ANNAMACHARYA INSTITUTE OF TECHNOLOGY AND SCIENCES, TIRUPATI
(AUTONOMOUS)

B. Tech - CSE (Artificial Intelligence & Machine Learning)
(Effective for the batches admitted from 2021-22)

Semester III (Second year)

Sl.	Category	Course Code	Course Title	Hours per week			Credits	CIE	SEE	TOTAL
				L	T	P	C			
1	BS	20ABS9914	Discrete Mathematical Structures	3	0	0	3	30	70	100
2	PC	20APC3301	Digital Electronics and Microprocessors	3	0	0	3	30	70	100
3	PC	20APC3302	Database Management Systems	3	0	0	3	30	70	100
4	PC	20APC3304	Object Oriented Programming through Java	3	0	0	3	30	70	100
5	PC	20APC3306	Computer Organization and Architecture	3	0	0	3	30	70	100
6	PC Lab	20APC3303	Database Management Systems Lab	0	0	3	1.5	30	70	100
7	PC Lab	20APC3305	Object Oriented Programming through Java Lab	0	0	3	1.5	30	70	100
8	PC Lab	20APC3307	Computer Organization and Microprocessor Lab	0	0	3	1.5	30	70	100
9	SOC	20ASC3301	Client Side Scripting	1	0	2	2	100	0	100
10	MC	20AMC9902	Constitution of India	2	0	0	0	30	0	30
			Total credits				**21.5**	**370**	**560**	**930**

ANNAMACHARYAINSTITUTEOFTECHNOLOGYANDSCIENCES::TIRUPTI

(AUTONOMOUS)

Year: II **Semester: I** **Branch of Study: AI & ML**

COURSECODE	COURSETITLE	L	T	P	CREDITS
20ABS9914	Discrete Mathematical Structures (Common to: CSE, CIC, AI & ML, AI & DS)	3	0	0	3

COURSE OBJECTIVES:

Introduce the concepts of mathematical logic and gain knowledge in sets, relations and functions and Solve problems using counting techniques and combinatorics and to introduce generating functions and recurrence relations. Use Graph Theory for solving real world problems.

COURSE OUTCOMES

After completion of the course, students will be able to

CO1: Apply mathematical logic to solve problems.

CO2: Understand the concepts and perform the operations related to sets, relations and functions.

CO3: Apply basic counting techniques to solve combinatorial problems.

CO4: Formulate problems to solve recurrence relations

CO5: Apply Graph Theory in solving computer science problems

UNIT-1:

Mathematical Logic: Introduction, Statements and Notation, Connectives, Well-formed formulas, Tautology, Duality law, Equivalence, Implication, Normal Forms, Functionally complete set of connectives, Inference Theory of Statement Calculus, Predicate Calculus, Inference theory of Predicate Calculus.

UNIT-2:

Set theory: Basic Concepts of Set Theory, Relations and Ordering, The Principle of Inclusion- Exclusion, Pigeon hole principle and its application, Functions composition of functions, Inverse Functions, Recursive Functions, Lattices and its properties. Algebraic structures: Algebraic systems-Examples and General Properties, Semi groups and Monoids, groups, sub groups, homomorphism, Isomorphism.

UNIT-3:

Elementary Combinatorics: Basics of Counting, Combinations and Permutations, Enumeration of Combinations and Permutations, Enumerating Combinations and Permutations with Repetitions, Enumerating Permutations with Constrained Repetitions, Binomial Coefficients, The Binomial and Multinomial Theorems.

UNIT-4:

Recurrence Relations: Generating Functions of Sequences, Calculating Coefficients of Generating Functions, Recurrence relations, Solving Recurrence Relations by Substitution and Generating functions, The Method of Characteristic roots, Solutions of Inhomogeneous Recurrence Relations

UNIT-5:

Graphs: Basic Concepts, Isomorphism and Subgraphs, Trees and their Properties, Spanning Trees, DirectedTrees, Binary Trees, Planar Graphs, Euler‘s Formula, Multigraphs and Euler Circuits, Hamiltonian Graphs, Chromatic Numbers, The Four Color Problem

TEXT BOOKS

1. Joe L. Mott, Abraham Kandel and Theodore P. Baker, Discrete Mathematics for Computer Scientists& Mathematicians, 2nd Edition, Pearson Education, 2008
2. J.P. Tremblay and R. Manohar, Discrete Mathematical Structures with Applications to Computer Science, Tata McGraw Hill, 2017.

REFERENCE BOOKS

1. Kenneth H. Rosen, Discrete Mathematics and its Applications with Combinatorics and GraphTheory, 7th Edition, McGraw Hill Education (India) Private Limited, 2017
2. Graph Theory with Applications to Engineering and Computer Science by Narsingh Deo, 1979.

Mapping of course outcomes with program outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	**3**	**2**	**2**											
CO2	**3**	**2**	**2**	**2**										
CO3	**2**	**3**	**2**											
CO4	**3**	**2**	**2**		**2**									
CO5	**3**	**2**	**2**	**3**	**2**									

(Levels of Correlation, viz., 1-Low, 2-Moderate, 3 High)

ANNAMACHARYAINSTITUTEOFTECHNOLOGYANDSCIENCES::TIRUPATI

(AUTONOMOUS)

Year: II **Semester: I** **Branch of Study: AI & ML**

COURSECODE	COURSETITLE	L	T	P	CREDITS
20APC3301	Digital Electronics and Microprocessors (Common to: CSE, CIC, AI & ML, AI & DS)	3	0	0	3

COURSE OBJECTIVES:

- To understand all the concepts of Logic Gates and Boolean Functions.
- To learn about Combinational Logic and Sequential Logic Circuits.
- To design logic circuits using Programmable Logic Devices.
- To understand basics of 8086 Microprocessor and 8051 Microcontroller.
- To understand architecture of 8086 Microprocessor and 8051 Microcontroller.
- To learn Assembly Language Programming of 8086 and 8051.

COURSE OUTCOMES:

After Completion of this course, the student will be able to:

CO1: Design Logic circuit using basic concepts of Boolean algebra.

CO2: Design Logic circuit using basic concepts of PLDs.

CO3: Design sequential logic circuits.

CO4: Design application using 8086 Microprocessor.

CO5: Design application using 8051 Microcontroller.

UNIT – 1:

Number Systems & Code Conversion

Number Systems & Code conversion, Boolean Algebra & Logic Gates, Truth Tables, Universal Gates, Simplification of Boolean functions, SOP and POS methods – Simplification of Boolean functions using K-maps, Signed and Unsigned Binary Numbers.

UNIT – 2:

Combinational Circuits

Combinational Logic Circuits: Adders & Subtractors, Multiplexers, Demultiplexers, Encoders, Decoders, Programmable Logic Devices.

