SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (AUTONOMOUS)
(Affiliated to JNTUK, Kakinada), (Recognized by AICTE, New Delhi)
dited by NAAC with 'A' Grade, UG Programmes CE,CSE,ECE,EEE,IT &ME are Accredited by
CHINNA AMIRAM (P.O):: BHIMAVARAM :: W.G.Dt., A.P., INDIA :: PIN: 534 204
Estd:1980

Regulation: R20	II / IV - B.Tech. I - Semester

ARTIFICIAL INTELLIGENCE & DATA SCIENCE

SCHEME OF INSTRUCTION & EXAMINATION
(With effect from 2020-21 admitted Batch onwards)

Course Code	Course Name	Category	Cr	L	T	P	Int. Marks	Ext. Marks	Total Marks
B20 BS 2103	Mathematical Foundations of Computer Science	BS	3	3	0	0	30	70	100
B20 IT 2101	Data Structures	PC	3	3	0	0	30	70	100
B20 AD 2101	Introduction to Artificial Intelligence	PC	3	3	0	0	30	70	100
B20 IT 2103	Python Programming	PC	3	3	0	0	30	70	100
B20 AD 2102	Computer Organization	PC	3	3	0	0	30	70	100
B20 AD 2103	Artificial Intelligence Lab	PC	1.5	0	0	3	15	35	50
B20 IT 2105	Data Structures Lab	PC	1.5	0	0	3	15	35	50
B20 IT 2107	Python Programming Lab	PC	1.5	0	0	3	15	35	50
#SOC-I	Skill Oriented Course-I	SOC	2	0	0	4	--	50	50
B20 MC 2102	Professional Ethics and Human Values	MC	0	2	0	0	--	--	--
	TOTAL		**21.5**	**17**	**0**	**13**	**195**	**505**	**700**

	Course Code	Name of the Course
#SOC-I	B20 IT 2108	Network Administration
	B20 IT 2109	spread Sheet Data Analysis

Course Code	Category	L	T	P	C	I.M	E.M	Exam
B20BS2103	**BS**	**3**	**--**	**--**	**3**	**30**	**70**	**3 Hrs.**

MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE

(For AIDS)

Course Objectives: Students are expected to

1.	Understand propositional and predicate calculus.
2.	Know about concepts of counting techniques.
3.	Identify various types of relations and discuss their properties.
4.	Understand the concepts in Lattices and Boolean Algebra.
5.	Know about generating functions and methods of solving recurrence relations
6.	Have an idea on the concepts of Graph theory & Tree structures

Course Outcomes: At the end of the course students will be able to		**KL**
1.	Write and verify the arguments for their validity using propositional and predicate logic.	**K3**
2.	Utilize different counting methods in their fields of study.	**K3**
3.	Make use of various types of relations and their properties.	**K3**
4.	Identify different Lattices and Boolean expressions.	**K3**
5.	Formulate and solve the recurrence relations.	**K3**
6.	Utilize the concepts in graphs and trees.	**K3**

SYLLABUS

UNIT-I (12 Hrs)	**Mathematical Logic:** Propositional Calculus: Statements and Notations, Connectives, Well-formed Formulae, Truth Tables, Tautologies, Equivalence of Formulas, Duality Law, Normal Forms, Theory of Inference for Statement Calculus, Consistency of Premises. Predicate Calculus: Predicative Logic, Statement Functions, Variables and Quantifiers, Free and Bound Variables, Inference Theory for Predicate Calculus.
UNIT-II (08 Hrs)	**Combinatorics**: Basics of Counting, Permutations, Permutations with Repetitions, Circular Permutations, Restricted Permutations, Combinations, Restricted Combinations, Generating Functions of Permutations and Combinations, Binomial and Multinomial Theorems, Binomial and Multinomial Coefficients, Principle of Inclusion–Exclusion.
UNIT-III (14 Hrs)	**Relations, Lattices & Boolean Algebra:** **Relations :** Definition of Relation, Properties of Binary Relations, Relation matrix and diagraph, Operations on Relations, Transitive Closure, Warshall's algorithm, Equivalence and Compatibility relations, Partial Ordering Relations, Hasse Diagrams. **Lattices & Boolean Algebra:** Lattices and their properties, different types of lattices, Boolean algebra- Boolean expressions, truth tables and karnaugh maps

UNIT-IV (10 Hrs)	**Recurrence Relations**: Generating Functions, Partial Fractions, Calculating Coefficient of Generating Functions, Recurrence Relations, Formulation as Recurrence Relations, Solving Recurrence Relations by Substitution and Generating Functions, Method of Characteristic Roots, Solving Inhomogeneous Recurrence Relations
UNIT-V (12 Hrs)	**Graph Theory:** Basic Concepts of Graphs, Sub graphs, Isomorphism of Graphs, Paths and Circuits, Eulerian and Hamiltonian Graphs, Multigraphs, Bipartite graphs, Planar Graphs, Euler's Formula. **Trees**: Definition of Tree, properties of Trees, Different tree structures, Binary trees, Spanning trees, Minimal Spanning Trees, Kruskal's and Prim's Algorithms.
Text Books:	
1.	Discrete Mathematical Structures with Applications to Computer Science, J. P. Tremblay and P. Manohar, Tata McGraw Hill.
2.	Discrete Mathematics for Computer Scientists and Mathematicians, J. L. Mott, A. Kandel, T.P. Baker, 2nd Edition, Prentice Hall of India
Reference Books:	
1.	Elements of Discrete Mathematics-A Computer Oriented Approach, C. L. Liu and D.P. Mahopatra, 3rd Edition, Tata McGraw Hill.
2.	Discrete Mathematics and its Applications with Combinatorics and Graph Theory, K. H. Rosen, 7th Edition, Tata McGraw Hill.
3.	Discrete Mathematical Structures, Bernand Kolman, Robert C. Busby, Sharon Cutler Ross, PHI.
4.	Discrete Mathematics, S. K. Chakraborthy and B.K. Sarkar, Oxford, 2011.

Subject Code	Category	L	T	P	C	I.M	E.M	Exam
B20IT2101	PC	3	--	--	3	30	70	3 Hrs.

DATA STRUCTURES

(COMMON TO AIDS & IT)

Course Objectives:

1.	Introduce the fundamental concept of data structures and abstract data types
2.	Emphasize the importance of data structures in developing and implementing efficient algorithms
3.	Describe how arrays, records, linked structures, stacks, queues, trees, and graphs are represented in memory and used by algorithms
4.	

Course Outcomes: By the end of the course, the student should have the ability to:

S.No	Outcome	KL
1.	Illustrate different techniques for searching and sorting for given data.	K3
2.	Identify different parameters to analyze the performance of algorithms and implement linear data structures.	K3
3.	Design algorithms to perform operations with Non-Linear data structures.	K4

SYLLABUS

UNIT-I (10 Hrs)	**Data Structures -** Definition, Classification of Data Structures, Operations on Data Structures, Abstract Data Type (ADT), Preliminaries of algorithms. Time and Space complexity. **Searching** - Linear search, Binary search, Interpolation Search, Fibonacci search. **Sorting**- Insertion sort, Selection sort, Exchange (Bubble sort, quick sort), distribution (radix sort), merging (Merge sort) algorithms
UNIT-II (10 Hrs)	**Stacks:** Introduction to Stacks, Array Representation of Stacks, Operations on Stacks, Applications-Reversing list, Factorial Calculation, Infix to Postfix Conversion, Evaluating Postfix Expressions. **Queues:** Introduction to Queues, Representation of Queues-using Arrays, Implementation of Queues-using Arrays, Application of Queues-Circular Queues, Dequeues, Priority Queues, Multiple Queues.
UNIT-III (10 Hrs)	**Linked Lists:** Introduction, Singly linked list, Representation of Linked list in memory, Operations on Singly Linked list-Insertion, Deletion, Search and Traversal, Reversing Singly Linked list, Applications on Singly Linked list-Implementation of Stack and Queues, Polynomial Expression Representation, Addition and Multiplication, Sparse Matrix Representation using Linked List, Advantages and Disadvantages of Singly Linked list, Doubly Linked list-Insertion, Deletion, Circular Linked list-Insertion, Deletion.

UNIT-IV (8 Hrs)	**Trees:** Basic Terminology in Trees, Binary Trees-Properties, Representation of Binary Trees using Arrays and Linked lists. Binary Search Trees- Basic Concepts, BST Operations: Insertion, Deletion, Tree Traversals, Applications-Expression Trees, Heap Sort, Balanced Binary Trees- AVL Trees, Insertion, Deletion and Rotations.
UNIT-V (12 Hrs)	**Graphs:** Basic Concepts, Representations of Graphs-Adjacency Matrix and using Linked list, Graph Traversals (BFT & DFT), Applications- Minimum Spanning Tree Using Prims &Kruskals Algorithm, Dijkstra's shortest path, Transitive closure, Warshall's Algorithm.

Text Books:	
1.	Data Structures Using C. 2nd Edition.ReemaThareja, Oxford.
2.	Data Structures and algorithm analysis in C, 2nded, Mark Allen Weiss.
Reference Books:	
1.	Fundamentals of Data Structures in C, 2nd Edition, Horowitz, Sahni, Universities Press.
2.	Data Structures: A PseudoCode Approach, 2/e, Richard F.Gilberg, Behrouz A. Forouzon, Cengage.
3.	Data Structures with C, Seymour Lipschutz TMH

Subject Code	Category	L	T	P	C	I.M	E.M	Exam
B20AD2101	PC	3	--	--	3	30	70	3 Hrs.

