USC Viterbi School of Engineering

Engineering Database Applications
ITP 482 (3 Units)
Fall 2013

Description This course explores the engineering of software applications that are based on relational databases. It uses the lifecycle of software development: planning, analysis, design, implementation, testing, and, operation and maintenance. Scalability, expandability and security are emphasized.

Objectives At the completion of the course, students will be able to

- Describe the importance of database applications in engineering, industry and commerce.
- Perform advanced data modeling and analysis
- Create data definitions and constraints
- Demonstrate data retrieval and manipulation
- Implement security and usability in applications
- Use and compare commercial development tools, distributed/multi-tier environments and integration of databases
- Build a complete Web based database application. Examples – manufacturing, quality assurance, research and development, distribution, construction, non-profit organizations etc.
- Manage the development life cycle
- Explain new developments in Web Services

Prerequisite CSCI 101 and (ISE 382 or IOM 435)

Instructor Nitin Kale | OHE 412 | kale@usc.edu | 213.740.7083

Office Hours 10:00-12:00 Tuesday, 2:30-4:30 Wednesday

Lecture 5-7:50 pm, Wednesday, OHE 542

Lab Asst and Grader Rowena Zhu, ruoyunzh@usc.edu
Edward Kusuma, ekusuma@usc.edu

Course Website All course materials will be posted on *blackboard.usc.edu*.

Textbooks

- There are no required text books. Online references will be provided.
- Extensive lecture notes will be provided on Blackboard.

Software and Hardware Students will be given access to the following software/technologies.

- HTML, CSS, PHP, MYSQL
- Adobe Dreamweaver
- Adobe Photoshop

- Drupal

Grading The weights of graded material during the semester are listed below:

Homework	20%
Midterm Project	10%
Midterm Exam	35%
Final Project	
Peer evaluation	5%
Meeting deadlines	5%
Project implementation	15%
Documentation and Training	5%
Final Presentation	5%
Total	100%

Final letter grade is based strictly on total percentage earned. NO EXCEPTIONS!

Grading scale (percentage):

A	*100-95*
A-	*95-92*
B+	*92-89*
B	*89-86*
B-	*86-83*
C+	*83-80*
C	*80-77*
C-	*77-74*
D+	*74-71*
D	*71-68*
D-	*68-65*
F	*65 or below*

Policies

- Homework/Projects turned in after the deadline will automatically have 10 points per day deducted.
- No make-up exams (except for medical or family emergencies) will be offered nor will there be any changes made to the Final Exam schedule.
- Before logging off a computer, students must ensure that they have saved their work (on their personal email accounts or flash drives) created during class. Any work saved to the computer will be erased after restarting the computer. ITP is not responsible for any work lost.
- ITP offers Open Lab use for all students enrolled in ITP classes. These open labs are held beginning the second week of classes through the last week of classes.

Academic Integrity The use of unauthorized material, communication with fellow students

during an examination, attempting to benefit from the work of another student, and similar behavior that defeats the intent of an examination or other class work is unacceptable to the University. It is often difficult to distinguish between a culpable act and inadvertent behavior resulting from the nervous tension accompanying examinations. When the professor determines that a violation has occurred, appropriate action, as determined by the instructor, will be taken.

Although working together is encouraged, all work claimed as yours must in fact be your own effort. Students who plagiarize the work of other students will receive zero points and possibly be referred to Student Judicial Affairs and Community Standards (SJACS).

The School of Engineering adheres to the University's policies and procedures governing academic integrity as described in SCampus. Students are expected to be aware of and to observe the academic integrity standards described in SCampus, and to expect those standards to be enforced in this course.

All students should read, understand, and abide by the University Student Conduct Code listed in SCampus, and available at: http://www.usc.edu/student-affairs/SJACS/nonacademicreview.html

Students with Disabilities

Any Student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to TA) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m. - 5:00 p.m., Monday through Friday. The phone number for DSP is (213)740-0776."

Policy on Religious Holidays

University policy grants students excused absences from class for observance of religious holy days. Students should contact instructor IN ADVANCE to request such an excused absence. The student will be given an opportunity to make up work missed because of religious observance.

Students are advised to scan their syllabi at the beginning of each course to detect potential conflicts with their religious observances. Please note that this applies only to the sort of holy day that necessitates absence from class and/or whose religious requirements clearly conflict with aspects of academic performance. Please refer to the Holy Days Calendar http://orl.usc.edu/religiouslife/holydays/

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Course Outline

Week 1 - Aug 28th – Introduction

- Course Overview

Week 2 – **Sept 4th** - Client Server Architecture

- Three-tier Client-Server Architectures
- Open database Connectivity (ODBC) - Using ODBC to connect to databases
- Client-side vs server-side processing
- Comparison of server side programming languages

Week 3 – **Sept 11th** - Drupal

- Introduction to Drupal as a design platform
  - Open source platform
- Nodes, blocks, layout, themes and modules

Week 4 –Sept 18th - Drupal contd.

- Application design
- Building content types
- Designing pages, blocks

Week 5 –- **Sept 25th** - Drupal contd

- Security
- Users, permissions, roles
- Access control
- Taxonomy
- Search engine

Week 6 – **Oct 2nd** - Drupal contd

- E-commerce
- Social networking
- Forums implementation

Week 7 – Oct 9th - Drupal contd

- User interface design
- Theming
- HTML5
- CSS

Week 8 – **Oct 16th** - Final Project

- Project scope
- Client meeting

Week 9 – **Oct 23rd** – **Midterm Exam**

Week 10 – **Oct 30th** – Final Project contd.

- Requirements and functionality
- Roles, permissions
- Project Deadlines

Week 11 – **Nov 6th** – Final Project contd

- Project updates

Week 12 – **Nov 13th** – Final Project contd

- Feedback and improvements
- Beta release

Week 13 – **Nov 20th** – Final Project contd

- Meeting with client
- Demo

Week 14 – **Nov 27th** - Thanksgiving Holiday

Week 15 – **Dec 4th** – Final Project contd

- Mobility
- Designing mobile applications
- Final testing

Week 16 – Dec 11th – 5 pm - 6:30 pm, Final Project presentation to client (at client site)