4/4 B.Tech - SECOND SEMESTER

IT8T2B **SOCIAL NETWORKS AND SEMANTIC WEB** **Credits:3**

Lecture: 3 Periods/week **Internal assessment: 30 marks**

Practice/Interaction: 1Period/week **Semester end examination: 70 marks**

Objectives:

- To explain the analysis of the social Web and the design of a new class of applications that combine human intelligence with machine processing.
- To describe how the Semantic Web provides the key in aggregating information across heterogeneous sources.
- To understand the benefits of Semantic Web by incorporating user-generated metadata and other clues left behind by users.

Outcomes:

Students will be able to

- Understand the basics of Semantic Web and Social Networks.
- Understand Electronic sources for network analysis and different Ontology languages.
- Modeling and aggregating social network data.
- Develop social-semantic applications.
- Evaluate Web- based social network and Ontology.

Syllabus:

Unit-I

Introduction to the Semantic Web and Social Networks:

The Semantic Web- Limitations of the current Web, The semantic solution, Development of the Semantic Web, The emergence of the social web.

Social Network Analysis- What is network analysis, Development of Social Network Analysis, Key concepts and measures in network analysis.

Unit-II

Web data, Semantics and Knowledge Representation on the Semantic Web:

Electronic sources for network analysis- Electronic discussion networks, Blogs and online communities, Web-based networks.

Knowledge Representation on the Semantic Web- Ontologies and their role in the Semantic Web, Ontology languages for the Semantic Web(RDF, OWL).

Unit- III

Modeling and aggregating social network data:

State-of-the-art in network data representation, Ontological representation of social individuals, Ontological representation of social relationships, Aggregating and reasoning with social network data.

Unit- IV

Developing social-semantic applications:

Building Semantic Web applications with social network features, Flink: the social networks of the Semantic Web community, open academia: distributed, semantic-based publication management.

Unit- V

Evaluation of web-based social network extraction and Ontologies are us:
Differences between survey methods and electronic data extraction, Context of the empirical study, Data collection, Preparing the data, Optimizing goodness of fit, Comparison across methods and networks, Predicting the goodness of fit, Evaluation through analysis. Ontologies are us: A tripartite model of ontologies, Case studies, Evaluation.

Text Book:

1. Social Networks and the Semantic Web, Peter Mika, Springer, 2007.

Reference Books:

1. Semantic Web Technologies, Trends and Research in Ontology Based Systems, J.Davies, R.Studer, P.Warren, John Wiley & Sons.
2. Semantic Web and Semantic Web Services -Liyang Lu Chapman and Hall/CRC Publishers, (Taylor & Francis Group)
3. Information Sharing on the semantic Web - HeinerStuckenschmidt; Frank Van Harmelen, Springer Publications.
4. Programming the Semantic Web, T.Segaran, C.Evans, J.Taylor, O'Reilly, SPD.

e- Learning Resources:

1. http://onlinevideolecture.com/index.php?course_id=142&lecture_no=18
2. https://docs.google.com/file/d/0B8p6899iTnn3a1Q4NnBqOUJ6R3c/edit
3. https://docs.google.com/file/d/0B8p6899iTnn3bkNSUG1sTkR0Rms/edit