MASTER COURSE SYLLABUS

**Course Code:** CS 102

**Title:** Applied Computing for Problem Solving

**Catalog Description:** An introduction to word processing, spreadsheets, slide presentations, databases, and the Internet with special emphasis on scientific computations and technical reports and presentations. Introduces social and ethical issues related to computing.

**Expanded Description of Course:** Introduction to the use of computer applications such as word processors, spreadsheets, databases and presentation software for solving computationally intensive problems and for preparing technical documents and presentations. The course also serves as an introduction to web page development and web programming. Topics are tailored to students with strong computational backgrounds/interests. Topics also include social and ethical issues in the use of computing resources.

**Rationale:** This course fulfills the Technological Literacy General Education requirement for all undergraduates and is targeted specifically to Computer Science and Software Engineering majors.

**Course Goals:** The course will provide instruction in the use of commonly used office applications such as word processors, spreadsheets, databases and presentation software to solve math and science problems and also to present data and data analysis results. The course will provide additional instruction in the use of the Web as an presentation medium. Introductory computing topics will be included in the course content, such as data representation, relevant computer programming concepts and ethical/social aspects of computing.

**Course Objectives:** Students will be able to

* + 1. list and describe the basic responsibilities of an operating system, and also the relationship between applications and operating systems,
    2. describe the history of commonly used applications, and describe how they are generally programmed,
    3. solve problems and perform data analysis/visualization using commonly-used spreadsheets and databases,
    4. prepare well-formatted technical documents and presentations, including citations and references, using commonly-used office applications,
    5. integrate the various office applications by having them exchange and share data,
    6. identify and work with various document and file formats,
    7. develop simple web pages with static and dynamic content to present data and data analysis results,
    8. articulate the important ethical and social issues in computing, and identify ethical behavior in the computing fields, as laid out in the Association of Computing Machinery Code of Ethics and Professional Conduct,
    9. identify the major computer and Internet security issues,
    10. list and describe general programming concepts such as sequence, selection and repetition,
    11. identify, use, and distinguish several basic data types,
    12. use network resources and Internet file transfers to manage a large group of related files.

**University-wide Technological Literacy Learning Outcomes**

#1: *Students will demonstrate the ability to use a word processing program to produce scholarly documents with citations and references in an academically accepted formatting style, with graphic displays as appropriate.*

#2: *Students will demonstrate the ability to use a spreadsheet software package to enter, manipulate with formulas, analyze, and graphically display data.*

#3: *Students will demonstrate the ability to incorporate best practices in the use of presentation software to accompany an oral presentation.*

#4: *Students will demonstrate the ability to conduct effective, efficient, and scholarly searches, evaluate the quality of the materials retrieved and use those materials judiciously, upholding standards of academic integrity and honesty.*

#5: *Students will articulate important ethical and social issues involving the use of technology. These might include, but are not limited to, issues surrounding copyright infringement, social networking behavior, and societal implications such as equality of access.*

#6: *Students will demonstrate the ability to identify the major issues in computer and Internet security and to save and retrieve files, documents, and data using local and network storage devices.*

**Methods of Instruction:** 3 hours per week in a PC laboratory. The material will be presented in a PC laboratory through integrated lectures and lab sessions.

**Methods of Evaluation:** Exams, take-home assignments, lab assignments, short papers on ethical, social, and security issues, oral presentation using presentation software

**Selected Bibliography:**

Computer Science Illuminated, Third Edition

by Nell Dale and John Lewis.

Publisher: Jones and Bartlett, 2007.

Microsoft Office 2007 Intro Concepts & Techniques

by Gary B. Shelly

Publisher: Course Technology

A Guided Tour of Microsoft Office 2007

by Corinne Hoisington

Publisher: Course Technology

JavaScript: The Definitive Guide

by David Flanagan

Publisher: O'Reilly

Beginning Javascript

by Paul Wilton

Publisher: Wrox

**Effective Date of Implementation or Latest Revision:** Fall 2010