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Department of Computer Science and Engineering

Course Title:	Object Oriented Programming (Theory)
Course Code:	CSE 2141-0613
Credit/Hours:	3hrs/Week
Prerequisites:	N/A
Course Instructor:	Md. Nurul Islam
Email:	nisakib@ius.edu.bd
Course Objectives:	<ul style="list-style-type: none">• This course teaches object-oriented programming to those who have learnt basic programming concepts and are ready to learn in-depth programming.• It focuses on object-oriented programming using JAVA.• The main concepts discussed are: Objects, Data Abstraction, Data Encapsulation, Polymorphism, and Inheritance.• We teach the JAVA language constructs that are used to implement these concepts.• For example, Classes, Overloaded Operators, Overridden Methods, Friend Functions, Virtual Functions, and Templates, etc.
Course Outcome:	<p>At the End of the course students will be:</p> <ul style="list-style-type: none">• CLO1: Students will be able to understand the basics paradigm of OOP and the syntax of Java/JSP/ Python/ C#.• CLO2: Able to gain knowledge on all components of OOP and design the solutions using programming language.• CLO3: Competent to identify, analyze and solve complex problems.• CLO4: Able to select advanced tools and apply OOP to solve advanced real-world problems.

CO & PO Mapping:

CLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11
CLO1	✓										
CLO2	✓		✓								
CLO3	✓	✓	✓								
CLO4	✓		✓		✓						

Grading policy:

Assessment Strategy	Marks
Class attendance	10
Assignment/ Presentation	10
Class test/quiz	10
Midterm exam	30
Final exam	40
Total	100

Unit No.	Week	Lecture	Topic Name	Mode of Teaching
1. Introduction to Object Oriented Programming	1	1	Introduction to object-oriented programming	ppt/video/notes
		2	Introduction to JAVA	ppt/video/notes
2. Fundamental Programming Structures in Java	2	3	Main () method, Primitive, Data Types	ppt/video/notes
		4	Variables, Constants, Assignments	ppt/video/notes
3. Classes and Objects in Java	3	5	Initializations, Operators, Strings	ppt/video/notes
		6	Control Flow, Code Examples and Exercises	ppt/video/notes
	4	7	Class test - 1 and Assignment - 1 for Unit 1,2	
		8	Classes & Objects	ppt/video/notes
	5	9	OOP Principles	ppt/video/notes
		10	Instance Variables, Class Variables	ppt/video/notes
	6	11	Constructors	ppt/video/notes
		12	Instance Methods	ppt/video/notes
	7	13	Class Methods, Method Overloading	ppt/video/notes
		14	Garbage Collection in Java, Code Examples & Exercises.	ppt/video/notes
Review and Class Test	8	15	Review Class for Unit 3	ppt/video/notes
		16	Class test - 2 and Assignment - 2 for Unit 3	
Mid Semester Examination (Tentative)				

4. Object Design and Programming with Java	9	17	Abstraction, Inheritance	ppt/video/notes
		18	Polymorphism	ppt/video/notes
	10	19	Method Overriding, Associations, Delegations, Code Examples and Exercises.	ppt/video/notes
5. Java Interfaces		20	Purpose of interfaces, Usage, Interface Declaration, Implementing and Interface	ppt/video/notes
	11	21	Interface Inheritance, Code Examples and Exercises.	ppt/video/notes
		22	Exceptions, Standard Exception Handling, Exception Class Hierarchy	ppt/video/notes
6. Java Exception Handling		12	23	checked vs Unchecked Exception, Catching an Exception
	24		Exception Handling	ppt/video/notes
	13	25	, Writing Exception, Code Examples and Exercises.	ppt/video/notes
26		Class test - 3 and Assignment - 3 for Unit 4,5 and 6	ppt/video/notes	
7. Collections of API	14	27	Arrays, Java Collections Framework, Collections Interfaces	ppt/video/notes
		28	Concrete Collections, Code Examples and Exercises	ppt/video/notes
8. Java Input/Output API	15	29	Streams and Files, I/O Streams, File Streams	ppt/video/notes
		30	Readers and Writers, Code Examples and Exercises.	ppt/video/notes
9. Java Threading & GUI	16	31	Java Multithreading, Menus, Toolbars	ppt/video/notes
		32	Dialogs, Containers, Layout Management.	ppt/video/notes
Semester Final Examination				