UNIT – 3:

Sequential Circuits:

Sequential Logic Circuits: RS, Clocked RS, D, JK, Master Slave JK, T Flip-Flops, Shift Registers, Types of Shift Registers, Counters, Ripple Counter, Synchronous Counters, Asynchronous Counters, Up-Down Counter

UNIT – 4:

Microprocessors - I:

8085 microprocessor Review (brief details only), 8086 microprocessor, Functional Diagram, register organization 8086, Flag register of 8086 and its functions, Addressing modes of 8086, Pin diagram of 8086, Minimum mode & Maximum mode operation of 8086, Interrupts in 8086.

UNIT – 5:

Microprocessors and Interfacing:

Instruction set of 8086, Assembler directives, Procedures and Macros, Simple programs involving arithmetic, logical, branch instructions, Ascending, Descending and Block move programs, String Manipulation Instructions. Overview of 8051 microcontroller, Architecture, I/O ports and Memory organization, addressing modes and instruction set of 8051(Brief details only), Simple Programs.

TEXT BOOKS:

1. M. Morris Mano, Michael D. Ciletti, Digital Design, Pearson Education, 5th Edition, 2013
2. Anil K. Maini, Digital Electronics: Principles, Devices and Applications, John Wiley & Sons, Ltd., 2007.
3. N. Senthil Kumar, M. Saravanan, S. Jeevanathan, Microprocessor and Microcontrollers, Oxford

Publishers, 2016

4. Advanced microprocessors and peripherals-A.K Ray and K.M.Bhurchandani, TMH, 2nd edition,2006.

REFERENCE BOOKS:

1. Thomas L. Floyd, Digital Fundamentals – A Systems Approach, Pearson, 2013.
2. Charles H. Roth, Fundamentals of Logic Design, Cengage Learning, 5th, Edition, 2004.
3. D.V.Hall, Microprocessors and Interfacing. TMGH, 2nd edition, 2006.
   Kenneth.J.Ayala, The 8051 microcontroller, 3rd edition, Cengage Learning,2010.

Mapping of course outcomes with program outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2										1	
CO2	3	2	2										2	
CO3	3	2	2	1									2	
CO4	3	2	2	1									2	1
CO5	3	2	2	1									2	1

(Levels of Correlation, viz., 1-Low, 2-Moderate, 3 High)

ANNAMACHARYAINSTITUTEOFTECHNOLOGYANDSCIENCES::TIRUPATI

(AUTONOMOUS)

Year: II **Semester: I** **Branch of Study: AI & ML**

COURSECODE	COURSETITLE	L	T	P	CREDITS
20APC3302	Database Management Systems (Common to: CSE, CIC, AI & ML, AI & DS, ECE)	3	0	0	3

COURSE OBJECTIVES:

This course is designed to:

- Train in the fundamental concepts of database management systems, database modeling and design, SQL, PL/SQL and system implementation techniques.
- Enable students to model ER diagrams for any customized application
- Inducting appropriate strategies for optimization of queries.
- Provide knowledge on transaction and concurrency techniques

COUSEOUTCOMES:

After completion of the course, students will be able to

CO1: know the fundamentals of Databases
CO2: Understand SQL and PL/SQL Concepts
CO3: Design a database for a real-world information system
CO4: Process and Optimize the query
CO5: Working of transaction and concurrency techniques in real time applications

UNIT-1:

Introduction: Database systems applications, Purpose of Database Systems, view of Data, Database Languages, Relational Databases, Database Design, Data Storage and Querying, Transaction Management, Database Architecture, Data Mining and Information Retrieval, Specialty Databases, Database users and Administrators, **Introduction to Relational Model:** Structure of Relational Databases, Database Schema, Keys, Schema Diagrams, Relational Query Languages, Relational Operations

UNIT-2:

Introduction to SQL: Overview of the SQL Query Language, SQL Data Definition, Basic Structure of SQL Queries, Additional Basic Operations, Set Operations, Null Values, Aggregate Functions, Nested Sub-queries, Modification of the Database. Intermediate SQL**:** Joint Expressions, Views, Transactions, Integrity Constraints, SQL Data types and schemas, Authorization.

Advanced SQL: Accessing SQL from a Programming Language, Functions and Procedures, Triggers, Recursive Queries, OLAP, Formal relational query languages

UNIT-3:

Database Design and the E-R Model: Overview of the Design Process, The Entity-Relationship Model, Constraints, Removing Redundant Attributes in Entity Sets, Entity-Relationship Diagrams, Reduction to Relational Schemas, Entity-Relationship Design Issues.

Relational Database Design:

Features of Good Relational Designs, Atomic Domains and First Normal Form, Decomposition Using Functional Dependencies, Functional-Dependency Theory, Algorithms for Decomposition, Decomposition Using Multivalued Dependencies, More Normal Forms.

UNIT-4:

Query Processing: Overview, Measures of Query cost, Selection operation, sorting, Join Operation, other operations, Evaluation of Expressions.

Query optimization: Overview, Transformation of Relational Expressions, Estimating statistics of Expression results, Choice of Evaluation Plans, Materialized views, Advanced Topics in Query Optimization.

UNIT-5:

Transaction Management: Transactions: Concept, A Simple Transactional Model, Storage Structures, Transaction Atomicity and Durability, Transaction Isolation, Serializability, Isolation and Atomicity, Transaction Isolation Levels, Implementation of Isolation Levels, Transactions as SQL Statements.

Concurrency Control: Lock-based Protocols, Deadlock Handling, Multiple granularity, Timestamp-based Protocols, and Validation-based Protocols.

Recovery System: Failure Classification, Storage, Recovery and Atomicity, Recovery Algorithm, Buffer Management, Failure with Loss of Nonvolatile Storage, Early Lock Release and Logical Undo Operations

TEXT BOOKS:

1. A. Silberschatz, H.F.Korth, S.Sudarshan, -Database System Concepts‖,6/e, TMH 2019
2. Database Management System, 6/e Ramez Elmasri, Shamkant B. Navathe, PEA

REFERENCES:

1. Database Management System, 6/e Ramez Elmasri, Shamkant B. Navathe, PEA
2. Database Principles Fundamentals of Design Implementation and Management, Carlos Coronel, Steven Morris, Peter Robb, Cengage Learning.
3. Database Management Systems, 3/e, Raghurama Krishnan, Johannes Gehrke,TMH

Online Learning Resources:

https://onlinecourses.nptel.ac.in/noc21_cs04/preview

Mapping of course outcomes with program outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2													
CO2	2				2									
CO3	2	1	2											
CO4	3	2	3										2	
CO5	2	2												

(Levels of Correlation, viz., 1-Low, 2-Moderate, 3 High)

ANNAMACHARYAINSTITUTEOFTECHNOLOGYANDSCIENCES::TIRUPATI
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Year: II **Semester: I** **Branch of Study: AI & ML**

COURSECODE	COURSETITLE	L	T	P	CREDITS
20APC3304	Object Oriented Programming through Java (Common to : CSE, CIC, AI & ML, AI & DS)	3	0	0	3

COURSE OBJECTIVES:

At the end of the course, the students will be able to:

- To understand object oriented programming concepts, and apply them in solving Problems.
- To introduce the principles of inheritance and polymorphism and implementation of packages and interfaces.
- To learn java's exception handling mechanism, String Handling Methods.
- To introduce the concepts of multithreading and Collection Framework and internet programming using applets.
- To introduce the design of Graphical User Interface swing controls.

