Course Name: Programming-2 **Course Code:** COMP213

General Information						
Course Code	**COMP213**	**Level/Year**	**3/2**	**Required (R) / Selected Elective (SE)**		**R**
Credit Hours	**Theory**	**2**	**Lab**	**1**	**Total**	**3**
Prerequisites	**COMP112**	**Course Coordinator**		Mr. Ashfaq Hussain Mohammed		
Corequisites	**Nil**					

Course Description

This course helps students to develop basic problem-solving skills using the Java programming language. The topics passing arguments to a method, method overloading, use of built methods, single and two dimensional arrays, common array operations, methods with array arguments and return value and search operations on array. The fundamental concepts of recursion technique as an important programming concept to express the other style of iteration by showing the technique used by method via calling itself. Finally, all the concepts mentioned here would be applied using Java programming language by implanting the code using open source IDE as (NetBeans).

Course Objectives : On completion of the course, the student will be able to:

- Explain user defined and built in methods, method overloading and understand ambiguous overloading.
- Explain to develop reusable code that is modular, easy to read, easy to debug, and easy to maintain.
- Describe scope of local and global variables in Java.
- Discuss the philosophy of recursion techniques and advantages as well as its drawback.
- Understand constructing and manipulating single and two dimensional arrays and passing methods to arrays.
- Understand the use of File handling technique.

Course Contents

List of Topics

CH 1: Introduction to Methods

CH 2: Built in Methods

CH 3: Recursion

CH 4: Single Dimensional Arrays

CH 5: Multidimensional Arrays

CH 6: File Handling in Java

Textbook

• Think java: how to think like computer scientist. 2nd edition, Allen B. Downey. 2019, ISBN-13: 978-1492072508 • Intro To Java Programming 10th edition, Y Daniel Liang. 2018, ISBN-13: 978-353065782
Reference Materials
• JAVA: The Complete Reference, Herbert Scheldt, McGraw-Hill, 10th edition 2017, ISBN: 978- 1-259-58933-1
Course Learning Outcomes

CLO#01	**Define** and call methods in Java, understanding method parameters, return types, and method overloading.
CLO#02	**Describe** and utilize built-in methods for exponentiation, trigonometric functions, powers, and roots.
CLO#03	**Apply** recursion, methods, and arrays to solve simple programming problems.
CLO#04	**Develop** Java programs using an IDE; compile and execute them effectively.
CLO#05	**Demonstrate** teamwork in programming assignments and collaborative activities.