DEPARTMENT OF COMPUTER SCIENCE

LESSON PLAN

2019-2020

Academic Year 2019 - 2020

Odd Semester

UCCSM17 - Relational Database Management Systems

Semester V - B.Sc. Computer Science

Unit I:

Databases and Database Users: Characteristics of the Database approach - Advantages of using the DBMS approach. Database System concepts and Architecture: Data Models, Schemas and Instances - Three schema Architecture and Data Independence - Database Languages and Interfaces - the Database System Environment - classifications of DBMS. The Relational Data model and Relational Database (DB) Constraints: Relational Data Model concepts - Constraints and schemas - Update operations, Transactions and dealing with constraint violations.

Unit II:

Basic SQL - SQL Data Definition and Data Types - Specifying constraints in SQL - Basic Retrieval Queries - Insert, Delete and Update statements - Additional features. Complex Queries, Triggers, Views and Schema Modification: More complex SQL Retrieval Queries - Specifying constraints as Assertions and Actions as Triggers - Views - Schema change statements. The Relational Algebra and Relational Calculus: Unary Relational operations: SELECT and PROJECT - Relational operations from set theory - Binary Relational operations:

JOIN and DIVISION - Additional Relational operations - Examples of Queries in Relational Algebra - The tuple Relational Calculus - The domain Relational Calculus.

UNIT III:

Data Modeling using the Entity Relationship (ER) Model: Using high-level conceptual Data Models for Database design - Entity types, Entity sets, Attributes and Keys - Relationship types, Relationship sets, Roles and Structural constraints - Weak Entity types - ER diagrams, Naming Conventions and Design issues. The Enhanced Entity (types) Relationship (EER) Model: Subclasses, Superclasses and Inheritance - Specialization and Generalization - Constraints and characteristics of specialization and Generalization Hierarchies - Modeling of UNION types using categories - Relational database design by ER and EER to Relational Mapping - Mapping EER model constructs to Relations.

UNIT IV:

Database design theory: Functional dependencies - Normalization - Relational database design algorithms and further dependencies.

UNIT V:

Overview of PL/SQL - Procedural constructs of PL/SQL - Data types and variables - Cursors in PL/SQL - Program units - Exception handling - PL/SQL Editor.

Books for study:

1. R. Elmasri, S.B. Navathe, "Fundamentals of Database Systems" 7th Edition Pearson Education / Addison Wesley, 2011.
2. Albert Lulushi, "Oracle Developer / 2000 Forms", Pearson Education Publication, 2000.

PCCSC19 - THEORY OF COMPUTATION
SEMESTER I - M.Sc. COMPUTER SCIENCE

UNIT I:

Introduction - Propositions and compound propositions - Basic Logical operations - Tautologies and contradictions - Logical equivalence - Algebra of propositions - Conditional and Biconditional statements - Argument - Logical Implications - Propositional functions, Quantifiers - Negation of Quantified statements - Normal forms - Predicate Logic.

UNIT II:

Graph Theory: Introduction - Data structures - Graphs and Multi graphs - sub graphs, Isomorphic and Homeomorphic graphs - Paths, Connectivity - The bridges of Konigsberg, Traversable multi-graphs - labeled and weighted graphs - Complete, Regular and Bipartite graphs - planar graph - Graph coloring.

UNIT III:

Finite automation - DFA and NDFA - Finite automation with ϵ moves - Regular languages - Regular Expression - Equivalence of NFA and DFA - Equivalence of NDFA's and without ϵ moves - Equivalence of finite Automation and regular expressions - Minimization of DFA.

UNIT IV:

Grammar Introduction - Types of Grammar - Context free grammars and Languages - Derivations

and Languages - Ambiguity - Relationship between derivation and derivation trees - Simplification of CFG - Elimination of useless symbols - Unit productions - Null productions - Greibach Normal form - Chomsky normal form - Problems related to CNF and GNF

UNIT V:

Pushdown Automata: Definitions - Moves - Instantaneous descriptions - Deterministic pushdown automata - Equivalence of pushdown automata and CFL - Pumping lemma for CFL - Problems based on pumping lemma - Design finite state Machine, Pushdown Automata.

Books for study:

1. Seymour Lipschutz, Marc Las Lipson, Varsha H. Patil (2010), Discrete Mathematics, Tata McGraw Hill, Fourth Edition.

2. Hopcroft J. E., Motwani R. and Ullman J. D. (2008) Introduction to Automata Theory, Languages and Computations, Pearson Education, Second Edition.

SUBJECT NAME : RELATIONAL DATABASE MANAGEMENT SYSTEMS

SUBJECT CODE : UCCSM17

MONTH	WEEK	PORTIONS
JUNE	IV	Characteristics - Advantages of database approach. Data Models, schemas and Instances
JULY	I	Three schema Architecture - Database (DB) Languages and Interfaces - DB system Environment - Classifications. Relational data model concepts.
	II	Constraints and schemas - Operations, transactions and constraint violations.
	III	SQL Data definition and types - Constraints - Retrieval queries - Additional queries - more complex queries - constraints and - Triggers - views - schema change statements
	IV	Unary Relational operations:- SELECT and PROJECT - set theory. Binary Relational operations:- JOIN and DIVISION - Additional operations - examples - The domain and tuple relational Calculus.
AUGUST	II	Using High-Level conceptual model - Entity types, sets, attributes and keys - Relationship types, sets, roles and structural constraints.