COUSE OUTCOMES:

CO1: Understanding the Syntax, Semantics and features of Java Programming Language.
CO2: To gain knowledge on Object Oriented Programming concepts.
CO3: Raise Exceptions and handle exceptions.
CO4: Analyze the method of creating Multi-threading programs
CO5: Ability to create GUI applications & perform event handling.

Unit–1:

Object Oriented Thinking: History of Java, Java Buzzwords, Overview of OOP CLASSES AND **Objects:** Classes, Objects, Simple Java Program, Methods, Constructors, this Keyword, Garbage Collection, Data Types, Variables, Arrays, Operators, Control Statements Overloading of Methods and Constructors, Parameter Passing, Recursion, String Class and String handling methods.

Unit– 2:

Inheritance: Inheritance Basics, Using Super, Multilevel Hierarchy, Method Overriding, Dynamic Method Dispatch, Abstract Classes, Using final with Inheritance, Object Class.
Packages: Packages, Access Protection, Importing Packages.
Interfaces: Defining an Interface, Implementing Interface, Applying Interface, Variables in Interfaces, Interfaces can be extended.

Unit–3:

Exception Handling: Exception Handling Fundamentals, Exception Types, Uncaught Exceptions, Usingtry and catch, Multiple catch Clauses, Nested try Statements, throw, throws, finally, Java‘s Built in Exceptions, Creating Own Exception Sub Classes.
Input and Output Operations: I/O basics, reading console input, writing console output, the PrintWriter class, reading and writing files, automatically closing a file.
Generic Programming — Generic classes — generic methods — Bounded Types — Restrictions and Limitations.

Unit–4:

Multithreading: Java Thread Model, The Main Thread, Thread Life Cycle, Creating Thread and Multiple Threads, isAlive() and join(), Thread Priorities, Synchronization, Inter thread Communication, Suspending, Resuming and Stopping Threads.
Collection Framework: Collection Overview, Collection Interfaces: The Collection Interface, the List Interface, the Queue Interface, Collection Classes: Array List Class, Linked List Class, String Tokenizer, Scanner.

Unit–5:

Applets: Applet Basics, Life Cycle of an Applet, Simple Applet Display Methods, The HTML APPLETtag, Passing Parameters to Applets.
Swing: Introduction to Swing Model-View-Controller design pattern button, layout management, Swing Components

Text Books:

1. Herbert Schildt. Java. The complete reference, TMH. 12thEdition, McGraw Hill, 2021
2. Cay. S. Horstmann and Gary Cornell Core Java 2, Vol 2, Advanced Features, Pearson Education,7thEdition, 2004

Reference Books:

1. J.Nino and F.A. Hosch, An Introduction to programming and OO design using Java, John Wiley & sons.
2. Y. Daniel Liang, Introduction to Java programming, Pearson Education6th Edition
3. R.A. Johnson- Thomson, An introduction to Java programming and object oriented application development.
4. P. Radha Krishna, Object Oriented Programming through Java, University Press.

Online Learning Resources:

www.javatpoint.com

Mapping of course outcomes with program outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2			3								1	1
CO2	1	1	3										1	1
CO3	1		3	1									1	1
CO4	1	2	3										1	1
CO5	2	1	2		3								1	1

(Levels of Correlation, viz., 1-Low, 2-Moderate, 3 High)

ANNAMACHARYAINSTITUTEOFTECHNOLOGYANDSCIENCES::TIRUPATI

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Year: II **Semester: I** **Branch of Study: AI & ML**

COURSECODE	COURSETITLE	L	T	P	CREDITS
20APC3306	Computer Organization and Architecture	3	0	0	3

COURSE OBJECTIVES:

- To learn the fundamentals of computer organization and its relevance to classical and modern
- problems of computer design
- To understand the structure and behavior of various functional modules of a computer.
- To learn the techniques that computers use to communicate with I/O devices
- To acquire the concept of pipelining and exploitation of processing speed.
- To learn the basic characteristics of multiprocessors

COURSE OUTCOMES:

After completion of the course, students will be able to

CO1: Understand computer architecture concepts related to the design of modern processors, memories and I/Os

CO2: Design Arithmetic and control unit

CO3: Identify the hardware requirements of Primary and Secondary memory and Understand the importance of I/O devices and its interface circuits.

CO4: Identify pipeline hazards and possible solutions to those hazards

CO5: Understand Scalable Architectures, Pipelining, Superscalar processors, multiprocessors

UNIT - 1: Basic Structure of Computer, Machine Instructions and Programs

Basic Structure of Computer: Computer Types, Functional Units, Basic operational Concepts, Bus Structure, Software, Performance

Machine Instructions and Programs: Numbers, Arithmetic Operations and Programs, Instructions and Instruction Sequencing, Addressing Modes, Basic Input/output Operations, Stacks and Queues, Subroutines,Additional Instructions.

UNIT - 2: Arithmetic, Basic Processing Unit

Arithmetic: Addition and Subtraction of Signed Numbers, Design of Fast Adders, Multiplication of Positive Numbers, Signed-operand Multiplication, Fast Multiplication, Integer Division, Floating-PointNumbers and Operations.

Basic Processing Unit: Fundamental Concepts, Execution of a Complete Instruction, Multiple-Bus Organization, Hardwired Control, and Multi programmed Control.

UNIT - 3: The Memory System, Input/Output Organization

The Memory System: Basic Concepts, Semiconductor RAM Memories, Read-Only Memories, Speed, Sizeand Cost, Cache Memories, Performance Considerations, Virtual Memories, Memory Management Requirements, Secondary Storage.

Input/Output Organization: Accessing I/O Devices, Interrupts, Processor Examples, Direct MemoryAccess, Buses, Interface Circuits, Standard I/O Interfaces.

UNIT - 4: Pipelining, Large Computer Systems

Pipelining: Basic Concepts, Data Hazards, Instruction Hazards, Influence on Instruction Sets

Large Computer Systems: Forms of Parallel Processing, Array Processors, The Structure of General-Purpose multiprocessors, Interconnection Networks.

Unit -5: Computer Architecture

Parallel and Scalable Architectures, Multiprocessors and Multicomputers, cache coherence and synchronization mechanism, Three Generations of Multicomputers, Message-passing Mechanisms, Multivetor and SIMD computers, Vector Processing Principals, Multivector Multiprocessors, Compound Vector processing, SIMD computer Organizations.

Textbooks:

1. Carl Hamacher, ZvonkoVranesic, SafwatZaky, -Computer Organization‖, 5th Edition, McGraw Hill Education, 2013.
2. M.Morris Mano, -Computer System Architecture‖, 3rd Edition, Pearson Education, 2017.
3. Advanced Computer Architecture Second Edition, Kai Hwang, Tata McGraw Hill Publishers.

