Dr. V. S. Krishna Govt. Degree College (A) Visakhapatnam-13

Department of Computer Science

Board of Studies – Syllabus 2020-21



Department of Computer Science

Dr. V.S. Krishna Govt. Degree College (Autonomous), Visakhapatnam

Resolutions/Minutes of the 6th Board of Studies November-2020

Subject: Computer Science

Department: Computer Science

In pursuance of conferment of Autonomous status to Dr.V.S.Krishna Govt. Degree College(A), Visakhapatnam by the UGC vide letter No.F22-1/2011(AC) dated 20.07.2011 from Dr. Manju Singh, Joint Secretary, UGC, New Delhi and Proceedings No. C-II (CDC) /Dr.VSK.Govt.College/BOS/2018 dt.10.10.2018 of The Vice-Chancellor, Andhra University, Visakhapatnam, the 6th Board of Studies in **Computer Science** Subject is conducted on - 11-2020 at 10:00 AM with the following members. The Changes will be implemented from

MEMBE	NAME &	SIGNATURE
R	DESIGNATION	
Head of the Department		
(Chairman)	Dr.CH.V.M.K.Hari	
Faculty Members	Sri D.V.Raghava Swamy	
	Sri R.Venketeswara Rao	
	Sri K.Sandeep Kumar	
Subject From out	Draf C.V.	
(University Newsings)	Prof. S. Viziananda Row,	
(University Nominee)	Dept of Computer Science	
	And System Engineering,	
	Andnra	
Subject Exports	Dr. A. Sizza Dread	
Subject Experts	Dr.A.Siva Prasad	
(from outside the parent	Lecturer in Computer	
university)	Science, GDC, Tekkan	
	Smt. I. Sri Lakshmi	
	Lecturer in Computer	
	Science, GDC (W),	
	Srikakulam	
Representative Member		
From Industry / Corporate / Allied		
Area relating to placement		
Member from Alumni	Sri. C. V. S. Ravindranath	
Coordinator, Academic Council	Dr.D. Sravan Kumar	
	Dr. V.Chandra Sekhar	
Chairperson, Academic Council	Principal	

2020-21 academic year onwards.

Dr. V.S. Krishna Govt. Degree College (Autonomous), Visakhapatnam

Resolutions/Minutes of the 6th Board of Studies-November-2020

Subject: Computer Science

Department: Computer Science

In pursuance of conferment of Autonomous status to Dr.V.S.Krishna Govt. Degree College(A), Visakhapatnam by the UGC vide letter No.F22-1/2011(AC) dated 20.07.2011 from Dr. Manju Singh, Joint Secretary, UGC, New Delhi and Proceedings No. C-II (CDC) /Dr.VSK.Govt.College/BOS/2018 dt.10.10.2018 of The Vice-Chancellor, Andhra University, Visakhapatnam, the 6th Board of Studies in **Computer Science** Subject is conducted on -11-2020 at 10:00 AM with the following members. The Changes will be implemented from

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(University Neminee)	Dont of Computer Science	
(University Nominee)	Dept of Computer Science	
	And System Engineering,	
	University	
Subject Exports	Dr A Sive Preced	
(from outside the parent	Locturer in Computer	
(nom outside the parent	Seienee CDC Tekkeli	
university)	Science, ODC, Tekkan	
	Smt. I. Sri Lakshmi	
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	Science, GDC (W).	
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Coordinator Academic Council	Dr.D. Sroven Kumer	
Coordinator, Academic Council		
	Dr V Chandra Sekhar	
Chairperson, Academic Council	Principal	
	. r	

2020-21 academic year onwards.

Board of Studies Resolutions Adopted

The Board of Studies of Department of Computer Science, Dr. V.S. Krishna Govt degree College(A) met on -11- 2020 and resolved the following:

Resolved to

- 1. Implement the Autonomous Education system as per the staff council's proceedings commencing from the academic year 2020-21 for the admitted batch of 1st year degree students of 2020-21 only.
- 2. To implement guidelines of the academic council.
- 3. Approve and introduce the newly framed syllabus modified and approved by the Board of Studies (BOS) for the first year 2020-21 Degree course in computer Science and Life Skill Courses-Computer Applications and Information Communication Technology.
- 4. Approval and Ratification of changes/modifications in curriculum design for 1,2,3,&4 semesters under

Choice Based Credit System from 2020-21 academic year onwards given by APSCHE.

- 5. Approval of new employable and skill based programmes from 2020-21.
- 6. Approval of Life skill courses and Skill development courses for 2020-21.
- 7. Ratify and introduced new semester mode pattern of exam for students with the following combinations Mathematics, Physics and Computer Science and Mathematics, Statistics and Computer Science Further it is approved and ratified the model question papers submitted by the concerned faculty members for all the semesters. The evaluation of internal will be done for 25 Marks(Continuous Assessment) and External assessment is for 75 Marks.
- 8. Conduct Seminars, Workshops, Symposia, Industry visits etc...
- 9. Adapt quality based curriculum as per the norms of the NAAC.
- 10. Encourage the students to join JKC to equip with communication skills and improve their personality development.
- 11. Encourage students to participate in community centric activities like health programmes and tie up with reputed organizations.

