Class BCA 3rd sem

LESSON PLAN (2019-20)

Subject OOP's

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	
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	

Lecturer

H.O.D

16/7/2019

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H.E.I.S Department

SYLLABUS PLAN

Bca sem.3

Subject : Fundamentals of Database Management System

Session 2019-2020

Month	Topic
Aug (Month 1)	**Week 1 Introduction:** Database Approach, Characteristics of a Database Approach, Database System Environment.
	Week 2Roles in Database Environment: Database Administrators, Database Designers, End Users,ApplicationDevelopers.
	Week 3Database Management Systems: Definition, Characteristics, Advantages of Using DBMS Approach
	Week 4 Classification of DBMSs
Sep (Month 2)	**Week 1Architecture:** Data Models, Categories of Data Models- Conceptual Data Models, Physical data Models, Representational Data Model
	Week 2 Object Based Models, Record Based Models, Database Schema and Instance, Three Schema Architecture
	Week 3 Data Independence – Physical and Logical data Independence
	Week 4 MST
Oct (Month 3)	**Week 1Database Conceptual Modelling by E-R model:** Concepts, Entities and Entity Sets, Attributes, Mapping Constraints
	Week 2 E-R Diagram, Weak Entity Sets, Strong Entity Sets.**Enhanced E-R Modelling:** Aggregation, Generalization
	Week 3 Converting ER Diagrams to Tables. **Relational Data Model:** Concepts and Terminology, Characteristics of Relations
	Week 4 Integrity Constraints- Entity and Referential Integrity constraints, Keys- Super Keys, Candidate Keys, Primary Keys, Secondary Keys and Foreign, **Relational Algebra:** Basic Operations, Additional Operations, Example Queries.
Nov (Month 4)	**Week 1Database Design**: Informal Design Guidelines for Relation Schemas, Problems of Bad DatabaseDesign
	Week 2Normalization: Functional Dependency, Full Functional Dependency, Partial Dependency, Transitive Dependency,
	Week 3 Normal Forms– 1NF, 2NF, 3NF, Boyce-Codd NF
	Week 4MS-ACCESS: introduction to MS-ACCESS, working with databases and tables, queries in Access, Applying integrity constraints, Introduction to forms, sorting and filtering,

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Computer Department (HEIS)

Class B.C.A Sem. III

(Session 2019- 2020)

Week	Lesson scheduled
1st	ਮੂਲ ਵਿਆਕਰਨਕ ਇਕਾਈਆਂ ਦੀ ਪਛਾਣ ਤੇ ਸਥਾਪਤੀ
2nd	ਵਾਕ, ਉਪਵਾਕ, ਸ਼ਬਦ, ਵਾਕੰਸ਼, ਭਾਵੰਸ਼
3rd	*ਕਥਾ ਵਾਰਤਾ, ਕਹਾਣੀ ਸੰਗ੍ਰਹਿ (1, 2 ਕਹਾਣੀ ਪੜ੍ਹਨਾ) ਕਹਾਣੀ ਦਾ ਵਿਸ਼ਾ ਵਸਤੂ ਸਾਰ ਪਾਤਰ ਚਿਤਰਨ*
4th	*ਕਥਾ ਵਾਰਤਾ, ਕਹਾਣੀ ਸੰਗ੍ਰਹਿ (3,4 ਕਹਾਣੀ ਪੜ੍ਹੰਨਾ) ਕਹਾਣੀ ਦਾ ਵਿਸ਼ਾ ਵਸਤੂ ਸਾਰ, ਪਾਤਰ*
5th	**ਸੰਖੇਪ ਰਚਨਾ**
6th	*ਵਾਕ ਬਣਤਰ ਅਤੇ ਵਾਕ ਰਚਨਾ*
7th	ਕਥਾ ਵਾਰਤਾ, ਕਹਾਣੀ ਸੰਗ੍ਰਹਿ (5.6) ਕਹਾਣੀ ਦਾ ਵਿਸ਼ਾ ਵਸਤੂ ਸਾਰ ਪਾਤਰ ਚਿਤਰਨ
8th	➢ **MST**
9th	➢ **MST**
10th	ਕਥਾ ਵਾਰਤਾ, ਕਹਾਣੀ ਸੰਗ੍ਰਹਿ (7, 8, 9) ਕਹਾਣੀ ਦਾ ਵਿਸ਼ਾ ਵਸਤੂ ਸਾਰ ਪਾਤਰ ਚਿਤਰਨ
11th	ਕਥਾਂ ਵਾਰਤਾ, ਕਹਾਣੀ ਸੰਗ੍ਰਹਿ (10, 11, 12) ਕਹਾਣੀ ਦਾ ਵਿਸ਼ਾ ਵਸਤੂ ਸਾਰ ਪਾਤਰ ਚਿਤਰਨ
12th	ਕਥਾ ਵਾਰਤਾ, ਕਹਾਣੀ ਸੰਗ੍ਰਹਿ (13, 14, 15) ਕਹਾਣੀ ਦਾ ਵਿਸ਼ਾ ਵਸਤੂ ਸਾਰ ਪਾਤਰ ਚਿਤਰਨ
13th	ਉਪਵਾਕ ਬਣਤਰ ਪਛਾਣ ਤੇ ਕਾਰਜ
14th	ਉਪਵਾਕ ਬਣਤਰ ਪਛਾਣ ਤੇ ਕਾਰਜ
15th	ਦੁਹਰਾਈ।
16th	ਦੁਹਰਾਈ।

