



**NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI**  
**DEPARTMENT OF COMPUTER APPLICATIONS**

COURSE PLAN – PART I			
<b>Name of the programme and specialization</b>	<b>Master of Computer Applications</b>		
<b>Course Title</b>	<b>SOCIAL NETWORK ANALYSIS</b>		
<b>Course Code</b>	<b>CA7A2</b>	<b>No. of Credits</b>	<b>3</b>
<b>Course Code of Pre-requisite subject(s)</b>	<b>CA713</b>		
<b>Session</b>	<b>Jan 2023</b>	<b>Section</b>	<b>B</b>
<b>Name of Faculty</b>	<b>Dr. S. Sangeetha</b>	<b>Department</b>	<b>Computer Applications</b>
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<b>Name of PAC Chairman</b>	<b>Dr.Sindhia Lingaswamy</b>		
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<b>Course Type</b> (please tick appropriately)	<input type="checkbox"/> <b>Core course</b> <input checked="" type="checkbox"/> <b>Elective course</b>		
<b>Syllabus (approved in BoS)</b>			
<b>COURSE CONTENT</b>			
Social network concepts – Development of social network and analysis - Online social networks– Social Network Data - Issues and challenges.			
Linked-based and structural analysis - Content-based analysis - Static and dynamic analysis Mathematical Representation of social networks.			
Social networking systems and API - Statistical Analysis of Social Networks- Community Detection in Social Networks - Node Classification in Social Networks -Evolution in Dynamic Social Networks.			
Social Influence Analysis -Link Prediction in Social Networks -Data Mining in Social Media -Text Mining in Social Networks - Social Tagging -Building social services.			
Tools for Social network analysis: UCINET – PAJEK– NETDRAW – StOCNET - SPlus - R – NodeXL- SIENA and RSIENA - Real-world networks (Facebook graph, Twitter networks, etc.)			
<b>References:</b>			
1. Xiaoming Fu, Jar-Der Luo, Margarete Boos, Social Network Analysis Interdisciplinary Approaches and Case Studies, Taylor and Francis,2017 2. Tanmoy Chakraborty, Social Network Analysis, Wiley, 2021 3. Christina Prell, Social Network Analysis: History, Theory and Methodology, 1st Edition, SAGE Publications Ltd, Publication Year, 2011.			

4. David Easley and Jon Kleinberg, "Networks, Crowds, and Markets: Reasoning About a Highly Connected World", Cambridge University Press, 2010.
5. Carrington and Scott, The SAGE Handbook on Social Network Analysis, First Edition, SAGE, 2011.

#### **COURSE OBJECTIVES**

- To introduce the concepts and methods of Social Network Analysis
- To apply various tools for Social Network Analysis

#### **COURSE OUTCOMES**

CO	POs
1. Describe the issues and challenges in social network functions	4
2. Mathematically represent social networks for analysis	1,2,3
3. Use various tools for social network analysis	4,5
4. Describe Concepts and methods of social network analysis.	1,2

### **COURSE PLAN – PART II**

#### **COURSE OVERVIEW**

This course introduces the concepts of social network analysis, a need of hour course to the students. It begins with the basics of social network analysis in line with graph theoretical concepts, SNA applications, data sets as well as issues and challenges in the field. The course introduces the structural analysis of social networks. The course also provides clear idea of content-based analysis including text mining. It also introduces community detection as well as link Prediction in social networks along with various tools in practice.

#### **COURSE TEACHING AND LEARNING ACTIVITIES**

Week	Session	Topic	Mode of Delivery
1	Theory	Introduction to Social network Analysis	Presentation
		Social network concepts	Presentation
		Social network concepts	Presentation
2	Theory	Applications of Social network Analysis	Presentation
		Development of social network	Presentation
		Online social networks	Presentation
3	Theory	Social Network Data	Presentation
		Social Network Data	Presentation
		Issues and challenges.	Presentation
4	Theory	Mathematical Representation of social networks	Presentation
		Mathematical Representation	Presentation
		Linked-based analysis	Presentation
5	Theory	Static analysis	Presentation
		Static analysis	Presentation
		Dynamic analysis	Presentation
6	Theory	Content-based analysis	Presentation
		Content-based analysis	Presentation
		Content-based analysis	Presentation
7	Theory	Social networking systems and API	Presentation
		Statistical Analysis	Presentation
		Statistical Analysis of Social Networks	Presentation
8	Theory	Community Detection in Social Networks	Presentation
		Community Detection	Presentation
		Community Detection	Presentation

9	Theory	Node Classification in Social Networks	Presentation
		Node Classification	Presentation
		Evolution in Dynamic Social Networks	Presentation
10	Theory	Social Influence Analysis	Presentation
		Link Prediction in Social Networks	Presentation
		Link Prediction	Presentation
11	Theory	Link Prediction	Presentation Presentation
		Data Mining in Social Media	
		Text Mining	
12	Theory	Text Mining in Social Media	Presentation
		Social Tagging	
		Building social services.	
13	Theory	Tools for Social network analysis: UCINET, PAJEK	Presentation & Demo
		StOCNET, SPlus, NETDRAW	
		R, NodeXL	
14	Theory	SIENA and RSIENA	Presentation & Demo
		Real-world networks	Presentation
		Real-world networks	

#### Course Assessment methods

S. No.	Mode of Assessment	Week	Duration	% Weightage
1	Test 1	Week 6	1 Hr	15
2	Test 2	Week 12	1 Hr	15
3	Project	Week 7-12	6 weeks	20
CPA	Compensation Assessment	At the end of the course	1 Hr	15
4	Final Assessment	At the end of the course	3 Hrs	50

#### COURSE EXIT SURVEY

- The students through the class representative may give their feedback at any time to the course faculty which will be duly addressed.
- The students may also give their feedback during Class Committee meeting.

#### COURSE POLICY (including compensation assessment to be specified)

#### ATTENDANCE POLICY (A uniform attendance policy as specified below shall be followed)

- At least 75% attendance in each course is mandatory.
- A maximum of 10% shall be allowed under On Duty (OD) category.
- Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade.

#### ACADEMIC DISHONESTY & PLAGIARISM

- Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.
- Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
- The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.

- The students are expected to come out with their original solution for problems given as assignment, and tests/examinations.

**FOR APPROVAL**

Course Faculty  CC- Chairperson  HOD 