INTRODUCTION TO ARTIFICIAL INTELLIGENCE

(For AIDS)

Course Objectives:

1	To have a basic proficiency in a traditional AI language including an ability to write simple to intermediate programs and an ability to understand code written in thatlanguage
2	To understandthe basic issues of knowledge representation and blind and heuristic search, as well as an understanding of other topics such as mini max, resolution that play an important role in AIprograms
3	To have a basic understanding of some of the more advanced topics ofAI

Course Outcomes: At the end of this course, the student should be able to

S.No	Outcome	Knowledge Level
1	Student would able to understand the basic applications of AI and problems that can be solved by AI	K3
2	Student would apply the problem solving strategies to generate best AI solutions using state space search	K3
3	Student would apply AI languages to represent knowledge base	K3
4	Student would apply AI tools to represent knowledge base	K3
5	Student would apply uncertainty techniques to solve AI real time problems	K3

SYLLABUS

UNIT-I (10 Hrs)	Introduction, history, intelligent systems, foundations of AI, applications, tic-tac-toe game playing, development of AI languages, current trends.
UNIT-II (10 Hrs)	Problem solving: state-space search and control strategies: Introduction, general problem solving, characteristics of problem, exhaustive searches, heuristic search techniques, iterative deepening A*, constraint satisfaction Problem reduction and game playing: Introduction, problem reduction, game playing, alpha beta pruning, two-player perfect information games.
UNIT-III (10 Hrs)	Logic concepts: Introduction, propositional calculus, proportional logic, natural deduction system, axiomatic system, semantic tableau system in proportional logic, resolution refutation in proportional logic, predicate logic.
UNIT-IV (8 Hrs)	Knowledge representation: Introduction, approaches to knowledge representation, knowledge representation using semantic network, extended semantic networks for KR, knowledge representation using frames Advanced knowledge representation techniques: Introduction, conceptual dependency theory, script structure, CYC theory, case grammars, semantic web.

UNIT-V (12 Hrs)	Expert system and applications: Introduction phases in building expert systems, expert system versus traditional systems Uncertainty measure: probability theory: Introduction, probability theory, Bayesian belief networks, certainty factor theory, dempster-Shafer theory. Fuzzy sets and fuzzy logic: Introduction, fuzzy sets, fuzzy set operations, types of membership functions, multi valued logic, fuzzy logic, linguistic variables and hedges, fuzzy propositions, inference rules for fuzzy propositions, fuzzysystems.

Text Books:	
1.	Artificial Intelligence- Saroj Kaushik, CENGAGELearning.
2.	Artificial intelligence, A modern Approach , 2nded, Stuart Russel, Peter Norvig,PEA.
Reference Books:	
1.	Artificial Intelligence- Deepak Khemani, TMH,2013.
2.	Introduction to Artificial Intelligence, Patterson, PHI.
3.	Artificial intelligence, structures and Strategies for Complex problem solving, George F Lugar, 5th ed,PEA.

Subject Code	Category	L	T	P	C	I.M	E.M	Exam
B20IT2103	PC	3	--	--	3	30	70	3 Hrs.

PYTHON PROGRAMMING

(Common to AIDS & IT)

Course Objectives:

1.	To learn about Python programming language syntax, semantics, and the runtime environment
2.	To be familiarized with universal computer programming concepts like data types, containers
3.	To be familiarized with general computer programming concepts like conditional execution, loops & functions
4.	To be familiarized with general coding techniques and object-oriented programming

Course Outcomes: At the end of this course, the student should be able to

S.No	Outcome	Knowledge Level
1.	Develop essential programming skills in computer programming concepts like data types, containers	**K4**
2.	Apply the basics of programming in the Python language	**K3**
3.	Solve coding tasks related conditional execution, loops	**K3**
4.	Solve coding tasks related to the fundamental notions and techniques used in object- oriented programming	**K3**
5	Implement the User defined exceptions and GUI application	**K3**

SYLLABUS

UNIT-I (10 Hrs)	**Introduction:** Introduction to Python, Program Development Cycle, Input, Processing, and Output, Displaying Output with the Print Function, Comments, Variables, Reading Input from the Keyboard, Performing Calculations, Operators. Type conversions, Expressions, More about Data Output. **Data Types, and Expression**: Strings Assignment, and Comment, Numeric Data Types and Character Sets, Using functions and Modules. **Decision Structures and Boolean Logic:** if, if-else, if-elif-else Statements, Nested Decision Structures, Comparing Strings, Logical Operators, Boolean Variables. Repetition Structures: Introduction, while loop, for loop, Calculating a Running Total, Input Validation Loops, Nested Loops.
UNIT-II (10 Hrs)	**Control Statement:** Definite iteration for Loop Formatting Text for output, Selection if and if else Statement, Conditional Iteration The While Loop **Strings and Text Files**: Accessing Character and Substring in Strings, Data Encryption, Strings and Number Systems, String Methods Text Files.

UNIT-III (10 Hrs)	**List and Dictionaries:** Lists, Defining Simple Functions, Dictionaries **Design with Function:** Functions as Abstraction Mechanisms, Problem Solving with Top Down Design, Design with Recursive Functions, Case Study Gathering Information from a File System, Managing a Program's Namespace, Higher Order Function. **Modules:** Modules, Standard Modules, Packages.
UNIT-IV (10 Hrs)	**File Operations:** Reading config files in python, Writing log files in python, Understanding read functions, read(), readline() and readlines(), Understanding write functions, write() and writelines(), Manipulating file pointer using seek, Programming using file operations **Object Oriented Programming:** Concept of class, object and instances, Constructor, class attributes and destructors, Real time use of class in live projects, Inheritance , overlapping and overloading operators, Adding and retrieving dynamic attributes of classes, Programming using Oops support **Design with Classes:** Objects and Classes, Data modeling Examples, Case Study An ATM, Structuring Classes with Inheritance and Polymorphism.
UNIT-V (10 Hrs)	**Errors and Exceptions:** Syntax Errors, Exceptions, Handling Exceptions, Raising Exceptions, User-defined Exceptions, Defining Clean-up Actions, Redefined Clean-up Actions. **Graphical User Interfaces:** The Behaviour of Terminal Based Programs and GUI -Based, Programs, Coding Simple GUI-Based Programs, Other Useful GUI Resources. **Programming:** Introduction to Programming Concepts with Scratch.

Text Books:

1.	Fundamentals of Python First Programs, Kenneth. A. Lambert, Cengage.
2.	Python Programming: A Modern Approach, Vamsi Kurama, Pearson.

Reference Books:

1.	Introduction to Python Programming, Gowri shankar.S, Veena A, CRC Press.
2.	Introduction to Programming Using Python, Y. Daniel Liang, Pearson

Subject Code	Category	L	T	P	C	I.M	E.M	Exam
B20AD2102	**PC**	**3**	**--**	**--**	**3**	**30**	**70**	**3 Hrs.**

COMPUTER ORGANIZATION

(For AIDS)

Course Objectives: The course objectives of Computer Organization are to discuss and make student familiar with the

1.	Principles and the Implementation of Computer Arithmetic
2.	Operation of CPUs including RTL, ALU, Instruction Cycle and Busses
3.	Fundamentals of different Instruction Set Architectures and their relationship to the CPU Design
4.	Memory System and I/O Organization
5.	Principles of Operation of Multiprocessor Systems and Pipelining

Course Outcomes: By the end of the course, the student will

S.No	Outcome	Knowledge Level
1.	Illustrate the various data representations, notations, arithmetic algorithms and flow control for various instructions using micro operations in basic computer	K2
2.	Detailed understanding of architecture and functionality of central processing unit and various control units	K2
3.	Exemplify in a better way the I/O and memory organization	K3
4.	Illustrate concepts of parallel processing, pipelining and inter processor communication	K2

SYLLABUS

UNIT-I (10 Hrs)	**Basic Structure of Computers**: Basic Organization of Computers, Historical Perspective, Bus Structures, Data Representation: Data types, Complements, Fixed Point Representation. Floating – Point Representation. Other Binary Codes, Error Detection Codes. Computer Arithmetic: Addition and Subtraction, Multiplication Algorithms, Division Algorithms.
UNIT-II (10 Hrs)	**Register Transfer Language and Microoperations**: Register Transfer language. Register Transfer Bus and Memory Transfers, Arithmetic Micro operations, Logic Micro Operations, Shift Micro Operations, Arithmetic Logic Shift Unit. **Basic Computer Organization and Design**: Instruction Codes, Computer Register, Computer Instructions, Instruction Cycle, Memory –Reference Instructions. Input –Output and Interrupt, Complete Computer Description,
UNIT-III (10 Hrs)	**Central Processing Unit**: General Register Organization, STACK Organization. Instruction Formats, Addressing Modes, Data Transfer and Manipulation, Program Control, Reduced Instruction Set Computer. **Micro programmed Control**: Control Memory, Address Sequencing, Micro Program example, Design of Control Unit

UNIT-IV (8 Hrs)	**Memory Organization**: Memory Hierarchy, Main Memory, Auxiliary Memory, Associative Memory, Cache Memory, Virtual Memory. Input-Output Interface, Asynchronous data transfer, Modes of Transfer, Priority Interrupts, Direct Memory Access.
UNIT-V (12 Hrs)	Multi Processors: Introduction, Characteristics of Multiprocessors, Interconnection Structures, Inter Processor Arbitration. Pipeline: Parallel Processing, Pipelining, Instruction Pipeline,

Text Books:	
1.	Computer System Architecture, M. Morris Mano, Third Edition, Pearson, 2008.
2.	Computer Organization, Carl Hamacher, Zvonko Vranesic, Safwat Zaky, 5/e, McGraw Hill, 2002.

Reference Books:	
1.	Computer Organization and Architecture, William Stallings, 6/e, Pearson, 2006.
2.	Structured Computer Organization, Andrew S. Tanenbaum, 4/e, Pearson, 2005.
3.	Fundamentals of Computer Organization and Design, Sivarama P. Dandamudi, Springer, 2006

e-Resources	
1.	https://nptel.ac.in/courses/106/105/106105163/
2.	http://www.cuc.ucc.ie/CS1101/David%20Tarnoff.pdf

Subject Code	Category	L	T	P	C	I.M	E.M	Exam
B20AD2103	PC	--	--	3	1.5	15	35	3 Hrs.

