VOCATIONAL CURRICULUM –2024

COMPUTER SCIENCE
(C.S)

State Institute of Vocational Education
O/o Director of Intermediate Education,
Telangana State, Hyderabad
&
Board of Intermediate Education
Telangana, Hyderabad

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Department of Intermediate Education

Foreword

I am pleased to inform that the State Institute of Vocational Education, working under the aegis of the Director of Intermediate Education, Telangana, Hyderabad, has updated the new curriculum with newer and fresher insights for the benefit of vocational students in the state.

With the advent of digitalization and globalization, traditional academic disciplines often struggle to produce satisfying careers in the modern workplace. Vocational training ensures this outcome. Education and occupational training, that encourages competence, grooms the Indian youth to be self-reliant and ready for self/wage employment.

The curriculum of a few Vocational Courses has been updated for the **2024-2025**Academic Year by the **State Institute of Vocational Education (SIVE)**, as per the guidelines of the **"National Skills Qualification Framework (NSQF)"**. The emphasis has shifted from class room teaching to training in the laboratory and hands on experience in on-the-job-training. Colleges are undergoing modernization with new infrastructure and lab equipment, led by the State Institute of Vocational Education and the Department of Intermediate Education to accommodate new course requirements.

I am confident that the revised vocational curriculum will benefit the students by providing ample opportunities to gain employable skills in the need-based, demand-driven, economically-beneficial fields of study. I **congratulate** the authors, editors and the officers of the department, who left no stone unturned, to bring out the textbooks in time.

With best wishes,

DIRECTOR OF INTERMEDIATE EDUCATION

INTRODUCTION

The objectives of Vocational Education System in the context of fulfillment of national goal are to train the students for employment in the growing sectors of economy both organized and unorganized, to provide an alternative channel for higher education and to prepare students for self-reliance and gainful employment. There has been a great improvement in the demand for computer professionals during the past few years. To cater to certain computer oriented requirements of the business etc or the COMPUTER SCIENCE course syllabus has been drafted

II. OBJECTIVES OF COURSE

1. To develop professional competence in the use of computers and related hardware, programming skills and techniques.
2. To train the students to acquire skills and mastery in the use and development of different software.
3. To enable the students for self and wage employment

III. SKILLS TO BE PROVIDED

- Skills in traditional and digital platforms.
- Skills in HTML integrated with various graphics & animation.
- Skills in configuring the system software and installation procedures.
- Skills in Programming language and Problem solving
- Skills in printing & publishing techniques and designs
- Skills in internet, media & entertainment
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IV. JOB OPPORTUNITIES

(a) WAGE EMPLOYMENT:

- Junior Programmer
- Computer operator
- Computer Instructor
- Software marketing personnel
- Computerized Accounts Assistant
- Networking technicians with service providers.
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(b) SELF EMPLOYMENT:

- DTP operator.
- Internet and E-mail center maintenance
- Maintaining and establishment of small networks
- Image and Video editing
- Basic hardware & Trouble shooting technician.
- Data Base maintenance
- Network connections
- Web Designer

V. ANNUAL SCHEME OF INSTRUCTION AND EXAMINATION

COMPUTER SCIENCE

FIRST YEAR

Part-A		Theory		Practical		Total	
		Periods	Marks	Periods	Marks	Periods	Marks
1.	English	120	40	30	10	150	50
2.	General Foundation course	150	50	0	0	150	50
	Part-B						
3.	**Paper-I** Computer Fundamentals and MS-Office	135	50	135	50	270	100
4.	**Paper-II** Interactive Web Design	135	50	135	50	270	100
5.	**Paper-III** Problem Solving Using 8C9	135	50	135	50	270	100
Part-C							
6.	**OJT**	0	0	365	100	365	100
	Total	**675**	**240**	**800**	**260**	**1475**	**500**

SECOND YEAR

Part-A		Theory		Practical		Total	
		Periods	Marks	Periods	Marks	Periods	Marks
1.	English	120	40	30	10	150	50
2.	General Foundation course	150	50	0	0	150	50
	Part-B						
3.	**Paper-I** Object Oriented Programming through Java	110	50	115	50	225	100
4.	**Paper-II** Database Management Systems	110	50	115	50	225	100
5.	**Paper-III** Data Communications &Computer Networks	110	50	115	50	225	100
	Part-C						
6.	**OJT**	0	0	450	100	450	100
	Total	**600**	**240**	**825**	**260**	**1425**	**500**
TOTAL FIRST YEAR and SECOND YEAR MARKS 1000							

*OJT Programs for1st year and 2nd year students from1stNovemberto31stDecember

EVALUATION OF ON-THE-JOB TRAINING:

The <On the Job Training= shall carry 100 marks for each year and pass marks are 50. During on the job training the candidate shall put in a minimum of 90 % of attendance.
The evaluation shall be done in the last week of January.

