CRN# 12737 CPET 49900-06D Web Systems
CRN# 12744 CPET 49900-06I Web Systems
Cross Listed
CRN# 12738 ITC 25000-01D Web Systems
CRN# 12745 ITC 25000-01I Web Systems

Fall 2015

Course Description
CPET 499/ITC 250 – Web Systems, Cr. 3
ITC 25000 – Web Systems, Cr. 3, Preparation for Course**:** P: or C: ITC21000.
http://bulletin.ipfw.edu/content.php?catoid=27&navoid=692&filter%5Bitem_type%5D=3&filter%5Bonly_active%5D=1&filter%5B3%5D=1&filter%5Bcpage%5D=16#acalog_template_course_filter
A study of essential knowledge and skills that an effective web administrator must know. Introduction to fundamental topics of web technologies, web-based systems, and web page design. Topics covered include Internet applications, web site development and publishing, information architecture, client and server-side programming, multimedia technologies and publishing, vulnerabilities, and web site implementation and maintenance.

Course Instructor Information
Paul I-Hai Lin, Professor of Electrical and Computer Engineering Technology
Department of Computer, Electrical, and Information Technology
College of Engineering, Technology, and Computer Science
Indiana University-Purdue University Fort Wayne
2101 Coliseum Blvd E, Fort Wayne, IN 46805
Office: ET 205C Phone: 260-481-6339   Email: lin@ipfw.edu
Professor's Course Web site: http://www.ecet.ipfw.edu/~lin
My Blackboard Web site: login through mYIPFW

Office Hours:
- Monday   1:00 -3:00 PM
- Tuesday   2:00 -3:00 PM, 5:00-7:00 PM
- Wednesday   1:00 -3:00 PM
- Thursday   2:00 -3:00 PM
- Other weekday hours – by appointment

Course Delivery Format
- **Live Lecture (3 hrs/week) – in Class, Face-to-Face lectures with echo 360 capture system:** Room ET 364, Tuesday & Thursday 3:00 – 4:15 PM
- **Internet section students**, login to myIPFW for captured lectures, assignments, and other activities

Important Dates:
Sept. 7 (Monday) – Labor Day Holiday
Oct. 12 & 13 (Monday & Tuesday) – Class suspended (Fall Break)
Nov. 25 – 29 (Wednesday through Sunday)- Thanksgiving Holiday
Dec. 14-20 Final Exam Week

Text Book
Fundamentals of Web Development, 2015, by Randy Connolly and Richard Hoar, published by Pearson, ISBN: 978-0-13-340715-0

Disabilities Statement:
If you have a disability and need assistance, special arrangements can be made to accommodate most needs. Contact the Director of Services for Students with Disabilities (Walb, room 113, telephone number 481-6658), as soon as possible to work out the details. Once the Director has provided you with a letter attesting to your needs for modification, bring the letter to me. For more information, please visit the web site for SSD at http://new.ipfw.edu/disabilities/

ABET General Criterion 3. Student Outcomes

The program must have documented student outcomes that prepare graduates to attain the program educational objectives. There must be a documented and effective process for the periodic review and revision of these student outcomes.
The program must enable students to attain, by the time of graduation:
(a) An ability to apply knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline
(b) An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
(c) An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs
(d) An ability to function effectively on teams to accomplish a common goal
(e) An understanding of professional, ethical, legal, security and social issues and responsibilities
(f) An ability to communicate effectively with a range of audiences
(g) An ability to analyze the local and global impact of computing on individuals, organizations, and society
(h) Recognition of the need for and an ability to engage in continuing professional development
(i) An ability to use current techniques, skills, and tools necessary for computing practice.

ABET Program Criteria for Information Technology and Similarly Named Computing Programs (Lead Society: CSAB): These program criteria apply to computing programs using information technology or similar terms in their titles.

