1. Course number and name
   TC1002 : Programming Fundamentals

2. Credits and contact hours
   3-0-8

3. Instructor’s or course coordinator’s name
   Jakeline Marcos Abed

4. Text book, title, author, and year
   * Joyanes Aguilar, Luis., Programación en Java 2 : algoritmos, estructuras de datos y programación orientada a objetos / Luis Joyanes Aguilar, Ignacio Zahonero Martínez., 1a ed., Madrid ; México : McGraw-Hill, c2002., Spain, c2002., spa, [8448132904],[9788448132903]
   a. other supplemental materials
      Programming Fundamentals:

5. Specific course information
   a. brief description of the content of the course (catalog description)
      The basic programming course is offered in the Information Technologies and Electronics majors. Students acquire the skills to solve problems through algorithms and strategies using object-oriented programming. This course requires a basic knowledge of algorithms. Learning outcome: students will be able to create object-oriented programs that solve practical problems.
   b. prerequisites or co-requisites
      TC1001
   c. indicate whether a required, elective, or selected elective (as per Table 5-1) course in the program
      Required

6. Specific goals for the course
   a. specific outcomes of instruction, ex. The student will be able to explain the significance of current research about a particular topic.
      Upon completion of this course, students will be able to: develop solutions to problems, using an object-oriented programming language; apply debugging techniques and tests; and utilize an integrated tool for the development of computer programs.
   b. explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.
      1. The student will be able to identify, evaluate, propose and implement business solutions supported with information technologies in organizations and based on the analysis of information about customer's satisfaction, cost, response time and risks

7. Brief list of topics to be covered
   1. Virtual Worlds: (3 weeks)
   1.1. Introduction to Virtual Worlds.
   1.2. Classes, objects and methods in Virtual Worlds.
   1.3. Conditions in Virtual Worlds.
   1.4. Loops in Virtual Worlds.
   2. Introduction to Object-Oriented Programming. (1 week)
   2.1. Pseudo-code, algorithms, programming, implementation and testing.
   2.2. Learning the Java programming Environment: Compiling in the console.
   2.3. Learning the Java programming Environment: Compiling in an IDE.
   2.4. Java Syntax and Conventions.

2.5. Predefined Classes in Java (API)
2.6. Data Input/output.
3. Variables, data types and operators. (1 week)
3.1. Variables, data types and operators.
3.2. The String Class.
4. Classes, objects and methods in Object-Oriented Programming (2 weeks)
4.1. Class design and creation.
4.2. Object creation and manipulation.
4.3. Methods and parameters.
5. Inheritance: Basic concepts. (1 week)
5.1. Inheritance.
5.2. Overloading and Overrides.
6. Conditional Statements in Object-Oriented Programming. (2 weeks)
6.1. Syntax of conditional statements.
6.2. Use of conditional statements for problem solving.
6.3. Testing and debugging of solutions.
7. Loops in Object-Oriented Programming. (4 weeks)
7.1. Loop syntax.
7.2. Use of loops in problem solving.
7.3. Processing Strings using loops.
7.4. Testing and debugging of solutions.