Course Name: Object Oriented Programming **Course Code:** COMP214

General Information						
Course Code	**COMP214**	**Level/Year**	**4/2**	**Required (R) / Selected Elective (SE)**		**R**
Credit Hours	**Theory**	**2**	**Lab**	**1**	**Total**	**3**
Prerequisites	**COMP213**	**Course Coordinator**		Mr. Mohammad Khamruddin		
Corequisites	**Nil**					

Course Description

This course provides the fundamental concepts of object-oriented design and implementation of software systems. The list of topics includes the fundamental concepts of classes, objects, methods, object orientation techniques such as abstraction and modularization, code coupling and refactoring, encapsulation, inheritance/subtyping and polymorphism, and abstract data types. Students will acquire basic knowledge on how to translate problem statement into object-oriented software that is easy to maintain (change a feature, remove a feature, fix a bug etc.) and extend.

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

- Discuss the philosophy of object-oriented programming.
- Explain the abstraction mechanisms to support the creation of reusable software components.
- Explain the modularization mechanisms to solve complicated problems.
- Illustrate object interactions in real-world problems to come up with straightforward object-oriented solutions.
- Understand the importance of encapsulation, inheritance/subtyping and polymorphism to improve the design of a software system.
- Familiarize students with some design principles for maintainable and extendable software.
- Familiarize students with various types of malicious software and attacks on information security and their countermeasures.

Course Contents

List of Topics

CH 1: Objects and Classes, Understanding Classes

CH 2: Object Interaction

CH 3: Grouping Objects, More-sophisticated behavior

CH 4: Improving structure with inheritance

CH 5: More about Inheritance

Textbook

- Objects First with Java: A Practical Introduction Using BlueJ 6th edition 2017, ISBN-13: 978-0134477367.

Reference Materials	
• JAVA: The Complete Reference, Herbert Scheldt, McGraw-Hill, 10th edition 2017, ISBN: 978- 1-259-58933-1	
Course Learning Outcomes	
CLO#01	**Recognize** objects, object behaviour, object data and objects as types/subtypes**..**
CLO#02	**Apply** object-orientation techniques such as encapsulation, inheritance /subtyping and polymorphism to improve program structure**.**
CLO#03	**Analyze** object interactions of a set of identified objects in a problem
CLO#04	**Use** abstraction and modularization principles to solve a problem.
CLO#05	**Implement** exception handling in object-oriented programming to enhance software reliability and robustness.
CLO#06	**Demonstrate** the ability to work in a group to achieve common assignments and activities in the field of computer programming.