Marks allotted for evaluation:

S.No	Name of the activity	Max. Marks allotted for eachactivity
1	Attendance and punctuality	30
2	Familiarity with technical terms	05
3	Familiarity with tools and material	05
4	Manual skills	05
5	Application of knowledge	10
6	Problem solving skills	10
7	Comprehension and observation	10
8	Human Relations	05
9	Ability to Communicate	10
10	Maintenance of Dairy	10
	Total	100

NOTE: The On the Job Training mentioned is tentative. The spirit of On the Job training is to be maintained. The colleges are at liberty to conduct on the job training according to their local feasibility of institutions & industries. They may conduct the entire on the job training periods of (365) First year and (450) Second year **either by conducting classes in morning session and send the students for OJT in afternoon session or two days in week or weekly or monthly or by any mode which is feasible for both the college and the institution**. However, the total assigned periods for on the job training should be completed. The institutions are at liberty to conduct On the Job training during summer also, however there will not be any financial commitment to the department.

SCHEMEOFINSTRUCTIONPERWEEK

	Part-A	**Theory**	**Practical**	**Total**
1.	English	4	2	6
2.	General Foundation Course	4	-	4
	Part-B			
3.	Paper 3I	4	4	8
4.	Paper-II	4	4	8
5.	Paper-III	4	4	8
6.	**Total**	**20**	**14**	**34**

VI. SYLLABUS

COMPUTER SCIENCE
FIRST YEAR
PAPER-I: COMPUTER FUNDAMENTAL AND MS-OFFICE
[THEORY]

UNIT.NO.	UNITS	NO. OF PERIODS	WEIGHTAGE OF MARKS	NO. OF SHORT QUESTIONS	NO.OF ESSAY QUESTIONS
I	Introduction to Computer Systems	10	16	2	2
II	Overview of Hardware Components and Operating Systems	10	08	1	1
III	Microsoft Word	30	10	2	1
IV	Microsoft Excel	20	08	1	1
V	Excel Functions	20	08	1	1
VI	Microsoft Power point	20	08	1	1
VII	Microsoft - Access	23	08	1	1
VIII	Microsoft Office Productivity Tools	02	02	1	0
	Total	135	68	10	8

SYLLABUS

UNIT I. Introduction to Computer Systems
Introduction, Computer Generations, Characteristics of Computer, Classification of Computer, Number Systems, Basic Input and Output devices, Block diagram of CPU, Memory Unit, Computer Language, Computer Virus

UNIT II. Overview of Hardware Components and Operating Systems
Identifying the components of the computer, Introduction to windows11, Introduction to Linux Operating system, Features of Linux, Basic commands

UNIT III. Microsoft -Word
Introduction to Word Processing,
Editing a document, Move, Copy and Help system, Formatting text and paragraph, Finding, Replacing and Spell Checking, Tabs, enhancing a document, Tables, Graphics, Document Views, Exporting documents

UNIT.IV Microsoft -Excel
Introduction to spreadsheet, Creating Workbooks & feeding data, Editing Cells and using commands, Moving and Copying, Inserting and Deleting Rows and Columns, formatting a Worksheet, Opening, Saving and Printing a Worksheet, Working with Charts, Working with Macros, Workbook views.

UNIT.V Excel Functions
Introduction to functions, Text functions, Math functions, Statistical functions, Mail Merge, Pivot tables

UNIT.VI Microsoft -PowerPoint
Introduction to PowerPoint, Interface of PowerPoint, Working with Slides, Customizing Slides, viewing a Presentation, Drawing Objects & Inserting OLE, Drawing freeform shapes, Rotating Objects, Animation in slides/objects, Master Views, Recording

UNIT.VII Microsoft -Access
Concept of data and information, Introduction to Database management systems, creating a Database, Integrity Constraints and table relationships, Designing Tables, Queries, Forms & Reports

UNIT.VIII Microsoft Office Productivity Tools
Microsoft OneNote, Microsoft OneDrive, Microsoft Outlook, Microsoft Publisher

Reference Books:

1. RajaramanV, <The Fundamentals of Computer=, Prentice Hall of India.
2. Fundamentals of MS-Office 4BPB Publication.
3. Fundamentals of Information Technology4M.L. SaiKumar
4. Fundamentals of Information technology 4Golgotha Publications

PAPER-I: MS-OFFICE [PRACTICAL]

