SE-578

SEMANTIC WEB

UNIT- I

The Future of the Internet: Introduction, Syntactic Web, Semantic Web, Working of Semantic Web, What is not a Semantic Web, Side Effects.

Ontology: Definitions, Taxonomies, Thesauri and Ontologies, Classifying Ontologies, Web Ontology Description language, Ontologies-Categories-Intelligence .

UNIT- II

Knowledge Description in Description Logic: Introduction, Example, Family of Attributive Languages, Inference problems.

RDF and RDF Schema: Introduction, XML Essentials, RDF, RDF Schema.

UNIT- III

OWL: Introduction, Requirements for Web Ontology Description Languages, Header Information, Versioning and Annotation Properties, Properties, Classes, Individuals, Data types

Rule Languages: Introduction, Usage Scenarios, Datalog, RuleML, SWRL, TRIPLE.

UNIT- V

Semantic Web Services: Introduction, Web Service Essentials, OWL-S Service Ontology, OWL-S Example.

Methods for Ontology Development: Introduction, Uschold and King Ontology Development Method, Toronto Virtual Enterprise Method, Methontology, KACTUS Project Ontology Development Method, Lexicon-Based Ontology Development Method, Simplified Methods.

UNIT- V

Ontology Sources: Introduction, Metadata, Upper Ontologies

Software Agents: Introduction, Agent Forms, Agent Architecture, Agents in the Semantic Web Context.

Applications: Introduction, Horizontal Information Products, Open academia, Bibster, Data Integration, Skill Finding, Think Tank Portal, e-learning, Web Services.

Suggested Reading:

1) Karin K Brietman, Marco Antonio Casanova, Walter Truszkowski, "*Semantic Web – Concepts*", Technologies and Applications. Springer 2007.
2) Grigoris Antoniou, Frank van Harmelen, "*A Semantic Web Primer*", PHI 2008.
3) Liyang Yu, "*Semantic Web and Semantic Web Services*", CRC 2007.