Gurpreetkaur
Teacher

H.O.D 1/07/2019

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Govt. College, Ropar
Computer Department (HEIS)
Class B.C.A Sem. IV
(Session 2019-2020)

LESSON PLAN	
BCA Sem-III	
Subject- CSA	
August 2019 to November 2019	
Session	Topic
August (Month-1)	WEEK-1:Computer System Organisation: CPU Organisation, Instruction Execution (instruction cycle, types of instructions),
	WEEK-2:RISC v/s CISC, Design Principles for Modern Computers,
	WEEK-3:Instruction level parallelism. Processor level parallelism.
	WEEK-4:Primary memory: Memory addresses, Byte Ordering, Error-correcting codes, Cache memory.
September (Month-2)	WEEK-1:Secondary memory: Memory hierarchy, SCSI disk, RAID.
	WEEK-2:Instruction Set Architecture: Instruction formats, Expanding opcodes, types of addressing modes,
	WEEK-3:data transfer and manipulation instructions, Program control(status-bit conditions,
	WEEK-4:conditional branch instructions, program interrupt, types of interrupt).
October (Month-3)	WEEK-1: MST
	WEEK-2: MST
	WEEK-3:Register Transfer Language: Register Transfer, Bus and memory transfer, Arithmetic micro-operations, Logic micro-operations, Shift micro-operations,
	WEEK-4: Arithmetic logic sift unit, Micro-programmed control, control word, control memory (concepts only)
November (Month-4)	WEEK-1:Input-output Organisation- I/O interfaces(I/O bus and interface modules, I/O versus memory bus, isolated versus memory-mapped I/O).
	WEEK-2Asynchronous Data transfer(strobe control, handshaking), modes of transfer (programmed I/O, interrupt-initiated I/O, software considerations), Direct memory access.

Sd/ 16/7/2019.

Manpreet Singh

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H.E.I.S Department Syllabus Plan	
Bca Sem 4	
Subject : Management Information Systems	
Session 2019-2020	
Month	**Topic**
Jan (Month 1)	**Week 1Management Information system:** Meaning and definition, Role of information system
	Week 2 Nature and scope of MIS
	Week 3Information and system concepts: Definition and types of information, Information quality, dimensions of information, value of information
	Week 4 general model of human as an information processor. System related concepts, elements of a system, and types of system
Feb (Month 2)	**Week 1Role and importance of Management**: Introduction, levels and functions of management.
	Week 2 Structure and classification of MIS.
	Week 3 Components of MIS, Framework for understanding MIS
	Week 4 Robert Anthony's hierarchy of management activity
March (Month 3)	**Week 1**Information requirements and levels of management, Decision making concept.
	Week 2types of decisions, methods of choosing among alternatives, Role of MIS in decision making.
	Week 3 Simon's model of decision making
	Week 4 Structured and unstructured decisions.
April (Month 4)	**Week 1Development of MIS:** Stages in the development of MIS
	Week 2 System development approaches: Waterfall model, Prototyping, Iterative enhancement model, Spiral model.
	Week 3 Applications of information systems in Functional areas: Marketing MIS, Financial MIS, Production MIS, Personnel MIS.

