| LESSON PLAN | |
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| PGDCA Sem-I | |
| Subject- C | |
| Session 2019-2020 | |
| Month | Topic |
| WEEK-1 | Programming Process: Problem definition, Algorithm development, Flowchart, Coding, Compilation and debugging. |
| WEEK-2 | Basic structure of C program: History of C, Structure of a C program, Character set, Identifiers and keywords, constants, variables, data types. |
| WEEK-3 | Operators and expressions: Arithmetic, Unary, Logical, Relational operators, assignment operators, Conditional operators, Hierarchy of operations type conversion. |
| week 4 | Control statements: branching statements (if, if else, switch), loop statements (for, while and do-while), jump statements (break, continue, goto), nested control structures. |
| week 5 | call, formal and actual arguments, local and global variables, methods of parameter passing to functions, recursion. |
| week 6 | I/O functions: formatted & unformatted console I/O functions |
| week 7 | Arrays: – One dimensional and two dimensional arrays |
| week 8 | MST |
| week 9 | MST |
| week 10 | Structures and unions: using structures and unions, comparison of structure with arrays and union. |
| week 11 | Pointers: pointer data type, pointer declaration, initialization, accessing values using pointers, |
| week12 | Declaration, initialization, reading values into an array, displaying array contents |
| week13 | pointers and arrays. |
| week 14 | Strings: input/output of strings, string handling functions (strlen, strcpy, strcmp, strcat & |
| week 15 | Introduction to Files in C: opening and closing files. Basic I/O operation on files. |
| week 16 | Quaries from students |

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LESSON PLAN (Session 2019-20)

PGDCA

Subject: Operating System (Sem 1)

| SESSION | TOPIC |
|---|---|
| August (Month 1) | Week 1 Introduction: Operating System: uses of computer networks, Goals and applications of networks, computer network structure and architecture. |
| | Week 2 Function of Operating System, Features of Operating System |
| | Week 3 Medium Access Sublayer : Static and dynamic channel allocation for LAN and MAN ALOHA Protocols |
| | Week 4 CPU Scheduling |
| September (Month 2) | Mid semester Test-I |
| | Week 5 Networking and Internetworking devices: Repeater, bridges, routers, gateways, switches. |
| | Week 6 Computer networks hardware and software |
| | Week 7 High speed LAN: FDDI, Fast Ethernet, HIPPI, Fiber channel. |
| October (Month 3) | Week 8 LAN IEEE 802.x standards.<br>Routing: Static vs. Dynamic Routing, various Routing Algorithms. |
| | Week 9 Congestion Control: Causes of Congestion, Various Congestion Control Strategies and Algorithms<br>Mobile telephone, mobile telephone switching office.<br>Congestion Control: Causes of Congestion, Various Congestion Control Strategies and Algorithms |

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|---|---|
| November (Month 4) | Weel 11 Internet protocols, IPv6. |
| | Week 12 Network Security: Security requirements and attacks |
| | Wek 13 Encryption Public key encryption and digital Signatures. distributed applications: SNMP, SMTP, HTTP. |
| | Week 14 Revision |

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| LESSON PLAN | |
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| P.G.D.C.A. Sem 2nd | |
| Subject- Object Oriented Programming | |
| session 2019-2020 | |
| Month | Topic |
| week 1 | Evolution of OOP: Procedure Oriented Programming, OOP Paradigm, Advantages and disadvantages of OOP over its predecessor paradigms. Characteristics of Object Oriented Programming. |
| week 2 | conditional and assignment. Size of operator. Operator precedence and associativity. Type conversion, Variable declaration, |
| week 3 | expressions, statements, manipulators. Input and output statements, stream I/O, Conditional and Iterative statements, breaking control statements. Storage Classes, Arrays, Arrays as Character Strings, Structures, Unions, Bit fields, Enumerations and User defined types. |
| week 4 | Pointers: Pointer Operations, Pointer Arithmetic, Pointers and Arrays, Multiple indirections, Pointer to functions.. |
| week 5 | by reference, Functions returning references, Const functions, recursion, function overloading, Default Arguments, Const arguments, Pre-processor, Type casting. |
| week 6 | Classes and Objects: Class Declaration and Class Definition, Defining member functions, making functions inline, Nesting of member functions, Members access control. THIS pointer. Objects: Object as function arguments, |
| week 7 | Conditional Statements : if Statement , case Statement; Iteration Statements : for Statement, while Statement, until Statement, shift Command, select Statement, repeat Statement, Functions. Editing and Typesetting : Text Editors vi, The vi Editor, Starting vi, vi modes, array of objects, functions returning objects, Const member. Static data members and Static member functions, Friend functions and Friend classes |
| week 8 | MST |
| week 9 | MST |
| week 10 | Constructors: properties, types of constructors, Dynamic constructors, multiple constructors in classes. Destructors: |
| week 11 | Properties, Virtual destructors. Destroying objects, Rules for constructors and destructors. Array of objects. Dynamic |
| week 12 | memory allocation using new and delete operators, Nested and container classes, Scopes: Local, Global, Namespace |
| week 13 | and Class. |
| week 14 | Polymorphism: Methods of achieving polymorphic behavior. |
| week 15 | Operator overloading: overloading binary operator, overloading unary operators, rules for operator overloading, |
| week 16 | functions, late binding, pure virtual functions and abstract base class. Difference between function overloading,redefining, and overriding. |