MONTH	WEEK	PORTIONS
AUGUST	III	Weak entity types - ER diagrams - Subclasses, Superclasses and Inheritance - Specialization and Generalization - Constraints and characteristics
	IV	Hierarchies - Modeling of UNION types using categories - ER and EER to Relational mapping - Mapping EER to Relations.
SEPTEMBER	I	Functional Dependencies
	II	Normalization
	III	Relational Database design algorithms and further dependencies.
OCTOBER	I	Overview of PL/SQL - Procedural Constructs
	II	Data types and variables - Cursors - Program units
	III	Exception Handling - PL/SQL Editor.

SUBJECT NAME : THEORY OF COMPUTATION

SUBJECT CODE : PCCSC19

MONTH	WEEK	PORTIONS
JUNE	IV	Propositions and Compound propositions -Basic Logical operations – Tautologies and contradictions
JULY	I	Logical Equivalence - Algebra of Propositions – Conditional and Biconditional statements – Argument – Logical Implications
	II	Propositional functions, quantifiers – Negation of quantified - statements - Normal forms – Predicate Logic.
	III	Data structures - Graphs and Multi graphs - Subgraphs, Isomorphic and Homeomorphic graphs – Paths and Connectivity
	IV	The bridges of Konigsberg - Traversible multigraphs - Labeled and weighted graph – Complete, Regular and Bipatite graphs - Planar graph - Graph coloring.
AUGUST	II	Finite automation – DFA and NDFA - Finite automation with ϵ moves - Regular Languages – Regular Expression
	III	Equivalence of NFA and DFA - Equivalence of NDFA's without ϵ moves

MONTH	WEEK	PORTIONS
AUGUST	IV	Equivalence of finite Automation and regular expressions - Minimization of DFA.
SEPTEMBER	I	Types of Grammar – Context free grammars and languages - Derivations and Languages - Ambiguity
	II	Relationship between derivation and derivation Trees - Simplification of CFG - Elimination of useless Symbols – Unit productions - Null Productions
	III	Greibach Normal form - Chomsky Normal form - Problems related to CNN and GNF
OCTOBER	I	Definitions – Moves - Instantaneous descriptions - Deterministic pushdown automata
	II	Equivalence of pushdown automata + CFL - Pumping lemma for CFL - Problems based on pumping lemma
	III	Design finite State machine, Pushdown Automata.

WEEK PLAN : 2019 - 2020 (EVEN SEMESTER)

DATE	CLASS	PORTIONS COVERED	BOOKS REFERRED
17/6/19 to 21/6/19	III B.Sc.	Characteristics - Advantages of database approach	Fundamentals of Database Systems by Elmasri, Navathe.
24/6/19 to 28/6/19	III B.Sc.	Data Models, schemas and Instances - Three schema Architecture - Database Languages and Interfaces - Database System Environment	Fundamentals of Database Systems by Elmasri, Navathe.
	I M.Sc.	Propositions and compound propositions - Basic logical operations - Tautologies and Contradictions	Discrete Mathematics by seymour Lipschutz
1/7/19 to 5/7/19	III B.Sc.	Classifications - Relational data model concepts - Constraints and schemas	Fundamentals of Database Systems by Elmasri, Navathe
	I M.Sc.	Logical Equivalence - Algebra of propositions - Conditional and Biconditional statements - Argument - Logical Implications	Discrete Mathematics by Seymour Lipschutz
8/7/19 to 12/7/19	III B.Sc.	Operations, transactions and constraint violations. SQL Data definitions and types - Constraints.	Fundamentals of Database Systems by Elmasri, Navathe
	I M.Sc.	Propositional functions, quantifiers - Negation of quantified statements - Normal forms - Predicate Logic	Discrete Mathematics by Seymour Lipschutz

12/7/19

DATE	CLASS	PORTIONS COVERED	BOOKS REFERRED
15/7/19 to 19/7/19	III B.Sc.	Retrieval Queries - Additional Queries - More complex Queries	Fundamentals of Database Systems by Elmasri, Navathe.
	I M.Sc.	Data structures - Graphs and Multigraphs - Sub graphs - Isomorphic and Homeomorphic graphs - Paths and connectivity	Discrete Mathematics by Seymour Lipschutz
22/7/19 to 26/7/19	III B.Sc.	Constraints and Triggers - Views - schema change statements	Fundamentals of Database Systems by Elmasri, Navathe.
	I M.Sc.	The bridges of Konigsberg - Traversible multigraphs - Labeled and weighted graphs - Complete, Regular and Bipartite graphs - planar Graph - Graph Coloring	Discrete Mathematics by Seymour Lipschutz
27/7/19 to 2/8/19		I CA	
5/8/19 to 9/8/19	III B.Sc.	Unary Relational Operations	Fundamentals of Database Systems by Elmasri, Navathe
	I M.Sc.	Finite Automation - DFA and NDFA	Introduction to Automata Theory by Pearson