Approved

Subject Expert University Nominee Subject Expert Affiliated College

Member, BOS,Dept of Computers Dr V.S.Krishna Govt Degree College(A) Member, BOS,Dept of Computers Dr V.S.Krishna Govt Degree College(A)

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nc	Jerrs	Hrs/W	Credits	Hrs/W	Credits	Hrs/W	Credits	Hrs/W	Credits	Hrs/W	Credits	Hrs/W	Credits		
Languages															
English		4	3	4	3	4	3								
Language (H/T/S)		4	3	4	3	4	3								
Life Skill Courses		2	2	2	2	2+2	2+2								
Skill Development C	ourses	2	2	2+2	2+2	2	2								
Major 1	Core 1,2,3,& 4	4+2	4 + 1	4+2	4 + 1	4+2	4 + 1	4+2	4 + 1						
Major 2	Core 1,2,3,& 4	4+2	4 + 1	4+2	4 + 1	4+2	4 + 1	4+2	4 + 1						
Major 3	Core 1,2,3,& 4	4+2	4 + 1	4+2	4 + 1	4+2	4 + 1	4+2	4 + 1					FIRST and	SECOND
Major 1	Core -5							4+2	4+1					PHASES (spelle) of
Major 2	Core -5							4+2	4 + 1			THIRD	PHASE of	ADDDEN	ricecult
Major 3	Core -5							4+2	4 + 1			APPREN	TICESHIP	hotwoon 1	stand 2nd
Maior 1	Skill Enhancement									4+2	4 + 1	Entire !	5th / 6th	Derween T	stand 2nd
INIGIO1 T	Courses (6 & 7)									4+2	4 + 1	Sem	ester	year and and y	erveen zun
Mainr 2	Skill Enhancement									4+2	4 + 1			and or o	acatione)
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Maior 3	Skill Enhancement									4+2	4 + 1				
Prajor 5	Courses (6 & 7)									4+2	4 + 1				
Hrs/W (Academic	Credits)	30	25	32	27	32	27	36	30	36	30		12	4	4
Project Work															
Extension Activities	(Non														
NCC/NSS/Sports/Ex	tra Curricular								2						
Yoga							1		1						
Extra Credits															
Hrs/W (Total Cred	its)	30	25	32	27	32	28	36	33	36	30		12	4	4

Dr. V.S. Krishna Govt. Degree College (Autonomous), Visakhapatnam

REVISED SYLLABUS OF B.Sc. (COMPUTER SCIENCE) UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-2021

PROGRAMME: THREE-YEAR B.Sc.

(B.Sc. Computer Science)

(With Learning Outcomes, Unit-wise Syllabus, References, Co-curricular Activities & Model Q.P.)

For Fifteen Courses of 1, 2, 3 & 4 Semesters)

(To be Implemented from 2020-21 Academic Year)

Structure of Computer Science

Programme: B.Sc. with Computer Science as one of the Core Subjects. Discipline: Computer Science

Year	Semester	Paper Code	Subject	Hrs. per Week	Credits	IA	ES	Total
	Ι	C1	Problem Solving in C	4	3	25	75	100
First	Ι	C1-P	Problem Solving in C Lab	2	2		50	50
Year	II	C2	Data Structures using C	4	3	25	75	100
	II	C2-P	Data Structures using C Lab	2	2		50	50
	III	C3	Database Management System	4	3	25	75	100
	III	С3-Р	Database Management System Lab	2	2		50	50
Second	IV	C4	Object Oriented Programming using Java	4	3	25	75	100
Year	IV	C4-P	Object Oriented Programming using Java Lab	2	2		50	50
	IV	C5	Operating Systems	4	3	25	75	100
	IV	C5-P	Operating Systems Lab using C/Java	2	2		50	50

PROBLEM SOLVING IN C

Semester	Course Code	Course Title	Hours	Credits
Ι	C1	PROBLEM SOLVING IN C	60	3

Objectives:

This course aims to provide exposure to problem-solving through programming. It introduces the concepts of the C Programming language.

Course Learning Outcomes:

Upon successful completion of the course, a student will be able to:

- 1. Understand the evolution and functionality of a Digital Computer.
- 2. Apply logical skills to analyse a given problem
- 3. Develop an algorithm for solving a given problem.
- 4. Understand 'C' language constructs like Iterative statements, Array processing, Pointers, etc.
- 5. Apply 'C' language constructs to the algorithms towrite a 'C' language program.

UNIT I

General Fundamentals: Introduction to computers: Block diagram of a computer, characteristics and limitations of computers, applications of computers, types of computers, computer generations.

Introduction to Algorithms and Programming Languages: Algorithm – Key features of Algorithms, Flow Charts, Programming Languages – Generations of Programming Languages – Structured Programming Language- Design and Implementation of Correct, Efficient and Maintainable Programs.

UNIT II

Introduction to C: Introduction – Structure of C Program – Writing the first C Program – File used in C Program – Compiling and Executing C Programs – Using Comments –

Keywords – Identifiers – Basic Data Types in C – Variables – Constants – I/O Statements in C- Operators in C- Programming Examples.

Decision Control and Looping Statements: Introduction to Decision Control Statements– Conditional Branching Statements – Iterative Statements – Nested Loops – Break and Continue Statement – Goto Statement

UNIT III

Arrays: Introduction – Declaration of Arrays – Accessing elements of the Array – Storing Values in Array– Operations on Arrays – one dimensional, two dimensional and multi dimensional arrays, character handling and strings.

UNIT IV

Functions: Introduction – using functions – Function declaration/ prototype – Function definition – function call – return statement – Passing parameters – Scope of variables – Storage Classes – Recursive functions.

Structure, Union, and Enumerated Data Types: Introduction – Nested Structures – Arrays of Structures – Structures and Functions– Union – Arrays of Unions Variables – Unions inside Structures – Enumerated Data Types.

UNIT V

Pointers: Understanding Computer Memory – Introduction to Pointers – declaring Pointer Variables – Pointer Expressions and Pointer Arithmetic – Null Pointers - Passing Arguments to Functions using Pointer – Pointer and Arrays – Memory Allocation in C Programs – Memory Usage – Dynamic Memory Allocation – Drawbacks of Pointers

Files: Introduction to Files – Using Files in C – Reading Data from Files – Writing Data to Files – Detecting the End-of-file – Error Handling during File Operations – Accepting Command Line Arguments.

BOOKS

- 1. E Balagurusamy Programming in ANSIC Tata McGraw-Hill publications.
- 2. Brain W Kernighan and Dennis M Ritchie The 'C' Programming language" Pearson publications.
- Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson Edition Publications.
- 4. YashavantKanetkar Let Us 'C' BPB Publications.