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Class Pgdca 2nd sem

LESSON PLAN (2019-20)

Subject OOP's (203)

| SESSION | TOPIC | REFERENCES |
|---|---|---|
| Week 1 | Evolution of OOP: Procedure Oriented Programming, OOP Paradigm, Advantages and disadvantages of OOP over its predecessor paradigms. | |
| Week 2 | Characteristics of Object Oriented Programming. Introduction to C++: Identifier, Keywords, Constants. | |
| Week 3 | Operators: Arithmetic, relational, logical, conditional and assignment, Size of operator, Operator precedence and associativity, Type conversion, Variable declaration, expressions, statements, manipulators. | |
| Week 4 | Input and output statements, stream I/O, Conditional and Iterative statements, breaking control | |
| Week 5 | Mid semester Test-I | |
| Week 6 | Storage Classes, Arrays, Arrays as Character Strings, Structures, Unions, Bit fields, Enumerations and User defined types. Pointers: Pointer Operations, Pointer Arithmetic, Pointers and Arrays, Multiple indirections, Pointer to functions. Functions: Prototyping | |
| Week 7 | , Definition and Call, Scope Rules, Parameter Passing by value, by address and by reference, Functions returning references , , Const functions, recursion, function overloading, Default Arguments, Const arguments, Pre-processor, Type casting. | |
| Week 8 | Classes and Objects: Class Declaration and Class Definition, Defining member functions, making functions inline, Nesting of member functions, Members access control, THIS pointer. Objects: Object as function arguments, array of objects, | |
| Week 9 | functions returning objects, Const member, Static data members and Static member functions, Friend functions and Friend classes, Constructors: properties, types of constructors, Dynamic constructors, multiple constructors in classes. | |
| Week 10 | Destructors: Properties, Virtual destructors, Destroying objects, Rules for constructors and destructors, Array of objects, Dynamic memory allocation using new and delete operators, Nested and container classes, Scopes: Local, Global, Namespace and Class, Inheritance: Defining derived classes, inheriting private members, single inheritance, types of derivation, function redefining, constructors in derived class, Types of inheritance, Types of base classes, Code Reusability, Polymorphism: | |
| Week 11 | Mid semester Test-II | |

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| Week 12 | Methods of achieving polymorphic behavior. Operator overloading: overloading binary operator, overloading unary operators, rules for operator overloading, operator overloading using friend function | |
| Week 13 | Function overloading: early binding, Polymorphism with pointers, virtual functions | |
| Week 14 | late binding, pure virtual functions and abstract base class. Difference between function overloading, redefining, and overriding. Templates: Generic Functions and Generic Classes, | |
| Week 15 | Overloading of template functions. Exception Handling catching class types, handling derived class exceptions, catching exceptions, restricting exception. | |
| Week 16 | Revision | |

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Department of Computer Science (HEIS), Government College, Ropar (2019-20)

Class PGDCA Sem. 2nd Subject: Introduction to Computer Network, Internet and E-Commerce

| Week | TOPIC |
|---|---|
| Week 1 | Networking: Basic, elements in networking, network topology, different types of network LAN, MAN, WAN, GAN, PAN. Networks connecting devices. |
| Week 2 | Open system interconnection model (OSI) Different layers, TCP/IP model and layers. Introduction to intranet and extranet. |
| Week 3 | Internet Concepts: History of the internet, advantages and disadvantages of internet, WWW, |
| Week 4 | IP addressing, domain name system, introduction and working of e-mail. |
| Week 5 | Data Communication: Introduction, Relays, Repeaters, Bridges, Routers, Gateways |
| Week 6 | Introduction to Web browser and search engine: Definition features and type internet explorer, Mozilla Firefox and Netscape navigator. |
| Week 7 | Search Engine (types, features etc.) Electronic meeting system (Audio conferencing, video conferencing, groupware |
| Week 8 | **Mid semester Test** |
| Week 9 | **Mid semester Test** |
| Week 10 | Types of E-Commerce, infrastructure requirements for e-commerce, different ecommerce website and their features. |
| Week 11 | Overview of E-Commerce Technologies: Ecommerce: Definition, difference with traditional commerce applications, advantages and disadvantages of e-commerce. |
| Week 12 | Business models of E–Commerce: Business to Business, Business to customers, Customers to Customers, Business to Government, Business to Employee |
| Week 13 | Electronic Payment System: Introduction, Online payment systems – prepaid and postpaid payment systems, e-cash, e-cheque, |
| Week 14 | Electronic purse, Security issues on electronic payment system, Solutions to security issues Biometrics –Types of biometrics |
| Week 15 | Gateways: Idea of SMS, Email and Payment Gateway Integration |
| Week 16 | Smart Card, Credit Card, Debit Card |

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