DATE	CLASS	TOPICS TO BE COVERED	BOOK REFERRED
13/8/19 to 17/8/19	III B.Sc.	SELECT and PROJECT - set theory JOIN and DIVISION	Fundamentals of Database Systems by Elmasri, Navathe
	I M.Sc.	Finite Automation with ∈ Moves	Discrete Mathematics by Seymour Lipschutz
19/8/19 to 22/8/19	III B.Sc.	Additional operations - Examples - The domain and tuple relational Calculus	Fundamentals of Database Systems by Elmasri, Navathe
	I M.Sc.	Regular Languages - Regular Expressions	Discrete Mathematics by Seymour Lipschutz
26/8/19 to 29/8/19	III B.Sc.	Using High-Level Conceptual Model - Entity types, Sets, attributes and keys	Fundamentals of Database Systems by Elmasri, Navathe
	I M.Sc.	Equivalence of NFA and DFA - Equivalence of NFAs without ∈ Moves	Discrete Mathematics by Seymour Lipschutz
3/9/19 to 6/9/19	III B.Sc.	Relationship types, Sets, Roles and structural Constraints - Weak Entity types - ER diagrams - Subclasses, Superclasses and Inheritance - specialization and Generalization - Constraints and characteristics	Fundamentals of Database Systems by Elmasri, Navathe

DATE	CLASS	PORTIONS COVERED	BOOKS REFERRED
	I M.Sc.	Equivalence of Finite Automation and Regular Expression - Minimization of DFA	Discrete Mathematics by Seymour Lipschutz
9/9/19 to 13/9/19	III B.Sc.	Functional Dependencies - Normalization	Fundamentals of Database Systems by Elmasri, Navathe
	I M.Sc.	Types of grammar - Context free grammars and Languages - Chomsky Normal Form	Discrete Mathematics by seymour Lipschutz
21/9/19 to 28/9/19		II CA	
30/9/19 to 4/10/19	III B.Sc.	Hierarchies - Modeling of UNION types using categories	Fundamentals of Database Systems by Elmasri, Navathe
	I M.Sc.	Derivations and Languages - Ambiguity.	Discrete Mathematics by Seymour Lipschutz

Academic Year 2019 - 2020

Even Semester

Semester IV - B.Sc. Computer Science

UCCSJI7 - Java Programming

UNIT I

Introduction to Java - Features of Java - Lexical Issues - Data types - Variables - Operators - Type conversion and casting - control statements.

UNIT II

Arrays - Strings - classes - Objects - Constructors - overloading method - Access Control - static and fixed Method - Inner class - String class - Inheritance - Overriding method - Using Super - Abstract class

UNIT III

Input/Output: Exploring Java i/o - The Java i/o classes and Interfaces - File - The stream classes - Packages - Access Protection.

UNIT IV

Exception Handling: try, catch - throw and throws - finally - Thread - Multithreading: creating a thread - Using isAlive, join and sleep methods.

UNIT V

Event Handling - The Java Applet and Interface - Working with windows using AWT classes - AWT controls.

Book for study:

1. Herbert Schildt - The Complete Reference: Java 2, 8th edition - Tata McGraw Hill Publication, 2011.

M.Sc. COMPUTER SCIENCE - SEMESTER II

PCCS919 DISTRIBUTED AND CLOUD COMPUTING

UNIT I

Introduction to Cloud Computing - Definition of cloud - Evolution of cloud Computing - Underlying principles of Parallel and Distributed Computing - cloud characteristics - Elasticity in cloud - On-demand provisioning.

UNIT II

Layered cloud Architectural design - NIST cloud Computing Reference Architecture - Public, private and hybrid clouds - IaaS - PaaS - SaaS - Architectural design challenges - cloud storage - Storage as a Service - Advantages of cloud storage - cloud storage providers - S3.

UNIT III

Parallel and Distributed programming paradigms - MapReduce, Twister and Iterative MapReduce - Hadoop Library from Apache - Mapping Applications - Google App Engine, Amazon AWS - cloud software Environments - cloudsim.

UNIT IV

Clustering for massive parallelism - computer clusters and MPP Architectures - Design Principles of computer clusters - Cluster job and Resource management - Case studies of Top Super Computer systems.

UNIT V

Implementation Levels of Virtualization - Virtualization structures / Tools and Mechanisms - Virtua-

lization of CPU, Memory and I/O devices - virtual clusters and Resource Management - virtualization for Data-center Automation.

BOOK FOR STUDY:

1. kai Hwang, Geoffrey C. Fox, Jack G. Dougara - Distributed and cloud Computing, From Parallel Processing to Internet of Things - Morgan Kaufmann Publishers, 2012.