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LESSON PLAN (2019-20)

Class BCA 4th sem(226)

- **Subject RDBMS**

SESSION	TOPIC	REFERENCES
Week 1	Introduction to RDBMS Product and their Features, Difference between DBMS and RDBMS, Relationship among application programs, RDBMS	
Week 2	Basic File Operations: Opening Files, Closing Files, Reading and Writing, Seeking	
Week 3	File Organization: Field and Record structure in file, Record Types, Types of file organization, Sequential, Indexed, and Hashed.	
Week 4	Transaction Management: Transaction Concept, Properties, Transaction States, Concurrent Execution	
Week 5	**Mid semester Test-I**	
Week 6	Serializability, Conflict Serializability, View Serializability, Recoverability, Recoverable Schedule, Cascadless Schedule	
Week 7	Concurrency Control: Lock Based Protocol, Locks, Granting of Locks, Two Phase Locking Protocol, Timestamp Based Protocol, Timestamp.	
Week 8	Timestamp ordering protocol, Thomas's Write Rule, Validation Based Protocol, Deadlock Handling, Deadlock Prevention, Deadlock Detection, Deadlock Recovery	
Week 9	Recovery System: Failure Classification, Transaction Failure, System Crash, Disk Failure, Storage Structures, Storage Types, Data Access,	
Week 10	Recovery & Atomicity, Log based Recovery, Deferred Database Modification, Immediate Database Modification	
Week 11	**Mid semester Test-II**	
Week 12	Checkpoints, Recovery with Concurrent Transaction, Transaction Rollback, Restart Recovery, Remote Backup System	
Week 13	Transaction, Transaction Rollback, Restart Recovery, Remote Backup System Relational Query Language: DDL, DML, DCL.Introduction to Oracle: Oracle as client/server architecture, getting started, creating, modifying, dropping databases. Inserting, updating, deleting data from databases, SELECT statement, Data constraints (Null values, Default values, primary, unique and foreign key concepts)	
Week 14	Computing expressions, renaming columns, logical operators, range searching, pattern matching, Oracle functions, grouping data from tables in SQL, manipulating dates.	
Week 15	Working with SQL: triggers, use of data base triggers, database triggers Vs. SQL*forms, types of triggers, how to apply database triggers, BEFORE vs. AFTER triggers, combinations, syntax for creating and dropping triggers..	
Week 16	**Revision**	

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Computer Department (HEIS)

Class B.C.A Sem. IV

(Session 2019-2020)