References

1. Themes and Variations, Alan Clements, -Computer Organization and Architecture‖, CENGAGE Learning.
2. SmrutiRanjanSarangi, ―Computer Organization and Architecture‖, McGraw Hill Education.
3. John P.Hayes, ―Computer Architecture and Organization‖, McGraw Hill Education

Online Learning Resources:

https://nptel.ac.in/courses/106/103/106103068/

Mapping of course outcomes with program outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2											
CO2	2	2	2										2	
CO3	1													
CO4	2													1
CO5	2	2	2										2	

(Levels of Correlation, viz., 1-Low, 2-Moderate, 3 High)

ANNAMACHARYAINSTITUTEOFTECHNOLOGYANDSCIENCES::TIRUPATI

(AUTONOMOUS)

Year: II **Semester: I** **Branch of Study: AI & ML**

COURSECODE	COURSETITLE	L	T	P	CREDITS
20APC3303	Database Management Systems Lab (Common to : CSE, CIC, AI & ML, AI & DS)	0	0	3	1.5

COURSE OBJECTIVE:

- To implement the basic knowledge of SQL queries and relational algebra.
- To construct database models for different database applications.
- To apply normalization techniques for refining of databases.
- To practice various triggers, procedures, and cursors using PL/SQL.
- To design and implementation of a database for an organization

COURSE OUTCOMES:

After completion of the course, students will be able to

CO1: Write SQL Queries
CO2: Implement PL/SQL programs
CO3: Design database for any real world problem

List of Experiments:

1. CREATION OF TABLES

1. Create a table called Employee with the following structure.

Name	Type
Empno	Number
Ename	Varchar2(20)
Job	Varchar2(20)
Mgr	Number
Sal	Number

   a. Add a column commission with domain to the Employee table.
   b. Insert any five records into the table.
   c. Update the column details of job
   d. Rename the column of Employ table using alter command.
   e. Delete the employee whose empno is19.
2. Create department table with the following structure.

Name	Type
Deptno	Number
Deptname	Varchar2(20)
location	Varchar2(20)

   a. Add column designation to the department table.
   b. Insert values into the table.
   c. List the records of emp table grouped bydeptno.
   d. Update the record where deptno is9.
   e. Delete any column data from the table
3. Create a table called Customer table

Name	Type
Cust name	Varchar2(20)

Cust street	Varchar2(20)
Cust city	Varchar2(20)

a) Insert records into the table.
b) Add salary column to the table.
c) Alter the table column domain.
d) Drop salary column of the customer table.
e) Delete the rows of customer table whose ust_city is _hyd‘.

4. Create a table called branch table.

Name	Type
Branch name	Varchar2(20)
Branch city	Varchar2(20)
asserts	Number

5. Increase the size of data type for asserts to the branch.
a) Add and drop a column to the branch table.
b) Insert values to the table.
c) Update the branch name column
d) Delete any two columns from the table

6. Create a table called sailor table

Name	Type
Sid	Number
Sname	Varchar2(20)
rating	Varchar2(20)

a) Add column age to the sailor table.
b) Insert values into the sailor table.
c) Delete the row with rating>8.
d) Update the column details of sailor.
e) Insert null values into the table.

7. Create a table called reserves table

Name	Type
Boat id	Integer
sid	Integer
day	Integer

a) Insert values into the reserves table.
b) Add column time to the reserves table.
c) Alter the column day data type to date.
d) Drop the column time in the table.
e) Delete the row of the table with some condition.

2. QUERIES USING DDL AND DML

1. a. Create a user and grant all permissions to the user.
b. Insert the any three records in the employee table and use rollback. Check the result.
c. Add primary key constraint and not null constraint to the employee table.

d. Insert null values to the employee table and verify the result.

2. a. Create a user and grant all permissions to the user.
   b. Insert the any three records in the employee table and use rollback. Check the result.
   c. Add primary key constraint and not null constraint to the employee table.
   d. Insert null values to the employee table and verify the result.
3. a. Create a user and grant all permissions to the user.
   b. Insert the any three records in the employee table and use rollback. Check the result.
   c. Add primary key constraint and not null constraint to the employee table.
   d. Insert null values to the employee table and verify the result.

4. a. Create a user and grant all permissions to the user.
   b. Insert values in the department table and use commit.
   c. Add constraints like unique and not null to the department table.
   d. Insert repeated values and null values into the table.
5. a. Create a user and grant all permissions to the user.
   b. Insert values into the table and use commit.
   c. Delete any three records in the department table and use rollback.
   d. Add constraint primary key and foreign key to the table.
6. a. Create a user and grant all permissions to the user.
   b. Insert records in the sailor table and use commit.
   c. Add save point after insertion of records and verify save point.
   d. Add constraints not null and primary key to the sailor table.
7. a. Create a user and grant all permissions to the user.
   b. Use revoke command to remove user permissions.
   b. Change password of the user created.
   c. Add constraint foreign key and not null.
8. a. Create a user and grant all permissions to the user.
   b. Update the table reserves and use save point and rollback.
   c. Add constraint primary key , foreign key and not null to the reserves table
   d. Delete constraint not null to the table column

3. E-R MODELS USING RATIONAL ROSE

a. Construct the E-R model for **Library management system** using Rational Rose.
b. Construct the E-R model for **ATM** using Rational Rose.
c. Construct the E-R model for **Online shopping** using Rational Rose.
d. Construct the E-R model for **Hostel management** using Rational Rose.
e. Construct the E-R model for **Hospital management** system using Rational Rose

4. QUERIES USING AGGREGATE FUNCTIONS

1. a. By using the group by clause, display the enames who belongs to deptno 10 along with average salary.
   b. Display lowest paid employee details under each department.
   c. Display number of employees working in each department and their department number.
   d. Using built in functions, display number of employees working in each department and their department name from dept table. Insert deptname to dept table and insert deptname for each row, do the required thing specified above.
   e. List all employees which start with either B or C.
   f. Display only these ename of employees where the maximum salary is greater than or equal to 5000.
2. a. Calculate the average salary for each different job.
   b. Show the average salary of each job excluding manager.
   c. Show the average salary for all departments employing more than three people.
   d. Display employees who earn more than the lowest salary in department 30
   e. Show that value returned by sign (n)function.
   f. How many days between day of birth to current date
3. a. Show that two substring as single string.
   b. List all employee names, salary and 15% rise in salary.
   c. Display lowest paid emp details under each manager
   d. Display the average monthly salary bill for each deptno.

e. Show the average salary for all departments employing more than two people.
f. By using the group by clause, display the eid who belongs to deptno 05 alongwith average salary.