REFERENCES:

1. Raj Kumar Buyya, Christian Vecchiola, S. Thamarai Selvi, Mastering cloud Computing, Tata McGraw Hill, 2013.
2. Toby Velte, Anthony Velte, Robert Elsenpeter, Cloud Computing, A Practical Approach, Tata McGraw Hill, 2009.

B.Sc. COMPUTER SCIENCE - SEMESTER IV

UCCSKIT - PRACTICAL VI: PROGRAMMING IN JAVA

1. Implementing string manipulation using character Array.
2. Implementing Input/output stream.
3. Implementing Packages and Interface.
4. Implementing Exception Handling.
5. Implementing Real Time Application using multithread.
6. Implementing Applet using Graphics Class.
7. Implementing AWT Controls.
8. Implementing Colors and Fonts.

TEACHING PLAN 2019 - 2020

SUBJECT NAME: JAVA PROGRAMMING
SUBJECT CODE: UCCSJ17
COURSE INSTRUCTOR: Ms. Nisha Pauline R.
No. OF HOURS/WEEK: 4 Hours.

LEARNING OUTCOME:

The student will learn the platform independent language Java and will understand Object, classes and interfaces, exceptions and libraries of object Collections.

DATE	CLASS	TOPICS COVERED	LEARNING RESOURCES	METHODOLOGIES
13/11/19 to 15/11/19	III B.Sc. (CS)	Introduction to Java	Text Book & Reference Book	Blackboard & chalk & Talk Demo Sessions
18/11/19 to 22/11/19	III B.Sc. (CS)	Features of Java - Lexical Issues	"	"
25/11/19 to 29/11/19	III B.Sc. (CS)	Data types, Variables - operators	"	"
2/12/19 to 6/12/19	III B.Sc. (CS)	Type Conversion and Casting - Control Statements	"	"
9/12/19 to 13/12/19	III B.Sc. (CS)	Arrays - Strings - Classes - Objects - Constructors	"	"

DATE	CLASS	TOPICS COVERED	LEARNING RESOURCES	METHODOLOGIES
16/12/19 to 20/12/19	III B.Sc. (CS)	Overloading Method - Access Control - static and fixed Method - Inner class - String class	Text Book & Reference Book	Blackboard & chalk & Talk Demo Sessions
2/1/20 to 4/1/20	III B.Sc. (CS)	Inheritance - Over riding method - Using Super - Abstract class	"	"
6/1/20 to 11/1/20		I CA		
13/1/20 & 14/1/20	III B.Sc. (CS)	The Java Input/ Output classes	"	"
20/1/20 to 25/1/20	III B.Sc. (CS)	Interfaces - File - The stream classes	"	"
27/1/20 to 31/1/20	III B.Sc. (CS)	Packages - Access Protection	"	"
3/2/20 to 8/2/20	III B.Sc. (CS)	Exception Handling: try, catch	"	"
10/2/20 15/2/20	III B.Sc. (CS)	Throw and Throws - Finally - Thread	"	"
17/2/20 to 22/2/20	III B.Sc. (CS)	Multithreading: Creating a thread	"	"

DATE	CLASS	TOPICS COVERED	LEARNING RESOURCES	METHODOLO
24/2/20 & 25/2/20	III B.Sc. (CS)	Using isAlive(), join() and sleep() methods	Text Book & Reference Book	Black bo & Chalk Demo Session
26/2/20 to 3/3/20		II CA		
4/3/20 to 6/3/20	III B.Sc. (CS)	Event Handling	"	"
9/3/20 to 13/3/20	III B.Sc. (CS)	The Java Applet and Interface	"	"
16/3/20 to 20/3/20	III B.Sc. (CS)	Working with Windows using AWT classes - AWT controls	"	"

LESSON PLAN

Programme	B.Sc. Computer Science
Programme Code	U18
Semester	IV
Course Name	Java Programming
Course Code	UCCSJ17
Hours	4
Credits	5
Total Hours	60
Max. Marks	40 + 60
Course Instructor/ co-ordinator	Ms. Nisha Pauline R.

Week/ Date	No. of Hours	Units	Topics	Teaching Methodology student Centric Methods	Learning Resources	Methods of Evaluation
Nov III	2	I	Introduction to Java	Black board, Chalk & Talk Demo Sessions	Text Book & Reference Book	Quiz
IV	4	I	Features of Java - Lexical Issues	"	"	Slip Test
V	4	I	Data Types, Variables - operators	"	"	Test
Dec I	4	I	Type Conversion and casting - Control statements.	"	"	Quiz
II	4	II	Arrays - Strings - classes - objects - Constructors	"	"	Quiz
III	4	II	Overloading Method - Access Control - static and Fixed Method - Inner class - string class	"	"	Execution of a program
Jan I	2	II	Inheritance - overriding Method - Using Super - Abstract class.	"	"	Slip Test