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

- 1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
- 2. Student seminars (on topics of the syllabus and related aspects (individual activity))
- 3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
- Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity

B. General

- 1. Group Discussion
- 2. Try to solve MCQ's available online.
- 3. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

- 1. The oral and written examinations (Scheduled and surprise tests),
- 2. Closed-book and open-book tests,
- 3. Problem-solving exercises,
- 4. Practical assignments and laboratory reports,

- 5. Observation of practical skills,
- 6. Individual and group project reports like "Creating Text Editor in C".
- 7. Efficient delivery using seminar presentations,
- 8. Viva voce interviews.
- 9. Computerized adaptive testing, literature surveys and evaluations,
- 10. Peers and self-assessment, outputs form individual and collaborative work

Semester	Course Code	Course Title	Hours	Credits
Ι	C1-P	PROBLEM SOLVING IN C LAB	30	2

Problem solving in C LAB

- 1. Write a program to check whether the given number is Armstrong or not.
- 2. Write a program to find the sum of individual digits of a positive integer.
- 3. Write a program to generate the first n terms of the Fibonacci sequence.
- 4. Write a program to find both the largest and smallest number in a list of integer values
- Write a program to demonstrate refection of parameters in swapping of two integer values using Call by Value&Call by Address
- 6. Write a program that uses functions to add two matrices.
- 7. Write a program to calculate factorial of given integer value using recursive functions
- 8. Write a program for multiplication of twoN X N matrices.
- 9. Write a program to perform various string operations.
- 10. Write a program to search an element in a given list of values.
- 11. Write a program to sort a given list of integers in ascending order.
- 12. Write a program to calculate the salaries of all employees using Employee (ID, Name,

Designation, Basic Pay, DA, HRA, Gross Salary, Deduction, Net Salary) structure.

- a. DA is 30 % of Basic Pay
- b. HRA is 15% of Basic Pay
- c. Deduction is 10% of (Basic Pay + DA)
- d. Gross Salary = Basic Pay + DA+ HRA
- e. Net Salary = Gross Salary Deduction
- 13. Write a program to illustrate pointer arithmetic.

- 14. Write a program to read the data character by character from a file.
- 15. Write a program to create **Book** (ISBN, Title, Author, Price, Pages, **Publisher**) structureand store book details in a file and perform the following operations
 - a. Add book details
 - b. Search a book details for a given ISBN and display book details, if available
 - c. Update a book details using ISBN
 - d. Delete book details for a given ISBN and display list of remaining Books

DATA STRUCTURES USING C

Semester	Course Code	Course Title	Hours	Credits
II	C2	DATA STRUCTURES USING C	60	3

Course Objectives

To introduce the fundamental concept of data structures and to emphasize the importance of various data structures in developing and implementing efficient algorithms.

Course Learning Outcomes:

Upon successful completion of the course, a student will be able to:

- 1. Understand available Data Structures for data storage and processing.
- ComprehendData Structure and their real-time applications Stack, Queue, Linked List, Trees and Graph
- 3. Choose a suitable Data Structures for an application
- 4. Develop ability to implement different Sorting and Search methods
- 5. Have knowledge onData Structures basic operations like insert, delete, search, update and traversal
- 6. Design and develop programs using various data structures
- 7. Implement the applications of algorithms for sorting, pattern matching etc

UNIT – I:

Introduction to Data Structures: Introduction to the Theory of Data Structures, Data Representation, Abstract Data Types, Data Types, Primitive Data Types, Data Structure and Structured Type, Atomic Type, Difference between Abstract Data Types, Data Types, and Data Structures, Refinement Stages

Principles of Programming and Analysis of Algorithms: Software Engineering, Program Design, Algorithms, Different Approaches to Designing an Algorithm, Complexity, Big 'O' Notation, Algorithm Analysis, Structured Approach to Programming, Recursion, Tips and Techniques for Writing Programs in 'C'

UNIT – II:

Arrays: Introduction to Linear and Non- Linear Data Structures, One- Dimensional Arrays, Array Operations, Two- Dimensional arrays, Multidimensional Arrays, Pointers and Arrays, an Overview of Pointers

Linked Lists: Introduction to Lists and Linked Lists, Dynamic Memory Allocation, Basic Linked List Operations, Doubly Linked List, Circular Linked List, Atomic Linked List, Linked List in Arrays, Linked List versus Arrays

UNIT – III:

Stacks: Introduction to Stacks, Stack as an Abstract Data Type, Representation of Stacks through Arrays, Representation of Stacks through Linked Lists, Applications of Stacks, Stacks and Recursion

Queues: Introduction, Queue as an Abstract data Type, Representation of Queues, Circular Queues, Double Ended Queues- Deques, Priority Queues, Application of Queues

UNIT – IV:

Binary Trees: Introduction to Non- Linear Data Structures, Introduction Binary Trees, Types of Trees, Basic Definition of Binary Trees, Properties of Binary Trees, Representation of Binary Trees, Operations on a Binary Search Tree, Binary Tree Traversal, Counting Number of Binary Trees, Applications of Binary Tree

UNIT - V:

Searching and sorting: Sorting – An Introduction, Bubble Sort, Insertion Sort, Merge Sort, Searching – An Introduction, Linear or Sequential Search, Binary Search, Indexed Sequential Search

Graphs: Introduction to Graphs, Terms Associated with Graphs, Sequential Representation of Graphs, Linked Representation of Graphs, Traversal of Graphs, Spanning Trees, Shortest Path, Application of Graphs.