4. a. Count the number of employees in department20
   b. Find the minimum salary earned by clerk.
   c. Find minimum, maximum, average salary of all employees.
   d. List the minimum and maximum salaries for each job type.
   e. List the employee names in descending order.
   f. List the employee id, names in ascending order by empid.
5. a. Find the sids , names of sailors who have reserved all boats called—INTERLAKE Find the age of youngest sailor who is eligible to vote for each rating level with at least two such sailors.
   b. Find the sname , bid and reservation date for each reservation.
   c. Find the ages of sailors whose name begin and end with B and has at least 3characters.
   d. List in alphabetic order all sailors who have reserved red boat.
   e. Find the age of youngest sailor for each rating level.
6. a. List the Vendors who have delivered products within 6 months from order date.
   b. Display the Vendor details who have supplied both Assembled and Subparts.
   c. Display the Sub parts by grouping the Vendor type (Local or Non Local).
   d. Display the Vendor details in ascending order.
   e. Display the Sub part which costs more than any of the Assembled parts.
   f. Display the second maximum cost Assembled part

5. PROGRAMS ON PL/SQL

1. a. Write a PL/SQL program to swap two numbers.
   b. Write a PL/SQL program to find the largest of three numbers.
2. a. Write a PL/SQL program to find the total and average of 6 subjects and display the grade.
   b. Write a PL/SQL program to find the sum of digits in a given number.
3. a. Write a PL/SQL program to display the number in reverse order.
   b. Write a PL/SQL program to check whether the given number is prime or not.
4. a. Write a PL/SQL program to find the factorial of a given number.
   b. Write a PL/SQL code block to calculate the area of a circle for a value of radius varying from 3 to 7. Store the radius and the corresponding values of calculated area in an empty table named areas,consisting of two columns radius and area.
5. a. Write a PL/SQL program to accept a string and remove the vowels from the string. (When _hello‘ passed to the program it should display _Hll‘ removing e and o from the worldHello).
   b. Write a PL/SQL program to accept a number and a divisor. Make sure the divisor is less than or equal to 10. Else display an error message. Otherwise Display the remainder in words.

6. PROCEDURES AND FUNCTIONS

1. Write a function to accept employee number as parameter and return Basic +HRA together as singlecolumn.
2. Accept year as parameter and write a Function to return the total net salary spent for a given year.
3. Create a function to find the factorial of a given number and hence find NCR.
4. Write a PL/SQL block o pint prime Fibonacci series using local functions.
5. Create a procedure to find the lucky number of a given birth date.
6. Create function to the reverse of given number

7. TRIGGERS

1. Create a row level trigger for the customers table that would fire for INSERT or UPDATE or DELETE operations performed on the CUSTOMERS table. This trigger will display the salary difference between

the old values and newvalues:

CUSTOMERS table:

ID	NAME	AGE	ADDRESS	SALARY
1	Alive	24	Khammam	2000
2	Bob	27	Kadappa	3000
3	Catri	25	Guntur	4000
4	Dena	28	Hyderabad	5000
5	Eeshwar	27	Kurnool	6000
6	Farooq	28	Nellore	7000

2. Creation of insert trigger, delete trigger, update trigger practice triggers using the passenger database. Passenger(Passport_ id INTEGER PRIMARY KEY, Name VARCHAR (50)Not NULL,Age Integer Not NULL, Sex Char, Address VARCHAR (50) Not NULL);
   a. Write a Insert Trigger to check the Passport_id is exactly six digits ornot.
   b. Write a trigger on passenger to display messages _1 Record is inserted‘, _1 record is deleted‘, _1 record is updated‘ when insertion, deletion and updation are done on passenger respectively.
3. Insert row in employee table using Triggers. Every trigger is created with name any trigger have same name must be replaced by new name. These triggers can raised before insert, update or delete rows on data base. The main difference between a trigger and a stored procedure is that the former is attached to a table and is only fired when an INSERT, UPDATE or DELETE occurs.
4. Convert employee name into uppercase whenever an employee record is inserted or updated. Trigger to fire before the insert or update.
5. Trigger before deleting a record from emp table. Trigger will insert the row to be deleted into table called delete _emp and also record user who has deleted the record and date and time of delete.
6. Create a transparent audit system for a table CUST_MSTR. The system must keep track of the records that are being deleted or updated

8. PROCEDURES

1. Create the procedure for palindrome of given number.
2. Create the procedure for GCD: Program should load two registers with two Numbers and then apply the logic for GCD of two numbers. GCD of two numbers is performed by dividing the greater number by the smaller number till the remainder is zero. If it is zero, the divisor is the GCD if not the remainder and the divisors of the previous division are the new set of two numbers. The process is repeated by dividing greater of the two numbers by the smaller number till the remainder is zero and GCD is found.
3. Write the PL/SQL programs to create the procedure for factorial of given number.
4. Write the PL/SQL programs to create the procedure to find sum of N natural number.
5. Write the PL/SQL programs to create the procedure to find Fibonacci series.
6. Write the PL/SQL programs to create the procedure to check the given number is perfect or not

9. CURSORS

1. Write a PL/SQL block that will display the name, dept no, salary of fist highest paid employees**.** Update the balance stock in the item master table each time a transaction takes place in the item transaction table. The change in item master table depends on the item id is already present in the item master then update operation is performed to decrease the balance stock by the quantity specified in the item transaction in case the item id is not present in the item master table then the record is inserted in the item master table.
2. Write a PL/SQL block that will display the employee details along with salary using cursors.
3. To write a Cursor to display the list of employees who are working as a Managers or Analyst.
4. To write a Cursor to find employee with given job and deptno.

5. Write a PL/SQL block using implicit cursor that will display message, the salaries of all the employees in the _employee‘ table are updated. If none of the employee‘s salary are updated we get a message 'None of the salaries were updated'. Else we get a message like for example, 'Salaries for 1000 employees are updated' if there are 1000 rows in _employee‘ table

10. CASE STUDY: BOOK PUBLISHING COMPANY

A publishing company produces scientific books on various subjects. The books are written by authors who specialize in one particular subject. The company employs editors who, not necessarily being specialists in a particular area, each take sole responsibility for editing one or more publications.
A publication covers essentially one of the specialist subjects and is normally written by a singleauthor. When writing a particular book, each author works with on editor, but may submit another work for publication to be supervised by other editors. To improve their competitiveness, the company tries to employ a variety of authors, more than one author being a specialist in a particular subject for the above case study, do the following:

1. Analyze the data required.
2. Normalize the attributes.

Create the logical data model using E-R diagrams

11. CASE STUDY GENERAL HOSPITAL

A General Hospital consists of a number of specialized wards (such as Maternity, Pediatric, Oncology, etc.). Each ward hosts a number of patients, who were admitted on the recommendation of their own GP and confirmed by a consultant employed by the Hospital. On admission, the personal details of every patient are recorded. A separate register is to be held to store the information ofthe tests undertaken and the results of a prescribed treatment. A number of tests may be conducted for each patient. Each patient is assigned to one leading consultant but may be examined by another doctor, if required. Doctors are specialists in some branch of medicine and may be leading consultants for a number of patients, not necessarily from the same ward. For the above case study, do the following.