PERIODSPERWEEK: 4 **PERIODSPERYEAR:135**

S.NO.	UNITS	NO. OF PERIODS
1	MS Word	35
2	MS Excel	50
3	MS Power Point	25
4	MS Access	25
5	MS Productivity Tools	**135**

COMPUTER SCIENCE
FIRST YEAR
PAPER-II: INTERACTIVE WEB TECHNOLOGIES
[THEORY]

PERIODS PER WEEK: 4 **PERIODS PER YEAR: 135**

UNIT.NO.	UNITS	NO. OF PERIODS	WEIGHTAGE OF MARKS	NO. OF SHORT QUESTIONS	NO. OF ESSAY QUESTIONS
I	Introduction to HTML	20	08	2	2
II	HTML Tables & Forms	20	08	1	1
III	Cascading Style Sheets (CSS)	15	10	2	1
IV	CSS Background & Gradients	15	08	1	1
V	CSS Transitions & Animations	10	06	1	1
VI	CSS Flexbox & Grids	15	10	1	1
VII	Javascripts	15	8	1	1
VIII	Javascripts Statements & Functions	25	10	1	0
	Total	135	68	10	8

Note: After completion of every unit one/two assignment will be given to the student

UNIT-I: Introduction to HTML

Evolution and History of Internet 3WWW-Browsers & Search engine - Introduction to HTML and web development - HTML elements and tags -Document structure (head, body, headings, paragraphs, etc.) - Formatting text and content (bold, italic, underline, etc.) -Creating links and images - Lists

UNIT-II: HTML Tables & Forms

Tables 3 Forms for user input - Semantic elements (header, footer, nav, main, etc.) - CSS for styling HTML pages - HTML5 new features (video, audio, canvas, etc.)

UNIT-III: Cascading Style Sheets (CSS)

Introduction to CSS and its purpose -Cascading style sheet types - CSS selectors - The box model (margin, border, padding) - The CSS display and positioning properties - CSS text formatting (font size, color, font family, etc.) - CSS display and positioning properties

UNIT-IV: CSS Backgrounds & Gradients

CSS Backgrounds - CSS gradients

UNIT-V: CSS Transitions and Animations

CSS transitions - CSS animations

UNIT-VI: CSS Flexbox & Grids

CSS Flex box and CSS Grid - Media queries for responsive design

UNIT-VII: Javascript

Introduction to JavaScript - JavaScript Overview - JavaScript Syntax -Data types and Variables 3 Operators

UNIT-VIII: Javascript Statement and Functions

Conditional statements (if/else) - Loops (for, while) 3 Functions 3 Arrays 3 DOM - Error handling

COMPUTER SCIENCE

FIRST YEAR

PAPER-II: INTERACTIVE WEB DESIGN (PRACTICAL)

PERIODS PER WEEK: 4 **PERIODSPERYEAR: 135**

UNIT. NO.	UNITS	NO.OF PERIODS
I	HTML	45
II	CSS	30
III	ADVANCED CSS	40
IV	JAVASCRIPT	20
	Total	135

COMPUTER SCIENCE

FIRST YEAR

PAPER-III: PROBLEM SOLVING USING 8C9 (THEORY)

PERIODSPERWEEK: 4 **PERIODSPERYEAR:135**

UNIT .NO.	UNITS	NO. OF PERIODS	WEIGHT AGE OF MARKS	NO.OF SHORT QUESTIONS	NO.OF ESSAY QUESTIONS
I	Introduction to Problem Solving Techniques	10	10	2	1
II	Features of 8C9	20	10	2	1
III	Control Statements	20	8	1	1
IV	Functions	20	8	1	1
V	Arrays	20	8	1	1
VI	Structures and Unions	15	8	1	1
VII	Files	15	8	1	1
VIII	Searching and Sorting	15	8	1	1
	Total	135	68	10	8

Note: After completion of every unit one/two assignment will be given to the students

UNIT.I: Introduction to Problem Solving Techniques

Introduction -Procedure -Algorithm - Flowchart -Pseudocode

UNIT.II: Features of 8C9

Introduction to 8C9 3 Structure of a 8C9 Program - Various C language compilers 3 Data types in 8C9 -Variables, Rules for defining variables - Constants & Expressions - Input/Output operations in C 3 Preprocessor - Operators

UNIT.III Control Statements

Introduction to Branching 3 Conditional Statements (if, if-else, nested3if) - Looping Statements (while, do-while, for) 3 Structure for looping and nested looping - Multi Branching(switch, break, continue) 3 Unconditional branching(go to statement)simple programs covering above units - Example programs on if, while, do-while, for, switch, go to, break and continue

