

Nirma University
Institute of Technology, School of Technology
M.Tech Computer Science and Engineering / M. Tech. Computer Science
and Engineering (Information and Network Security)
Semester – II

L	T	P	C
3	0	2	4

Course Code	3CS12D103
Course Name	Data Privacy

Course Learning Outcomes (CLOs):

At the end of the course, students will be able to –

1. comprehend the concepts of web security and privacy, hardware and software vulnerabilities and protection mechanisms
2. realize the need for data privacy and the related technologies
3. derive and demonstrate the protection mechanisms against several data related attacks

Syllabus:

**Teaching
Hours**

Unit I

10

Introduction to Security: Cryptography, Web security, Hardware and software vulnerabilities

Unit II

10

Data Privacy: Data localization issues, Managing personally identifiable or sensitive information, Hippocratic databases, Differential privacy, Privacy preserving data analysis

Unit III

5

Basic concepts and definitions, objectives, disclosure control and inference of entities, models of protection like null map, k-map, wrong-map

Unit IV

10

Data Explosion: Availability vs. Storage vs. Collection trade-off, barriers to distribution, mathematical models for sharing practices and policies for computing privacy and risk measurements

Unit V

10

Demographics and Uniqueness, data linking, data profiling, data privacy attacks

Self-Study:

The self-study contents will be declared at the commencement of semester. Around 10% of the questions will be asked from self-study contents.

Laboratory Work:

Laboratory work will be based on above syllabus with minimum 7 experiments to be incorporated.

Suggested Readings[^]:

1. Stallings, W. Cryptography and Network Security. Pearson Education India.
2. Giannotti, F., &Pedreschi, D. (Eds.). Mobility, data mining and privacy: Geographic knowledge discovery. Springer Science & Business Media.
3. Bygrave, L. A. Data privacy law: an international perspective (Vol. 63). Oxford: Oxford University Press.
4. Scoble, R., Israel, S., &Benioff, M. R.. Age of context: Mobile, sensors, data and the future of privacy. USA: Patrick Brewster Press.
5. Bendat, J. S., &Piersol, A. G. Random data analysis and measurement procedures.

L=Lecture, T=Tutorial, P=Practical, C=Credit

[^]this is not an exhaustive list