COURSE OUTLINE

CMSY-248

Introduction to XML

3 Semester Credits

HOWARD COMMUNITY COLLEGE

Description

This introductory class will teach students how to create documents that define data in XML, use rules of XML syntax, and format data in XML. Students will also study XHTML and its relation to HTML and XML. Prerequisite: CMSY-148 and (CMSY-103 or CMSY-110). (3 hours weekly)

Overall Course Objectives

Upon completion of this course, the student will be able to:

1. Create well-formed and valid XML documents that are correctly structured.
2. Use XML creation and editing software.
3. Understand browser requirements for XML and the role of XML parsers.
4. Create XML Document Type Definitions (DTD) and namespace declarations.
5. Create an XML schema, and understand the advantages of schemas over DTDs.
6. Understand XML transforming languages, including XLST stylesheets.
7. Also be able to use Cascading Style Sheets (CSS) with XML.
8. Create documents using XHTML and understand its relation to XML.

Major Topics

I. Definition of Extensible Markup Language
   - A. XML as a metalanguage and a markup language
   - B. Relation of XML to SGML and HTML
   - C. Development of XML
   - D. Role of the W3C is setting XML standards

II. XML Components
   - A. Document Components
     1. Prolog
     2. Element hierarchy
     3. Element components and properties
     4. CDATA sections
   - B. Requirements of a well-formed XML document
   - C. Requirements of a valid XML document

III. XML Creation and Editing Software
   - A. Graphical text editors
   - B. Integrated Development Environments (IDE)
   - C. Planning issues in converting to IDE

IV. Creating Document Type Definitions
   - A. The role of DTDs in defining data elements within an XML document
   - B. Characteristics of internal DTDs and external DTDs
   - C. Element declarations
   - D. Attribute list declarations

E. Entity declarations
F. Notation declarations
G. DTDs and namespace declarations
H. Document analysis and testing
I. Documentation

V. Creating XML Schemas
A. Problems and disadvantages with DTDs
B. The W3C XML Schema Recommendations
C. Schema description
D. Schema components
E. Mixed content elements
F. Empty element content

VI. Creating XML Transformations
A. The need to transform XML data for browser display
B. XML transforming languages: XSL, Xpath, and XSLT
C. Using XLST

VII. XML and Cascading Style Sheets (CSS)
A. Comparison of XML transforming languages and CSS
B. Specifying styles for XML documents

VIII. Other XML applications
A. Vector Markup Language (VML)
B. Synchronized Multimedia Integration Language (SMIL)
C. XML data binding
D. Channel Definition Format (CDF)

Course Requirements

Specific assignments and procedures for evaluating student performance in the class will be described in the individual class syllabus, but will include the following:

- Lab projects creating XML documents with the features discussed in each lesson.
- Written tests on definitions and procedures.
- Computer tests to demonstrate skills in creating XML documents.

Other Course Information

This course is a business elective.