UNIT. IV Functions

Introduction 3 Difference between procedure and function - Features and Advantages of functions -Function Prototypes and Function Declaration - Function Components 3 Return type, Name, Parameters and Function Body - Calling a function : Call by value and Call by reference 3 Main function, Predefined functions(library) and User defined functions - Concept of recursive functions 3 Use of various built-in functions: Mathematical and String functions - Example programs on pre-defined, used defined and recursive functions

UNIT.V Arrays

Introduction - Types of Arrays - Advantages of arrays - Declaration and Initialization of Arrays - Implementation of Arrays: Searching, Sorting and Matrix Operations - Example

programs on sorting array and matrix additions/subtraction/ multiplication

UNIT.VI Structures and Unions

Introduction - Definition of Structures, Unions and Pointers - Structure: Declaration, variables, initialization, Nested structures, Self-referential structures - Operations on Structures: Array of structures, structures containing arrays and array of structures - Unions: Declaration, variables, initialization 3 Difference between structure and union. - Example programs on structures and unions

UNIT.VII Files

Introduction - Need of creating data files - File Handling Mechanism - File Modes 3 File operations:fopen(),fclose(),fprint(),fscan()fread()fwrite()fseek() - Example programs on creating and accessing data files

UNIT-VIII: Searching and Sorting

Introduction - Importance of searching, various searching techniques (linear/binary searching) Need of sorting, sorting techniques (bubble, insertion and selection sort algorithms) - Example programs on searching and sorting

Reference Books:

1. Programming using C - C. Kochan.
2. Let us C - Yashwant Kanetkar
3. The C Programming Language 3 Kerningham and Ritchie
4. Programming in C - E. Bala Guru Swamy

PAPER-III: Problem Solving Using 8C9 [PRACTICAL]

PERIODS PER WEEK: 4 **NO. oF PERIODS: 135**

S.NO.	UNITS	No. of hours
1	Simple numeric problems	30
2	Expression Evaluation	35
3	Arrays, Pointers and Functions	50
4	Sorting and Searching	25
	TOTAL	135

COMPUTER SCIENCE

SECOND YEAR

PAPER-I: OBJECT ORIENTED PROGRAMMING THROUGH JAVA (THEORY)

S.NO.	UNITS	NO. OF PERIODS	WEIGHTAGE OF MARKS	NO. OF SHORT QUESTIONS	NO. OF ESSAY QUESTIONS
I	Introduction to Object-Oriented Programming Through Java	**10**	**8**	**1**	**1**
II	OOPS Control Statement	**20**	**8**	**1**	**1**
III	OOPS Packages and Interfaces	**10**	**10**	**2**	**1**
IV	Stream Based I/O	**35**	**10**	**2**	**1**
V	Multithreading in java	**10**	**8**	**1**	**1**
VI	Applets	**5**	**8**	**1**	**1**
VII	GUI Programing	**10**	**8**	**1**	**1**
VIII	Event Handling	**10**	**8**	**1**	**1**
	Total	**110**	**68**	**10**	**8**

UNIT I: Introduction to Java:
Java History- Features of Java- how Java differs from C & C++- introduction to JDK- JVM- JRE & JIT compiler- Java primitive data type- creation and execution of Java program- Basic Java operation.

Unit II: Conditional branching & looping- classes constructors:
Conditional statement- looping- Branching mechanism- classes- object- class Declaration- creating object- method Declaration method overloading- constructors - Parameterized constructors- constructor overloading- keywords- static keywords- final keywords- this keywords- One-dimensional array- Two- Dimensional array- command line Arguments- inner class.

UNIT III: Inheritance interface & package in Java:
Inheritance concept- inheritance basics- Defining super/sub classes- Abstract classes method overriding- Interface- using library interface- comparable and comparator creating and Defining package- Access protection.

UNIT IV:
Stream based I/O(java.io): The stream classes - Byte stream and character stream- Reading console input and writing console output- File class - Reading & writing files- Exception handling-Exception handling - fundamentals of exception handling- writing your own exception classes-- try- catch- throw- throws clauses- Difference between checked vs unchecked exceptions-
Error- types of errors- error vs exception.

UNIT V:
Multi-threading in Java: Introduction- thread & its life cycle- how to create threads- Thread class in Java - thread priority- use of synchronized keyword- how to avoid deadlock.

UNIT VI: Applets:
Introduction- Example- Life cycle- applet class-Collection framework (Java util)
Collections overview- collection interfaces- the collection classes.

UNIT VII: GUI Programming:
Component- container- color- GUI controls- layout managers- Flow layout- Grid layout.

UNIT VIII: Event handling:
Events- Event sources- Event listeners- Event classes.
File Handling: Stream classes- Reading & Writer classes.