1. Analyze the data required.
2. Normalize the attributes.

Create the logical data model using E-R diagrams

12. CASE STUDY: CAR RENTAL COMPANY

A database is to be designed for a car rental company. The information required includes a description of cars, subcontractors (i.e. garages), company expenditures, company revenues and customers. Cars are to be described by such data as: make, model, year of production, engine size, fuel type, number of passengers, registration number, purchase price, purchase date, rent price and insurance details. It is the company policy not to keep any car for a period exceeding one year. All major repairs and maintenance are done by subcontractors (i.e. franchised garages), with whom CRC has long-term agreements. Therefore the data about garages to be kept in the database includes garage names, addresses, range of services and the like. Some garages require payments immediately after a repair has been made; with others CRC has made arrangements for credit facilities. Company expenditures are to be registered for all outgoings connected with purchases, repairs, maintenance, insurance etc. Similarly the cash inflow coming from all sources: Car hire, car sales, insurance claims must be kept of file. CRC maintains a reasonably stable client base. For this privileged category of customers special credit card facilities are provided. These customers may also book in advance a particular car. These reservations can be made for any period of time up to one month. Casual customers must pay a deposit for an estimated time of rental, unless they wish to pay by credit card. All major credit cards are accepted. Personal details such as name, address, telephone number, driving license, number about each customer are kept in the database. For the above case study, do the following:

1. Analyze the data required.
2. Normalize the attributes.

Create the logical data model using E-R diagrams

13. CASE STUDY: STUDENT PROGRESS MONITORING SYSTEM

A database is to be designed for a college to monitor students' progress throughout their course of study. The students are reading for a degree (such as BA, BA (Hons.) M.Sc., etc) within the framework of the modular system. The college provides a number of modules, each being characterized by its code, title, credit value, module leader, teaching staff and the department they come from. A module is coordinated bya module leader who shares teaching duties with one or more lecturers. A lecturer may teach (and be a module leader for) more than one module. Students are free to choose any module they wish but the following rules must be observed: Some modules require pre- requisites modules and some degree programs have compulsory modules. The database is also contain some information about students including their numbers, names, addresses, degrees they read for, and their past performance i.e. modules taken and examination results. For the above case study, do the following:

1. Analyze the data required.
2. Normalize the attributes.
3. Create the logical data model i.e., ER diagrams.
4. Comprehend the data given in the case study by creating respective tables with primary keysand foreign keys wherever required.
5. Insert values into the tables created (Be vigilant about Master- Slave tables).
6. Display the Students who have taken M.Sccourse
7. Display the Module code and Number of Modules taught by each Lecturer.
8. Retrieve the Lecturer names who are not Module Leaders.
9. Display the Department name which offers _English _module.
10. Retrieve the Prerequisite Courses offered by every Department (with Department names).
11. Present the Lecturer ID and Name who teaches_Mathematics‘.
12. Discover the number of years a Module istaught.
13. List out all the Faculties who work for _Statistics‘Department.
14. List out the number of Modules taught by each ModuleLeader.
15. List out the number of Modules taught by a particularLecturer.
16. Create a view which contains the fields of both Department and Module tables.(Hint-The fields like Module code, title, credit, Department code and itsname).

Update the credits of all the prerequisite courses to 5. Delete the Module _History‘ from theModuletable.

References:

1. Ramez Elmasri, Shamkant, B. Navathe, -Database Systems‖, Pearson Education, 6th Edition,2013.
2. Peter Rob, Carles Coronel, -Database System Concepts‖, Cengage Learning, 7th Edition, 2008.

Online Learning Resources/Virtual Labs:

http://www.scoopworld.in http://vlabs.iitb.ac.in/vlabs-dev/labs/dblab/index.php

Mapping of course outcomes with program outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1		2		1								1	
CO2	2		2		1								1	
CO3	3	2	3		2				2				2	2

(Levels of Correlation, viz., 1-Low, 2-Moderate, 3 High)

ANNAMACHARYAINSTITUTEOFTECHNOLOGYANDSCIENCES::TIRUPATI
(AUTONOMOUS)

Year: II **Semester: I** **Branch of Study: AI & ML**

COURSECODE	COURSETITLE	L	T	P	CREDITS
20APC3305	Object Oriented Programming through Java Lab (Common to : CSE, CIC, AI & ML, AI & DS)	0	0	3	1.5

COURSE OBJECTIVES:

- To experiment with the syntax and semantics of java language and gain experience with java programming
- Learn to use object orientation to solve problems and use java language to implement them.

COURSE OUTCOMES:

CO1: Demonstrate java compiler and eclipse platform and learn how to use net beans IDE to create java Application
CO2: Ability to create user friendly interfaces
CO3: Ability to solve the problem using object oriented approach and design solutions which are robust
CO4: Implement exception handling and Templates
CO5: Ability to create GUI components and implementations

List of Experiments:

1. Installation of Java software, study of any integrated development environment, Use Eclipse or Net beanplatform and acquaint with the various menus. Create a test project, add a test class and run it.
   a) Practice Java Basic Programs on Classes and Objects.

2. a) Develop a Java application to generate Electricity bill. Create a class with the following members: Consumer no., consumer name, previous month reading, current month reading, type of EB connection (i.e domestic or commercial). Commute the bill amount using the following tariff.
   If the type of the EB connection is domestic, calculate the amount to be paid as follows:
   First 100 units - Rs. 1 per unit; 101-200 units - Rs. 2.50 per unit; 201 -500 units - Rs. 4 per unit;
   501 units - Rs. 6 per unit. If the type of the EB connection is commercial, calculate the amount to be paid as follows: First 100 units - Rs. 2 per unit; 101-200 units - Rs. 4.50 per unit; 201 -500 units - Rs. 6 per unit; > 501 units - Rs. 7 per unit
   b) Write a java program to illustrate the concept of class with method overloading.
   C) Write a java program to illustrate the concept of class with Constructors overloading.

3. a) Write a program to create a class named shape. It should contain 2 methods, draw() and erase() that prints
   -Drawing Shape‖ and -Erasing Shape respectively. For this class, create three sub classes, Circle, Triangle and Square and each class should override the parent class functions - draw () and erase (). The draw() method should print -Drawing Circle‖, -Drawing Triangle‖ and -Drawing Square‖ respectively. The erase() method should print -Erasing Circle‖, -Erasing Triangle‖ and -Erasing Square‖ respectively. Create objects of Circle, Triangle and Square in the following way and observe the polymorphic nature of the class by calling draw() and erase() method using each object. Shape c=new Circle(); Shape t=new Triangle(); Shape s=new Square();
   b) Write a Java Program to demonstrate inheritance &usage of super

4. a) Write a Java Program to implement multilevel inheritance.
   b) Write a Java program to implement the method overriding
   c) Write a Java program to implement dynamic method dispatch.

5. a) Write a Java program to implement abstract class.
   b) Write a Java Program to implement Packages.
   c) Write a Java Program to implement Access Protection in Packages.

6. a) Write a Java program to demonstrate interfaces.

b) Write a Java program to implement the multiple inheritance using interfaces.