ARTIFICIAL INTELLIGENCE LAB

(For AIDS)

Course Objectives: On completing this course student will be able to

1	Study the concepts of Artificial Intelligence
2	Learn the methods of solving problems using Artificial Intelligence
3	Introduce the concepts of machine learning

Course Outcomes: By the end of the course, the student should have the ability to:

S.No	Outcome	KL
1	Analyze problems that are amenable to solution by AI methods	K4
2	Identify appropriate AI methods to solve a given problem	K4
3	Use language/framework of different AI methods for solving problems	K4
4	Implement basic AI algorithms. Design and carry out an empirical evaluation of different algorithms on problem formalization, and state the conclusions that the evaluation supports	K4

SYLLABUS

1	Study of Prolog.
2	Write simple fact for the statements using PROLOG.
3	Write predicates One converts centigrade temperatures to Fahrenheit, the other checks ifa temperature is below freezing
4	Write a program to solve the Monkey Banana problem.
5	Write a program in turbo prolog for medical diagnosis and show the advantage and disadvantage of green and redcuts
6	Write a program to implement factorial, Fibonacci of a given number
7	Write a program to solve 4-Queen and 8-puzzleproblem.
8	Write a program to solve traveling salesman problem.
9	Write a program to solve water jug problem using LISP/PROLOG
10	Implementation of A* Algorithm using LISP/PROLOG
11	Implementation of Hill Climbing Algorithm using LISP/PROLOG
12	Implementation of DFS and BFS for water jug problem using LISP/PROLOG
13	Implementation of Towers of Hanoi Problem using LISP/PROLOG

Reference Books:

1	Artificial Intelligence- Saroj Kaushik, CENGAGELearning.
2	Artificial intelligence, A modern Approach , 2nded, Stuart Russel, Peter Norvig,PEA.
3	Artificial Intelligence- Deepak Khemani, TMH,2013.
4	Introduction to Artificial Intelligence, Patterson, PHI.
5	Artificial intelligence, structures and Strategies for Complex problem solving, George F Lugar, 5th ed,PEA.

Code	Category	L	T	P	C	I.M	E.M	Exam
B20IT2105	**PC**	**--**	**--**	**3**	**1.5**	**15**	**35**	**3 Hrs.**

DATA STRUCTURES LAB

(Common to AIDS & IT)

Course Objectives:

1.	Demonstrate the different data structures implementation.

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

S.No	Outcome	Knowledge Level
1.	Use basic data structures such as arrays and linked list.	K3
2.	Programs to demonstrate fundamental algorithmic problems including Tree Traversals, Graph traversals, and shortest paths.	K4
3.	Use various searching and sorting algorithms.	K3

LIST OF EXPERIMENTS

Exercise -1 (Searching)

Write C program that use both recursive and non-recursive functions to perform Linear search for a Key value in a given list.

b) Write C program that use both recursive and non-recursive functions to perform Binary search for a Key value in a given list.

Exercise – 2 (Sorting-I)

a) Write C program that implement Bubble sort, to sort a given list of integers in ascending order

b) Write C program that implement Quick sort, to sort a given list of integers in ascending order

c) Write C program that implement Insertion sort, to sort a given list of integers in ascending order

Exercise -3 (Sorting-II)

a) Write C program that implement radix sort, to sort a given list of integers in ascending order

b) Write C program that implement merge sort, to sort a given list of integers in ascending order

Exercise -4 (Stack)

a) Write C program that implement stack (its operations) using arrays

b Write a C program that uses Stack operations to evaluate postfix expression

Exercise -5(Queue)

a) Write C program that implement Queue (its operations) using arrays.

b) Write C program that implement Circular Queue (its operations) using arrays

Exercise -6 (Singly Linked List)

a) Write a C program that uses functions to create a singly linked list

b) Write a C program that uses functions to perform insertion operation on a singly linked list

c) Write a C program that uses functions to perform deletion operation on a singly linked list

d) Write a C program to reverse elements of a single linked list.

e) Write C program that implement stack (its operations) using Linked list.

f) Write C program that implement Queue (its operations) using Linked list.

Exercise -7 (Binary Search Tree)

a) Write a C program to Create a BST

b) Write a C program to insert a node into a BST.

c) Write a C program to delete a node from a BST.

d) Write a recursive C program for traversing a binary tree in preorder, inorder and postorder.

Text Books:

1. Fundamentals of Data Structures in C, 2nd edition, Horowitz, Sahni and Anderson-Freed, Universities Press, 2008.

Reference Books:

1.Data Structures using C by Aaron M. Tenenbaum,Y.Langsam and M.J. Augenstein, Pearson Education, 2009.

2. Data Structures with C by Seymour lipschutz, Schaum Outline series, 2010.

3. Data Structures using C by R. KrishnaMoorthy G. IndiraniKumaravel, TMH, New Delhi,2008.

Code	Category	L	T	P	C	I.M	E.M	Exam
B20IT2107	**PC**	**--**	**--**	**3**	**1.5**	**15**	**35**	**3 Hrs.**

PYTHON PROGRAMMING LAB

(Common to AIDS & IT)

Course Objectives: The student who successfully completes this course will have:

1	To acquire programming skills in core Python.
2	To acquire Object Oriented Skills in Python
3	To develop the skill of designing Graphical user Interfaces in Python
4	To develop the ability to write database applications in Python

Course Outcomes: After completion of the course, the student will be able to

S.No	Outcome	KL
1	Write, Test and Debug Python Programs	K4
2	Use Conditionals and Loops for Python Programs	K3
3	Use functions and represent Compound data using Lists, Tuples and Dictionaries	K3
4	Use various applications using python	K3

SYLLABUS

1	Write a program that asks the user to enter three numbers (use three separate input statements). Create variables called total and average that hold the sum and average of the three numbers and print out the values of total and average.
2	Write a program that uses a *for* loop to print the numbers 8, 11, 14, 17, 20, .., 83, 86, 89.
3	Write a program that asks the user for their name and how many times to print it. The program should print out the user's name the specified number of times.
4	Use a *for* loop to print a triangle like the one below. Allow the user to specify how high the triangle should be. * ** *** ****
5	Write a program that asks the user to enter a word and prints out whether that word contains any vowels.
6	Write a program that asks the user to enter two strings of the same length. The program should then check to see if the strings are of the same length. If they are not, the program should print an appropriate message and exit. If they are of the same length, the program should alternate the characters of the two strings. For example, if the user enters *abcde* and *ABCDE* the program should print out *AaBbCcDdEe*.
7	Write a program that asks the user for a large integer and inserts commas into it according to the standard American convention for commas in large numbers. For instance, if the user enters 1000000, the output should be 1,000,000.
8	Write a program that generates a list of 20 random numbers between 1 and 100.

	(a) Print the list. (b) Print the average of the elements in the list. (c) Print the largest and smallest values in the list. (d) Print the second largest and second smallest entries in the list (e) Print how many even numbers are in the list.
9	Write a function called *sum_digits* that is given an integer num and returns the sum of the digits of num.
10	Write a function called *number_of_factors* that takes an integer and returns how many factors the number has.
11	Write a function called primes that is given a number n and returns a list of the first n primes. Let the default value of n be 100.
12	Write a function called merge that takes two already sorted lists of possibly different lengths, and merges them into a single sorted list. (a) Do this using the sort method. (b) Do this without using the sort method.
13	Write a program that asks the user for a word and finds all the smaller words that can be made from the letters of that word. The number of occurrences of a letter in a smaller word can't exceed the number of occurrences of the letter in the user's word.
14	Write a class called Product. The class should have fields called name, amount, and price, holding the product's name, the number of items of that product in stock, and the regular price of the product. There should be a method *get_price* that receives the number of items to be bought and returns a the cost of buying that many items, where the regular price is charged for orders of less than 10 items, a 10% discount is applied for orders of between 10 and 99 items, and a 20% discount is applied for orders of 100 or more items. There should also be a method called *make_purchase* that receives the number of items to be bought and decreases amount by that much.
15	Write a class called Time whose only field is a time in seconds. It should have a method called *convert_to_minutes* that returns a string of minutes and seconds formatted as in the following example: if seconds is 230, the method should return '5:50'. It should also have a method called *convert_to_hours* that returns a string of hours, minutes, and seconds formatted analogously to the previous method.
16	Write a Python class to implement pow(x, n).
17	Write a Python class to reverse a string word by word.
18	Write a program that opens a file dialog that allows you to select a text file. The program then displays the contents of the file in a textbox.
19	Write a program to demonstrate Try/except/else.
20	Write a program to demonstrate try/finally and with/as.
Reference Books:	
1.	Introduction to Python Programming, Gowrishankar.S, Veena A, CRC Press.
2.	Programming and Problem Solving with Python, Ashok Namdev Kamthane, Amit Ashok Kamthane, TMH, 2019.

Code	Category	L	T	P	C	I.M	E.M	Exam
B20IT2108	**SOC**	**-**	**--**	**4**	**2**	**--**	**50**	**3 Hrs.**

NETWORK ADMINISTRATION

(Skill Oriented Course-I)

(Common to AIDS ,CSBS & IT)

Course Objectives: On completing this course student will be able to

1	Install different Operating Systems, antivirus and components
2	Install and configure windows server.
3	Install and configure different networking protocols and network tools.

