

SIT1610 SOCIAL NETWORK ANALYSIS

UNIT 1 INTRODUCTION 9 Hrs.

Introduction to Semantic Web: Limitations of current Web - Development of Semantic Web - Emergence of the Social Web Social Network Analysis: Social Networks Perspective - Analysis of Network Data - Interpretation of Network Data - Social Network Analysis in the Social and Behavioral Sciences - Metrics in social network analysis.

UNIT 2 SOCIAL NETWORK ANALYSIS SOFTWARE, TOOLS AND LIBRARIES 9 Hrs.

Modelling and aggregating social network data: Ontological representation of social individuals – Ontological representation of social relationships - Aggregating and reasoning with social network data – Advanced representations. Social network analysis software - Tools - Libraries .

UNIT 3 CLIQUES, CLUSTERS AND COMPONENTS 9 Hrs.

Components and Subgraphs: Sub graphs - Ego Networks, Triads, Cliques, Hierarchical Clustering, Triads, Network Density and conflict. Density: Egocentric and Sociocentric - Digression on Absolute Density – Community structure and Density, Centrality : Local and Global - Centralization and Graph Centres, Cliques and their intersections, Components and Citation Circles - Positions, Sets and Clusters.

UNIT 4 PREDICTING HUMAN BEHAVIOUR AND PRIVACY ISSUES 9 Hrs.

Development of Social Network Analysis - 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 - Trust models based on subjective logic - Trust network analysis - Trust transitivity analysis - Combining trust and reputation – Trust derivation based on trust comparisons - Attack spectrum and countermeasures.

UNIT 5 GRAPH DATA IN THE REAL WORLD AND APPLICATION OF SOCIAL NETWORKS 9 Hrs.

Medium data - Tradition, Big Data, Small Data - Flat File Representations, Medium Data - Data Representation, Working with 2-Mode Data, Social Networks and Big Data, Big Data at work. Visualizing online social networks, Advances in Network Visualization - Elites, Communities and Influence, Applications of Social Network Analysis.

Max.45 Hours

TEXT / REFERENCE BOOKS

1. John Scott, "Social Network Analysis", Third Edition, SAGE Publications Ltd 2013.
2. Maksim Tsvetovat, Alexander Kouznetsov, " Social Network Analysis for Startups", First Edition, O'Reilly Media, 2011.
3. Peter Mika, "Social Networks and the Semantic Web", First Edition, Springer 2007.
4. David Knoke, Song Yang, "Social Network Analysis", First Edition, SAGE Publication Ltd 2007.
5. Borko Furht, "Handbook of Social Network Technologies and Applications", 1st Edition, Springer, 2010.
6. Guandong Xu, Yanchun Zhang and Lin Li, "Web Mining and Social Networking - Techniques and applications", First Edition Springer, 2011.
7. John G. Breslin, Alexander Passant and Stefan Decker, "The Social Semantic Web", Springer, 2009.