks)	

Sign of Chairperson
Dr. Mrs. R. Srivaramangai
Ad-hoc BoS (Data Science)

Sign of the
Offg. Associate Dean
Dr. Madhav R. Rajwade
Faculty of Science & Technology

Sign of Offg. Dean,
Prof. Shivram S. Garje
Faculty of Science & Technology