

Maulana Abul Kalam Azad University of Technology
(Formerly West Bengal University of Technology)
Syllabus and Curricular Mapping for B. Tech. in Computer Science and Engineering
Effective from Academic Session 2023-24

Course Title: Object Oriented Programming	Code: PCC-CS503
Type of Course: Theory	Course Designation: Compulsory
Semester: 5th	Contact Hours: 3L/week
Continuous Assessment: 25 Marks	Final Exam: 70 Marks
Writer: Course Coordinator	Approved by HoD (convenor of DAB)

COURSE OUTCOMES (COs)

On completion of the course students will be able to

Course Outcomes	Details	Action Verb	Knowledge Level
PCC-CS503.CO1	Describe classes, objects, members of a class and relationships among them needed for a specific problem.	Describe	K1
PCC-CS503.CO2	Explain the features of object-oriented principles such as encapsulation, polymorphism and composition of systems based on object identity.	Explain	K2
PCC-CS503.CO3	Analyze the concepts of inheritance and its application in OO design with different design patterns.	Analyze	K4
PCC-CS503.CO4	Discuss simple abstract data types and design implementations using abstraction functions to document them.	Discuss	K2
PCC-CS503.CO5	Apply some common object-oriented design patterns and give examples of their use.	Apply	K3
PCC-CS503.CO6	Design applications with an event-driven graphical user interface.	Design	K6

Mapping of COs with POs and PSOs (Course Articulation Matrix):

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	1	2	-	-	-	2	-	-	2	2	2	1
CO2	3	3	1	3	-	-	-	1	-	-	2	2	2	3
CO3	3	3	2	3	-	-	-	3	-	-	2	2	3	2
CO4	3	3	2	3	-	-	-	3	-	-	2	2	3	2
CO5	3	3	-	1	-	-	-	2	2	2	2	2	2	1
CO6	3	3	-	3	-	-	-	3	2	2	2	2	3	2
AVG.	3	3	1.5	2.5	0	0	0	2.33	2	2	2	2	2.5	1.83

University Syllabus :

Unit	Content	Hrs/Unit
1	Abstract data types and their specification. How to implement an ADT. Concrete state space, concrete invariant, abstraction function. Implementing operations, illustrated by the Text example.	8
2	Features of object-oriented programming. Encapsulation, object identity, polymorphism – but not inheritance	8
3	Inheritance in OO design. Design patterns. Introduction and classification. The iterator pattern.	6
4	Model-view-controller pattern. Commands as methods and as objects. Implementing OO language features. Memory management.	6
5	Generic types and collections GUIs. Graphical programming with Scale and Swing . The software development process	6

Course Title: Object Oriented Programming Lab	Code: PCC-CS593
Type of Course: Practical	Course Designation: Compulsory
Semester: 5 th	Contact Hours: 4P/week
Continuous Assessment: 40 Marks	Final Exam: 60 Marks
Writer: Course Coordinator	Approved by HoD (convenor of DAB)

COURSE OUTCOMES (COs)

On completion of the course students will be able to

Course Outcomes	Details	Action Verb	Knowledge Level
PCC-CS593.CO1	Define an object oriented programming language, and associated class libraries and learn how to develop object oriented programs.	Define	K1
PCC-CS593.CO2	Understand the concepts of class, constructor, data encapsulation, inheritance, overriding and polymorphism to describe large scale software.	Understand	K2
PCC-CS593.CO3	Develop and debug programs using object oriented principles with wrapper class, arrays.	Develop	K3
PCC-CS593.CO4	Apply the concept of interfaces- multiple inheritance, extending interfaces.	Apply	K3
PCC-CS593.CO5	Analyze and use an integrated environment development by creating and accessing packages and multithreaded programming	Analyze	K4
PCC-CS593.CO6	Develop programs with Graphical User Interfaces capabilities and solve related problems.	Develop	K6

Mapping of COs with POs and PSOs (Course Articulation Matrix):

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	1	2	-	-	-	2	-	-	2	2	1
CO2	3	3	3	1	3	-	-	-	1	-	-	2	2	3
CO3	3	3	3	2	3	-	-	-	3	-	-	2	3	2
CO4	3	3	3	2	3	-	-	-	3	-	-	2	3	2
CO5	3	3	3	-	1	-	-	-	2	2	2	2	2	1
CO6	3	3	3	-	3	-	-	-	3	2	2	2	3	2
AVG.	3	3	3	1.5	2.5	0	0	0	2.3	2	2	2	2.5	1.8

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University Syllabus :

Note: Use Java for programming

Unit	Content
1	Assignments on class, constructor, overloading, inheritance, overriding
2	Assignments on wrapper class, arrays
3	Assignments on developing interfaces- multiple inheritance, extending interfaces
4	Assignments on creating and accessing packages
5	Assignments on multithreaded programming
6	Assignments on applet programming