**ABET Course Syllabus – CS 3220**

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| **Code** | CS 3220 | **Credits** | 3 |
| **Title** | Web and Internet Programming | **Coordinator** | Chengyu Sun |

**Course Information**

1. **Catalog Description:** Development of database-driven, multi-tiered, interactive web applications. HTML and CSS; processing HTTP requests and generating HTTP responses; session tracking; database access; web application architectures; server-side and client-side scripting languages. Graded ABC/NC.
2. **Prerequisites**: CS1222, CS 2013
3. **Contact Hours**: Lecture 2 hours, laboratory 3 hours.
4. **Required/Elective:** This course is required in the BS program.

**Textbook**

No required textbook. The following books and online documentation are used for references:

* Terry Felke-Morris. *Web Development and Design Foundations with HTML5*, Pearson, 2012-2016.
* Joel Murach and Michael Urban. *Murach's Java Servlets and JSP*, Mike Murach & Associates, 2014.
* Marijn Haverbeke. *Eloquent JavaScript: A Modern Introduction to Programming*, No Starch Press, 2014.
* MySQL. *MySQL Reference Manual* at <https://dev.mysql.com/doc/refman/5.7/en/>.
* jQuery. *jQuery API Documentation* at <http://api.jquery.com/>.

**Course Goals**

The Student Learning Outcomes that are addressed by the course are:

* SLO 2. Students will be able to demonstrate fluency in at least one programming language and acquaintance with at least three more.
* SLO 4. Students will have a fundamental understanding of computer systems.

At the end of the course, students are able to

* Create static web sites using HyperText Markup Language (HTML).
* Use Cascading Style Sheets (CSS) to control the look and feel of a web site.
* Grasp the basic elements of web programming such as HTTP request, response, and session tracking.
* Understand different web application architectures.
* Design and implement database-driven, multi-tiered web applications using one of the mainstream server-side technologies such as Java EE.
* Design and implement interactive user interface for web applications using client-side technologies such as JavaScript.
* Understand the concepts of AJAX and RESTful Web Service, and implement simple AJAX operations.

**Topics Covered**

* Usage and configuration of HTTP server and application server
* HTML, XML, and CSS
* Responsive Web Design
* HTTP requests and response
* Cookies and session tracking
* Java Servlet programming
* JavaServer Pages (JSP)
* Expression Language (EL)
* Custom Tag Library
* Model-View-Controller Architecture
* Relational Database and SQL
* Java Database Connectivity (JDBC)
* JavaScript and jQuery
* AJAX
* RESTful Web Service