	SUBJECT: OBJECT ORIENTED PROGRAMMING		**MARKS**:
	TOPIC: All topics	**CODE:** BCS 2143	**90**
	ASSESSMENT: Project	**DURATION:** 14 Weeks	

FACULTY OF COMPUTING (FK)
GROUP PROJECT (30% of all Assessments)

LEARNING OBJECTIVES:

Through this assessment student will:
1. Demonstrate the concept of object-oriented in programming
2. Manipulate object-oriented programming in given problems
3. Formulate the solution of given problems using object-oriented programming technique

GENERAL INSTRUCTIONS:

1. This project requires you to form **a group of THREE to FOUR (3-4)**
2. Each group is requested to design and develop a system using NetBeans and applying all the Object-Oriented Concepts learned in the course.
3. Each group should select one system and should be approved by the lecturer. Once the title and the system are approved, it can't be change. If the final project is different than the proposed system submitted during Phase I and Phase II, mark for previous phases will be zero.
4. Details on the tasks and submission date are shown in Table 1.
5. This project is worth (30%) from overall mark and each group member might be awarded with different mark based on individual contribution.
6. You are advised to perform a backup strategy such as uploading your work/document to online storage (Google Drive, OneDrive, e-mail etc). Any late submission or fail to submit because of virus, hardware failure or other unacceptable reason will cause you penalty or zero mark.
7. Refer **Table 1** for detailed instructions for the BCS2143 Project.

DETAILED INSTRUCTIONS FOR EACH PHASE:

PHASE I (15 Marks or 5%)

Prepare a proposal with the following sections: (1) **Introduction**: briefly explain your project/system and its background, (2) **Problem Statement**: clearly define the problem your system will address, (3) **Objective**: list the main goals of the project, and (4) **Class Diagram**: provide a detailed design of class diagram showing the structure of your system. Ensure the proposal is well-organized and follows this format for grading.

*** *Your proposal should follow the same structure of **Chapter One** in a Final Year Project (FYP or PSM) thesis.*

PHASE II (30 Marks or 10%)

In this phase, students are expected to develop a complete Java project using **Object-Oriented Programming concepts**, including:

i)   Creating multiple Java classes
ii)   Applying control and repetition statements
iii)   Using arrays – both primitive and object arrays
iv)   Utilizing the String class and its methods
v)   Implementing encapsulation
vi)   Applying composition and aggregation
vii)   Using inheritance
viii) Handling input and output via the IDE console

PHASE III (45 Marks or 15%)

This phase **continues from Phase II**, where students are expected to enhance their existing Java project and update their code with the following concepts and topics:

i)   Incorporate inheritance and polymorphism
ii)   Utilize abstract and interface classes
iii)   Implement basic database manipulation (insert, edit, delete, and search)
iv)   Handle input and output through a GUI
v)   Apply software design patterns (Factory Pattern)

Table 1

No.	Phase	Task	Due	Marks	Submission

1	Phase I	**Project Proposal**
		Proposal must include:
		  i. Introduction
		  ii. Problem Statement
		  iii. Objectives
		  iv. Class diagram (with Design Pattern)
			Week 4	5%	- Proposal

2	Phase II	**Source Code**
		This phase should include OOP topic:
		  i. Control & Repetition statement
		  ii. Array of Object & Primitive
		  iii. String Method / Class
		  iv. Encapsulation
		  v. Composition & Aggregation
		  vi. Inheritance
			Week 10	10%	- Source Code

3	Phase III	**Complete Source Code & Presentation** Phase III must cover **ALL BCS2143 topics** up to Software Design Patterns	Week 13	15%	- Source Code - Report - Oral Presentation