Student Outcomes
The program must enable students to attain, by the time of graduation:
(j) An ability to use and apply current technical concepts and practices in the core information technologies of human computer interaction, information management, programming, networking, and web systems and technologies. [IT]
(k) An ability to identify and analyze user needs and take them into account in the selection, creation, evaluation, and administration of computer-based systems. [IT]
(l) An ability to effectively integrate IT-based solutions into the user environment. [IT]
(m) An understanding of best practices and standards and their application. [IT]
(n) An ability to assist in the creation of an effective project plan. [IT]

Course Outcomes
After successfully completing ITC/250 CPET 499, students will have:

- Ability to use all modern browsers and mobile browsers (Criteria a, c, j)
- Ability to use HTML 5 and CSS to design and implement web pages (Criteria a, c, j)
- Ability to use client-side scripting language (JavaScript) to create dynamic web pages (Criteria a, c, j)
- Ability to use XHTML, XML, XSL in web page design (Criteria a, c, j)
- Ability to use server-side scripting languages for client-server Web applications (Criteria a, c, j)
- Ability to design and develop a web site (Criteria a, b, c, d, e, f, g, h, I, j, k, l, m, n)

Class Activities and Assessment

The class format will be 3 hour lecture each week, 16 weeks total and require about 8hrs/week for out of class study. Student assignments include programming apps, weekly assignment on reading technical papers, writing short summary, and presentation. Students are also required to complete a final project working in groups of 2-3 students, present projects in class and complete a written project report.

Grading policy:

- Homework/assignments (including programming exercises and assignments): 35%
- Three one-hour exams: 30%
- Class participation (attendance, class engagement/discussion, forums, etc): 15%
- Final Project (Final project proposal, implementation, report and demo): 20%

Grading Scale: A (90-100%), B (80 -89%), C (70-79%), D (60-69%), F (0-59%)

Tentative Course Outline/Topics of Discussion

1. Computer Systems, Internet and Information Technologies -- Week 1
- Computer Systems & Operating Systems
- Communications Networking
- Internet and World Wide Web
- TCP/IP Protocol Applications
- Internet, Intranet (local TCP/IP networks)
- Firewalls
- Web Browsers (Internet Explorer, Google, Opera, etc)
- Mobile Browsers (Safari, Opera Mobile/Mini, Microsoft IE for Mobile, Firefox Mobile, Skyfire)
- Web pages (HTML hypertext documents): static, dynamic web pages
- Web Servers
- HTTP Protocol, Client/Server model
- Web-enabled Applications

2. Hypertext Markup Language HTML 5 and Casecading Style Sheet-- Weeks 2, 3, 4
- Introduction to HTML 5
- HTML Structures: Heading, Linking, Images, Lists, Tables, Forms, Meta elements
- New HTML 5 Input Elements and Types, Datalist elements, Page structure
- CSS Part I: Inline styles, Embedded style sheets, Conflicting styles, Linking External style sheets, Positioning elements, Backgrounds, Element dimensions, Box model and Text floe, Media types and Media queries, Drop-down menus

- CSS Part II: Text shadows, Rounded corners, Color, Box shadows, Linear gradient, Radial gradients, Multiple background images, Animation, Transitions and Transformations, Multicolumn layout, Media queries

3. Web Applications with Client-Side Scripting -- Weeks 5, 6, 7, 8
- Intro to Client –side Scripting: JavaSrcipt, VbScript, JavaApplet
- JavasScript Programming I: Control statements, Functions, Arrays, Objects
- Advance JavaScript Programming
- dvanced HTML 5: Introduction to Canvas

4. XHTML, XML, Ajax-Enabled Rich Internet Applications -- Weeks 9, 10
- eXtensible Markup Language (XML)
  - XML Structuring data, Namespaces, Document Type Definition (DTDs), XML Schema Documents
  - XML Vocabularies
  - Extensible stylesheet Language and XSL transformation
  - Document Object Model (DOM)
- Ajax (Asynchronous JavaScript and XML)

5. Web Servers, Server-side Programming and Databases -- Weeks 11, 12, 13
- Web server selection (Apache, IIS) and implementation
- Common Gateway Interface (CGI)
- PHP (HyperText Processor)
- Server-side scripting: PHP, Perl CGI, ASP.NET, JavaServlet
- Introduction to Ruby and Rails
- Installation and maintenance
- Introduction to Databases (MySQL, SQL, ORACLE, DB2, etc)
- Web security and vulnerabilities

6. Web-Based Applications/Final Project -- Weeks 8- 16