

## ITM 311 SYLLABUS

### ITM 311 Introduction to Software Development

Hours: 3 credit hours / 60 contact hours; 30 hours lecture, 30 hours lab

Instructor: Katherine Papademas

Text book, title, author, and year: *Java Programming*, by Joyce Farrell, 9th Edition

#### Specific course information

- a. Catalog description: A broad introduction to object-oriented programming and the related knowledge necessary to program in a contemporary programming language. This would include coverage of an Application Development Kit, a standard integrated Development environment, and the use of GUI components.
- b. Prerequisites: None
- c. Required.

#### Specific goals for the course

- a. Program Educational Objectives:
  2. Perform requirements analysis, design and administration of computer and network-based systems conforming to policy and best practices, and monitor and support continuing of relevant policy and best practices as appropriate.
- b. **Course Outcomes:**
  - Develop the ability to write and resolve programming problems using Java Language
  - Build Java Applications and Java Applets
  - Identify Java standard libraries and classes
  - Write, compile, execute and troubleshoot Java programming
  - Understand and utilize Java Graphical User Interface in the program writing
  - Understand Java programming syntax, control structures and Java programming concepts
  - Understand, locate and Use Help Resources
  - Build the confidence in “speaking” and writing programs in Java
  - Be acquainted with the various IDEs used for Java Application Programming
- a. **Course student outcomes:**

Upon completion of this course the student should be able to do the following:

  - Recall and describe software application and development theory and concepts
  - Write, compile, execute, troubleshoot, and resolve problems using the Java programming language
  - Build Java Applications and Java Applets
  - Develop with and use Object-Oriented Programming and Methodology in program development

- Identify and use important Java standard libraries and classes
- Locate and use Help Resources
- Develop and write Object Oriented Java Programs
- Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions **(ABET Computing Criterion 3.1)**
- Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program’s discipline **(ABET Computing Criterion 3.2)**
- Identify and analyze user needs and take them into account in the selection, creation, evaluation, and administration of computer-based systems **(ABET IT Criterion 3.6)**

#### Topics to be covered

- a. Using data. Java I/O, Scanner class, data types, variable naming conventions & declarations
- b. Methods
- c. More Object concepts.
- d. Overloaded methods, Constructors. Blocks & Scopes, static fields.
- e. Decision making. Boolean Logic.
- f. Looping techniques. Finite loops. For, while, do-while loops.
- g. Loops continued. Loop performance. 2 Nested loops. Pre/post fix incrementing.
- h. Characters, strings, String builder class
- i. Arrays. Subscripting, parallel arrays.
- j. Advance Arrays. Sorts, ragged arrays, multidimensional arrays.
- k. Introduction to Inheritance
- l. Advance Inheritance. Using packages.
- m. Advanced inheritance continued.
- n. Exception Handling
- o. File I/O. Sequential and Random file 5 processing.
- p. Introduction to Swing Components- Java GUI. Event driven programming
- q. Advanced GUI topics, JAVAFX Intro
- r. Graphics
- s. Applets, Images and Sound
- t. JAVA, JSON, JQUERY, JAVASCRIPT, AngularJS