7. a) Write a Java program to implement the exception handling mechanism.
   b) Write a Java program to implement the nested try statement.
   c) Write a Java program to implement your own exception class.

8. a) Write a Java Program to demonstrate the following String Handlings.
   i. String Length& Concatenation.
   ii. Character Extraction.
   iii. String Comparison.
   iv. Searching and modifying String.
   b) Write a Java Program to demonstrate String Buffer Class.

9. a) Write a Java program for multi-thread implementation.
   b) Write a Java program to implement producer consumer problem using inter-thread communicationmechanism.

10. a) Practice any two Programs on Collections.
    b) Practice any two Programs on String Tokenizer & Scanner.

11. a) Write a Java Program to develop an applet that displays a simple message.
    b) Develop an applet that receives an integer in one text field, and computes its factorial Value and returnsit in another text field, when the button named ―Compute‖ is clicked.
    c) Write a java program to handle keyboard events.
    d) Write a java program to handle Mouse events

12. a) Write a Java Program to demonstrate AWT Label & Button.
    b) Write a Java Program to demonstrate JLabel, JTextField & JButton.
    c) Write a program to design a calculator using event driven programming paradigm of java

Text Books:

1. Herbert Schildt.Java. The complete reference, TMH. 9thEdition, 2014.
2. H.M.Dietel and P.J.Dietel, Java How to Program 6thEdition,PearsonEducation/PHI, 2004
3. Y.DanielLiang, Introduction to Java programming, Pearson Education, 6thEdition.
4. Cay Horstmann, Big Java, 2ndedition, Wiley Student Edition, Wiley India Private Limited.

Online Learning Resources/Virtual Labs:

http://www.javatpoint.com

Mapping of course outcomes with program outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3		1		3									
CO2	2	2	2											
CO3	1	2	2	1										
CO4		1	2	2										
CO5		1	2	2	3			3						

(Levels of Correlation, viz., 1-Low, 2-Moderate, 3 High)

ANNAMACHARYAINSTITUTEOFTECHNOLOGYANDSCIENCES::TIRUPATI

(AUTONOMOUS)

Year: II **Semester: I** **Branch of Study: AI & ML**

COURSECODE	COURSETITLE	L	T	P	CREDITS
20APC3307	Computer Organization and Microprocessor Lab	0	0	3	1.5

COURSE OBJECTIVES:

- Understanding the behavior of logic gates, adders, decoders, multiplexers and flipflops.
- Understanding the behavior of ALU, RAM, STACK and PROCESSOR from working modules and the modules designed by the student as part of the experiment.

COURSE OUTCOMES:

CO1: Represent numbers and perform arithmetic operations.
CO2: Minimize the Boolean expression using Boolean algebra and design it using logic gates
CO3: Analyze and design combinational circuit.
CO4: Design and develop sequential circuits
CO5: Understand and apply the working of different operations on binary numbers.

List of Experiments:

Exercises in Digital Electronics:

1. Implement Logic gates using NAND and NOR gates
2. Design a Full adder using gates
3. Design and implement the 4:1 MUX, 8:1 MUX using gates /ICs.
4. Design and Implement a 3 to 8 decoder using gates
5. Design a 4 bit comparator using gates/IC
6. Design and Implement a 4 bit shift register using Flip flops
7. Design and Implement a Decade counter

Microprocessors (8086 Assembly Language Programming)

9. 8 Bit Addition and Subtraction.
10. 16 Bit Addition.
11. BCD Addition.
12. BCD Subtraction.
13. 8 Bit Multiplication.
14. 8 Bit Division.
15. Searching for an Element in an Array.
16. Sorting in Ascending and Descending Orders.
17. Finding Largest and Smallest Elements from an Array.

Exercises in Computer Organization:

18. Implement a C program to perform Binary Addition & Subtraction.
19. Implement a C program to perform Multiplication of two binary numbers
20. Implement a C program to perform Multiplication of two binary numbers (signed) using Booth's Algorithms.
21. Implement a C program to perform division of two binary numbers (Unsigned) using restoring division algorithm.
22. Implement a C program to perform division of two binary numbers (Unsigned) using non-restoring divisionalgorithm.

Reference Books:

1. Switching theory and logic design –A. Anand Kumar PHI, 2013
2. Advanced microprocessor & Peripherals-A. K. Ray and K. M. Bherchandavi, TMH, 2nd edition, 2016.
3. Switching and Finite Automatic theory-Zvi Kohavi, Niraj K.Jha Cambridge, 3rd edition, 2009
4. Digital Design –Morris Mano, PHI, 3rd edition, 2010
5. Microprocessor and Interfacing –Douglas V. Hall, TMGH 2nd edition, 2017

Online Learning Resources/Virtual Labs:

http://www.edx.org

Mapping of course outcomes with program outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2										1	1
CO2	2	3	2										1	1
CO3	2	3	2										2	
CO4	2	2	2										2	2
CO5	3	2	2										2	1

(Levels of Correlation, viz., 1-Low, 2-Moderate, 3 High)

ANNAMACHARYA INSTITUTE OF TECHNOLOGY AND SCIENCES::TIRUPATI

(AUTONOMOUS)

Year: II **Semester: I** **Branch of Study: AI & ML**

COURSECODE	COURSETITLE	L	T	P	CREDITS
20ASC3301	Client Side Scripting (Common to : CSE, CIC, AI & ML, AI & DS)	1	0	2	2

COURSE OBJECTIVES:

- To provide knowledge on basic concepts of web Programming
- To design Web Pages and form validation using java scripting.
- To learn the important concepts like CSS, DOM, DNS,AJAX and XML.
- To Demonstrate the functions of html in web communication.
- To quickly be able to understand the different parts of a web page

COURSE OUTCOMES:

Upon the completion of Data Mining practical course, the student will be able to:

CO1: Analyze and understand the basic concepts of web programming.
CO2: Implement Arrays, Functions and Strings
CO3: Apply techniques of form validation using Java Script.
CO4: Describe important concepts related to client side Web Security.
CO5: Save client information in cookie by server

UNIT-1 : Basics of JavaScript Programming

Features of JavaScript, Object Name, Property, Method, Dot Syntax, Main Event, Values and Variables, Operators and Expressions – Primary Expressions, Object and Array Initializers, Function Definition Expression, Property Access Expressions, Invocation Expressions, If Statement, if…else, if..elseif, Nested if Statement, Switch… Case Statement, Loop Statement – for Loop, for…in Loop, while Loop, do…while Loop, continue Statement, Querying and Setting Properties and Deleting Properties, Property Getters and Setters.

- WAP to print hello world
- WAP to use comments in JavaScript.
- WAP to add a noscript block.
- Write a Script in <head>…</head> section.
- Write a Script in <body>…</body> section.
- Write a Script in <body>…</body> and <head>…</head> sections.
- Write a Script using arithmetic, Comparison, Logical, Bitwise, and Assignment operators
- Write code to understand how the Conditional Operator and typeof operator works in JavaScript.
- Write code to understand the working of if statement, if…else statement, and if…else if… statement.
- Implement switch-case statement.
- Implement while loop, do-while and for loop in JavaScript.
- WAP to print the web browser‘s Navigator object using for loop.
- WAP To implement break, continue and label in JavaScript.
- Write code to call the function that displays the text message on clicking a button.