Week/ Date	No. of Hours	Units	Topics	Teaching Methodology Student Centric Methods	Learning Resources	Methods of Evaluation
Jan II	2	III	The Java Input/output classes	Black board, Chalk & Talk Demo Sessions	Text Book & Reference Book	Quiz
III	4	III	Interfaces - File - Stream classes	"	"	Test
IV	4	III	Packages - Access Protection	"	"	Program Execution
Feb I	4	IV	Exception Handling: Try, catch	"	"	Quiz
II	4	IV	Throw - Throws - Finally - Thread	"	"	Test
III	4	IV	Multithreading: Creating a Thread	"	"	Quiz
IV	2	IV	Using isAlive(), join() and sleep()	"	"	Test
March I	4	V	Event Handling	"	"	Program Execution
II	4	V	The Java Applet and Interface	"	"	Test
III	4	V	Working with windows using AWT classes - AWT Controls	"	"	Quiz

Programme	M. Sc. Compter Science
Programme Code	P15
Semester	II
Course Name	Distributed and cloud Computi
Course Code	PCCS919
Hours	4
Credits	4
Total Hours	60
Max. Marks	40+60
Course Instructor/ Co-ordinator	Ms. Nisha Pauline R.

Month/ Week	No. of Hours	Units	Topics	Teaching Methodology student Centric Methods	Learning Resources	Methods of Evaluation
Nov III	2	I	Introduction to cloud Computing	Black board, Chalk & Talk,	Text Book, Reference Book, E-Content	Quiz
IV	4	I	Definition of cloud - Evolution of cloud computing	"	"	Test
V	4	I	Underlying Principles of parallel and distributed computing - Cloud characteristics.	"	"	Test
Dec I	4	I	Elasticity in cloud - On-demand provisioning	"	"	Quiz
II	4	II	Layered cloud Architecture design - NIST cloud computing	"	"	Test
III	4	II	Reference Architecture - Public, private and Hybrid clouds - IaaS - PaaS - SaaS - Architectural design challenges - cloud storage	"	"	Quiz

Month / Week	No. of Hours	Units	Topics	Teaching Methodology Student Centric Methods	Learning Resources	Methods of Evaluation
Jan I	2	II	Cloud as a Service – Advantages of cloud storage – Cloud storage providers – S3	Black board, Chalk & Talk Power Point Presentation	Text Book & Reference Book E-Content	Test
II	2	III	Parallel and Distributed Programming paradigms – Map Reduce, Twister and Iterative MapReduce	"	"	Quiz
III	4	III	Hadoop Library from Apache – Mapping Applications.	"	"	Quiz
IV	4	III	Google App Engine, Amazon AWS – Cloud software Environment – CloudSim.	"	"	Test
Feb I	4	IV	Clustering for Massive Parallelism – Computer clusters and MPP Architectures	"	"	Quiz
II	4	IV	Design Principles of clusters	"	"	Quiz

Month/ Week	No. of Hours	Units	Topics	Teaching Methodology Student Centric Methods	Learning Resources	Methods of Evaluation
Feb III	4	IV	cluster Job and Resource Management	Black board, Chalk & Talk LCD	Text Book & Reference Book, E-Content	Slip Test
IV	2	IV	Case studies of Top Super Computer Systems	"	"	Quiz
Mar I	4	V	Implementation levels of Virtualization	"	"	Quiz
II	4	V	Virtualization structures/Tools and Mechanisms – Virtualization of CPU, Memory and I/O devices.	"	"	Test
III	4	V	Virtual clusters and Resource Management – Virtualization for Data center Automation	"	"	Test

SUBJECT NAME : DISTRIBUTED AND CLOUD COMPUTING

SUBJECT CODE : PCCS919

COURSE INSTUCTOR: Ms. Nisha Pauline R.

No. OF HOURS/WEEK : 5 Hours.

LEARNING OUTCOME :

The students will learn about the cloud environment and its concepts. They will acquire capabilities across various cloud service models and develop cloud based software applications on the cloud platforms.

DATE	CLASS	TOPICS COVERED	LEARNING RESOURCES	METHODOLOGY
13/11/19 to 15/11/19	I M.Sc. (CS)	Introduction to cloud Computing	Text Book & Reference Book, E-Content	Blackboard & chalk talk & LCD
18/11/19 to 22/11/19	I M.Sc. (CS)	Definition of Cloud - Evolution of cloud Computing	"	"
25/11/19 to 29/11/19	I M.Sc. (CS)	Underlying principles of parallel and distributed computing - cloud characteristics	"	"
2/12/19 to 6/12/19	I M.Sc. (CS)	Elasticity in Cloud - On-demand Provisioning. Layered cloud architecture design.	"	"
9/12/19 to 13/12/19	I M.Sc. (CS)	NIST Cloud Computing Reference architecture - Public, Private and Hybrid clouds - IaaS - PaaS - SaaS - Architectural design challenges	"	"