BOOKS:

1. "Data Structures using C", ISRD group Second Edition, TMH

- 2. "Data Structures through C", YashavantKanetkar, BPB Publications
- 3. "Data Structures Using C" Balagurusamy E. TMH

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

- 1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
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- Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity))

B. General

- 1. Group Discussion
- 2. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

- 1. The oral and written examinations (Scheduled and surprise tests),
- 2. Closed-book and open-book tests,
- 3. Programming exercises,
- 4. Practical assignments and laboratory reports,
- 5. Observation of practical skills,
- 6. Individual and group project reports.
- 7. Efficient delivery using seminar presentations,
- 8. Viva voce interviews.
- 9. Computerized adaptive testing, literature surveys and evaluations,
- 10. Peers and self-assessment, outputs form individual and collaborative work

Semester	Course Code	Course Title	Hours	Credits
II	С2-Р	DATA STRUCTURES USING C	30	2
		LAB		

- 1. Write a program to read 'N' numbers of elements into an array and also perform the following operation on an array
 - a. Add an element at the begging of an array
 - b. Insert an element at given index of array
 - c. Update a element using a values and index
 - d. Delete an existing element
- 2. Write a program using stacks to convert a given
 - a. postfix expression to prefix
 - b. prefix expression to postfix
 - c. infix expression to postfix
- 3. Write Programs to implement the Stack operations using an array
- 4. Write Programs to implement the Stack operations using Liked List.
- 5. Write Programs to implement the Queue operations using an array.
- 6. Write Programs to implement the Queue operations using Liked List.
- 7. Write a program for arithmetic expression evaluation.
- 8. Write a program for Binary Search Tree Traversals
- 9. Write a program to implement dequeue using a doubly linked list.
- 10. Write a program to search an item in a given list using the following Searching

Algorithms

- a. Linear Search
- b. Binary Search.
- 11. Write a program for implementation of the following Sorting Algorithms
 - a. Bubble Sort
 - b. Insertion Sort
 - c. Quick Sort
- 12. Write a program for polynomial addition using single linked list
- 13. Write a program to find out shortest path between given Source Node and Destination Node in a given graph using Dijkstrar's algorithm.

- 14. Write a program to implement Depth First Search graph traversals algorithm
- 15. Write a program to implement Breadth First Search graph traversals algorithm

DATABASE MANAGEMENT SYSTEMS

Semester	Course Code	Course Title	Hours	Credits
III	C3	DATABASE MANAGEMENT	60	3
		SYSTEMS		

Course Objective:

The objective of the course is to introduce the design and development of databases with special emphasis on relational databases.

Course Learning Outcomes:

On completing the subject, students will be able to:

- 1. Gain knowledge of Database and DBMS.
- 2. Understand the fundamental concepts of DBMS with special emphasis on relational data model.
- 3. Demonstrate an understanding of normalization theory and apply such knowledge to the normalization of a database
- 4. Model databaseusing ER Diagrams and design database schemas based on the model.
- 5. Create a small database using SQL.
- 6. Store, Retrieve data in database.

UNIT I

Overview of Database Management System: Introduction to data, information, database, database management systems, file-based system, Drawbacks of file-Based System, database approach, Classification of Database Management Systems, advantages of database approach, Various Data Models, Components of Database Management System, three schema architecture of data base, costs and risks of database approach.

UNIT II

Entity-Relationship Model: Introduction, the building blocks of an entity relationship diagram, classification of entity sets, attribute classification, relationship degree, relationship classification, reducing ER diagram to tables, enhanced entity-relationship model (EER

model), generalization and specialization, **IS A** relationship and attribute inheritance, multiple inheritance, constraints on specialization and generalization, advantages of ER modelling.

UNIT III

Relational Model: Introduction, CODD Rules, relational data model, concept of key, relational integrity, relational algebra, relational algebra operations, advantages of relational algebra, limitations of relational algebra, relational calculus, tuple relational calculus, domain relational Calculus (DRC), Functional dependencies and normal forms upto 3rd normal form.

UNIT IV

Structured Query Language: Introduction, History of SQL Standard, Commands in SQL, Data Types in SQL, Data Definition Language, Selection Operation, Projection Operation, Aggregate functions, Data Manipulation Language, Table Modification Commands, Join Operation, Set Operations, View, Sub Query.

UNIT V

PL/SQL: Introduction, Shortcomings of SQL, Structure of PL/SQL, PL/SQL Language Elements, Data Types, Operators Precedence, Control Structure, Steps to Create a PL/SQL, Program, Iterative Control, Procedure, Function, Database Triggers, Types of Triggers.

BOOKS:

- Database System Concepts by Abraham Silberschatz, Henry Korth, and S. Sudarshan, McGrawhill
- 2. Database Management Systems by Raghu Ramakrishnan, McGrawhill
- 3. Principles of Database Systems by J. D. Ullman
- 4. Fundamentals of Database Systems by R. Elmasri and S. Navathe
- 5. SQL: The Ultimate Beginners Guide by Steve Tale.

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

- 1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
- 2. Student seminars (on topics of the syllabus and related aspects (individual activity))
- 3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
- Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity

B. General

- 1. Group Discussion
- 2. Try to solve MCQ's available online.
- 3. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

- 1. The oral and written examinations (Scheduled and surprise tests),
- 2. Closed-book and open-book tests,
- 3. Practical assignments and laboratory reports,
- 4. Observation of practical skills,

- 5. Individual and group project reports like Create your college database for placement purpose.
- 6. Efficient delivery using seminar presentations,
- 7. Viva voce interviews.
- 8. Computerized adaptive testing, literature surveys and evaluations,
- 9. Peers and self-assessment, outputs form individual and collaborative work

Semester	Course Code	Course Title	Hours	Credits
III	С3-Р	DATABASE MANAGEMENT	30	2
		SYSTEMS LAB		

- 1. Draw ER diagram for hospital administration
- 2. Creation of college database and establish relationships between tables
- 3. Relational database schema of a company is given in the following figure.

Relational Database Schema - COMPANY



Questions to be performed on above schema

- 1. Create above tables with relevant *Primary Key, Foreign Key and other constraints*
- 2. Populate the tables with data
- 3. Display all the details of all employees working in the company.
- 4. Display *ssn, Iname, fname, address* of employees who work in department no 7.

