



GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Bachelor of Engineering

Level: UG

Subject Code : 3174805

Course / Subject Name : Social Network Security

w. e. f. Academic Year:	A.Y. 2025-26
Semester:	VII
Category of the Course:	PEC

Prerequisite:	Computer Networks, Cybersecurity, Information Security
Rationale:	With the rapid expansion of social networking platforms and their integral role in daily life, ensuring the security and privacy of users has become a major concern. Social Network Security as a subject introduces students to the foundational aspects of social networks, the associated risks, and the strategies to mitigate those risks. The subject emphasizes the development and use of semantic web technologies, data mining, and human behavior prediction in social contexts. It equips students with knowledge on privacy issues, access control mechanisms, and identity management, which are critical in designing and securing modern online platforms. A fundamental understanding of networks, web technologies, and data handling is essential to grasp the evolving challenges and solutions in this domain..

Course Outcome:

After Completion of the Course, Student will able to:

No	Course Outcomes	RBT Level
1	Develop a semantic web related application	C
2	Address Privacy and Security issues in Social Networking	E
3	Extract and mine the social networks data	An
4	To predict human behaviour in social communities	Ap
5	To enforce access control mechanism and do identity management	Ap

**Revised Bloom's Taxonomy (RBT)*



GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Bachelor of Engineering

Level: UG

Subject Code : 3174805

Course / Subject Name : Social Network Security

Teaching and Examination Scheme:

Teaching Scheme (in Hours)			Total Credits L+T+ (PR/2)	Assessment Pattern and Marks				Total Marks
L	T	PR	C	Theory		Tutorial / Practical		
				ESE (E)	PA / CA (M)	PA/CA (I)	ESE (V)	
3	0	2	4	70	30	20	30	150

Course Content:

Unit No.	Content	No. of Hours
1.	FUNDAMENTALS OF SOCIAL NETWORKING : Introduction to Semantic Web, Limitations of current Web, Development of Semantic Web, Emergence of the Social Web, Social Network analysis, Development of Social Network Analysis, Key concepts and measures in network analysis, Historical overview of privacy and security, Major paradigms, for understanding privacy and security.	08
2.	PRIVACY AND SECURITY ISSUES The evolution of privacy and security concerns with networked technologies, Contextual influences on privacy attitudes and behaviours, Anonymity in a networked world.	06
3	EXTRACTION AND MINING IN SOCIAL NETWORKING DATA Extracting evolution of Web Community from a Series of Web Archive, detecting communities in social networks, Definition of community, evaluating communities, Methods for community detection and mining, Applications of community mining algorithms, Tools for detecting communities social network infrastructures and communities, Big data and Privacy	08
4	PREDICTING HUMAN BEHAVIOUR AND PRIVACY ISSUES Understanding and predicting human behaviour for social communities, User data Management, Inference and Distribution, Enabling new human experiences, Reality mining, Context, Awareness, Privacy in online social networks, Trust in online environment, What is Neo4j, Nodes, Relationships, Properties.	08



GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Bachelor of Engineering

Level: UG

Subject Code : 3174805

Course / Subject Name : Social Network Security

5.	ACCESS CONTROL AND IDENTITY MANAGEMENT Understand the access control requirements for Social Network, Enforcing Access Control Strategies, Authentication and Authorization, Roles-based Access Control, Host, storage and network access control options, Firewalls, Authentication, and Authorization in Social Network, Identity & Access Management, Single Sign-on, Identity Federation, Identity providers and service consumers, The role of Identity provisioning	10
----	--	----

Suggested Specification Table with Marks (Theory):

Distribution of Theory Marks (in %)				
U Level	A Level	N Level	E Level	C Level
18	28	22	17	15

Where U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create (as per Revised Bloom's Taxonomy)

References/Suggested Learning Resources:

(a) Books:

1. Peter Mika, "Social Networks and the Semantic Web", First Edition, Springer 2007
2. Borko Furht, "Handbook of Social Network Technologies and Application", First Edition, Springer, 2010.
3. Jerome Baton and Rik Van Bruggen, "Learning Neo4j 3.x", Second Edition, Packt publishing, 2017
4. David Easley, Jon Kleinberg, "Networks, Crowds, and Markets: Reasoning about a Highly Connected World", First Edition, Cambridge University Press, 2010.
5. Easley D and Kleinberg J., "Networks, Crowds, and Markets – Reasoning about a Highly Connected World", Cambridge University Press, 2010.
6. Guandong Xu, Yanchun Zhang and Lin Li, "Web Mining and Social Networking – Techniques and applications", First Edition, Springer, 2011.

Sample List of Experiments:

1. Developing a social media application.
2. Create a Network model using Neo4j.
3. Read and write Data from Graph Database.
4. Find "Friend of Friends" using Neo4j.
5. Implement secure search in social media.
6. Create a simple Security & Privacy detector.
6. Analyze a sample social network graph using Gephi or NetworkX.
7. Mine social media data (e.g., Twitter API) for sentiment and trend analysis.
8. Visualize relationships in social networks using Neo4j (Graph database).