DATE	CLASS	TOPICS COVERED	LEARNING RESOURCES	METHODOLOGY
16/12/19 to 20/12/19	I M.Sc (CS)	Cloud storage - Cloud as a storage Service - Advantages of cloud storage - cloud storage providers - S3.	Text Book & Reference Book, E-Content	Blackboard & Chalk & Talk + Power point Presentation
2/1/20 to 4/1/20	I M.Sc. (CS)	Revision		
6/1/20 to 11/1/20		I CA		
13/1/20 & 14/1/20	I M.Sc. (CS)	Parallel and distributed Programming paradigms - MapReduce, Twister and Iterative MapReduce	"	"
20/1/20 to 25/1/20	I M.Sc. (CS)	Hadoop library from Apache - Mapping Applications	"	"
27/1/20 to 31/1/20	I M.Sc. (CS)	Google App Engine - Amazon AWS - Cloud Software Environment - CloudSim.	"	"
3/2/20 to 8/2/20	I M.Sc. (CS)	Clustering for Massive Parallelism - Computer clusters and MPP Architectures - Design Principles of Computer Clusters	"	"

DATE	CLASS	TOPICS COVERED	LEARNING RESOURCES	METHODOLOGIES
10/2/20 to 15/2/20	I M.Sc. (CS)	Cluster Job and Resource Management	Text & Reference Book, E-Content	Blackboard & Chalk & Talk.
17/2/20 to 22/2/20	I M.Sc. (CS)	Case studies of Top Super Computer Systems	,,	,,
24/2/20 & 25/2/20	I M.Sc. (CS)	Revision		
26/2/20 to 3/3/20		II CA		
4/3/20 to 6/3/20	I M.Sc. (CS)	Implementation levels of Virtualization	,,	,,
9/3/20 to 13/3/20	I M.Sc. (CS)	Virtualization Structures/ Tools and Mechanisms - Virtualization of CPU, Memory and I/O devices	,,	,,
16/3/20 to 20/3/20	I M.Sc. (CS)	Virtual clusters and Resource Management - Virtualization for Data center Automation	,,	,,

Sam R
18/2/2020

ODD SEMESTER

2019 - 2020

SEMESTER - III

Subject: Data Structures

Subject code: UCCSH17

Unit I:

Introduction - Data Structure Operations - Complexity and Time Space of Algorithms. Mathematical Notation and Functions - Algorithmic Notation - Control Structure - Complexity of Algorithms - Sub Algorithms - Variables - Data types - String Processing: Basic Terminology - Storing Strings - character Data Type - String Operations.

Unit II:

Linear Arrays, Representation in Memory - Traversals Inserting and Deleting - Sorting - Searching - Multi dimensional Arrays. Pointer Arrays.

Unit III:

Linked Lists: Representation in Memory - Traversing a Linked List - Searching - Garbage Collection - Insertion and Deletion - Headers - Two-way Lists - Application Stack - Array Representation - Arithmetic Expressions - Recursion - Queues - Application - Circular queues - Priority Queues.

Unit IV:

Trees - Binary Trees - Representation in Memory - Tree Traversals - Binary search - Trees - searching Inserting and Deleting.

Unit V:

Graphs - Sequential Representation - Adjacency Matrix Path Matrix - Heap sort - Warshall Algorithm for Shortest Path Graph traversals - Hashing

Books for study

1. Seymour Lipschutz - Data Structures: Schaum's Outline Series - McGraw Hill Publication, 1st Edition 2014.

Books for References

Alfred V. Aho, John E. Hopcroft, Jeffrey D. Ullman Data Structures and Algorithms - Pearson Education, 2009

ISRD Group - Data Structure using C, 2nd Edition - 2006

Sartaj Sahni - Data Structure Algorithm and Applications in C++ - McGraw Hill Publication, 2005

SEMESTER I

Subject : Digital Logic and Fundamentals.

Subject code: UCCSA19.

Unit I:

Number system - Conversion from one Number System to another - Complements - Binary Arithmetic - Binary Codes - Binary Logic - Logic gates - Truth tables - Boolean Algebra : Axioms - Theorems.

Unit II:

Simplication of Boolean Functions - Map method (upto 5 variables) - Mc Clausky Tabulation Method - Address Subtractors - Decoders - Encoders - Multiplexer - De multiplexer.

Unit III:

Design of circuit using decoders / Multiplexers - Sequential Logic - RS, JK, D and T Flip flops - Registers Shift Registers, Serial addition using Sequential logic

Unit IV:

Microprocessor Architecture - 8086, Register organisation of 8086, Signal descriptions of 8086 CHIP, Physical Memory organisation, Introduction of maximum and Minimum mode operation, Addressing modes.

Unit V:

Instruction formats, Data transfer instructions, Arithmetic instructions, Logical instructions, Branch instructions, Shift and rotate instructions, String Manipulation instructions.

Books for Study.

Morris M. Mano - Digital Logic Fundamentals - Pearsons Education - 5th edition 2015.

Books for References:

Vijendran - Digital Computer Fundamentals, Pearson Education - 9th Edition Lakshmi Publication, 2001.

Subject: Practical I: DLF

Subject Code: UCCSB19

1. Verify the truth Table of logic Gates
2. Construct the Half Adder circuit using logic Gates
3. Construct the Full Adder Circuit using logic Gates.
4. Construct the Full subtractor Circuit using logic Gates.
5. Construct the Half subtractor circuit using logic Gates.
6. Implement the karnaugh map method in Sum of Product [SOP] using NAND Gate.
7. Implement the karnaugh map method in Product of Sum [POS] using NOR Gate.