Course Outcomes: By the end of the course, the student should have the ability to:

S.No	Outcome	KL
1	Demonstrate installation and configuration of Operating systems.	K2
2	Demonstrate installation and configuration of DNS, DHCP, set up adhoc networks.	K2
3	Demonstrate different network related tools and applications.	K2

SYLLABUS

1	Install MS Windows from the CD/DVD. We can try to install version from 10 to XP (8.1 recommended). Installation should include users, administrators, device configuration, patches and updates, antivir system, necessary environment configuration (i.e. NumLock, hiding of extension settings, etc.).
2	HW installation. Changing harddrives, preparing cables, setting of a separated network (course on real computers, harddrives dedicated for the course allows hardware sharing).
3	Install selected Linux distribution (Debian or Slackware recommended). Settings, as for MS Windows.
4	Text mode console commands. Cron, scripts.
5	Novell Netware administration, if anyone interested. Novell is not used for many years, but is useful to describe, how the server can work
6	Work with server - SQL, Apache, FTP/SFTP, mail. Mail robots.
7	Server as a firewall, ip sharing (NAT, DNAT, masquerade). Server behind the firewall.
8	Installation & configuration of Windows professional.
9	Installation & configuration of Windows server.
10	Installing and Configuring Terminal Services
11	Installing DNS. Implementing DNS in windows networks.
12	Installing and configuring DHCP.
13	Configuring & Implementing routing services
14	Configuration and setup of adhoc network and infrastructure network.
15	NET tools, Deployment of NETTOOLS.
16	Tracing of email origin using email trace pro utility.
17	Use of key logges and anti key logger to secure your system

Reference Books:

1	Mastering Windows 2000 Server by Mark Minasi, Sybex, ISBN: 0-7821-2774-6
2	Computer Networks- Andrew S Tanenbaum, 4th edition, Pearson Education

Code	Category	L	T	P	C	I.M	E.M	Exam
B20IT2109	**SOC**	**-**	**--**	**4**	**2**	**--**	**50**	**3 Hrs.**

SPREAD SHEET DATA ANALYSIS

(Skill Oriented Course-I)

(Common to AIDS ,CSBS & IT)

Course Objectives: On completing this course student will be able to

1	To develop basic knowledge in Excel
2	To expose the various functions in Excel
3	To extend the skill to use data visualization
4	To analyze the real time datasets
5	To develop Pivot tables and VLOOKUP functions

Course Outcomes: By the end of the course, the student should have the ability to:

S.No	Outcome	Knowledge Level
1	Describe common Excel functionality and features used for data science	K2
2	Analyze and construct the data Visualization	K3
3	Configure the programming environment	K2
4	Analyze real time data set	K3
5	Implement Pivot tables and VLOOKUP functions	K3

SYLLABUS

List of experiments

1	Study of basic functions in Excel
2	Working with Range Names and Tables
3	Cleaning Data with Text Functions.
4	Working with VLOOKUP functions and Pivot tables.
5	Demonstration of data Visualization
6	Importing data from external source into excel
7	Creating a data model
8	Exploring data with Pivot tables
9	Create a dash board for a given requirement.
10	Implement a data analytics for the real time data set.

Reference Books:

1.	Julio Cesar Rodriques Martino, " Hands – on Machine learning with Microsoft Excel", Packt Publication 2019
2.	Paul McFedries, "Excel data analysis for dunnies", john wiley and sone 2019.

Subject Code	Category	L	T	P	C	I.M	E.M	Exam
B20MC2102	MC	2	--	--	--	--	--	--

PROFESSIONAL ETHICS AND HUMAN VALUES

Common to CE, EEE, ME, AIDS & CSBS

Course Objectives: On completing this course student will be able to

1	To create an awareness on Engineering Ethics and Human Values.
2	To instill Moral and Social Values and Loyalty.
3	To appreciate the rights of others.

Course Outcomes: By the end of the course, the student should have the ability to:

S.No	Outcome	Knowledge Level
1	Identify and analyze an ethical issue in the subject matter under investigation or in a relevant field.	K3
2	Identify the multiple ethical interests at stake in a real-world situation or practice.	K2
3	Articulate what makes a particular course of action ethically defensible.	K2
4	Assess their own ethical values and the social context of problems.	K3
5	Identify ethical concerns in research and intellectual contexts, including academic integrity, use and citation of sources, the objective presentation of data, and the treatment of human subjects.	K2
6	Demonstrate knowledge of ethical values in non-classroom activities, such as service learning, internships, and field work.	K3
7	Integrate, synthesize, and apply knowledge of ethical dilemmas and resolutions in academic settings, including focused and interdisciplinary research.	K4

SYLLABUS

UNIT-I (8 Hrs)	**Human Values:** Morals, Values and Ethics-Integrity-Work Ethic-Service learning Civic Virtue Respect for others Living Peacefully Caring Sharing Honesty -Courage-Cooperation Commitment Empathy Self Confidence Character Spirituality..
UNIT-II (8 Hrs)	**Engineering Ethics:** Senses of 'Engineering Ethics-Variety of moral issued- Types of inquiry Moral dilemmas Moral autonomy- Kohlberg's theory- Gilligan's theory-Consensus and controversy Models of professional roles-Theories about right action-Self-interest - Customs and religion Uses of Ethical theories Valuing time Cooperation Commitment.,

UNIT-III (8 Hrs)	**Engineering as Social Experimentation:** Engineering As Social Experimentation- Framing the problem- Determining the facts- codes of Ethics- Clarifying Concepts- Application issues Common Ground -General Principles- Utilitarian thinking respect for persons
UNIT-IV (8 Hrs)	**Engineers Responsibility for Safety and Risk:** Safety and risk Assessment of safety and risk. Risk benefit analysis and reducing risk-Safety and the Engineer-Designing for the safety- Intellectual Property rights(IPR).,
UNIT-V (8 Hrs)	**Global Issues:** Globalization- Cross-culture issues-Environmental Ethics- Computer Ethics Computers as the instrument of Unethical behavior Computers as the object of Unethical acts Autonomous Computers-Computer codes of Ethics- Weapons Development -Ethics and Research Analyzing Ethical Problems in research.

Text Books:

1.	Engineering Ethics includes Human Values" by M.Govindarajan, S.Natarajan- and, V.S.Senthil Kumar-PHI Learning Pvt Ltd-2009.
2.	"Engineering Ethics" by Harris, Pritchard and Rabins, CENGAGE Learning, India Edition, 2009.
3.	"Ethics in Engineering" by Mike W. Martin and Roland Schinzinger - Tata McGraw-Hill-2003.
4.	"Professional Ethics and Morals" by Prof.A.R.Aryasri, DhanikotaSuyodhana-Maruthi Publications.
5.	"Professional Ethics and Human Values" by A.Alavudeen, R.Kalil Rahman and M.Jayakumaran-LaxmiPublications.
6.	"Professional Ethics and Human Values" by Prof.D.R.Kiran-
7.	"Indian Culture, Values and Professional Ethics" by PSR Murthy- BS Publication.
8.	Professional Ethics by R.Subramaniam - Oxford publications, New Delhi

Regulation: R20	II / IV - B.Tech. II - Semester

ARTIFICIAL INTELLIGENCE & DATA SCIENCE

SCHEME OF INSTRUCTION & EXAMINATION
(With effect from 2020-21 admitted Batch onwards)

Course Code	Course Name	Category	Cr	L	T	P	Int. Marks	Ext. Marks	Total Marks
B20 BS 2201	Probability and Statistics	BS	3	3	0	0	30	70	100
B20 AD 2201	Design and Analysis of Algorithms	PC	3	3	0	0	30	70	100
B20 AD 2202	Operating Systems	PC	3	3	0	0	30	70	100
B20 IT 2202	Java Programming	PC	3	3	0	0	30	70	100
B20 AD 2203	Microprocessors	ES	3	3	0	0	30	70	100
B20 AD 2204	Web Technologies Lab	PC	1.5	0	0	3	15	35	50
B20 AD 2205	Operating Systems and Unix Lab	PC	1.5	0	0	3	15	35	50
B20 IT 2206	Java Programming Lab	PC	1.5	0	0	3	15	35	50
#SOC-II	Skill Oriented Course-II	SOC	2	0	0	4	--	50	50
B20 MC 2201	English Proficiency	MC	0	2	0	0	--	--	--
	TOTAL		**21.5**	**14**	**0**	**15**	**195**	**505**	**700**

	Course Code	Name of the Course
#SOC-II	B20 IT 2207	Animations
	B20 IT 2208	Web Design Using PHP

Code	Category	L	T	P	C	I.M	E.M	Exam
B20 BS 2201	**BS**	**3**	**0**	**0**	**3**	**30**	**70**	**3 Hrs.**

PROBABILITY AND STATISTICS

(Common to AIDS & CSE)

Course Objectives:

1.	Have an idea of data science and single and joint random variables.
2.	Learn the concept of mathematical expectation, generating functions and their properties.
3.	Fit a linear or nonlinear curve for a data using method of least squares.
4.	Know about the correlation coefficient and regression lines.
5.	Analyse various statistical measures of a few discrete and continuous probability distributions.
6.	Develop a framework for testing of hypothesis in giving inferences about Population parameters.

Course Outcomes:
At the end of the course Students will be able

1.	Understand the concepts of data science and identify a random variable as discrete/continuous and analyse it.	**K3**
2.	Determine statistical measures like Mean, Variance and generating functions in terms of Expectations.	**K3**
3.	Determine a best suitable curve for a given data using the method of least squares.	**K3**
4.	Determine correlation coefficient and regression lines.	**K3**
5.	Solve simple problems based on discrete and continuous probability distributions.	**K3**
6.	Apply testing of hypothesis for getting inferences about Population Parameters based on Sample statistic.	**K3**

SYLLABUS

UNIT-I (12 Hrs)	**Descriptive statistics and methods for data science:** Data science, Statistics Introduction, Collection of data, primary and secondary data, Type of variables: dependent and independent, Categorical and Continuous variables, Data visualization, Measures of Central tendency, Measures of Variability (spread or variance), Moments, Measures of Skewness and Kurtosis. **Random Variables and Probability functions:** Definition of a random variable, Distribution function, Properties of Distribution Function, Discrete Random Variable, Probability Mass Function, Discrete Distribution Function, Continuous Random Variable, Probability Density Function, Continuous Distribution Function.
UNIT-II (10 Hrs)	**Two-dimensional random variables:** Joint probability mass function and density functions, two-dimensional distribution function, marginal functions, simple examples. **Mathematical Expectation:** Mathematical Expectation of a Random Variable, Expected Value of function of a Random Variable, Addition Theorem and Multiplication Theorem of Expectation **(without proofs)**, Statistical Measures like Mean, Variance, Moments and Covariance in terms of Expectations. Generating functions: Moment generating Function, Characteristic Function of a Random Variable and cumulant generating function.

