

OBJECT ORIENTED PROGRAMMING

Vision of Institute

Vision: “ To become renowned Centre of outcome based learning and work towards academic, professional, cultural and social enrichments of the lives of individual and communities”

Mission of Institute

1. Focus on evaluation of learning outcomes and motivate students to inculcate research aptitude by project based learning.
2. Identify areas of focus and provide platform to gain knowledge and solutions based on informed perception of Indian, regional and global needs.
3. Offer opportunities for interaction between academia and industry.
4. Develop human potential to its fullest extent so that intellectually capable and imaginatively gifted leaders can emerge in a range of professions.

Vision of the Department

“The vision of our institute is to provide the professional and active learners to the IT challenging world. By providing the technical surroundings and scientific excellence environment, we serve as a valuable resource for industry and society.”

Mission of the Department

- To generate the adequate knowledge by promoting the extracurricular activities and technical education.
- To provide the graduates best technology services to fulfill its commitment of technical and education of the highest quality.
- To anticipate and meet the information technology needs of alumni, graduates, faculty and staff as they pursue their educational and professional goals.

OBJECT ORIENTED PROGRAMMING SYLLABUS:-

3IT4-06: Object Oriented Programming

Credit- 3
3L+0T+0P

Max. Marks : 150 (IA:30,ETE:120)
End Term Exam: 3 Hours

SN	CONTENTS	Hours
1	Introduction to different programming paradigm, characteristics of OOP, Class, Object, data member, member function, structures in C++, different access specifiers, defining member function inside and outside class, array of objects.	8
2	Concept of reference, dynamic memory allocation using new and delete operators, inline functions, function overloading, function with default arguments, constructors and destructors, friend function and classes, using this pointer.	8
3	Inheritance, types of inheritance, multiple inheritance, virtual base class, function overriding, abstract class and pure virtual function	9
4	Constant data member and member function, static data member and member function, polymorphism, operator overloading, dynamic binding and virtual function	9
5	Exception handling, Template, Stream class, File handling.	6
TOTAL		40

PROGRAM OUTCOMES

1. **Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **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 the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **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.
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **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 and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life –long Learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Subject and Code: Object Oriented Programming (3IT4-06)

Semester: III

[L/T/P - 3/0/0]

External marks	:	120
Internal marks	:	30
Total marks	:	150

Course Outcomes (COs): Graduates will be able to:

CO1 : Students would be able to understand the different programming paradigm.

CO2 : Students would be able to describe and apply the principles of Object Oriented Programming.

CO3 :Students would be able to understand and apply the principles of inheritance and polymorphism.

CO4 : Students would be able to develop programming skills of undergraduate students to solve basic real world problems using objective oriented programming techniques

Mapping of CO's with PO's:

Se m	Subj ect	Code	L/T /P	CO	P O 1	P O 2	P O 3	P O 4	P O 5	P O 6	P O 7	P O 8	P O 9	P O 10	P O 11	P O 12		
III	Object oriented programming	3IT4-06	L	Students would be able to understand the different programming paradigm	H	H	M	L	L	-	-	-	-	L	-	L		
			L	Students would be able to describe and apply the principles of Object Oriented Programming	H	M	M	L	L	-	-	-	-	-	-	-	-	L
			L	Students would be able to understand and apply the principles of inheritance and polymorphism.	H	M	M	L	L	-	-	-	L	-	-	-	-	L
			L	Students would be able to develop programming skills of undergraduate students to solve basic real world problems using objective oriented programming techniques	H	M	M	M	L	-	-	-	L	L	L	L	L	L

LECTURE PLAN

JAIPUR ENGINEERING COLLEGE AND RESEARCH CENTRE

Department of Information Technology

LECTURE PLAN

Subject: OOP (3IT4-06)

Faculty Name : Ms. Priya

Gupta

Unit No./ Total lec. Req.	Topics	Lect. Req.	Lect. No.
Unit I/8	Review of structure in c, accessing members of structure using structure variable.	1	1
	Introduction to different programming paradigm	1	2
	characteristics of OOP	1	3
	Class, Object	1	4
	Data member. member function	1	5
	structures in C++, different access specifiers	1	6
	defining member function inside and outside class	1	7
	array of objects	1	8
Unit II/8	Concept of reference	1	9
	Inline functions	1	10
	dynamic memory allocation using new and delete operators	1	11
	function overloading	1	12
	function with default arguments	1	13
	constructors and destructors	1	14
	Types of constructor, constructor overloading	1	15
	friend function	1	16
friend function and class using this pointer	1	17	
Unit III/9	Inheritance	1	18
	types of inheritance	1	19
	types of inheritance with example	1	20
	multiple inheritance	1	21
	Multiple inheritance with example	1	22
	virtual base class	1	23
	abstract class	1	24
	pure virtual function	1	25
Unit test	1	26	
Unit IV/9	Constant data member	1	27
	member function	1	28
	static data member and member function	1	29
	Polymorphism	1	30
	Examples: Polymorphism	1	31
	operator overloading	1	32
	operator overloading for unary operators with example	1	33
	operator overloading for binary operators with example	1	34
Function overriding with example	1	35	
Unit V/6	Exception handling	1	36
	Exception handling with examples	1	37
	Template	1	38
	Stream class	1	39
	File handling	1	40

Assignment for Weak Students

Assignment CO 1

- Q.1 Write the difference between C and C++.
- Q.2 What is the use of public and private keywords in C++? Explain the concept of class in C++ with suitable example.
- Q.3 Write a program to add two complex numbers in which objects are passed using call by value method.
- Q.4 What are the difference between class and structure in terms of memory allocation?

Assignment CO 2

- Q.1 Why do we need the Friend class and function?**
- Q.2 Write the difference between Constructor and Destructor.
- Q.3 Write a C++ program to implement friend function
- Q.4 Write a program which read size of array at run time and perform dynamic memory allocation and deallocation with the help of new and delete operators. In this program a data member of array class is pointer variable.

Assignment CO 3

- Q.1 What are the different types of inheritance. Explain with suitable example.
- Q.2 What do you mean by function overriding? How it is different from function overloading?
- Q.3 What is abstract class?
- Q.4 What is virtual functions?

Assignment CO 4

- Q.1 What does a Static member in C++ mean?**
- Q.2 Explain exception handling for a class with example?**
- Q.3 Explain benefits of exception handling?**
- Q.4 What are the different types of polymorphism in C++?