Week	Lesson scheduled
1st	ਗੁਰਮੁਖੀ ਲਿਪੀ ਦਾ ਇਤਿਹਾਸ
2nd	ਅਨੁਵਾਦ
3rd	*ਕਾਵਿ ਰੰਗ (ਅਧੁਨਿਕ ਕਵਿਤਾਵਾਂ ਦਾ ਸੰਗ੍ਰਹਿ) ਕਿਤਾਬ ਵਿੱਚ ਕਵਿਤਾ ਦੀ ਪਰਿਭਾਸ਼ਾ*
4th	ਕਾਵਿ ਰੰਗ ਕਿਤਾਬ ਵਿਚ (1, 2) ਕਵੀਆਂ ਦੀਆਂ ਕਵਿਤਾਵਾਂ ਦਾ ਵਿਸ਼ਾ ਵਸਤੂ ਸਾਰ ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਆਖਿਆ
5th	ਕਾਵਿ ਰੰਗ ਕਿਤਾਬ ਵਿਚ (3,4) ਕਵੀਆਂ ਦੀਆਂ ਕਵਿਤਾਵਾਂ ਦਾ ਵਿਸ਼ਾ ਵਸਤੂ ਸਾਰ ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਆਖਿਆ
6th	ਕਾਵਿ ਰੰਗ ਕਿਤਾਬ ਵਿਚ (5,6) ਕਵੀਆਂ ਦੀਆਂ ਕਵਿਤਾਵਾਂ ਦਾ ਵਿਸ਼ਾ ਵਸਤੂ ਸਾਰ ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਆਖਿਆ.
7th	ਕਾਵਿ ਰੰਗ ਕਿਤਾਬ ਵਿਚ (7, 8) ਕਵੀਆਂ ਦੀਆਂ ਕਵਿਤਾਵਾਂ ਦਾ ਵਿਸ਼ਾ ਵਸਤੂ ਸਾਰ ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਆਖਿਆ
8th	➢ MST
9th	➢ MST
10th	ਕਾਵਿ ਰੰਗ ਕਿਤਾਬ ਵਿਚ (9, 10) ਕਵੀਆਂ ਦੀਆਂ ਕਵਿਤਾਵਾਂ ਦਾ ਵਿਸ਼ਾ ਵਸਤੂ ਸਾਰ ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਆਖਿਆ
11th	ਕਾਵਿ ਰੰਗ ਕਿਤਾਬ ਵਿਚ (11, 12) ਕਵੀਆਂ ਦੀਆਂ ਕਵਿਤਾਵਾਂ ਦਾ ਵਿਸ਼ਾ ਵਸਤੂ ਸਾਰ ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਆਖਿਆ
12th	ਕਾਵਿ ਰੰਗ ਕਿਤਾਬ ਵਿਚ (13, 14) ਕਵੀਆਂ ਦੀਆਂ ਕਵਿਤਾਵਾਂ ਦਾ ਵਿਸ਼ਾ ਵਸਤੂ ਸਾਰ ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਆਖਿਆ
13th	ਕਾਵਿ ਰੰਗ ਕਿਤਾਬ ਵਿਚ (15) ਕਵੀਆਂ ਦੀਆਂ ਕਵਿਤਾਵਾਂ ਦਾ ਵਿਸ਼ਾ ਵਸਤੂ ਸਾਰ ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਆਖਿਆ
14th	ਦੁਹਰਾਈ।
15th	ਦੁਹਰਾਈ।

Gurpreet Kaur

Teacher

H.O.D 6/07/2019

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Department of Computer Science (IHEIS), Government College, Ropar (2019-20)
Class BCASem. 4th Subject Computer Network

Week	Topics
Week 1	Introduction to Computer Networks, Definition and importance of computer networks, Types of networks: LAN, MAN, WAN, Network structure: point-to-point, multicast, broadcast
Week 2	Network Architecture and Design, Network architecture models, OSI and TCP/IP reference models, Design considerations for network layers
Week 3	OSI Model and Protocol Hierarchies, Detailed study of the OSI model layers, Functions and protocols at each OSI layer
Week 4	TCP/IP Model and Comparison, Overview of the TCP/IP model layers, Comparison between OSI and TCP/IP models
Week 5	Data Link Layer and Framing, Data Link Layer functions and services, Framing techniques: character stuffing, bit stuffing
Week 6	Error Control and Flow Control, Error control mechanisms: parity, CRC, Flow control methods: stop-and-wait, sliding window
Week 7	Network Layer Services and Routing, Network Layer functions and design considerations, Routing algorithms: static and dynamic routing
Week 8	Congestion Control Algorithms, Introduction to congestion control, Leaky bucket and token bucket algorithms
Week 9	Transport Layer and Connection Management, Transport Layer functions and services, Connection establishment, addressing, and release
Week 10	Transport Layer Protocols, TCP: reliable, connection-oriented protocol, UDP: connectionless, lightweight protocol
Week 11	Application Layer and DNS, Application Layer overview and services, DNS: domain hierarchy, resolution process
Week 12	Electronic Mail and SMTP, Architecture of electronic mail, Simple Mail Transfer Protocol (SMTP)
Week 13	World Wide Web and HTTP, The World Wide Web: concepts and components, Hypertext Transfer Protocol (HTTP)
Week 14	Introduction to Network Security, Importance of network security, Basics of cryptography: substitution and transposition ciphers
Week 15	Public-Key Cryptography and RSA, Fundamental cryptographic principles, Public-key algorithms: RSA and its working
Week 16	Digital Signatures and Recap, Digital signatures: symmetric-key and public-key signatures, Message digests and their role in security

Teacher's Signature

HOD's Signature 11/07/2019

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