- Retrieve the *Birthdate and Address* of the employee whose name is 'Franklin T. Wong'
- 6. Retrieve the name and salary of every employee
- 7. Retrieve all distinct salary values
- 8. Retrieve all employee names whose address is in 'Bellaire'
- 9. Retrieve all employees who were born during the 1950s
- Retrieve all employees in department 5 whose salary is between 50,000 and 60,000(inclusive)
- 11. Retrieve the names of all employees who do not have supervisors
- 12. Retrieve SSN and department name for all employees
- Retrieve the name and address of all employees who work for the 'Research' department
- 14. For every project located in 'Stafford', list the project number, the controlling department number, and the department manager's last name, address, and birth date.
- 15. For each employee, retrieve the employee's name, and the name of his or her immediate supervisor.
- 16. Retrieve all combinations of Employee Name and Department Name
- 17. Make a list of all project numbers for projects that involve an employee whose last name is 'Narayan' either as a worker or as a manager of the department that controls the project.
- Increase the salary of all employees working on the 'ProductX' project by 15%.
 Retrieve employee name and increased salary of these employees.
- 19. Retrieve a list of employees and the project name each works in, ordered by the employee's department, and within each department ordered alphabetically by employee first name.
- 20. Select the names of employees whose salary does not match with salary of any employee in department 10.
- Retrieve the employee numbers of all employees who work on project located in Bellaire, Houston, or Stafford.
- 22. Find the sum of the salaries of all employees, the maximum salary, the minimum salary, and the average salary. Display with proper headings.
- 23. Find the sum of the salaries and number of employees of all employees of the 'Marketing' department, as well as the maximum salary, the minimum salary, and the average salary in this department.

- 24. Select the names of employees whose salary is greater than the average salary of all employees in department 10.
- 25. Delete all dependents of employee whose *ssn is '123456789'*.
- 26. Perform a query using alter command to drop/add field and a constraint in Employee table.

Semester	Course Code	Course Title	Hours	Credits
IV	C4	OBJECT ORIENTATED	60	3
		PROGRAMMING THROUGH		
		JAVA		

OBJECT ORIENTATED PROGRAMMING THROUGH JAVA

Objectives:

To introduce the fundamental concepts of Object-Oriented programming and to design & implement object oriented programming concepts in Java.

Course Learning Outcomes: At the end of this course student will:

- 1. Understand the benefits of a well-structured program
- 2. Understand different computer programming paradigms
- 3. Understand underlying principles of Object-Oriented Programming in Java
- 4. Develop problem-solving and programming skills using OOP concepts
- Develop the ability to solve real-world problems through software development in high-level programming language like Java

UNIT – I

Introduction to Java: Features of Java, The Java virtual Machine, Parts of Java

Naming Conventions and Data Types: Naming Conventions in Java, Data Types in Java, Literals

Operators in Java: Operators, Priority of Operators

Control Statements in Java: if... else Statement, do... while Statement, while Loop, for Loop, switch Statement, break Statement, continue Statement, return Statement

Input and Output: Accepting Input from the Keyboard, Reading Input with Java.util.Scanner Class, Displaying Output with System.out.printf(), Displaying Formatted Output with String.format()

Arrays: Types of Arrays, Three Dimensional Arrays (3D array), arrayname.length, Command Line Arguments

$\mathbf{UNIT} - \mathbf{II}$

Strings: Creating Strings, String Class Methods, String Comparison, Immutability of Strings Introduction to OOPs: Problems in Procedure Oriented Approach, Features of Object-

Oriented Programming System (OOPS)

Classes and Objects: Object Creation, Initializing the Instance Variables, Access Specifiers, Constructors

Methods in Java:Method Header or Method Prototype, Method Body, Understanding Methods, Static Methods, Static Block, The keyword 'this', Instance Methods, Passing Primitive Data Types to Methods, Passing Objects to Methods, Passing Arrays to Methods, Recursion, Factory Methods

Inheritance: Inheritance, The keyword 'super', The Protected Specifier, Types of Inheritance

UNIT – III

Polymorphism: Polymorphism with Variables, Polymorphism using Methods, Polymorphism with Static Methods, Polymorphism with Private Methods, Polymorphism with Final Methods, final Class

Type Casting: Types of Data Types, Casting Primitive Data Types, Casting Referenced Data Types, The Object Class

Abstract Classes: Abstract Method and Abstract Class

Interfaces: Interface, Multiple Inheritance using Interfaces

Packages: Package, Different Types of Packages, The JAR Files, Interfaces in a Package, Creating Sub Package in a Package, Access Specifiers in Java, Creating API Document **Exception Handling:** Errors in Java Program, Exceptions, throws Clause, throw Clause, Types of Exceptions, Re – throwing an Exception

$\mathbf{UNIT} - \mathbf{IV}$

Streams: Stream, Creating a File using FileOutputStream, Reading Data from a File uingFileInputStream, Creating a File using FileWriter, Reading a File using FileReader, Zipping and Unzipping Files, Serialization of Objects, Counting Number of Characters in a File, File Copy, File Class

Threads: Single Tasking, Multi Tasking, Uses of Threads, Creating a Thread and Running it, Terminating the Thread, Single Tasking Using a Thread, Multi Tasking Using Threads, Multiple Threads Acting on Single Object, Thread Class Methods, Deadlock of Threads, Thread Communication, Thread Priorities, thread Group, Daemon Threads, Applications of Threads, Thread Life Cycle

UNIT – V

Applets: Creating an Applet, Uses of Applets, <APPLET> tag, A Simple Applet, An Applet with Swing Components, Animation in Applets, A Simple Game with an Applet, Applet Parameters

Java Database Connectivity: Database Servers, Database Clients, JDBC (Java Database Connectivity), Working with Oracle Database, Working with MySQL Database, Stages in a JDBC Program, Registering the Driver, Connecting to a Database, Preparing SQL Statements, Using jdbc–odbc Bridge Driver to Connect to Oracle Database, Retrieving Data from MySQL Database, Retrieving Data from MS Access Database, Stored Procedures and CallableStatements, Types of Result Sets

BOOKS:

- 1. Core Java: An Integrated Approach, Authored by Dr. R. Nageswara Rao & Kogent Learning Solutions Inc.
- 2. E.Balaguruswamy, Programming with JAVA, A primer, 3e, TATA McGraw- Hill Company.
- John R. Hubbard, Programming with Java, Second Edition, Schaum's outline Series, TMH.
- 4. Deitel&Deitel. Java TM: How to Program, PHI (2007)

