

B.Sc. (Data Science)
Skill Enhancement Course (SEC)
Semester V
BSDB33504T: Social Network Analysis

Total Marks: 100
External Marks: 70
Internal Marks: 30
Credits: 4
Pass Percentage: 40%

Objective

This course will elaborate basic concepts and theories of network analysis in the social sciences and examine the ways in which networks can contribute to the explanation of Social, political, economic and cultural phenomena.

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

1. The syllabus prescribed should be strictly adhered to.
2. The question paper will consist of three sections: A, B, and C. Sections A and B will have four questions from the respective sections of the syllabus and will carry 10 marks each. The candidates will attempt two questions from each section.
3. Section C will have fifteen short answer questions covering the entire syllabus. Each question will carry 3 marks. Candidates will attempt any ten questions from this section.
4. The examiner shall give a clear instruction to the candidates to attempt questions only at one place and only once. Second or subsequent attempts, unless the earlier ones have been crossed out, shall not be evaluated.
5. The duration of each paper will be three hours.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt any two questions each from the sections A and B of the question paper and any ten short questions from Section C. They have to attempt questions only at one place and only once. Second or subsequent attempts, unless the earlier ones have been crossed out, shall not be evaluated.

Section A

Unit 1: Introduction to Social Network Analysis (SNA): definition and origin, core features of the SNA, Foundation of social network analysis.

Unit II: Graph Theory: graph basics, graph representation, Matrix Representation, types of graph, and graph algorithms for Social Network Analysis.

Unit III: Community detection

n: Clustering, Community structure, Modularity.

Unit IV: Network models: connected components, giant component, diameter, searching algorithms

Section B

Unit V: Predictive modeling: link/attribute prediction, Influence in Social networks

Unit VI: Sentiment Analysis, Recommendation in Social Networks: Collaborative Filtering, and Content based Recommendation Systems

Unit VII: Social network analysis case studies: Twitter, Facebook.

Unit VIII: Modelling and Visualization, Visualizing online social networks, Practical Applications for Prediction of sentiments, human behavior.

Suggested Readings

1. Ian McCulloh, Helen Armstrong, and Anthony Johnson, Social Network Analysis with applications, WILEY Publisher, 2013
2. Reza Zafarani, Mohammad Ali Abbasi, Huan Liu, Social Media Mining: An Introduction, Arizona State University, 2017
3. Jiawei Han, Micheline Kamber, Data Mining Concepts and Techniques: Morgan Kaufmann Publishers, 2013