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SARVAJANIK UNIVERSITY
Sarvajanik College of Engineering and Technology
Master of Technology

Year: M. Tech. II (Semester – III)

Subject Name: Social Media Analytics **Subject Code:** MTCO14301
Type of course: Professional Elective - V
Prerequisite (if any): Python

List of Courses where this course will be prerequisite: --

Rationale: This course helps to understand the role of social media data and analytics in helping organizations achieve their goals and understand their publics. Students will be able to Identify and select key performance indicators to accurately measure the success of social media efforts. Studying this subject will help students to analyze social media data using native analytics (e.g. Facebook, Twitter, Instagram)

Teaching and Examination Scheme:

Teaching Scheme				Theory Marks			Practical Marks		Total
L	T	P	C	TEE	CA1	CA2	TEP	CA3	
3	0	2	4	60	25	15	30	20	150

CA1: Continuous Assessment (assignments/projects/open book tests/closed book tests. CA2: Sincerity in attending classes/class tests/ timely submissions of assignments/self-learning attitude/solving advanced problems TEE: Term End Examination TEP: Term End Practical Exam (Performance and viva on practical skills learned in course) CA3: Regular submission of Lab work/Quality of work submitted/Active participation in lab sessions/viva on practical skills learned in course

Content:

Sr. No.	Content	Total Hrs
1	Introduction to Social Media Analytics: What is social media, Social media analysis, Why Social Media Analytics Matter, Social media analytic tracking tools, Scientific and commercial significance of Social media analysis, Variants of social networks, Latest technologies of social media like Facebook, Twitter, Instagram, Tumblr, etc., Structured v/s Unstructured Data	6

2	Mathematical Preliminaries: Attributes of data and its Representation, Graph visualization and Algebraic Graph Analysis, Graph-Based Pattern Classification and Dimensionality Reduction.Large Scale Structure of Networks: Shortest paths, Small World Effect, Degree Distributions, Power Law and Scale Free Networks, Clustering Coefficient and Assortative Mixing. Network relationships and structures: Ties, Social capital, Structural holes, Structural balance, Equivalence, Motifs.	11
3	Random Graphs, Giant Component, Small Components. Generating Functions, Configuration Model, Excess Degree Distribution, Size Distribution for small components, Preferential Attachment, BA Model, Vertex Copying models, Small World Models, Exponential Random Graphs, Percolation, Random removal of vertices.	8
4	Cascading Behavior in Networks, Small world phenomenon, Epidemics, Link Analysis and Web Search, The Structure of the Web. Customer profiling: Targeting customers, Friends, Fans and followers, Modeling individuals and collective behavior, Rumors and deceptions in social media, Spam in social media; Social media network analysis case studies: Email, Thread networks, Twitter, Visualizing and interpreting Facebook networks, WWW hyperlink networks, Flickr, YouTube, Wiki networks.	6
5	Social Media Analytics tools: Buffer, ViralWoot, Google Analytics, Cyfe, TweetReach, IBM Watson Personality Insight, Social Rank; Application of Social Media Monitoring, role of Social Media in innovation, The Customer Profile: Your Brand's Secret Weapons, Methods for creating and interpreting data visualization.	8
6	Identifying Influencers in Social Network: Importance of Identifying influencers in social network, Real-Life Use Cases of Social Media Influencer Marketing, Tools for finding Influencer, AI in discovering Social media influencer , Neo4J, Social media analytics tools, Pajek	6

Reference Books:

Sr.No.	Title of book /article	Author(s)	Publisher and details like ISBN	Year of publication	Publication Edition
1	Python Social Media Analytics	By Siddhartha Chatterjee , Michal Krystyanck	Packt Publisher	July 2017	

2	Mastering Social Media Mining with Python	Marco Bonzanini	Packt Publisher	July 2016	

Course Outcomes:

Sr.No.	CO statement	Marks % weightage
CO-1	Understand and apply key concepts in social media metrics.	20%
CO-2	Comprehend basic principles, techniques, tools and types of social media analysis.	30%
CO-3	Demonstrate basic network media graph virtualization and network relationships	20%
CO-4	Demonstrate the use of Social media network analysis with real life case studies	30%

List of Open learning website:

https://www.routledge.com/Graph-Based-Social-Media-Analysis/Pitas/p/book/9780367575113 (Graph related book)

List of Open Source Software:

https://www.cs.cornell.edu/courses/cs6241/2020sp/readings/Newman-2003-structure.pdf

FOR LAB SESSIONS:

List of Experiments:

Sr. No	Practical
1.	Using Python to Extract Data from Twitter
2.	Using Python to Extract Data from YouTube
3.	Implementing Random graph Models, finding cliques and Motifs

4.	Exploring and analysing various tools like Tweet Reach, How Sociable, and Addic-to-matic to understand the latest concepts and advancements in social media analysis.
5.	Statistical Analysis with Twitter Data using R
6.	Mini Project which will involve doing sentiment analysis with Python.
7.	Mini Project which will take us through basic text mining applications using R.