

# CPIS-382 Syllabus

## Catalog Description

**CPIS-382** Development of E-Systems and Interface Design

**Credit:** 3 ( Theory: 3, Lab: 1, Practical: 2)

**Prerequisite:** CPIS-358

**Classification:** Elective

The objective of this course is to introduce techniques that are useful stand-alone and can be integrated for building a semantic web. Topics include semantic web technologies, data modeling languages such as XML, XML SCHEMA, domain modeling languages such as RDF, RDF Schema, ontology modeling languages such as OWL, query languages such as XQuery and SPARQL. Also students will use tools such as Stylus studio and Protégé in their modeling.

### Class Schedule

Meet 50 minutes 3 times/week or 80 minutes 2 times/week

Lab/Tutorial 90 minutes 1 times/week

## Textbook

Bo Leuf, , "The Semantic Web", Wiley; 1 edition (2005-12-16)

**ISBN-13** 9780470015223 **ISBN-10** 0470015225

## Grade Distribution

Week	Assessment	Grade %
5	Graded Lab Work 1	5
6	Homework Assignments 1	5
6	Exam 1	15
9	Homework Assignments 2	5
10	Graded Lab Work 2	5
12	Exam 2	15
12	Homework Assignments 3	5
13	Graded Lab Work 3	5
14	Group Project	10
16	Exam	30

## Last Articulated

February 8, 2018

## Relationship to Student Outcomes

a	b	c	d	e	f	g	h	i	j
x	x		x					x	

## Course Learning Outcomes (CLO)

By completion of the course the students should be able to

1. identify the key Problem of Today's Web, and explain the Semantic Web impact, and define the different layers in the Semantic Web cake (a)
2. Using XML for data representation (b)
3. Creating knowledge schema with DTDs (b)
4. **define XML Schema related concepts such: element, attribute, simple type, complex type (a)**
5. build queries for XML documents using Xpath (i)
6. **Define data with RDF triples (b)**
7. **Creating knowledge schema with RDF-S (i)**
8. Integrating RDF and RDF-S (d)
9. Learning OWL ontologies for intelligent data representation and processing (i)
10. **compare and contrast between RDF/Schema and OWL , and give examples (a)**
11. build OWL Ontologies with Protégé, and build SPARQL queries using Protégé (a)
12. **define advanced web concepts such as Linked Open Data (i)**
13. demonstrate work harmoniously and effectively in a team to model an knowledge domain based on ontology (b)
14. plan, prepare and deliver clear and correct oral presentations (a)

## Coordinator(s)

Dr. Muhammad Aslam, Associate Professor

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## Topics Coverage Durations

Topics	Weeks
Review for prerequisite topics	1
Introduction to Semantic Web	2
XML	1
Document Type Definition (DTD)	1
XML Schema	1
Resource Description Framework (RDF)	1
Resource Description Framework Schema (RDF-S)	1
Web Ontology Language (OWL)	2
Protégé: Ontology Editor	1
SPARQL Query language	1
Applications of Semantic Web	1
Semantic Web and Triple Store Servers	1
Selected Topics	1