COMPUTER SCIENCE

SECOND YEAR

PAPER-I: OBJECT ORIENTED PROGRAMMING THROUGH JAVA(PRACTICAL)

S.NO.	UNITS	NO. OF PERIODS
I	Object-Oriented Programming through Java	**25**
II	Control Statements and Arrays	**25**
III	Implementing OOPS, Packages and Interfaces	**25**
IV	Exception Handling and Threads	**15**
V	JavaApplets	**10**
VI	Java AWT & Event Handling	**15**
	Total	**115**

COMPUTER SCIENCE

SECOND YEAR

PAPER-II: DATABASE MANAGEMENT SYSTEM (THEORY)

S.No	Units	No. of Periods	Weightage of Marks	No. of Short Questions	No. of Essay Questions
I	**Concepts of DBMS**	20	10	2	1
II	**Entity and Relationship**	15	8	1	1
III	**Relational Model**	15	8	1	1
IV	**SQL**	25	10	2	1
V	**PL/SQL**	10	8	1	1
VI	**Schema Refinement**	10	8	1	1
VII	**Transaction management**	10	8	1	1
VIII	**Software Development Life Cycle**	10	8	1	1
	Total	**110**	**68**	**10**	**8**

UNIT-I: BASIC CONCEPTS:

Database Management System - File based system - Advantages of DBMS over file-based system - Database Approach - Logical DBMS Architecture - Three level architecture of DBMS or logical DBMS architecture - Need for three level architecture - Physical DBMS Architecture - Database Administrator (DBA) Functions& Role - Data files indices and Data Dictionary -Types of Databases

UNIT-II: **Relational and ER Models**:

Data Models Relational Model - Domains -Tuple and Relation - Super keys - Candidate keys - Primary keys and foreign key for the Relations - Relational Constraints - Domain Constraint - Key Constraint - Integrity Constraint - Update Operations and · Dealing with Constraint Violations - Relational Operations - Entity Relationship (ER) Model - Entities - Attributes - Relationships - More about Entities and Relationships - Defining Relationship for College Database - E-R Diagram - : Conversion of E-R Diagram to Relational Database.

UNIT-III: **DATABASE INTEGRITY AND NORMALISATION**:

Relational Database Integrity- the Keys - Referential Integrity- Entity Integrity - Redundancy and Associated Problems- Single Valued Dependencies - Normalization - Rules of Data Normalizations - The First Normal Form -The Second Normal Form -The Third Normal Form - Boyce Codd Normal Form - Attribute Preservation - Lossless join Decomposition - Dependency Preservation.

UNIT-IV: File Organization:

Physical Database Design Issues - Storage of Database on Hard Disks - File Organisation and Its Types - Heap files (Unordered files) - Sequential File Organisation - Indexed (Indexed Sequential) File Organisation - Hashed File Organisation - Types of Indexes - Index and Tree Structure - Multi-key File Organisation - Need for Multiple Access Paths - Multi-list File Organisation - Inverted File Organisation.

UNIT-V: INTRODUCTION TO STRUCTURED QUERY LANGUAGE (SQL):

Overview of SQL- Data Definition - Creating a Database / Table / Index-Basic Structure of SQL Queries-Select-Additional Basic Operations-Between, Orderby, Insert Into, update, delete, sql sorting results The sql

grouping, multi-table queries-Set Operations- Union, intersect-NULL Values SQL Aggregate Functions-Nested Sub-queries- Features of Sub querying-Modification of the Database-Joins-Views-transaction-Datatypes-Constratiants-Authorization.

UNIT-VI: **ADVANCE SQL**:

Accessing SQL from a Programming Language- Assignments, Control Statements, loops, Cursors-Procedures and Functions- function, package- Triggers- Recursive Queries

UNIT-VII: **TRANSACTIONS AND CONCURRENCY MANAGEMENT**:

Transactions - Concurrent Transactions 3Locking Protocol -Serializable Schedules - Locks Two Phase Locking (2PL) .

UNIT-VIII: DEADLOCKS:

Deadlock and its Prevention - Optimistic Concurrency Control. Database Recovery and Security: Database Recovery meaning - Kinds of failures - Failure controlling methods - Database errors - Backup & Recovery Techniques - Security & Integrity - Database Security -Authorization

COMPUTER SCIENCE

SECOND YEAR

PAPER-II: DATABASE MANAGEMENT SYSTEM (PRACTICAL)

S.NO.	UNITS	NO. OF PERIODS
I	DDL, DML.DCL	**30**
II	ADVANCE SQL	**30**
III	TRANSACTIONS	**30**
IV	DEADLOCKS	**25**
	Total	**115**

COMPUTER SCIENCE

SECOND YEAR

PAPER-III: DATA COMMUNICATIONS AND COMPUTER NETWORKS (THEORY)

