

CP5074 SOCIAL NETWORK ANALYSIS

DETAILED SYLLABUS

OBJECTIVES

- To understand the components of the social network.
- To model and visualize the social network.
- To mine the users in the social network.
- To understand the evolution of the social network.
- To know the applications in real time systems.

UNIT I INTRODUCTION

Introduction to Web - Limitations of current Web – Development of Semantic Web – Emergence of the Social Web – Statistical Properties of Social Networks -Network analysis - Development of Social Network Analysis - Key concepts and measures in network analysis-Discussion networks - Blogs and online communities - Web-based networks.

UNIT II MODELING AND VISUALIZATION

Visualizing Online Social Networks - A Taxonomy of Visualizations - Graph Representation - Centrality- Clustering - Node-Edge Diagrams - Visualizing Social Networks with Matrix Based Representations- Node-Link Diagrams - Hybrid Representations - Modelling and aggregating social network data– Random Walks and their Applications –Use of Hadoop and Map Reduce- Ontological representation of social individuals and relationships.

UNIT III MINING COMMUNITIES

Aggregating and reasoning with social network data, Advanced Representations – Extracting evolution of Web Community from a Series of Web Archive – Detecting Communities in Social Networks - Evaluating Communities – Core Methods for Community Detection & Mining - Applications of Community Mining Algorithms - Node Classification in Social Networks.

UNIT IV EVOLUTION

Evolution in Social Networks – Framework - Tracing Smoothly Evolving Communities - Models and Algorithms for Social Influence Analysis - Influence Related Statistics – Social Similarity and Influence - Influence Maximization in Viral Marketing - Algorithms and Systems for Expert Location in Social Networks - Expert Location without Graph Constraints - with Score Propagation – Expert Team Formation - Link Prediction in Social Networks - Feature based Link Prediction – Bayesian Probabilistic Models - Probabilistic Relational Models.

UNIT V APPLICATIONS

A Learning Based Approach for Real Time Emotion Classification of Tweets, A New Linguistic Approach to Assess the Opinion of Users in Social Network Environments, Explaining Scientific and Technical Emergence Forecasting, Social Network Analysis for Biometric Template Protection

REFERENCES

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3. Charu C. Aggarwal, —Social Network Data AnalyticsII, Springer; 2014
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5. Guandong Xu , Yanchun Zhang and Lin Li, —Web Mining and Social Networking – Techniques and applicationsII, Springer, 1st edition, 2012
6. Peter Mika, —Social Networks and the Semantic WebII, Springer, 1st edition, 2007.
7. Przemyslaw Kazienko, Nitesh Chawla, II Applications of Social Media and Social Network AnalysisII, Springer,2015.