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|  | SHRI SOMESHWAR SHIKSHAN PRASARAK MANDAL’S  **SHARADCHANDRA PAWAR COLLEGE OF ENGINEERING & TECHNOLOGY, SOMESHWARNAGAR** | Record No:- |
| Revision:- |
| Date:- / / |



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| **TEACHING PLAN** |

**Department:** Computer Engineering **Academic Year:** 2024 -2025 **Date: / /2024**

**Semester:** III **Class:** S.E **Subject:** *Object Oriented Programming*

**Teaching Scheme: Lectures/Week:** 05 **Practical/Week:** 01 **Tutorials/Week:** 00

**Examination Scheme: Insem:** 30 **Online:** NA **Endsem:** 70

| **Lect**  **No.** | **Planned Date** | **Topics planned** | **References** | **Method used** | **Conducted Date** | **Sign of Faculty** |
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| 1 |  | **Unit-1**- **Fundamentals of Object Oriented Programming** Introduction to object-oriented programming, Need of object-oriented programming |  | Chalk-Board |  |  |
| 2 |  | Fundamentals of object-oriented programming: Namespaces, objects, classes, data members, methods, messages, data encapsulation, data abstraction and information hiding, inheritance, polymorphism. |  | Chalk-Board |  |  |
| 3 |  | Benefits of OOP, C++ as object oriented programming language. . |  | Chalk-Board |  |  |
| 4 |  | C++ Programming- C++programming Basics, Data Types, Structures, Enumerations, control structures, Arrays and Strings, Class, Object, class and data abstraction. |  | Chalk-Board |  |  |
| 5 |  | Access specifiers, separating interface from implementation. Functions- Function, function prototype, accessing function and utility function, |  | Chalk-Board |  |  |
| 6 |  | Constructors and destructor, Types of constructor, Objects and Memory requirements. |  | Chalk-Board |  |  |
| 7 |  | Static members: variable and functions, inline function, friend function. |  | Chalk-Board |  |  |
| 8 |  | **Unit-2 Inheritance and Pointers** inheritance- Base Class and derived Class, protected members |  | Chalk-Board |  |  |
| 9 |  | relationship between base Class and derived Class, Constructor and destructor in Derived Class. |  | Chalk-Board |  |  |
| 10 |  | Overriding Member Functions, Class Hierarchies, Public and Private Inheritance, |  | Chalk-Board |  |  |
| 11 |  | Types of Inheritance, Ambiguity in Multiple Inheritance, Virtual Base Class, Abstract class, Friend Class, Nested Class. |  | Chalk-Board |  |  |
| 12 |  | Pointers: declaring and initializing pointers, indirection Operators, Memory. |  | Chalk-Board |  |  |
| 13 |  | Management: new and delete, Pointers to Objects, this pointer, Pointers Vs Arrays, accessing Arrays using pointers, Arrays of Pointers, Function pointers. |  | Chalk-Board |  |  |
| 14 |  | Pointers to Pointers, Pointers to Derived classes, Passing pointers to functions, Return pointers from functions, Null pointer, void pointer. |  | Chalk-Board |  |  |
| 15 |  | **Unit-3 - Polymorphism**  Polymorphism- Introduction to Polymorphism, Types of Polymorphism. |  | Chalk-Board |  |  |
| 16 |  | Operator Overloading- concept of overloading, operator overloading, Overloading Unary Operators. |  | Chalk-Board |  |  |
| 17 |  | Overloading Binary Operators, Data Conversion, Type casting (implicit and explicit) |  | Chalk-Board |  |  |
| 18 |  | Pitfalls of Operator Overloading and Conversion, Keywords explicit and mutable. |  | Chalk-Board |  |  |
| 19 |  | Function overloading, Run Time Polymorphism- Pointers to Base class. |  | Chalk-Board |  |  |
| 20 |  | virtual function and its significance in C++, pure virtual function and virtual table. |  | Chalk-Board |  |  |
| 21 |  | virtual destructor, abstract base class. |  | Chalk-Board |  |  |
| 22 |  | **Unit-4 Files and Streams**  Data hierarchy, Stream and files |  | Chalk-Board |  |  |
| 23 |  | Stream Classes, Stream Errors, Disk File I/O with Streams. |  | Chalk-Board |  |  |
| 24 |  | File Pointers, and Error Handling in File I/O. |  | Chalk-Board |  |  |
| 25 |  | File I/O with Member Functions. |  | Chalk-Board |  |  |
| 26 |  | Overloading the Extraction and Insertion Operators |  | Chalk-Board |  |  |
| 27 |  | memory as a Stream Object |  | Chalk-Board |  |  |
| 28 |  | Command-Line Arguments, Printer output. |  | Chalk-Board |  |  |
| 29 |  | **Unit-5- Exception Handling and Templates**  Exception Handling- Fundamentals, other error handling techniques. |  | Chalk-Board |  |  |
| 30 |  | simple exception handling- Divide by Zero, Multiple catching |  | Chalk-Board |  |  |
| 31 |  | re-throwing an exception, exception specifications |  | Chalk-Board |  |  |
| 32 |  | user defined exceptions, processing unexpected exceptions, constructor |  | Chalk-Board |  |  |
| 33 |  | destructor and exception handling, exception and inheritance. |  | Chalk-Board |  |  |
| 34 |  | Templates- The Power of Templates, Function template, overloading Function templates, and class template |  | Chalk-Board |  |  |
| 35 |  | class template and Nontype parameters, template and friends Generic Functions, The type name and export keywords. |  | Chalk-Board |  |  |
| 36 |  | **Unit-6- Standard Template Library (STL)**  Introduction to STL, STL Components |  | Chalk-Board |  |  |
| 37 |  | Containers- Sequence container and associative containers |  | Chalk-Board |  |  |
| 38 |  | container adapters, Application of Container classes: vector, list, |  | Chalk-Board |  |  |
| 39 |  | Algorithms- basic searching and sorting algorithms |  | Chalk-Board |  |  |
| 40 |  | min-max algorithm, set operations, heap sort. |  | Chalk-Board |  |  |
| 41 |  | Iterators- input, output, forward, bidirectional and random access. |  | Chalk-Board |  |  |
| 42 |  | Object Oriented Programming – a road map to future |  | Chalk-Board |  |  |

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| **SUMMARY** | | | | |
| **Unit No.** | **Title** | **Total no. of Lectures** | **Planned Date of Completion** | **Actual Date of Completion** |
| 1 | **Fundamentals of Object Oriented**  **Programming** | **08** |  |  |
| 2 | **Inheritance and Pointers** | **06** |  |  |
| 3 | **Polymorphism** | **07** |  |  |
| 4 | **Files and Streams** | **07** |  |  |
| 5 | **Exception Handling and Templates** | **07** |  |  |
| 6 | **Standard Template Library (STL)** | **07** |  |  |

**References:**

**1. Bjarne Stroustrup, ―The C++ Programming language‖, Third edition, Pearson Education. ISBN 9780201889543.**

**2. Deitel, ―C++ How to Program‖, 4th Edition, Pearson Education, ISBN:81-297-0276-2**

**Methodology Used:**

**C /B**: Chalk & Board

**P:** Power point Presentation

**V/A:** Video Audio Lectures

**Subject In charge Head of the Department Principal**