PERIODSPERWEEK: 4 **PERIODS PER YEAR:135**

S.NO.	UNITS	NO. OF PERIODS	WEIGHTAGE OF MARKS	NO. OF SHORT QUESTIONS	NO. OF ESSAY QUESTIONS
I	Data communications	10	8	1	1
II	Network Types and Topologies	25	8	1	1
III	Connecting Devices	15	8	1	1
IV	Internet Connectivity and Services	15	10	2	1
V	Switching	10	8	2	1
VI	Data Link layer	10	8	1	1
VII	MAC sub layer	15	8	1	1
VIII	Routing protocols	10	8	1	1
	Total	**110**	**68**	**10**	**8**

UNIT I: Data Communications:

Definition-Modes of data transmission (Analog and Digital)- types of Communications 3 Bandwidth 3 Communication channels (Wire cables, Microwave and Fiber optic) 3 methods of Data transmission (Asynchronous, Synchronous and Isochronous) 3 Parallel and Serial interface 3 Transmission Modes (Simplex, Half-duplex and Full-duplex)3multiplexing.

UNIT II: Network Types and Topologies:

Definition of Computer network 3 Advantages& disadvantages 3Types of Networks (LAN, MAN, WAN, Private, public & Value added) 3Definition of Network topology 3Types and structure of topologies (Bus, Ring, Star, Mesh and Hybrid)3 advantages and Disadvantages of topologies, Guided Media, Unguided Media

UNIT III: CONNECTING DEVICES:

Server, Clients, File server 3 Ethernet cards, HUBS Switches, Routers, Gateways. 3 Modem and types 3V-SAT, ATMS - Adapters-Functions and types. 3 Multiplexers Functions and Types

UNIT IV: Internet Connectivity and services.

Introduction to internet 3 Advantages, browsers -Services: -Messaging3E-mail and FTP . Introduction to Internet security 3 viruses, Trojans, worms, phishing and hacking 3 antivirus software etc.3Current trends.

UNIT V: Switching:

Circuit-Switched Networks, Packet Switching, Message Switching

UNIT VI: Data Link layer

Services- Data Link Control - Framing- Flow and Error Control - Error Detection and Correction- CRC- Checksum- hamming code- Sliding Window Protocols- HDLC, Point-to-. Point Protocol.

UNIT VII: MAC sub layer:

MAC Address, Multiple Access Protocol, ALOHA, CSMA Protocols, IEEE Standards, Standard, Ethernet, Fast Ethernet, Gigabit Ethernet, IEEE 802.11

UNIT VIII: Routing protocols:

Flooding 3 Shortest path routing technique 3 Distance vector routing 3 Count to infinity problem 3 Link state routing 3 Hierarchical routing technique 3 Multi casting and broadcasting

Data communications and Networking4Behrouz A . Forouzan

1. Computer Networks 4 A. Tenenbaum
2. HTML Black Book Steven Holz

COMPUTER SCIENCE

SECOND YEAR

PAPER-III: DATA COMMUNICATIONS AND COMPUTERNETWORKS (PRACTICAL)

S.NO.	UNITS	NO. OF PERIODS
I	DATA COMMUNICATIONS AND COMPUTERNETWORKS	**115**
	Total	**115**

VIII. LISTOF EQUIPMENT

HARDWARE, TOOLS AND EQUIPMENT:

1. Processor i7 or latest processor with at least 4 GB RAM,1 TB Hard disk space,1799 LED Color Monitor, USB Key board, USB Optical Mouse, CD/DVD R/W Drive, at least 6 USB ports onboard Sound, Graphics, Modem and Network adaptor preloaded with Windows 10Operatingsystem supplied with media kit and antivirus software. 22Nos (20 for students, one for the faculty and one for Server.)
2. Online UPS 2KVA — One nos.
3. LCD Projector and screen — one nos.
4. 16Port Switch — Two nos.
5. Laser Printers — Two nos.
6. Flat bed Scanner — One nos.
7. Webcam — One Nos.
8. Crimping tool for network cables — One No.
9. Individual components of individual (Mother Board, SMPTS. RAM etc .,)

SOFTWARE(LATESTVERSIONS)

1. MSOffice2019
2. Turbo C
3. Windows 11
4. Java Env
5. Oracle 11
6. Network O. S

FURNITURE

1. Airconditioners1.5Ton — 02 Nos
2. Computer Tables — 22 No9s
3. Operator9s Chairs — 22 Nos
4. Printer tables — 02 No9s
5. Steel cupboards — 01 No9s
6. Library book case with lock facility — 01 No9s
7. Tables for Staff members — 02Nos
8. Chairs for Staff members — 02 Nos
9. Vacuum cleaner — 01 No9s
10. Shoe Rack (to accommodate at least 22 pairs) — 01Nos

CONSUMABLES

1. Print cartridges as per requirement
2. Printer Paper as per requirement
3. Pen drives of required storage size4 No9s...
4. Different types of network cables as per requirement
5. CDs and DVDs as per requirement
6. RJ45 or compatible connectors for network cabling per requirement.