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

- 1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
- 2. Student seminars (on topics of the syllabus and related aspects (individual activity))
- 3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
- 4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity

B. General

- 1. Group Discussion
- 2. Try to solve MCQ's available online.
- 3. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

- 1. The oral and written examinations (Scheduled and surprise tests),
- 2. Closed-book and open-book tests,
- 3. Programming exercises,

- 4. Practical assignments and laboratory reports,
- 5. Observation of practical skills,
- 6. Individual and group project reports.
- 7. Efficient delivery using seminar presentations,
- 8. Viva voce interviews.
- 9. Computerized adaptive testing, literature surveys and evaluations,
- 10. Peers and self-assessment, outputs form individual and collaborative work

Semester	Course Code	Course Title	Hours	Credits
IV	C4-P	OBJECT ORIENTATED	30	2
		PROGRAMMING THROUGH		
		JAVA LAB		

- Write a program to read *Student Name, Reg.No, Marks[5]* and calculate *Total*, *Percentage, Result*. Display all the details of students
- 2. Write a program to perform the following String Operations
 - a. Read a string
 - b. Find out whether there is a given substring or not
 - c. Compare existing string by another string and display status
 - d. Replace existing string character with another character
 - e. Count number of works in a string
- 3. Java program to implements Addition and Multiplication of two N X N matrices.
- **4.** Java program to demonstrate the use of Constructor.
- 5. Calculate area of the following shapes using method overloading.
 - a. Triangle
 - b. Rectangle
 - c. Circle
 - d. Square
- 6. Implement inheritance between Person (Aadhar, Surname, Name, DOB, and Age) and Student (Admission Number, College, Course, Year)classes where ReadData(), DisplayData() are overriding methods.
- 7. Java program for implementing Interfaces
- 8. Java program on Multiple Inheritance.
- 9. Java program for to display Serial Number from 1 to N by creating two Threads
- 10. Java program to demonstrate the following exception handlings
 - a. Divided by Zero
 - b. Array Index Out of Bound
 - c. File Not Found
 - d. Arithmetic Exception
 - e. User Defined Exception

- **11.** Create an Applet to display different shapes such as Circle, Oval, Rectangle, Square and Triangle.
- **12.** Write a program to create **Book (ISBN, Title, Author, Price, Pages, Publisher)** structure and store book details in a file and perform the following operations
 - a. Add book details
 - b. Search a book details for a given ISBN and display book details, if available
 - c. Update a book details using ISBN
 - d. Delete book details for a given ISBN and display list of remaining Books

OPERATING SYSTEMS

Semester	Course Code	Course Title	Hours	Credits
IV	C5	OPERATING SYSTEMS	60	2

Objectives:

This course aims to introduce the structure and organization of a file system. It emphasizes various functions of an operating system like memory management, process management, device management, etc.

Course Learning Outcomes:

Upon successful completion of the course, a student will be able to:

- 1. Know Computer system resources and the role of operating system in resource management with algorithms
- 2. Understand Operating System Architectural design and its services.
- 3. Gain knowledge of various types of operating systems including Unix and Android.
- 4. Understand various process management concepts including scheduling, synchronization, and deadlocks.
- 5. Have a basic knowledge about multithreading.
- 6. Comprehenddifferent approaches for memory management.
- 7. Understand and identify potential threats to operating systems and the security features design to guard against them.
- 8. Specify objectives of modern operating systems and describe how operating systems have evolved over time.
- 9. Describe the functions of a contemporary operating system

UNIT- I

What is Operating System? History and Evolution of OS, Basic OS functions, Resource Abstraction, Types of Operating Systems– Multiprogramming Systems, Batch Systems, Time Sharing Systems; Operating Systems for Personal Computers, Workstations and Hand-held Devices, Process Control & Real time Systems.

UNIT- II

Processor and User Modes, Kernels, System Calls and System Programs, System View of the Process and Resources, ProcessAbstraction, ProcessHierarchy, Threads, Threading Issues, Thread Libraries; Process Scheduling, Non-Preemptive and Preemptive Scheduling Algorithms.

UNIT III

Process Management:Deadlock, Deadlock Characterization, Necessary andSufficient Conditions forDeadlock, Deadlock Handling Approaches: Deadlock Prevention, Deadlock Avoidance and Deadlock Detection and Recovery.

Concurrent and Dependent Processes, Critical Section, Semaphores, Methods for Inter- process Communication; Process Synchronization, Classical Process Synchronization Problems: Producer-Consumer, Reader-Writer.

UNIT IV

Memory Management:Physical and Virtual Address Space; MemoryAllocation Strategies– Fixed and -Variable Partitions, Paging, Segmentation, Virtual Memory.

UNIT V

File and I/O Management, OSsecurity : DirectoryStructure, File Operations, File Allocation Methods, Device Management, Pipes, Buffer, Shared Memory, Security Policy Mechanism, Protection, Authentication and Internal Access Authorization

Introduction to Android Operating System, Android Development Framework, Android Application Architecture, Android Process Management and File System, Small Application Development using Android Development Framework.

REFERENCE BOOKS:

- Operating System Principles by Abraham Silberschatz, Peter Baer Galvin and Greg Gagne (7thEdition) Wiley India Edition.
- 2. Operating Systems: Internals and Design Principles by Stallings (Pearson)
- 3. Operating Systems by J. Archer Harris (Author), Jyoti Singh (Author) (TMH)
- 4. Online Resources for UNIT V

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

- 1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
- 2. Student seminars (on topics of the syllabus and related aspects (individual activity))
- 3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
- 4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity

B. General

- 1. Group Discussion
- 2. Try to solve MCQ's available online.
- 3. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

- 1. The oral and written examinations (Scheduled and surprise tests),
- 2. Closed-book and open-book tests,
- 3. Programming exercises,
- 4. Practical assignments and laboratory reports,
- 5. Observation of practical skills,
- 6. Individual and group project reports.