SEMESTER III

Subject : Elective III A: Soft Computing

Subject code : PECSE17

Unit I:

Artificial Neural Networks - Basic Concepts : Single Layer Perceptron - Multi Layer Perceptron - Supervised and Unsupervised learning - Back Propagation Networks - Application

Unit II:

Fuzzy system - Fuzzy sets and Fuzzy reasoning - Fuzzy matrices - Fuzzy functions - decomposition - Fuzzy automata and languages - Fuzzy control methods - Fuzzy decision making - Applications.

Unit III:

Neuro - fuzzy modeling - Adaptive Networks Based Fuzzy interfaces - Classification and Representation Trees - Rule Based Structure Identification.

Unit IV:

Genetic Algorithm - Survival of the Fittest - Fitness Computations - Crossover - Mutation - Reproduction - Rank method - Rank space method - Applications.

Unit V:

Soft computing and Conventional AI - AI Search Algorithm - Predicate calculus - Rules of Interface - Semantic Network Frames - Object - Hybrid Models Application.

Books for study

1. Jang J.S.R, Sun C.T and Mizutani E - Neuro Fuzzy and Soft Computing - Prentice Hall, New Jersey, 1998.
2. Laurene Fausett - Fundamentals of Neural Networks.
3. S.N. Deepa and S.N. Sivanandham - Principles of Soft Computing Second Edition - Wiley India Pvt. Ltd., 2011.

Books for References

George J Klir and Boyuan - Fuzzy sets and Fuzzy logic Prentice Hall Inc, New Jersey 1995.

Subject: Data Structure
Subject code: UCCSH17

MONTH	WEEK	PORTIONS
June	III & IV	Introduction, Data Structure Data Structure Operations Complexity and Time space of Algorithm
July	I	Mathematical Notations, Algorithmic Notation.
	II	Control Structure, Complexity of Algorithm, Sub Algorithm
	III	Variables, Data types, String Processing, Basic Terminology ~~the~~ storing strings.
	IV	Character data type, String operations Linear Arrays, Representation in memory, Traversals, Searching, Sorting
August	II	Multidimensional Arrays, Pointer Arrays, Linked Lists, Representation in memory, Searching, Garbage collection Insertion and Deletion.
	III	Two way lists, Application stack Array Representation, Arithmetic Expression, Recursion.
	IV	Queues - Application - circular queues - priority queues.

MONTH	WEEK	PORTIONS
September	I	Trees, Binary Trees, Representation in memory.
	II	Tree Traversals, Binary search Trees & searching.
	III	Inserting and Deleting, Graphs.
	IV	& sequential Representation, Adjacency matrix
October	I	Path Matrix, Heap & sort.
	II	Adjencency Matrix, Warshall Algorithm for & shortest path. -traversals.
	III	Revision.
	IV	Hashing.

Subject: Digital Logic and Fundamentals.

Subject code: UCCSA19

MONTH	WEEK	PORTIONS
June	III	Number system, Conversion from one Number system to another, Complement Binary Arithmetic, Binary codes. Verify the truth table of logic gates.
	IV	Binary Logic, Logic gates, Truth Table, Boolean Algebra. Construct the Half Adder circuit using Logic Gates.
July	I	Axioms, Theorem, Simplication of Boolean function, Map method; Mc Clausky Tabulation
	II	Encoders, Decoders, Multiplexer Demultiplexer, Design of circuit using decoders. Construct full adder circuit using Logic gates.
	III	Sequential logic, Rs, Jk, D and T flip flops, Registers, Shift registers
	IV	Serial Addition using Sequential logic Construct the Full adder circuit using logic gates.

MONTH	WEEK	PORTIONS.
August	II & III	Construct full Subtractor circuit using Logic gates.
August	IV	Implement the Karnaugh map method in Sum of Product (SOP) using NAND Gate.
September	I	
	II	Implement the Karnaugh map method in Sum of Product (SOP) using Nand Gate.
	III	
	IV	
October	I	Implement the Karnaugh map method in Sum [POS] using NOR Gate.
	II	
	III & IV	Revision.

Subject: Elective III A: Soft Computing

Subject Code: PECSE17

MONTH	WEEK	PORTIONS COVERED
June	III & IV	Artificial Neural Network, Basic Concepts, Single Layer Perceptron
July	II	Multilayer Perceptron, Supervised and unsupervised Learning.
	II	Application- Fuzzy system- Fuzzy sets- Fuzzy reasoning.
	III	Fuzzy matrices- Fuzzy functions. decomposition.
	IV	Fuzzy automata languages- Fuzzy Control methods- Fuzzy decision making
August	II	Applications- Fuzzy modelling. Adaptive Network based fuzzy interface
	III	Classification and Representation. Trees- Rule based structure Identification
	IV	Genetic algorithm- Survival of fittest. Fitness Computation
September	I	Fitness Computation- Crossover and mutation.
	II	Reproduction- Rank method.