UNIT-III (12 Hrs)	**Curve fitting**: Method of least Squares, fitting of a Straight line, Fitting of a Parabola, fitting of Exponential curves: □ = □□^□□, □ = □□^□ and Power curve: □ = □□^□ **Correlation**: Definition, Karl Pearson's Coefficient of Correlation, Limits for correlation coefficient, Rank Correlation, Spearman's formula for rank correlation coefficient (without proofs). **Regression Analysis:** Regression Lines, Regression Coefficients and their properties (without proofs).
UNIT-IV (12 Hrs)	**Discrete and Continuous Distributions:** **Discrete Distributions**: Uniform distribution, Binomial distribution and Poisson distribution - Mean, Variance, moments, m.g.f., Characteristic function, Fitting of distributions. **Continuous Distributions**: Uniform distribution, Normal Distribution - Standard Normal Variate, Mean, Variance, m.g.f., Characteristic function, cumulant generating function.
UNIT-V (12 Hrs)	**Sampling theory and Testing of Hypothesis:** **Sampling Theory:** Sample, population, statistic, parameter, Sampling distribution of a statistic, standard error, point and interval estimation. Testing of Hypothesis- Formulation of Null hypothesis, Alternative hypothesis, Critical region, level of significance, Errors in sampling- Type-I-error, Type-II-error, One-tailed and Two-tailed tests. Degrees of freedom. **Large Sample Theory:** Test of significance for single proportion and difference of proportions. **Small Sample Theory:** Student's-t-distribution: definition, t-test for single mean, t-test for difference of means, Paired t-test for difference of means. F-distribution: definition, F-test for equality of two population variances. Chi-square distribution: definition, Chi-square test for goodness of fit.

Text Books:	
1.	Probability, Statistics and Random Processes by T.Veerarajan, Tata Mc Graw Hill Pub.
2.	Fundamentals of Mathematical Statistics by S. C. Gupta and V.K. Kapoor, Sultan Chand & Sons Publishers.
Reference Books:	
1.	Higher Engineering Mathematics, by Dr.B.S.Grewal,43rd Edition, Khanna Publishers.
2.	Probability and statistics for Engineers, Miller and Freund, 7th edition, Prentice-Hall India.
3.	Probability and statistics for Engineers and Scientists by Ronald E. Walpole, Raymond H. Myers, Sharon L. Myers and Keying Ye, Eighth edition, Pearson Education.
4.	Michael Baron, Probability and statistics for computer scientists(1stedn.), Chapman and Hall Book, 2003.
	Paul L. Meyer, Introductory Probability and Statistical Applications (2ndedn.), Addison-Wesley, 1970.
e-Resources:	
1.	http://www.swayam.gov.in

Subject Code	Category	L	T	P	C	I.M	E.M	Exam
B20AD2201	**PC**	**3**	**--**	**--**	**3**	**30**	**70**	**3 Hrs.**

DESIGN AND ANALYSIS OF ALGORITHMS

(For AIDS)

Course Objectives: On completing this course student will be able to

1	Solve problems using algorithm design methods such as the greedy method, divide and conquer, dynamic programming, backtracking, and branch and bound and writing programs for these solutions
2	Analyze the asymptotic performance of algorithms.
3	Demonstrate a familiarity with major algorithms and data structures
4	Synthesize efficient algorithms in common engineering design situations.

Course Outcomes: By the end of the course, the student should have the ability to:

S.No	Outcome	Knowledge Level
1	Apply the mathematical principle to analyze the efficiency of algorithms by measuring time complexity & space complexity.	K3
2	Apply the Divide-and-Conquer strategy and Greedy Method for solving the complex problems & analyze the performance of solutions.	K3
3	Apply the optimistic strategies Dynamic Programming for computational problems in computer field.	K3
4	Apply the Backtracking and Branch-and-bound strategies for solving complex problems	K3
5	Understand the basic concepts of NP-Hard and NP- Complete and Solve string matching using various algorithms.	K3

SYLLABUS

UNIT-I **(10 Hrs)**	Introduction: Algorithm Definition, Algorithm Specification, performance Analysis, Randomized Algorithms. Sets & Disjoint set union: introduction, union and find operations. Basic Traversal & Search Techniques: Techniques for Graphs, connected components and Spanning Trees, Bi-connected components and DFS.
UNIT-II **(10 Hrs)**	Divide and Conquer: General Method, Defective chessboard, Binary Search, finding the maximum and minimum, Merge sort, Quick sort. The Greedy Method: The general Method, container loading, knapsack problem, Job sequencing with deadlines, minimum cost spanning Trees.
UNIT-III **(10 Hrs)**	Dynamic Programming: The general method, multistage graphs, All pairs-shortest paths, single-source shortest paths: general weights, optimal Binary search trees, 0/1 knapsack, reliability Design, The traveling salesperson problem

UNIT-IV (8 Hrs)	Backtracking: The General Method, The 8-Queens problem, sum of subsets, Graph coloring, Hamiltonian cycles, 0/1 knapsack problem. Branch and Bound: FIFO Branch-and-Bound, LC Branch-and-Bound, 0/1 Knapsack problem, Traveling salesperson problem.
UNIT-V (12 Hrs)	NP-Hard and NP-Complete problems: Basic concepts, Cook's Theorem. String Matching: Introduction, String Matching-Meaning and Application, NaÏveString Matching Algorithm, Rabin-Karp Algorithm, Knuth-Morris-Pratt Automata, Tries, Suffix Tries.

Text Books	
1.	Ellis Horowitz,Sartaj Sahni, Sanguthevar Rajasekaran,"Fundamentals of Computer Algorithms", 2ndEdition, Universities Press.
2.	Harsh Bhasin, "Algorithms Design & Analysis", Oxford University Press.
Reference Books	
1.	Horowitz E. Sahani S: "Fundamentals of Computer Algorithms", 2nd Edition, Galgotia Publications,2008.
2.	S. Sridhar, "Design and Analysis of Algorithms", Oxford University Press.

Subject Code	Category	L	T	P	C	I.M	E.M	Exam
B20AD2202	**PC**	**3**	**--**	**--**	**3**	**30**	**70**	**3 Hrs.**

OPERATING SYSTEMS
(For AIDS)

Course Objectives: On completing this course student will be able to

1	Introduce to the internal operation of modern operating systems
2	Define, explain, processes and threads, mutual exclusion, CPU scheduling, deadlock, memory management, and file systems
3	Understand File Systems in Operating System like UNIX/Linux and Windows
4	Understand Input Output Management and use of Device Driver and Secondary Storage (Disk) Mechanism
5	Analyze Security and Protection Mechanism in Operating System

Course Outcomes: By the end of the course, the student should have the ability to:

S.No	Outcome	Knowledge Level
1	Describe various generations of Operating System and functions of Operating System	K2
2	Describe the concept of program, process and thread and analyze various CPU Scheduling Algorithms and compare their performance	K3
3	Solve Inter Process Communication problems using Mathematical Equations by various methods	K3
4	Compare various Memory Management Schemes especially paging and Segmentation in Operating System and apply various Page Replacement Techniques	K3
5	Outline File Systems in Operating System like UNIX/Linux and Windows	K2

SYLLABUS

UNIT-I (10 Hrs)	**Operating Systems Overview:** Operating system functions, Operating system structure, Operating systems operations, Computing environments, Open-Source Operating Systems. **System Structures:** Operating System Services, User and Operating-System Interface, systems calls, Types of System Calls, system programs, operating system structure, operating system debugging, System Boot.
UNIT-II (10 Hrs)	**Process Concept:** Process scheduling, Operations on processes, Inter-process communication, Communication in client server systems. Multithreaded Programming: Multithreading models, Thread libraries, Threading issues. **Process Scheduling:** Basic concepts, Scheduling criteria, Scheduling algorithms, Multiple processor scheduling, Thread scheduling. **Inter-process Communication**: Race conditions, Critical Regions, Mutual exclusion with busy waiting, Sleep and wakeup, Semaphores, Mutexes, Monitors, Message passing,

	Barriers, Classical IPC Problems - Dining philosophers problem, Readers and writers problem.
UNIT-III (10 Hrs)	**Memory-Management Strategies:** Introduction, Swapping, Contiguous memory allocation, Paging, Segmentation. **Virtual Memory Management:** Introduction, Demand paging, Copy on-write, Page replacement, Frame allocation, Thrashing, Memory-mapped files, Kernel memory allocation.
UNIT-IV (8 Hrs)	**Deadlocks**: Resources, Conditions for resource deadlocks, Ostrich algorithm, Deadlock detection and recovery, Deadlock avoidance, Deadlock prevention. **File Systems:** Files, Directories, File system implementation, management and optimization. Secondary-Storage Structure: Overview of disk structure, and attachment, Disk scheduling, RAID structure, Stable storage implementation.
UNIT-V (12 Hrs)	**System Protection:** Goals of protection, Principles and domain of protection, Access matrix, Access control, Revocation of access rights. **System Security:** Introduction, Program threats, System and network threats, Cryptography for security, User authentication, Implementing security defenses, Firewalling to protect systems and networks, Computer security classification.
	Note: Discuss overview of Linux and Microsoft windows.

Text Books:	
1.	Silberschatz A, Galvin P B, and Gagne G, Operating System Concepts, 9th edition, Wiley, 2013.
2.	Tanenbaum A S, Modern Operating Systems, 3rd edition, Pearson Education, 2008. (for Interprocess Communication and File systems.)
Reference Books:	
1.	Dhamdhere D M, Operating Systems A Concept Based Approach, 3rd edition, Tata McGraw-Hill, 2012.
2.	Stallings W, Operating Systems -Internals and Design Principles, 6th edition, Pearson Education, 2009
3.	Nutt G, Operating Systems, 3rd edition, Pearson Education, 2004.

Subject Code	Category	L	T	P	C	I.M	E.M	Exam
B20IT2202	PC	3	--	--	3	30	70	3 Hrs.