- 7. Efficient delivery using seminar presentations,
- 8. Viva-Voce interviews.
- 9. Computerized adaptive testing, literature surveys and evaluations,
- 10. Peers and self-assessment, outputs form individual and collaborative work

Semester	Course Code	Course Title	Hours	Credits
IV	C-5	OPERATING SYSTEMS LAB	30	2
		USING C/Java		

- 1. Write a program to implement Round Robin CPU Scheduling algorithm
- 2. Simulate SJF CPU Scheduling algorithm
- 3. Write a program the FCFS CPU Scheduling algorithm
- 4. Write a program to Priority CPU Scheduling algorithm
- 5. Simulate Sequential file allocation strategies
- 6. Simulate Indexed file allocation strategies
- 7. Simulate Linked file allocation strategies
- 8. Simulate MVT and MFT memory management techniques
- 9. Simulate Single level directory File organization techniques
- 10. Simulate Two level File organization techniques
- 11. Simulate Hierarchical File organization techniques
- 12. Write a program for Bankers Algorithm for Dead Lock Avoidance
- 13. Implement Bankers Algorithm Dead Lock Prevention.
- 14. Simulate all Page replacement algorithms.
 - a) FIFO
 - b) LRU
 - c) LFU
- 15. Simulate Paging Techniques of memory management

Model Format for Question Paper

Recommendations to the paper setters

1. The paper setter may him/herself prepare a blue print assigning appropriate weightage to all learning outcomes as per Blooms Taxonomy and specified in the syllabus (if no designs prescribed)

2. All units may be fairly covered and even the learning outcomes may be fairly distributed.

3. Action verbs specific to the learning outcome to be tested may beused.

4. There may be no ambiguity in the question. The wording may be carefully framed.

5. Weightage to the difficulty level may also be determined in such a way that neither the paperis

too difficult nor too easy. Even an average learner shall be able to pass the examination with minimum marks.

SECTION - A

Write Short Answer for any FIVE of the following Each question carries 5 marks ($5 \times 5 = 25$ Marks)

1	
2	
3	
4	
5	
6	
7	
8	

(Total 8 Questions in Section A)

SECTION - B

Answer the following questions

9	(a)
	Or
	(b)
10	(a)
	Or
	(b)
11	(a)
	Or
	(b)
12	(a)
	Or
	(b)
13	(a)
	Or
	(b)

Each question carries 10 marks (5 x 10 = 50 Marks)

(Total 10 Questions in Section–B. Internal choice for all questions from 9 to 13 (Two questions given under choice shall be from the same unit)

Blue Print for Question paper setting

Course	Subject- Computer Science			
S.No	Chapter Name	5 Marks	10 Marks	
1	Unit-1	2	2(a or b)	
2	Unit-2	2	2(a or b)	
3	Unit-3	2	2(a or b)	
4	Unit-4	1	2(a or b)	
5	Unit-5	1	2(a or b)	

Dr. V. S. Krishna Govt. Degree College (A) Visakhapatnam-13

Department of Computer Science

Board of Studies – Syllabus

Life Skills- Basic Computer Applications 2020-21



Department of Computer Science

Dr.V.S.Krishna Government Degree College(A), Visakhapatnam

B.Sc. / B.Com / B.A

Revised Syllabus under CBCS w.e.f. 2020-2021

SYLLABUS OF

BASIC COMPUTER APPLICATIONS

AS PART OF

LIFE SKILLS COURSES

UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-21

PROGRAMME: THREE-YEAR UG PROGRAMME

LIFE SKILL COURSE

BASIC COMPUTER APPLICATIONS

Semester	Course Code	Course Title	Но	Credits
			urs	
I	Life skill course	BASIC COMPUTER APPLICATIONS	30	2

Objectives:

This course aims at providing exposure to students in skill development towards basic office applications.

Course Learning Outcomes:

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

- 1. Demonstrate basic understanding of computer hardware and software.
- 2. Apply skills and concepts for basic use of a computer.
- 3. Identify appropriate tool of MS office to prepare basic documents, charts, spreadsheets and presentations.
- 4. Create personal, academic and business documents using MS office.
- 5. Create spreadsheets, charts and presentations.
- 6. Analyze data using charts and spread sheets.

Unit-I: (08 hrs)

Basics of Computers: Definition of a Computer - Characteristics of computers, Applications of Computers – Block Diagram of a Digital Computer – I/O Devices, hardware, software human ware, application software, system software, Memories - Primary, Auxiliary and Cache Memory.

MS Windows - Desktop, Recycle bin, My Computer, Documents, Pictures, Music, Videos,

Task Bar, Control Panel.

Unit-II: (08 hrs)

MS-Word : Features of MS-Word - MS-Word Window Components - Creating, Editing, Formatting and Printing of Documents – Headers and Footers – Insert/Draw Tables, Table Auto format – Page Borders and Shading – Inserting Symbols, Shapes, Word Art, Page Numbers, Mail Merge.

Unit-III: (10 hrs)

MS-Excel : Overview of Excel features – Creating a new worksheet, Selecting cells, Entering and editing Text, Numbers, Inserting Rows/Columns –Changing column widths and row heights, Formulae, Referencing cells, Changing font sizes and colors, Insertion of Charts, Auto fill, Sort.

MS-PowerPoint: Features of PowerPoint – Creating a Presentation - Inserting and Deleting Slides in a Presentation – Adding Clip Art/Pictures -Inserting Other Objects, Audio, Video - Resizing and scaling of an Object – Slide Transition – Custom Animation.

RECOMMENDED CO-CURRICULAR ACTIVITIES: (04 hrs)

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

- 1. Assignments (in writing and doing forms on the aspects of syllabus content and outside a. the syllabus content. Shall be individual and challenging)
- 2. Student seminars (on topics of the syllabus and related aspects (individual activity))
- 3. Quiz, Group Discussion
- 4. Solving MCQ's available online.
- 5. Suggested student hands on activities:
 - Create two folders, Rename the folder, create two files each using notepad and paint, move the files from one folder to another folder, delete a file you have created, copy and paste text within notepad.
 - Create a letter head for your college with watermark, your resume, visiting card, brochure for your college activity, organization chart for your college, any advertisement, Prepare your Class time table.
 - Prepare your mark sheet, Prepare your class time table, Prepare a salary bill for an organization, Sort the bill as per the alphabetical order of the names, Get online weather data and analyze it with various charts.
 - Create a PowerPoint presentation for a student seminar.