Month	WEEK	PORTIONS.
September	III & IV	Rank Space method and Application Soft Computing
October	I	Soft Computing and conventional AI, AI Search algorithm.
	II	Predicate Calculus - Rules of Interface
	III	Semantic Network - Frames - Object Hybrid model application
	IV	Revision.

Week Plan

Date	Class	Portions covered	References
17/06/19 to 21/6/19	II M.Sc (CS)	Artificial Neural Network, Basic Concepts, History of Neural Network	Soft Artificial Neural Network Laurene Faucett.
	II B.Sc (CS)	Introduction, Data structure and its Classification Operation of Data Structure.	Data structure Seymour Lipschtz
	I B.Sc	Binary Number System, Verification of Logic Gates using truth tables	Digital logics and Fundametals Morris Mano.
24/06/19 to 28/06/19	II M.Sc (CS)	Basic conceptsof Neural Network Node Properties Network Properties System Dynamics	Artificial Neural Network, Laurene Faucett
	II B.Sc (CS)	Complexity time Space tradeoff Mathematical Notation and function Control Structure	Data Structure Seymour Lipschutz
		Verification of truth tables using logic gates.	Digital logicand Fundamentals Morris Mano.

Date	Class	Portions Covered	References
01/07/19 to 05/07/19	II M.Sc (CCS)	Single Layer Perceptron, Adalines Multilayer Perceptron	Artificial Neural Network Laurene Fausett
	II B.Sc (CCS)	String processing Operation on String	Data Structure Seymour Lipschtz
	I B.Sc (CCS)	Conversion of Binary number to Decimal number.	Digital logics and Fundamentals Morris Mano
08/7/19 to 12/7/19	II M.Sc (CCS)	Metadendial, BACON learning Neural Network Processing, Back Propagation.	Artificial Neural Network, Laurene Fausett.
	II B.Sc (CCS)	Inserting and Deletion operation	Data Structure Seymour lipschutz
	I B.Sc (CCS)	Complements verification of truth tables using logic gates	Digital logics and Fundamentals Morris Mano
15/7/19 to 19/7/19	II M.Sc (CCS)	Fuzzy logic Fuzzy sets, Decomposition, Fuzzy Modelling	Artificial Neural Network, Laurene Fausett
	II B.Sc (CCS)	Sorting, Types of sorting, Searching	Data Structure Seymour lipschutz
	I B.Sc (CCS)	Construct a half adder circuit using logic gates	Digital logics and Fundamentals Morris Mano.

12/7/19

Date	Class	Portions Covered	References
22/7/19 to 26/7/19.	II M.Sc(CS)	Fuzzy Control Applications of fuzzy system. Fuzzy modelling	Soft computing S.N. Deepa, Sivanandham
	II B.Sc(CS)	Multidimensional Array, Pointer Array	Data Structure Seymour Lipschutz
	I B.Sc(CS)	Implementation of full Adder	Digital logic and Fundamentals Morris Mano.
6/8/19 to 9/8/19	II M.Sc CCS)	Genetic Algorithm How Genetic Algorithm Works Encoding and its types.	Soft Computing S.N. Deepa, Sivanandham
	II B.Sc(CS)	Linked List, Representation of Linked List in memory.	Data Structure Seymour Lipschutz
	I B.Sc(CS)	Implementation of Full adder.	Digital logic and Fundamentals Morris Mano
13/8/19 to 17/8/19	II M.Sc CCS)	ANFIS Architecture	Soft Computing S.N. Deepa, Sivanandham..
	II B.Sc CCS)	Stacks, Representation of Array in memory	Data Structure Seymour lipschutz
	I B.Sc CCS)	Adder, Subtractor Boolean logics	Digital logics and Fundamentals Morris Mano.

Date	Class	Portions Covered	References
19-8-19 to 22-8-19	II M.SC CCS)	Fuzzy Inferances	Soft Computing S.N. Deepa, Sivanandham.
	II B.SC CCS)	Application of Stack, Quick sort	Data Structure Seymour lipschutz
	I B.SC CCS)	Anioms	Digital logics and Fundamentals Morris Mano.
26-8-19 to 29-8-19	II M.SC CCS)	Classification And Representation Trees.	Soft Computing S.N. Deepa Sivanandham.
	II B.SC CCS)	Garbage Collection Insertion and deletion.	Data Structure Seymour lipschutz
	I B.SC CCS)	Implementation of Half Subtractor	Digital logics and Funclamentals Morris Mano.
3-9-19 to 6-9-19	II M.SC CCS)	Rule Based Structure Identification	Soft Computing S.N. Deepa Sivanandham.
	II B.SC CCS)	Queues, Circular queues, Priority Queues	Data Structure Seymour lipschutz.
9-9-19 to 13-9-19	II M.SCCCS)	Neurofuzzy control	Soft Computing S.N. Deepa Sivanandham.
	II B.SC CCS)	Implementation of Binary Search trees Traversals	Data Structure Seymour lipschutz