LABINFRASTRUCTURE

Computer center209X259 or subject to the availability of accommodation but Minimum of 209 x 209 with false roofing and flooring.

NOTE: High Speed Internet connection is must be provided for training in internet technologies and also to expose the students to acquire latest knowledge about latest Updates available, antivirus and other security tools and for troubleshooting tip basis.

(a) COLLABORATING INSTITUTIONS FOR CURRICULUMTRANSACTIONS

- DTP centers locally available
- Data conversion centers

(b) ON THE JOB TRAINING CENTERS

- Software development centers
- Universities
- Public sector companies
- Small Scale Industries

IX. QUALIFICATION OF LECTURERS:

- 1.B.E./B. Tech [CSE/IT] or equivalent
- 2. MCA/M. Sc [Computers/MS.IT/MSIS] from Recognized University.

X. VERTICAL MOBILITY

- Eligible to appear EAMCET on par with MPC students by appearing Bridge Course
- Eligible to appear NID, UCEED, NIFT
  Can enter into B. Sc (CS/IT), B.E/B. Tech, Polytechnic 2nd year on completion of Bridge course
- B. Com (Comp), BA, BCA, BFA, etc. without bridge course.

XI. MODEL QUESTION PAPERS

COMPUTER SCIENCE
FIRSTYEAR
PAPER-I: COMPUTER FUNDAMENTALS AND MS-OFFICE
[THEORY]

Time: 3 Hrs **Max. Marks: 50**

SECTION-A **10x 2=20**

Note:-1.Answer ALL Questions:
2. Each Question carries TWO Marks.

1. Define a computer?
2. What is an Operating system? Name any three operating systems.
3. What is spell check?
4. What are the different views in MS Word?
5. Write any 2 Text Format commands.
6. Write number of Rows and Columns in Spreadsheet.
7. What is spreadsheet?
8. What is slideshow?
9. Define term Query.
10. What are datatypes in Access?

SECTION-B

Note:-1.Answer any FIVE Questions from the following **5x 6=30.**
2. Each Question carries SIX Marks.

11. Draw the block diagram of computer and explain each block in it.
12. Explain various Hardware components of a computer.
13. Write about Text Formatting options in Font Group.
14. Write about formatting the paragraph
15. Explain different types of Charts in Excel
16. Explain any five statistical functions in Excel.
17. How to create and save a PowerPoint presentation?
18. Explain about advantages of MS-Access.

MODEL QUESTION PAPERS

COMPUTER SCIENCE
FIRSTYEAR
PAPER-II: WEB TECHNOLOGIES
[THEORY]

Time: 3 Hrs **Max. Marks: 50**

SECTION-A **10x 2=20**

Note: 1. Answer ALL Questions:
2. Each Question carries TWO Marks.

1. What is HTML?
2. Write about search engine?
3. What is float in CSS??
4. Define CSS.
5. What is the use of Background-image element?
6. What are JavaScript closures?
7. What is the difference between == and === in JavaScript?
8. What is Foundation?
9. What is JavaScript
10. What is a loop in JavaScript?

SECTION-B

Note:-1. Answer any FIVE Questions from the following **5 x 6= 30.**
2. Each Question carries SIX Marks.

11. Define network? Explain different types of networks
12. Explain elements and attributes associated with Table tag
13. What is the difference between internal, external and inline style Sheets?
14. Explain about CSS flexbox container with proper examples?
15. Explain about CSS grid module with proper examples?
16. What is the DOM in JavaScript and how does it work?
17. Explain about merits and Demerits in JavaScript?
18. Explain about operators in JavaScript?

COMPUTER SCIENCE
FIRSTYEAR
PAPER-III: PROBLEM SOLVING USING C
[THEORY]

Time: 3 Hrs **Max.Marks: 50**

SECTION-A **10x 2=20**

Note:-1.Answer ALL Questions:
2. Each Question carries TWO Marks.

01. What is an Algorithm?
02. What are the symbols used in Flow chart?
03. What is Variable and Constant in C?
04. What are the basic data types in C?
05. What is String Constant?
06. What is storage class?
07. What is recursion?
08. What is an Array?
09. Write about file open function fopen()
10. What is sorting in C.

SECTION-B

Note:-1.Answer any FIVE Questions from the following **5x 6=30.**
2. Each Question carries SIX Marks.