REFERENCE BOOKS:

- 1. Working in Microsoft Office Ron Mansfield TMH.
- 2. MS Office 2007 in a Nutshell Sanjay Saxena Vikas Publishing House.
- 3. Excel 2020 in easy steps-Michael Price TMH publications

Model Question Paper Format

 Time: 1 1/2 hrs (90 Minutes)

 Max. Marks: 50 Time: 1 1/2 hrs (90 Minutes

 Section -A
 (Total: 4x5=20 Marks)

(Answer any four questions. Each answer carries 5 marks

(Total 8 questions. At least 1 question should be given from each Unit)

1. 2. 3. 4. 5. 6. 7. 8.

Section- B

(Total: 3x10 = 30

Marks) (Answer any three questions. Each answer carries 10 marks

(Total five questions. At least 1 question should be given from each Unit)

- 1. 2. 3.
- 4.
- 5.

Blue Print for Question paper setting

Course-	Subject- BASIC COMPUTER APPLICATIONS			
Life				
Skills				
S.No	Chapter Name	5 Marks	10 Marks	
1	Unit-1	3	2	
2	Unit-2	2	1	
3	Unit-3	3	2	

Dr. V. S. Krishna Govt. Degree College (A) Visakhapatnam-13

Department of ComputerScience BoardofStudies-Syllabus

Life Skills- Information Communication Technology

2020-21



Department of Computer Science

Dr.V.S.Krishna Government Degree College(A), Visakhapatnam

B.Sc. / B.Com / B.A

Revised Syllabus under CBCS w.e.f. 2020-2021

SYLLABUS OF

INFORMATION AND COMMUNICATION TECHNOLOGY

AS PART OF LIFE SKILLS COURSES

UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-21

PROGRAMME: THREE-YEAR UG PROGRAMME

B.Sc./B.Com/B.A

Syllabus under CBCS w.e.f.2020-21

INFORMATION & COMMUNICATION TECHNOLOGY

Semester	Course Code	Course Title	Ho urs	Credits
II	Life skill Course	INFORMATION & COMMUNICATION TECHNOLOGY	30	2

Objectives:

This course aims at acquainting the students with basic ICT tools which help them in their day to day and life as well as in office and research.

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

- 1. Understand the literature of social networks and their properties.
- 2. Explain which network is suitable for whom.
- 3. Develop skills to use various social networking sites like twitter, flickr, etc.
- 4. Learn few GOI digital initiatives in higher education.
- 5. Apply skills to use online forums, docs, spreadsheets, etc for communication, collaboration and research.
- 6. Get acquainted with internet threats and security mechanisms.

SYLLABUS:

UNIT-I: (08 hrs)

Fundamentals of Internet: What is Internet?, Internet applications, Internet Addressing – Entering a Web Site Address, URL–Components of URL, Searching the Internet, Browser – Types of Browsers, Introduction to Social Networking: Twitter, Tumblr, LinkedIn, Facebook, flickr, Skype, yahoo, YouTube, WhatsApp .

UNIT-II:(08 hrs)

E-mail: Definition of E-mail -Advantages and Disadvantages –User Ids, Passwords, Email Addresses, Domain Names, Mailers, Message Components, MessageComposition, Mail Management.

G-Suite: Google drive, Google documents, Google spread sheets, Google Slides and Google forms.

UNIT-III:(10 hrs)

Overview of Internet security, E-mail threats and secure E-mail, Viruses and antivirus software, Firewalls, Cryptography, Digital signatures, Copyright issues.

What are GOI digital initiatives in higher education? (SWAYAM, SwayamPrabha, National Academic Depository, National Digital Library of India, E-Sodh-Sindhu, Virtual labs, e-acharya, e-Yantra and NPTEL).

RECOMMENDED CO-CURRICULAR ACTIVITIES: (04 hrs)

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

- 1. Assignments(in writing and doing forms on the aspects of syllabus content
- and outside the syllabus content. Shall be individual and challenging)
- 2. Student seminars (on topics of the syllabus and related aspects (individual activity))
- 1. Quiz and Group Discussion
- 3. Slip Test
- 4. Try to solve MCQ's available online.
- 5. Suggested student hands on activities :
 - a. Create your accounts for the above social networking sites and explore them, establish a video conference using Skype.
 - b. Create an Email account for yourself- Send an email with two attachments to another friend. Group the email addresses use address folder.
 - c. Register for one online course through any of the online learning platforms like NPTEL, SWAYAM, Alison, Codecademy, Coursera. Create a registration form for your college campus placement through Google forms.

Reference Books :

- 1. In-line/On-line : Fundamentals of the Internet and the World Wide Web, 2/e byRaymond Greenlaw and Ellen Hepp, Publishers : TMH
- 2. Internet technology and Web design, ISRD group, TMH.
- 3. Information Technology The breaking wave, Dennis P.Curtin, Kim Foley, Kunai Sen and Cathleen Morin, TMH.

Model Ouestion Paper Format

Time: 1 1/2 hrs (90 Minutes) Max. Marks: 50 Time: 1 1/2 hrs (90 Minutes <u>Section -A</u> (Total: 4x5=20 Marks)

(Answer any four questions. Each answer carries 5 marks

(Total 8 questions. At least 1 question should be given from each Unit)



Section- B

(Total: 3x10 = 30 Marks) (Answer any

three questions. Each answer carries 10 marks

(Total five questions. At least 1 question should be given from each Unit)

- 1.
- 2.
- 3.
- *4*.
- 5.

Blue Print for Question paper setting

Course-	Subject- Information Communication Technology		
Life			
Skills			
S.No	Chapter Name	5 Marks	10 Marks
1	Unit-1	3	2
2	Unit-2	3	2
3	Unit-3	2	1