NIRMA UNIVERSITY

Institute:	Institute of Technology, School of Technology
Name of Programme:	BTech CSE
Course Code:	4CS302ME25
Course Title:	Social and Multimedia Analytics
Course Type:	Department Elective-IV
Year of Introduction:	2025-26

L	T	Practical Component				C
		LPW	PW	W	S	
3	0	2	-	-	-	4

Course Learning Outcomes (CLO):

At the end of the course, the students will be able to –
1. relate the basic concepts of social and multimedia analytics (BL2)
2. identify various techniques for link analysis from a social network perspective (BL3)
3. analyse and process image and video data using multimedia analytics methods (BL3)
4. interpret social multimedia analysis, engagement, and visualisation. (BL5)

Unit	Contents	Teaching Hours (Total 45)
Unit-I	**Introduction to Social Media Analytics** (SMA): Social media landscape, Need for SMA, SMA in Small organizations, SMA in large organizations, Application of SMA in different areas	09
Unit-II	**The social networks perspective:** Nodes, Ties and influencers, social network and web data and methods, Graphs and Matrices, Basic measures for individuals and Networks, Link analysis, Random graphs, and Network evolution.	12
Unit-III	**Web analytics tools and techniques:** Clickstream analysis, A/B testing, online surveys **Use of Google Analytics:** Web crawling and Indexing, Natural Language Processing Techniques for Micro-text Analysis	10
Unit-IV	**Image and Video Processing:** Image and Video Compression Techniques, Image Processing Techniques, Video Processing and Analysis, Object Detection and Tracking in Videos	10
Unit-V	**Multimedia Content Mining:** Content-Based Multimedia Retrieval, Multimedia Information Retrieval Techniques, Multimedia Data Mining Algorithms, Ethical and Legal Issues in Multimedia Analytics	04

Self-Study:

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

Suggested Readings/ References:

1. Mathew Ganis, Avinash Koihrkar, *Social Media Analytics*, IBM Press
2. Ralf Steinmetz and Klara Nahrstedt, *Multimedia: Computing, Communications and Applications*, Pearson Education
3. Borko Furht and Oge Marques, *Content-Based Image and Video Retrieval*, Springer

4. Jim Sterne, *Social Media Metrics*, Wiley
5. Marshall Sponder, *Social Media Analytics*, McGraw Hill

Suggested List of Experiments:

Sr. No.	Name of Experiments/Exercises	Hours
1	Introduction to social media tools and software	02
2	Introduction to Multimedia Tools and Software	02
3	Link analysis for social network	02
4	Web analytics tools and techniques – part 1	04
5	Video Processing	04
6	Natural language processing for social media content	04
7	Analysis of different social media parameters	04
8	Multimedia Content Mining	04
9	Recommender system	02
10	Processing and Visualizing	02