11. Differentiate between Algorithm and Flowchart.
12. Draw the flowchart to find roots of Quadratic equation $ax^2+bx+c=0$.
13. Explain various Operators in C.
14. Explain various conditional Control statements in C.
15. Explain various conditional Looping statements in C.
16. What is Function? Explain in detail.
17. Write a C program to open a file read from it and close the file.
18. What is searching and types of searching in 8C9.

COMPUTER SCIENCE
SECONDYEAR
PAPER-I: OBJECT ORIENTED PROGRAMMING THROUGH JAVA
[THEORY]

Time: 3 Hrs **Max.Marks: 50**

SECTION-A **10x 2=20**

Note:-1.Answer ALL Questions:
2. Each Question carries TWO Marks.

01. What is Byte Code?

02. What are primitive data types in Java?

03. Write the syntax of 8IF 8statement.

04. What is an Array? Write types of Arrays?

05. What is Package? Write its syntax.

06. What is an Interface? Write its syntax.

07. What is debugging?

08. What is an applet?

09. What is AWT?

10. What is an event?

SECTION-B

Note:-1.Answer any FIVE Questions from the following **5x 6=30.**
2. Each Question carries six Marks.

11. Write about main features of java?

12. Explain Arithmetic operators with an example.

13. Explain Assignment operators with an example.

14. Write a java program to find biggest of given three values.

15. Write a java program to find factorial of a given number.

16. Explain the Polymorphism with an example.

17. Write about some java built in exceptions.

18. Write about basic methods of applet class.

COMPUTERSCIENCE
SECONDYEAR
PAPER-II: DATABASE MANAGEMENT SYSTEM
[THEORY]

Time: 3 Hrs **Max.Marks: 50**

SECTION-A **10x 2=20**

Note:-1.Answer ALL Questions:
2. Each Question carries TWO Marks.

01. What is DBMS?
02. What is Entity and Entity set?
03. What is tuple?
04. What is the need of Aggregation?
05. Write short note on Multivalued Dependency?
06. What are the internal data types in SQL?
07. What is a View in a database?
08. What is an Exception?
09. What is role of testing?
10. What are the ACID properties of a transaction?

SECTION-B

Note:-1.Answer any FIVE Questions from the following **5x 6=30.**
2. Each Question carries SIX Marks.

11. What is data abstraction? Explain in detail?
12. Explain Entity-Relation model with an Example?
13. Explain Normalization in detail.
14. Describe the concept of clustering in file organization.
15. Explain various in triggers in DBMS?
16. Explain DDL commands with examples.
17. What are the different phases of a transaction in DBMS?
18. What is a deadlock in DBMS?

COMPUTER SCIENCE
SECONDYEAR
PAPER-III: DATA COMMUNICATIONS &COMPUTER NETWORKS
[THEORY]

Time: 3 Hrs **Max.Marks: 50**

SECTION-A **10x 2=20**

Note:-1.Answer ALL Questions:
3. Each Question carries TWO Marks.

01. What is Data Communications?
02. What is Computer Network?
03. Expand the terms LAN, MAN, WAN, BBN, GAN, and PAN.
04. What is Fileservers?
05. What is an E-mail?
06. What is Protocol?
07. Write different transport layer & Application layer
08. What is sub layer?
09. What is switching?
10. What is an event?

SECTION-B

Note:-1.Answer any FIVE Questions from the following **5x 6=30.**
2. Each Question carries SIX Marks.

11. Write about Transmission Modes.
12. Explain about various Communication channels.
13. Explain different types of Computer Networks
14. What is an Internet? Explain its importance in Computer Network.
15. Discuss MAC sub layers.
16. Explain about Data link.
17. Write about Internet Security.
18. Write the congestion control

Equivalency of papers

COMPUTER SCIENCE
(CS)

FIRSTYEAR

	Existing Papers	New Papers
Paper1	Computer Fundamentals & MS-Office	Computer Fundamentals &MS-Office
Paper2	Programming in C	Interactive Web Design
Paper3	Accounts &Tally	Problem Solving using C
	PRACTICAL	
Paper1	MS Office	MS Office
Paper2	C-Programming	Interactive Web Design
Paper3	Engineering Drawing	C-Programming

SECONDYEAR

	Existing Papers	New Papers
	THEORY	
Paper1	Java	Object Oriented Programming through Java
Paper2	Relational Database Management System	Database Management System
Paper3	Computer Networks	Data communication & Computer networks
	PRACTICAL	
Paper1	Java	Java lab
Paper2	SQL, Photo Shop& Page maker	SQL
Paper3	Internet Technologies	Network lab

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