
	Daffodil International University Department of Computer Science and Engineering (CSE) Course Outline		
Course Code:	CSE 221		
Course Title:	Object Oriented Programming		
Program:	B.Sc. in CSE		
Faculty:	Faculty of Science and Information Technology (FSIT)		
Semester:	Summer	Year:	2020
Credit:	3.00	Contact Hour:	3.00
Course Level:	L2T1	Prerequisite:	CSE 112
Course Category:	Core		
Instructor Name:	Nuray Jannat		
Designation:	Lecturer		
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1. Course Rationale

Philosophy of Object Oriented Programming (OOP); Advantages of OOP over structured programming; Encapsulation; Classes and objects; Access specifiers; Static and non-static members; Constructors, destructors and copy constructors; Array of objects, object pointers, and object references; Inheritance: single and multiple inheritance; Polymorphism: overloading, abstract classes, virtual functions and overriding; Exceptions; Object Oriented I/O; Template functions and classes; Multi-threaded Programming.

1.1.Course Objective

- Knowledge between Structured Programming and Object Oriented Programming
- To be able to differentiate between classes and objects
- To be able to solve real time problem to OOP concept
- UML diagram design for a system
- Java code implementation for a system with UML diagram

1.2.Course Outcomes (CO's)

CO1	Able to identify classes, objects, members of a class and relationships among them needed for a specific engineering problems
CO2	Able to develop Java application programs using OOP principles and proper program structuring
CO3	Able to demonstrate the concepts of polymorphism and inheritance
CO4	Able to apply OOP and Java knowledge in solving problem

1. Program Outcomes (PO's)

Program Outcomes are reported in Appendix-I.

2. CO-PO Mapping

PO's \ CO's	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	✓											
CO2	✓	✓										
CO3		✓										
CO4	✓	✓			✓							✓

a. Course Plan/Lesson Plan

Week	Lesson	Topic	Textbook & Video Reference	Related CO's
1	1	Structured vs object oriented programming, OOP concept, languages for OOP, why java, how java works	Herbert Schildt (chap: 1)	CO1
	2	Get familiar with tools, Basics of java: variables, arrays	Herbert Schildt (chap: 2,3)	CO1
2	3	Operators and control statements	Herbert Schildt (chap: 4, 5)	CO1
	4		Herbert Schildt (chap: 6)	CO1, CO2

Week	Lesson	Topic	Textbook & Video Reference	Related CO's
		Introduction to class and its attributes & methods, Constructors		
3	5	OOP: Encapsulation, Access modifiers, understanding static, final, nested and inner class	Herbert Schildt (chap: 7)	CO1,CO2
	6	OOP: Polymorphism, function overloading	Herbert Schildt (chap: 7)	CO2,CO3
4	7	OOP: Inheritance, basic concept, member access, different type of inheritance	Herbert Schildt (chap: 8)	CO2,CO3
	8	OOP: Inheritance(cont), abstract class, method overriding, constructors of superclass and subclass	Herbert Schildt (chap: 8)	CO2,CO3
5	9	UML basics and notations	Class lecture	CO4
	10	UML diagram design	Class lecture	CO4
6	11	UML to Java code	Class lecture	CO4
	12	Exercises	-	-
MID - Term				
7	13	Packages, Interface, UML diagram	Herbert Schildt (chap: 9)	CO3, CO4
	14	Exception handling, try and catch clause	Herbert Schildt (chap: 10)	CO3, CO4
	15	Exception handling: throw, throws and finally keywords	Herbert Schildt (chap: 10)	CO3, CO4

Week	Lesson	Topic	Textbook & Video Reference	Related CO's
8	16	Multithreaded Programming: basic concept, thread, thread priorities, Main thread	Herbert Schildt (chap: 11)	CO1, CO3, CO4
9	17	Multithreaded Programming: Creating thread, Implementing Runnable interface, Extending Thread	Herbert Schildt (chap: 11)	CO1, CO3, CO4
	18	Multithreading Programming: Creating multiple thread, using isAlive(), join(), thread priorities	Herbert Schildt (chap: 11)	CO1, CO3, CO4
10	19	Multithreading Programming: Synchronization, Interthread communication, Deadlock, Thread's state	Herbert Schildt (chap: 11)	CO1, CO3, CO4
	20	File I/O: I/O basics, Streams, Reading and writing files	Herbert Schildt (chap: 13)	CO1, CO3
11	21	Review and Practice	-	
	22	Review and Practice	-	
12	23	Review and Practice	-	
	24	Review and Practice	-	

2. Assessment Methods

a. Grading System

Numerical Grade	Letter Grade	Grade Point
80-100	A+	4.00
75-79	A	3.75
70-74	A-	3.50

65-69	B+	3.25
60-64	B	3.00
55-59	B-	2.75
50-54	C+	2.50
45-49	C	2.25
40-44	D	2.00
Less than 40	F	0.00

3. Additional Support for Students

- Student Portal:
<http://studentportal.diu.edu.bd/>
- Academic Guidelines
<https://daffodilvarsity.edu.bd/article/academic-guidelines>
- Rules and Regulations of DIU
<https://daffodilvarsity.edu.bd/article/rules-and-regulation>
- Career Development Center:
<https://cdc.daffodilvarsity.edu.bd/>
- For general queries:
<http://daffodilvarsity.edu.bd/>

Appendix -1: Program outcomes POs	Category	Program Outcomes
PO1	Engineering Knowledge	Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.
PO2	Problem Analysis	Identify, formulate, research the literature and analyze complex engineering problems and reach substantiated conclusions using first

		principles of mathematics, the natural sciences and the engineering sciences.
PO3	Design/Development of Solutions	Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety as well as cultural, societal and environmental concerns.
PO4	Investigations	Conduct investigations of complex problems, considering design of experiments, analysis and interpretation of data and synthesis of information to provide valid conclusions.
PO5	Modern tool usage	Create, select and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO6	The engineer and society	Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice.
PO7	Environment and sustainability	Understand the impact of professional engineering solutions in societal and environmental contexts and demonstrate the knowledge of, and need for sustainable development.
PO8	Ethics	Apply ethical principles and commit to professional ethics, responsibilities and the norms of the engineering practice.
PO9	Individual work and teamwork	Function effectively as an individual and as a member or leader of diverse teams as well as in multidisciplinary settings.
PO10	Communication	Communicate effectively about complex engineering activities with the engineering community and with society at large. Be able to comprehend and write effective reports, design documentation, make effective presentations and give and receive clear instructions.
PO11	Project management and finance	Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work as a member or a leader of a team to manage projects in multidisciplinary environments.
PO12	Life Long Learning	Recognize the need for and have the preparation and ability to engage in independent, life-long learning in the broadest context of technological change.