JAVA PROGRAMMING

(Common to AIDS &IT)

Course Objectives:

1.	To identify Java language components and how they work together in applications
2.	To learn the fundamentals of object-oriented programming in Java, including defining classes, invoking methods, using class libraries.
3.	To learn how to extend Java classes with inheritance and dynamic binding and how to use exception handling in Java applications
4.	To understand how to design applications with threads in Java
5	To understand how to use Java APIs for program development

Course Outcomes: By the end of the course, the student should have the ability to:

S.No	Outcome	Knowledge Level
1.	Able to apply the concepts of Object-Oriented Programming & Java Programming Constructs	K3
2.	Able to understand the basic concepts of Java such as operators, classes, objects, and various keywords	K2
3.	Apply the concept of Inheritance, Interfaces and Overriding the methods	K3
4.	Able to Analyze the applications of Java using Multithreading, Exception handling	K3
5.	Able to Analyze & Design the concept of Event Handling and Abstract Window Toolkit	K4

SYLLABUS

UNIT-I (10 Hrs)	**Program Structure in Java:** Introduction, Writing Simple Java Programs, Elements or Tokensin Java Programs, Java Statements, Command Line Arguments, User Input to Programs,Escape Sequences Comments, Programming Style. **Data Types, Variables, and Operators :**Introduction, Data Types in Java, Declaration of Variables, Data Types, Type Casting, Scope of Variable Identifier, Literal Constants, Symbolic Constants, Formatted Output with printf() Method, Static Variables and Methods, Attribute Final, Introduction to Operators, Precedence and Associativity of Operators, Assignment Operator (=), Basic Arithmetic Operators, Increment (++) and Decrement (- -) Operators, Ternary Operator, Relational Operators, Boolean Logical Operators, Bitwise Logical Operators. **Control Statements:** Introduction, if Expression, Nested if Expressions, if–else Expressions, Ternary Operator?:, Switch Statement, Iteration Statements, while Expression, do–while Loop, for Loop, Nested for Loop, For–Each for Loop, Break Statement, Continue Statement.
UNIT-II (10 Hrs)	**Classes and Objects:** Introduction, Class Declaration and Modifiers, Class Members, Declaration of Class Objects, Assigning One Object to Another, Access Control for Class Members, Accessing Private Members of Class, Constructor Methods for Class, Overloaded Constructor Methods, Nested Classes, Final Class and Methods, Passing Arguments by Value and by Reference, Keyword this. **Methods:** Introduction, Defining Methods, Overloaded Methods, Overloaded Constructor

	Methods, Class Objects as Parameters in Methods, Access Control, Recursive Methods, Nesting of Methods, Attributes Final and Static.
UNIT-III (10 Hrs)	**Arrays**: Introduction, Declaration and Initialization of Arrays, Storage of Array in Computer Memory, Accessing Elements of Arrays, Operations on Array Elements, Assigning Array to Another Array, Dynamic Change of Array Size, Sorting of Arrays, Search for Values in Arrays, Class Arrays, Two-dimensional Arrays, Arrays of Varying Lengths, Three dimensional Arrays, Arrays as Vectors. **Inheritance:** Introduction, Process of Inheritance, Types of Inheritances, Universal Super Class-Object Class, Inhibiting Inheritance of Class Using Final, Access Control and Inheritance, Multilevel Inheritance, Application of Keyword Super, Constructor Method and Inheritance, Method Overriding, Dynamic Method Dispatch, Abstract Classes, Interfaces and Inheritance. **Interfaces:** Introduction, Declaration of Interface, Implementation of Interface, Multiple Interfaces, Nested Interfaces, Inheritance of Interfaces, Default Methods in Interfaces, Static Methods in Interface, Functional Interfaces, Annotations.
UNIT-IV (8 Hrs)	**Packages and Java Library:** Introduction, Defining Package, Importing Packages and Classes into Programs, Access Control, Packages in Java SE:Java.lang Package, Java utiland Time Packages. **Exception Handling:** Introduction, Keywords throws and throw, try, catch, and finally Blocks, Multiple Catch Clauses, Class Throwable, Custom Exceptions, Nested try and catch Blocks, Throws Clause. **String Handling in Java**: Introduction, Class String handling Methods, Class String Buffer. **Multithreaded Programming:** Introduction, Thread Class, Main Thread- Creation of New Threads, Thread States, Runnable Interface, Thread Priority-Synchronization.
UNIT-V (12 Hrs)	**GUI programming with Swing:** Introduction, limitations of AWT, MVC Architecture, containers. Understanding Layout Managers: Flow, Border, Grid, Card, GridBag. **Event Handling:** The Delegation event model-Events, Event sources, Event Listeners, Event classes, Handling mouse and keyboard events, Adapter classes, Inner classes, Inner classes, Inner classes, Anonymous Inner classes. A Simple Swing Application. Exploring swing controls-JLabel, JText field, The Swing Buttons-JButton, JToggle Button, JCheck Box, JRadio Button, JTabbed Pane, JScroll Pane, JList ,JCombo Box, Swing Menus, Dialogs. **Java Database Connectivity:** Introduction, JDBC Architecture, Establishing JDBC Database Connections.

Text Books:

1.	JAVA one step ahead, Anitha Seth, B.L.Juneja, Oxford.
2.	The complete Reference Java, 8th edition, Herbert Schildt, TMH.

Reference Books:

1.	Introduction to java programming, 7th edition by Y Daniel Liang, Pearson
2.	Murach's Java Programming, Joel Murach

e-Resources:

1) https://nptel.ac.in/courses/106/105/106105191/
2) ps://www.w3schools.com/java/java_data_types.asp

Subject Code	Category	L	T	P	C	I.M	E.M	Exam
B20AD2203	PC	3	--	--	3	30	70	3 Hrs.

MICROPROCESSORS

(For AIDS)

Course Objectives: On completing this course student will be able to

1	To discuss about 8085 architecture, signal description and instruction set.
2	To study different programming techniques to implement in assembly language.
3	To discuss about 8086 architecture, signal description and instruction set.
4	To study different peripheral devices and learn to interface with 8085.
5.	To study different programming techniques to implement in MASM.

Course Outcomes: By the end of the course, the student should have the ability to:

S.No	Outcome	Knowledge Level
1	Student will be able to apply the knowledge of 8085 architecture and instruction set.	K3
2	Student will be able to apply the knowledge of microprocessor for counter designing and interrupts signaling.	K3
3	Students will be able to design interfacing circuits between 8085 with different peripheral and memory components.	K4
4	Student will be able to apply the knowledge of 8086 architecture and instruction set.	K3

SYLLABUS

UNIT-I (10 Hrs)	**Introduction to 8085 microprocessor** Internal Architecture functional/signal description of 8085 microprocessor, Instruction set, Addressing modes and programming in 8085.
UNIT-II (10 Hrs)	**Programming techniques** Timing diagram, counters and delays, stacks and subroutines and Interrupts in 8085.
UNIT-III (10 Hrs)	**Memory and I/O** Classification and interfacing semiconductor memories with 8085 MPU. Interfacing characteristics of IO devices, IO device addressing methods.
UNIT-IV (8 Hrs)	**Peripheral devices and interfacing with 8085** Interfacing peripherals to INTEL 8085: Paraller IO interface-8255, Serial IO Interface-8251, Timer Interface-8253. Interfacing peripherals to INTEL 8085: Keyboard/Display Interface-8279, Interrupt controller Interface-8259.
UNIT-V (12 Hrs)	**Introduction to 8086 microprocessor and programming** The 8086 Microprocessor architecture, Internal Architecture & functional /signal description of 8086, segmented memory, Maximum 7 Minimum mode of 8086. Instruction set and programming the 8086: Addressing modes, Instruction set

Text Books:	
1.	Microprocessor Architecture and Applications with the 8085 , Ramesh S. gaonkar, 4th Edition, Penram International, 1999.
2.	Advanced Microprocessors and Peripherals, A K RAY & K M Bhurchandi , 2nd Edition, The Mcgraw-Hill companies.
Reference Books:	
1.	The 80X86 Family , Design, Programming and Interfacing, John E. Uffenbeck, 3rd Edition, Pearson Education Inc., 2002.
2.	Walter A . tribal and Avatar Singh. The 8088 and 8086 Microprocessors, Programming interfacing, software, hardware and Applications, 4th Edition Pearson education Inc., 2003.
3.	Microprocessors and Interfacing. Programming and hardware, 2ne Edition, Douglass V. Hall. MH Edition , 1999.

Subject Code	Category	L	T	P	C	I.M	E.M	Exam
B20AD2204	PC	-	--	3	1.5	15	35	3 Hrs.

WEB TECHNOLOGIES LAB

(For AIDS)

Course Objectives: On completing this course student will be able to

1	To acquire knowledge to develop web applications using Java Script ,CSS and XML
2	Ability to develop dynamic web content using PHP
3	To understand Data base connections with PHP
4	To understand the design and development process of a complete web application

Course Outcomes: By the end of the course, the student should have the ability to:

S.No	Outcome	Knowledge Level
1	Develop static web sites using CSS and Java Scripts	K4
2	Implement XML and XSLT for web applications	K3
3	Develop Dynamic web content using PHP	K3
4	Implement database connections with Mysql and PHP to develop dynamic WebPages	K4

SYLLABUS

1

Design the following static web pages required for an online book store web site.

HOME PAGE:

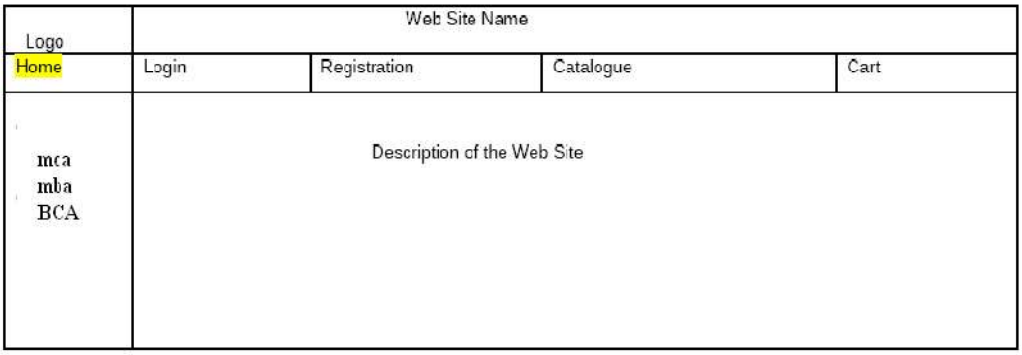
The static home page must contain three **frames**.

Top frame: Logo and the college name and links to Home page, Login page, Registration page, Catalogue page and Cart page (the description of these pages will be given below).

