- **Module Timetable: 5COSC019C Object Oriented Programming**

	Tutorial	**Lecture**
Week 01 26Sept – 30Sept	No Tutorial this week.	Introduction to Object Oriented Programming - Object, Class - Class Declaration - Object as instance of the class - Overloading methods - Access Modifiers - Garbage collection and management of memory - Passing by reference, passing by value
Week 02 03Oct - 07Oct	- Lab exercises on designing and implementing classes and objects, instance methods and instance variable	Classes, class methods and class variables - Object assignment - String class and Packages - Implementing class, - Static, not-static context - Differences: instance, class and local variables - Casting - Method design: Introduction to UML diagrams (Class Diagrams, Use Case Diagrams, Sequence Diagrams)
Week 03 10Oct-14Oct	- Lab exercises on UML classes and relationships, implementing classes and objects interacting with each other. Static, no-static context	Inheritance and Polymorphism - Inheritance - Subclasses - Overriding methods - Inheritance and UML diagrams - Polymorphism

Week 04
 	
17Oct-21Oct
	- Lab exercises on Inheritance and
	
	Polymorphism
	- the students will work towards the solution of programming tasks.
		Interfaces, Abstract and Final class
		  - Object class in Java
		  - Final classes and methods
		  - Abstract classes
		  - Interfaces
		  - Introduction to design patterns.
		  - Template method pattern
		
		Coursework published

Week 05
 	
24Oct-28Oct
	- Lab exercises on Interfaces and abstract classes, exercises on collections
	- Computational modeling
		Collections and Data Structures
		  - Vector and array
		  - Set, List, Queue, Map
		  - Searching and sorting
		
		  - - Coursework feedback

Week 06 28Oct-01Nov	*Engagement Week – Activities organized by the university, no lecture, no tutorial*	

Week 07
 	
07Nov-11Nov
	Lab exercises on collections and data structures	Graphical User Interfaces (GUI)
		  - How to write programs that have GUI
		  - Basic GUI components, container and event
		  - How to use frame and add component to frame
		  - Introduction to Event Handling

Week 08
 	
14Nov-18Nov
	- Lab exercises on GUI	Event Handling and Files Handling
		  - Events handling
		  - Listeners classes
		  - Streams
		  - Class File
		  - Manipulate files and directory
		  - File reader and writer

Week 09 21Nov-25Nov	- Lab Exercises on Event Handling and Files handling	Exception Handling and testing - Declaring, throwing and catching exceptions - When throwing and use exceptions - Exceptions and inheritance - Testing process (running tests, unit tests)
Week 10 28Nov-02Dec	- Lab exercises on exception handling - Exercise on Unit testing	Principle of Concurrency - Implementing threads - Create multiple threads - Concurrent access to data and Synchronization
Week 11 05Dec-09Dec	Lab exercises on multithreading and synchronization	Something more about Consumer/Producer problem Preparation to in-class test and Coursework
Week 12 12Dec-16Dec	In-class test	Design pattern - What are design patterns - Types of design patterns - UML diagrams and examples for: State, strategy, composite, Singleton, Observer, Factory, MVC

- **<u>Important dates:</u>**

- **In-class test**
- Test during your seminar (tutorial) slot in week 12

- **Coursework**
- Deadline Coursework: 04 January 1:00 pm