

CSET 4100 – Server-Side Programming (3 semester credit hours)

CSET Required  
IT Required

**Current Catalog Description:**

This three semester hour course covers Common Gateway Interface (CGI) programming on the internet using the most popular scripting languages (PHP, perl, Java Servlets, ASP, etc.). Topics include server side programs and searching

**Textbooks:**

1. PHP for the Web: Visual QuickStart Guide, by Larry Ullman, Peachpit Press, 3<sup>rd</sup> Edition
2. “Murach’s Java Servlets and JSP”. By Loel Murach and Andrea Steelman, Mike Murach and Associates, Inc., 2<sup>nd</sup> Edition

**References:**

Course web pages: <http://cset.sp.utoledo.edu/cset4100/>

**Related Program Outcomes:**

- CSET Program (a, c, and i) - See attached tables.
- IT Program (a, c, and i) - See attached tables.

**Course Objectives:**

After successful completion of this course, students will be able to:

- Learn the basics of the PHP programming language and how to write programs using PHP.
- Learn the basics of Java Servlets and JSP for implementing web applications written in Java
- Learn about the Model-View-Controller (MVC) software paradigm through the use of Java Servlets and JSP
- Learn about the design and architecture of modern web applications including large-scale distributed applications
- Learn about the use of technologies such as SOAP and REST to implement web services for distributed web applications
- Apply the concepts learned in this course to the development of client-server applications that are Internet and/or World Wide Web based

**Major Topics Covered in the Course**

Topic	Lecture
PHP variables	1
HTML Forms and PHP	1
Using Numbers	1
Using Strings	1
Control Structures	1
Using Arrays	1
Creating functions	1
Files and Directories	1
Information models	4
Cookies and Sessions	2
Creating Web Applications	8
Control Structures	1
Objects, Properties Methods and Events	1
Hypertext and Hypermedia	1
Web application architectures for high scalability	4
Fault Tolerance in Web Applications	5
Distributed Data and Applications	4
Non Database information storage and retrieval systems	3
Totals	41

**Oral and Written Communications**

Written communication is tested based upon the students' submissions of the detailed specification for a Web based application for the midterm.

**Theoretical Content**

Data abstraction, distributed computing, fault-tolerance

**Problem Analysis**

This course emphasizes problem analysis in the areas of program development. Students design and write various programs of at least 500 lines of code in PHP and Java (Servlets and JSP) using different variable types, control structures.

**Solution Design**

This course requires students to produce design for a web-based application as a part of their midterm.

**Course Coordinator**

William Acosta ([William.acosta@utoledo.edu](mailto:William.acosta@utoledo.edu))

2/28/11

## Computer Science & Engineering Technology Program

	<b>CSET Student Outcomes:</b>	<b>Course Outcomes</b>	<b>Assessment Methods</b>
a	an ability to select and apply knowledge of computing and mathematics appropriate to the discipline. Specifically, an ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates the comprehension of the tradeoffs involved in the design choices	Demonstrate the ability to design and build a scalable web application that makes use of modern technologies and approaches	As evidenced by the ability to use the current standard languages and programming frameworks to create a web application in the homework assignments
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. Specifically, and ability to apply design and development principles in the construction of software systems of various complexity	Demonstrate the ability to analyze the data and architecture needs and trade-offs required for building large scale web applications	Evidenced by homework assignments and exam questions
d	an ability to function effectively as a member or leader on technical teams to accomplish a common goal.		
e	an understanding of professional, ethical, legal, security and social issues and responsibilities including a respect for diversity.		
f	an ability to communicate effectively with a range of audiences using a range of modalities including written, oral and graphical.		
g	an ability to analyze the local and global impact of computing on individuals, organizations, and society.		
h	recognition and understanding of the need for and an ability to engage in self-directed continuing professional development.		
i	an ability to select and apply current techniques, skills, and tools necessary for computing practice	Make use of modern tools and technologies such as web services to build a distributed and heterogeneous web application	Evidenced by homework programming assignments and exam questions
j	an ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments, and to apply experimental results to improve processes		
k	a commitment to quality, timeliness, and continuous improvement		

## Information Technology Program

	<b>IT Student Outcomes:</b>	<b>Course Outcomes</b>	<b>Assessment Methods</b>
a	an ability to select and apply knowledge of computing and mathematics appropriate to the discipline. Specifically, an ability to use and apply current technical concepts and practices in the core information technologies. [IT-j]	Demonstrate the ability to design and build a scalable web application that makes use of modern technologies and approaches	As evidenced by the ability to use the current standard languages and programming frameworks to create a web application in the homework assignments
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. And, 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-k]	Demonstrate the ability to analyze the data and architecture needs and trade-offs required for building large scale web applications	Evidenced by homework assignments and exam questions
d	an ability to function effectively as a member or leader on technical teams to accomplish a common goal.		
e	an understanding of professional, ethical, legal, security and social issues and responsibilities including a respect for diversity.		
f	an ability to communicate effectively with a range of audiences using a range of modalities including written, oral and graphical.		
g	an ability to analyze the local and global impact of computing on individuals, organizations, and society.		
h	recognition and understanding of the need for and an ability to engage in self-directed continuing professional development.		
i	an ability to select and apply current techniques, skills, and tools necessary for computing practice. And an ability to effectively integrate IT-based solutions into the user environment. [IT-l]	Make use of modern tools and technologies such as web services to build a distributed and heterogeneous web application	Evidenced by homework programming assignments and exam questions
j	an understanding of best practices and their application. [IT-m]		
k	an ability to assist in the creation of an effective project plan. [IT-n]		