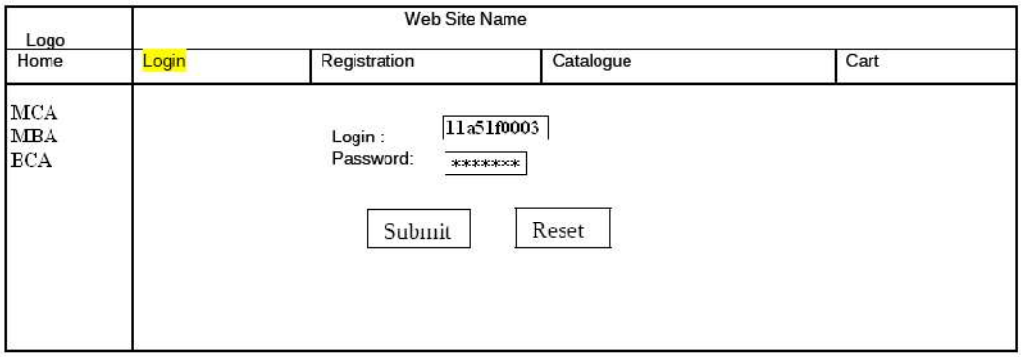
Left frame: At least four links for navigation, which will display the catalogue of respective links.

For e.g.: When you click the link **"MCA"** the catalogue for MCA Books should be displayed in the Right frame.

Right frame: The *pages to the links in the left frame must be loaded here*. Initially this page contains description of the web site.



2 **LOGIN PAGE:**

	
3	**CATOLOGUE PAGE:** The catalogue page should contain the details of all the books available in the web site in a table. The details should contain the following: 1. Snap shot of Cover Page. 2. Author Name. 3. Publisher. 4. Price. 5. Add to cart button.
4	**REGISTRATION PAGE:** Create a "*registration form* "with the following fields 1) Name (Text field) 2) Password (password field) 3) E-mail id (text field) 4) Phone number (text field) 5) Sex (radio button) 6) Date of birth (3 select boxes) 7) Languages known (check boxes – English, Telugu, Hindi, Tamil) 8) Address (text area)
5	**DESIGN A WEB PAGE USING CSS (C**ascading **S**tyle **S**heets**)** which includes the following: 1) Use different font, styles: In the style definition you define how each selector should work (font, color etc.). Then, in the body of your pages, you refer to these selectors to activate the styles
6	**WRITE AN XML** file which will display the Book information which includes the following: 1) Title of the book 2) Author Name 3) ISBN number 4) Publisher name 5) Edition 6) Price Write a Document Type Definition (DTD) to validate the above XML file.
7	Write Ruby program reads a number and calculates the factorial value of it and prints the Same.

8	Write a Ruby program which counts number of lines in a text files using its regular Expressions facility.
9	Write a Ruby program that uses iterator to find out the length of a string.
10	Write simple Ruby programs that uses arrays in Ruby.
11	Write programs which uses associative arrays concept of Ruby.
12	Write Ruby program which uses Math module to find area of a triangle.
13	Write Ruby program which uses tk module to display a window
14	Define complex class in Ruby and do write methods to carry operations on complex objects.
15	Write a program which illustrates the use of associative arrays in perl.
16	Write perl program takes set names along the command line and prints whether they are regular files or special files
17	Write a perl program to implement UNIX `passed' program
18	An example perl program to connect to a MySQl database table and executing simple commands.
19	Example PHP program for cotactus page.
20	**User Authentication:** Assume four users user1, user2, user3 and user4 having the passwords pwd1, pwd2, pwd3 and pwd4 respectively. Write a PHP for doing the following. 1. Create a Cookie and add these four user id's and passwords to this Cookie. 2. Read the user id and passwords entered in the Login form (week1) and authenticate with the values (user id and passwords) available in the cookies. If he is a valid user (i.e., user-name and password match) you should welcome him by name (user-name) else you should display "You are not an authenticated user ''. Use init-parameters to do this.
21	Example PHP program for registering users of a website and login.
22	**Install a database (Mysql or Oracle):**Create a table which should contain at least the following fields: name, password, email-id, phone number (these should hold the data from the registration form). Write a PHP program to connect to that database and extract data from the tables and display them. Experiment with various SQL queries. Insert the details of the users who register with the web site, whenever a new user clicks the submit button in the registration page (week2).
23	**Write a PHP which does the following job:** Insert the details of the 3 or 4 users who register with the web site (week9) by using registration form. Authenticate the user when he submits the login form using the user name and password from the database (similar to week8 instead of cookies).
24	Create tables in the database which contain the details of items (books in our case like Book name , Price, Quantity, Amount) of each category. Modify your catalogue page (week 2)in such a way that you should connect to the database and extract data from the tables and display them in the catalogue page using PHP
25	**HTTP** is a stateless protocol. Session is required to maintain the state. The user may add some items to cart from the catalog page. He can check the cart page for the selected items. He may visit the catalogue again and select some more items. Here our interest is the selected items should be added to the old cart rather than a new cart. Multiple users can do the same thing at a time(i.e., from different systems in the LAN using the ip-address instead of local host). This can be achieved through the use of sessions. Every user

	will have his own session which will be created after his successful login to the website. When the user logs out his session should get invalidated (by using the method session. Invalidate (). Modify your catalogue and cart PHP pages to achieve the above mentioned functionality using sessions.
Text Books:	
1.	Programming the World Wide Web, Robet W Sebesta, 7ed, Pearson.
2.	Web Technologies, Uttam K Roy, Oxford
Reference Books:	
1.	Ruby on Rails Up and Running, Lightning fast Web development, Bruce Tate, Curt Hibbs, Oreilly (2006).
2.	An Introduction to Web Design, Programming, Paul S Wang, Sanda S Katila, CengageLearning

Subject Code	Category	L	T	P	C	I.M	E.M	Exam
B20AD2205	PC	-	--	3	1.5	15	35	3 Hrs.

OPERATING SYSTEMS AND UNIX LAB

(For AIDS)

Course Objectives: On completing this course student will be able to

1	To understand the design aspects of operating system
2	To study the process management concepts & Techniques
3	To study the storage management concepts
4	To familiarize students with the Linux environment
5	To learn the fundamentals of shell scripting/programming

Course Outcomes: By the end of the course, the student should have the ability to:

S.No	Outcome	Knowledge Level
1	To use Unix utilities and perform basic shell control of the utilities	K3
2	To use the Unix file system and file access control	K3
3	To use of an operating system to develop software	K3
4	Students will be able to use Linux environment efficiently	K3
5	Solve problems using bash for shell scripting	K3

SYLLABUS

1	a) Study of Unix/Linux general purpose utility command list: man,who,cat, cd, cp, ps, ls, mv, rm, mkdir, rmdir, echo, more, date, time, kill, history, chmod, chown, finger, pwd, cal, logout, shutdown. b) Study of vi editor c) Study of Bash shell, Bourne shell and C shell in Unix/Linux operating system d) Study of Unix/Linux file system (tree structure) e) Study of .bashrc, /etc/bashrc and Environment variables.
2	Write a C program that makes a copy of a file using standard I/O, and system calls
3	Write a C program to emulate the UNIX ls –l command.
4	Write a C program that illustrates how to execute two commands concurrently with a command pipe. Ex: - ls –l | sort
5	Simulate the following CPU scheduling algorithms: (a) Round Robin (b) SJF (c) FCFS (d) Priority
6	Multiprogramming-Memory management-Implementation of fork (), wait (), exec() and exit (), System calls
7	Simulate the following: a) Multiprogramming with a fixed number of tasks (MFT) b) Multiprogramming with a variable number of tasks (MVT)
8	Simulate Bankers Algorithm for Dead Lock Avoidance
9	Simulate Bankers Algorithm for Dead Lock Prevention.
10	Simulate the following page replacement algorithms: a) FIFO b) LRU c) LFU

11	Simulate the following File allocation strategies (a) Sequenced (b) Indexed (c) Linked
12	Write a C program that illustrates two processes communicating using shared memory
Reference Books:	
1	Silberschatz A, Galvin P B, and Gagne G, Operating System Concepts, 9th edition, Wiley, 2013.
2	Introduction to UNIX & SHELL programming, M.G. Venkatesh Murthy, Pearson Education.
3	Unix & Shell programming – A text book, B.A.Forouzan & R.F.Giberg, Thomson.

Subject Code	Category	L	T	P	C	I.M	E.M	Exam
B20IT2206	PC	--	--	3	1.5	15	35	3 Hrs.

JAVA PROGRAMMING LAB

(Common to AIDS &IT)

Course Objectives: The aim of this lab is to

1.	Practice programming in theJava
2.	Gain knowledge of object-oriented paradigm in the Java programminglanguage
3.	Learn use of Java in a variety of technologies and on differentplatforms

Course Outcomes: By the end of the course student will be able to write java program for

S.No	Outcome	Knowledge Level
1.	Apply primitive data types, Operations, Expressions, Control-flow,Strings in java programming	K3
2.	Examine Class, Objects, Methods, Inheritance, Exception, Runtime Polymorphism, User defined Exception handlingmechanism	K4
3.	Analyzing simple inheritance, multi-level inheritance, Exception handlingmechanism	K4
4.	Analyze and Construct Threads, Event Handling, implement packages	K4

LIST OF EXPERIMENTS

Exercise - 1 (Basics)	
1.	Write a JAVA program to display default value of all primitive data type ofJAVA
2.	Write a java program that display the roots of a quadratic equation $ax^2+bx+c=0$. Calculate the discriminate D and basing on value of D, describe the nature ofroot.
3.	Five Bikers Compete in a race such that they drive at a constant speed which may or may not be the same as the other. To qualify the race, the speed of a racer must be more than the average speed of all 5 racers. Take as input the speed of each racer and print back the speed of qualifying racers.
Exercise - 2 (Operations, Expressions, Control-flow, Strings)	
1.	Write a JAVA program to search for an element in a given list of elements using binary search mechanism.
2.	Write a JAVA program to sort for an element in a given list of elements using bubblesort
3.	Write a JAVA program to sort for an element in a given list of elements using mergesort.
4.	Write a JAVA program using StringBuffer to delete, removecharacter.
Exercise - 3 (Class, Objects)	
1.	Write a JAVA program to implement class mechanism. – Create a class, methods and invoke them inside main method.
2.	Write a JAVA program to implement constructor.
Exercise - 4 (Methods)	
1.	Write a JAVA program to implement constructor overloading.
2.	Write a JAVA program implement method overloading.

