**ABET Course Syllabus – CS2011**

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| **Code** | CS2011 | **Credits** | 3 |
| **Title** | Introduction to Programming I | **Coordinator** | Yuqing Zhu |

**Course Information**

1. **Catalog Description:** Introduction to algorithms; designing, coding, debugging, and documenting programs; implementation of algorithms as structured programs in a high level language; laboratory activities on problem analysis and software development. Graded ABC/NC.
2. **Prerequisites:** CS1010, MATH 1040 or consent of the instructor
3. **Contact Hours:** Lecture 2 hours, Laboratory 3 hours /week
4. **Required/Elective:** This course is required in the BS program.

**Textbook**

Introduction to JAVA Programming, by: Daniel Liang, 11th Edition

JAVA How to program, by Deitel and Deitel, 8th Edition

**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 #3. Students will have a strong foundation in the design, analysis, and application of many types of algorithms.*

*SLO #5. Students will have the training to analyze problems and identify and define the computing requirements appropriate to their solutions.*

*SLO #6. Students will have the training to design, implement, and evaluate large software systems working both individually and collaboratively.*

Other outcomes of instruction: At the end of the course students are able to:

* Divide a problem into its logical set of components
* Have a good understanding of the basic programming concepts
* Create simple classes with a few methods
* Have a good understanding of how a good program design reduces coding and debugging time
* Design and code mid-level problems

**Topics Covered**

* Introduction to Computers, Programs, and Java
* Elementary Programming
* Control Statements

Algorithms

Pseudo code

if…else Selection Statement

while Repetition Statement

Formulating Algorithms

Compound Assignment Operators

Primitive Types

for Repetition Statement

do…while Repetition Statement

switch Multiple-Selection Statement

break and *continue* Statements

Logical Operators

* Methods

Program Modules in Java

static Methods, *static* Fields

Declaring and using Methods with Multiple Parameters

Argument Promotion and Casting

Java API Packages

Scope of Declarations

Method Overloading

* Arrays

Declaring and Creating Arrays

Examples Using Arrays

Passing Arrays to Methods

Multidimensional Arrays

Variable-Length Argument Lists