UNIT – 2 : Array, Function and String

Array – Declaring an Array, Initializing an Array, Defining an Array Elements, Looping an Array, Adding an Array Element, Sorting an Array Element, Combining an Array Elements into a String, Changing Elements of an Array, Objects as Associative Arrays, Function – Defining a Function, Writing a Function, Adding an Arguments, Scope of Variable and Arguments, Calling a Function – Calling a Function With or Without an Argument, Calling Function from HTML, Function Calling another Function, Returning the Value from a Function, String – Manipulate a String, Joining a String, Retrieving a Character from given Position, Retrieving a Position of Character in a String, Dividing Text, Copying a Sub-string, Converting String to Number and Numbers to String, Changing the Case of String, Finding a Unicode of a Character – charCodeAt(), fromCharCode().

- Write code to call the function that displays the text message on clicking a button.
- WAP to call a function that takes two parameters, name and age. Print the same.
- Define a function that takes two parameters and concatenates them before returning the resultant in the calling program.

Unit- 3 : Form and Event Handling

Building Blocks of a Form, Properties and Methods of Form, Button, Text, Text Area, Checkbox, RadioButton, Select Element, Form Events – Mouse Event, Key Events, Form Objects and Elements, ChangingAttribute Value Dynamically, Changing Option List Dynamically, Evaluating Checkbox Selection, Changing a Label Dynamically, Manipulating Form Elements, Intrinsic JavaScript Functions, DisablingElements, Read Only Elements.

- Write code to implement the following events – onclick, onsubmit, onmouseover and onmouseout.
- Design a Registration form (include email id and password) and perform validation to all its fields.

Unit-4 : Objects

Window Object, Math, Number, and Date Objects, Handling Strings Using Regular Expressions. Implement Number, Date, Math, Boolean, Strings, Arrays, RegEx, and HTML DOM objects with all its properties and methods.

Unit-5 : Cookies and Browser Data

Cookies – Basic of Cookies, Reading a Cookie Value, Writing a Cookie Value, Creating a Cookies, Deleting a Cookies, Setting the Expiration Date of Cookie, Browser – Opening a Window, Giving the New Window Focus, Window Position, Changing the Content of Window, Closing a Window, Scrolling a Web Page, Multiple Windows at Once, Creating a Web Page in New Window, JavaScript in URLs, JavaScript Security, Timers, Browser Location and History.

- Set a customer name in an input cookie.
- WAP to get all the cookies.
- Extend the expiry date of a cookie by 1 Month.
- Delete a cookie by setting its expiry date to one month behind the current date.
- Do a page redirect using JavaScript at client side.
- Show an appropriate message to your site visitors before redirecting them to a new page. WAP with atime delay to load a new page.
- Redirect your site visitors onto a different page based on their browsers.
- Use an alert box to give a warning message.
- Implement a confirmation dialog box to take user's consent on any option.
- Use a prompt dialog box.
- Use of void is to purposely generate the undefined value.
- Demonstrates how to create an Object.
- Create an object with a User-Defined Function.
- Write code to add a function along with an object.
- Demonstrate with keyword in JavaScript.

Text Books:

1. Javascript Beginners Guide, John Pollock, TMH, 4th Edition, 2013
2. JavaScript. Demystified, JIM KEOGH , McGraw-Hill, 2005

Reference Books:

1. JavaScript™ For Dummies,® 4th Edition, by Emily Vander Veer, Published by Wiley Publishing, Inc ©2005.
2. JavaScript for impatient programmers (beta), by Dr. Axel Rauschmayer © 2019.
3. Javascript: Beginners Guide on Javascript Programming, by Nick Goddard © 2016.

Online Learning Resources:

W3Schools, https://www.tutorialspoint.com/javascript/index.htm, nptel Videos

Mapping of course outcomes with program outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2											2	
CO2	2	2	2										1	1
CO3	2	2												
CO4	2	2	2										1	
CO5	2	2			2									2

(Levels of Correlation, viz., 1-Low, 2-Moderate, 3 High)

ANNAMACHARYAINSTITUTEOFTECHNOLOGY&SCIENCES:: TIRUPATI
(Autonomous)

Year: II	Semester: I	Branch of Study: AI & ML			
COURSECODE	**COURSETITLE**	**L**	**T**	**P**	**CREDITS**
20AMC9902	**Constitution of India** **(Common to : CSE, CIC, AI & ML, AI & DS)**	**2**	**0**	**0**	**0**

COURSE OUTCOMES:

Students will be able to:

CO1: Discuss the growth of the demand for civil rights in India for the bulk of Indians before the arrival of Gandhi in Indian politics.

CO2: Discuss the intellectual origins of the framework of argument that informed the conceptualization of social reforms leading to revolution in India.

CO3: Discuss the circumstances surrounding the foundation of the Congress Socialist Party [CSP] under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of direct elections through adult suffrage in the Indian Constitution.

CO4: Discuss the Powers and functions of Governor, President, Judiciary.

CO5: Discuss the functions of local administration bodies

UNIT – 1:

History of Making of the Indian Constitution - History Drafting Committee, (Composition & Working).

UNIT – 2:

Philosophy of the Indian Constitution - Preamble Salient Features

UNIT – 3:

Contours of Constitutional Rights & Duties - Fundamental Rights - Right to Equality- Right to Freedom - Right against Exploitation - Right to Freedom of Religion - Cultural and Educational Rights - Right to Constitutional Remedies - Directive Principles of State Policy - Fundamental Duties.

UNIT – 4:

Organs of Governance - Parliament - Composition - Qualifications and Disqualifications - Powers and Functions - Executive □President □Governor - Council of Ministers - Judiciary, Appointment and Transfer of Judges, Qualifications - Powers and Functions

UNIT – 5:

Local Administration - District‘s Administration head: Role and Importance - Municipalities: Introduction, Mayor and role of Elected Representative, CEO of Municipal Corporation- Pachayati raj: Introduction, PRI: ZillaPachayat - Elected officials and their roles, CEO Zilla Panchayat: Position and role - Block level: Organizational Hierarchy (Different departments) - Village level: Role of Elected and Appointed officials - Importance of grass root democracy.

Textbooks:

1. The Constitution of India, 1950 (Bare Act), Government Publication.
2. Dr. S. N. Busi, Dr. B. R. Ambedkar framing of Indian Constitution, 1st Edition, 2015.
3. M. P. Jain, Indian Constitution Law, 7th Edn., Lexis Nexis, 2014.
4. D.D. Basu, Introduction to the Constitution of India, Lexis Nexis, 2015.

Mapping of course outcomes with program outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1						1								
CO2						3								
CO3						3								
CO4						3								
CO5						3								

(Levels of Correlation, viz., 1-Low, 2-Moderate, 3 High)