Exercise - 5 (Inheritance)	
1.	Write a JAVA program to implement Single Inheritance
2.	Write a JAVA program to implement multi level Inheritance
3.	Write a java program for abstract class to find areas of different shapes
Exercise - 6 (Inheritance - Continued)	
1.	Write a JAVA program give example for “super”keyword.
2.	Write a JAVA program to implement Interface. What kind of Inheritance can beachieved?
Exercise - 7 (Exception)	
1.	Write a JAVA program that describes exception handlingmechanism
2.	Write a JAVA program Illustrating Multiple catchclauses
Exercise – 8 (Runtime Polymorphism)	
1.	Write a JAVA program that implements Runtimepolymorphism
2.	Write a Case study on run time polymorphism, inheritance that implements in aboveproblem
Exercise – 9 (User defined Exception)	
1.	Write a JAVA program for creation of Illustratingthrow
2.	Write a JAVA program for creation of Illustratingfinally
3.	Write a JAVA program for creation of Java Built-inExceptions
4.	Write a JAVA program for creation of User DefinedException
Exercise – 10 (Threads)	
1.	Write a JAVA program that creates threads by extending Thread class .First thread display “Good Morning “every 1 sec, the second thread displays “Hello “every 2 seconds and the third display “Welcome” every 3 seconds ,(Repeat the same by implementingRunnable)
2.	Write a program illustrating **isAlive** and **join()**
Exercise – 11 (Packages)	
1.	Write a JAVA program illustrate classpath
2.	Write a case study on including in class path in your os environment of yourpackage.
3.	Write a JAVA program that import and use the defined your package in the previousProblem
Exercise – 12 (Event Handling)	
1.	Write a JAVA program that display the x and y position of the cursor movement usingMouse.
2.	Write a Java program to create radio buttons(male & female) perform event handling to display relevant text when radio button selected and button press is performed.
3.	Write a java program to Demonstrate KeyAdapter classes.
Exercise- 13 (JDBC)	
1.	Write a Java program to establish connection with database and Retrieve values form a table.
2.	Write a java program to establish connection with database and insert values into the table.
Reference Books:	
1.	JAVA one step ahead, Anitha Seth, B.L.Juneja,Oxford.
2.	The complete Reference Java, 8th edition, Herbert Schildt,TMH.

Code	Category	L	T	P	C	I.M	E.M	Exam
B20IT2207	**SOC**	**-**	**--**	**4**	**2**	**--**	**50**	**3 Hrs**

ANIMATIONS

(Skill Oriented Course-II)

(Common to AIDS, CSBS& IT)

Course Objectives: The objectives of the course are to impart:

1.	This Course will enable students to learn various aspects of animation using a variety of 2-D software and to implement advance principles of traditional animation in Adobe animate to create high quality animation for production.

Course outcomes : After completion of the course, students will be able to		**K L**
1	Learn various tools of digital 2-D animation.	K2
2	Understand production pipeline to create 2-D animation.	K3
3	Analyze special effects in animation to bring interest and awe in the scenes and Back grounds.	K3
4	Apply the tools to create 2D animation for films and videos.	K3

SYLLABUS

Adobe Photoshop	Create your visiting card
	Create Title for any forthcoming film
	Digital Matte Paint
	Convert Black and White to Color
	Convert Day mode to Night mode
	Design Image manipulation
	Smooth skin and remove blemishes & scars
	Create a 3D pop-out effect
	Create Textures
	Timeline Animation
Adobe Illustrator	Advertisement
	Digital Illustrations
	Brochure
	Packet Design(Toothpaste packet, Soap cover, any Food product)
	Danglers for display
	Menu cards
	Calendar Design
	Tracing image
	Vehicle Design
	Festival
Adobe In design	Magazine A4 Size
	Newspaper layout design & advertisements – Fine arts

	Special Supplement
	Different categories of Books
	Info-graphics
	Caricatures
Corel DRAW	Create a paper ad for advertising of any commercial agency
	Package Design
	Corporate ID
	Exhibition Layout
	Oblers
Animation	Creating Web Banners in Adobe Flash
	Creating a Logo Animation in Adobe Flash
	Creating Frame by Frame animation
	Draw Cartoon Animation using reference.
	Create Lip Sink to Characters
	Using filters & Special effects
	Create a scene by using Mask layers animation
	E-Learning Lab:
	Student Application form
	Video Controlling
	Audio Controlling
	Start Drag and Stop Drag Actions
	Interactive Keyboard Controls using Flash Action Script.
	Interactive Flash Game.
	Creating Character Animation in After Effects
Reference Books:	
1	Adobe Animate CC Classroom Book 2018 Animation, First Edition, Pearson

Code	Category	L	T	P	C	I.M	E.M	Exam
B20IT2208	**SOC**	**-**	**--**	**4**	**2**	**--**	**50**	**3 Hrs**

WEB PAGE DESIGN USING PHP

(Skill Oriented Course-II)

(Common to AIDS, CSBS & IT)

Course Objectives: The objectives of the course are to impart:

1.	Understand the principles of creating an effective web page.
2.	Understand elements of design with regard to the web.
3.	Learn the language of the web: HTML and CSS.
4.	Develop skills in analyzing the usability of a web site.
5.	Understand how to develop PHP web application with database connectivity.
6.	Learn CSS grid layout.

Course outcomes : After completion of the course, students will be able to		**K L**
1	Apply the principles of creating an effective web page.	K3
2	Apply the elements of design with regard to the web.	K3
3	Create the language of the web: HTML and CSS.	K4
4	Develop skills in analyzing the usability of a web site.	K4
5	Understand how to plan and conduct user research related to web usability.	K2
6	Create CSS grid layout	K4

SYLLABUS

Exercise 1	**Introduction to HTML**
	1.1 What is HTML
	1.2 HTML Documents
	1.3 Basic structure of an HTML document
	1.4 Creating an HTML document
	1.5 Mark up Tags
	1.6 Heading-Paragraphs
	1.7 Line Breaks
	1.8 HTML Tags.
Exercise 2	**Elements of HTML**
	2.1 Introduction to elements of HTML
	2.2 Working with Text
	2.3 Working with Lists, Tables and Frames
	2.4 Working with Hyperlinks, Images and Multimedia
	2.5 Working with Forms and controls.
Exercise 3	**Introduction to Cascading Style Sheets**
	3.1 Concept of CSS
	3.2 Creating Style Sheet
	3.3 CSS Properties
	3.4 CSS Styling(Background, Text Format, Controlling Fonts)
	3.5 Working with block elements and objects

	3.6 Working with Lists and Tables
	3.7 CSS Id and Class
	3.8 Box Model (Introduction, Border properties, Padding Properties, Margin properties)
Exercise 4	4.1 The Basic of JavaScript: Objects,
	4.2 Primitives Operations and Expressions,
	4.3 Screen Output and Keyboard Input,'
	4.4 Object Creation and Modification, Arrays, Functions
	4.5 DHTML: Positioning Moving and Changing Elements
Exercise 5	5.1 Introducing PHP: Creating PHP script,
	5.2 Running PHP script.
	5.3 Using variables,constants,Datatypes, Operators.
	5.4 Conditional statements, Control statements, Arrays ,functions
	5.5 Working with forms and Databases such as MySQL.
	5.6 Develop PHP MySQL CRUD Application
Text Books:	
1.	Web Technologies, Uttam K Roy, Oxford
2.	HTML 5 Black Book (Covers CSS3, JavaScript, XML, XHTML, AJAX, PHP, jQuery) 2Ed,Dreamtech Press; Second edition
3.	The Web Warrior Guide to Web Programming, Bai, Ekedahl, Farrelll, Gosselin, Zak,Karparhi, Maclntyre, Morrissey, Cengage
Reference Books:	
1.	Learning PHP, MySQL & JavaScript with j Query, CSS & HTML5, Shroff Publishers & Distributers Private Limited - Mumbai; Fourth edition
2.	PHP: The Complete Reference, McGraw Hill Education; Raunak php study edition

Code	Category	L	T	P	C	I.M	E.M	Exam
B20MC2201	**MC**	**2**	**--**	**--**	**--**	**--**	**--**	**--**

ENGLISH PROFICIENCY

(Common to CE,EEE,ME,AIDS & CSBS)

Course Objectives: The students will be able to

1.	Communicate their ideas and views effectively
2.	Practice language skills and improve their language competency.
3.	Know and perform well in real life contexts
4.	Identify and examine their self-attributes which require improvement and motivation.
5.	Build confidence and overcome their inhibitions, stage freight, nervousness etc.,
6.	Improve their reading skills.

Course Outcomes: The students will

S.No	Outcome	Knowledge Level
1.	Improve speaking skills.	K3
2.	Enhance their listening capabilities	K3
3.	Learn and practice the skills of composition writing.	K3
4.	Enhance their reading and understanding of different texts.	K3
5.	Improve their communication both in formal and informal contexts.	K3
6.	Be confident in presentation skills.	K3

SYLLABUS

UNIT-I	**Listening Skills** Types of listening Hearing and Listening Listening as a receptive skill
UNIT-II	**Speaking Skills** Presentation skills Describing event/place/thing Extempore Debate Group Discussion
UNIT-III	**Reading Skills** Types of Reading (Intensive and Extensive reading, Skimming, Scanning) Reading/Summarizing News Paper Articles
UNIT-IV	**Writing Skills** Essay Writing (Argumentative, Analytical and Descriptive) E-Mail Writing Business Letters Resume Writing

UNIT-V	**Integrated Language Skills** Listening Skills for Speaking and Writing Reading Skills for Writing and Speaking

Reference Books:	
1.	Fundamentals of Technical Communication by Meenakshiraman, Sangeta Sharma of OUP
2.	English and Communication Skills for Students of Science and Engineering, by S.P. Dhanavel, Orient Blackswan Ltd. 2009
3.	Enriching Speaking and Writing Skills, Orient Blackswan Publishers.
4.	The Oxford Guide to Writing and Speaking by John Seely OUP.
5.	Effective Technical Communication by M.AshrafRizwi. Tata Mcgraw hill.
6.	Six Weeks to Words of Power by Wilfred Funk. W.R.Goyal Publishers

Note: Internal Assessment is carried out throughout the semester.