ATAL BIHARI VAJPAYEE VISHWAVIDYALAYA, BILASPUR (C.G)

(Established by Chhattisgarh Legislative Assembly Act No. 07 of 2012)

Scheme and Syllabus

of

Bachelor of Computer Application (BCA)

Year- Second

W.E.F. Session:-~~2024-25~~

Syllabus Approved by the Central Board of Studies

अटल बिहारी वाजपेयीविश्वविद्यालय,बिलासपुर(छग.)
कोनी पुलीस थाना के सामने, बिलासपुर –रतनपर मार्ग, कोनी, जिला–बिलासपुर (छ.ग.) 495009
फोन : 07752–220031, फैक्स 07752–260294, ई–मेल : registrar@bilaspuruniversity.ac.in,
वेबसाईट : www.bilaspuruniversity.ac.in

BCA Part-II
Scheme & Examination
Session-2024-25

CENTRAL BOARD OF STUDIES- COMMERECE-MARKS DISTRIBUTION

	Code	Subject	Paper/ Practical	Maximum Marks	Minimum Marks
Second Year	BCA- 13T	Hindi	Theory	75	26
	BCA- 14T	English	Theory	75	26
	BCA- 8T	Numerical Analysis	Theory	100	33
	HSCF- 9T	Operating System	Theory	100	33
	BCA- 10T	Relational Database Management System	Theory	100	33
	BCA- 11T	Computer Networking and Cyber Technology	Theory	100	33
	BCA- 12T	Web Technology	Theory	100	33
	BCA- 3P	Lab 3: Relational Database Management System	Practical	75	25
	BCA- 4P	Lab 4: Web Technology	Practical	75	25

हिंदी भाषाकेव्याकरण के रचना पक्ष का ज्ञान, संप्रेषण कौशल, सामाजिकसंदेश एवं भाषायी दक्षता की दृष्टि तथा नई शिक्षा नीति के उद्देश्य को ध्यान में रखकर पाठ्यक्रम का निर्माण किया गया है।

बी.ए./ बी.एस-सी./ बी.कॉम./ बी.एच.एस.सी. भाग- दो

(आधार पाठ्यक्रम)

प्रथम प्रश्नपत्र

हिंदी भाषा

कोड....

पूर्णांक 75

क्रेडिट 05

पाठ्यक्रम का उद्देश्य:-

(1)गद्य विधाओंसे अवगत कराना एवं निबंध कौशल सिखाना।

(2)कार्यालयीन हिंदी का ज्ञान प्रदान करना ।

(3)हिंदी व्याकरण का समग्र ज्ञान प्रदान करना ।

(4)हिंदी भाषा में प्रचलित विभिन्न शब्द रूपों से परिचित कराना।

पाठ्य विषय:-

इकाई1. (क) नाखून क्यों बढ़ते हैं?: हजारी प्रसाद द्विवेदी (ख) कार्यालयीन भाषा, मीडिया की भाषा, वित्त एवं वाणिज्य की भाषा,मशीनी भाषा	अंक 15 18 कालखंड
इकाई 2. (क)युवकों का समाज में स्थान : आचार्य नरेंद्र देव (ख) हिंदी के तत्सम, तद्भव, देशज, विदेशी शब्द-परिचय,	अंक 15 18 कालखंड

23/2/23

संज्ञा, सर्वनाम,	
इकाई 3 (क)डॉ खूबचंद बघेल : हरि ठाकुर (ख)कारक, विशेषण, क्रिया विशेषण	अंक 15 18 कालखंड
इकाई 4 (क) एक पहाड़ीमैना की मौत : डॉ. कांति कुमार जैन (ख) समास, संधि	अंक 15 18 कालखंड
इकाई 5 (क) मातृभूमि : वासुदेव शरण अग्रवाल (ख)अनुवाद - परिभाषा, स्वरूप, प्रकार, स्रोत भाषा और लक्ष्य भाषा, अंग्रेजी से हिंदी में अनुवाद	अंक 15 18 कालखंड

मूल्यांकन योजना:-

प्रत्येक इकाई से एक-एक प्रश्न पूछे जाएंगे। प्रत्येक प्रश्न में आंतरिक विकल्प होगा। प्रत्येक प्रश्न के 15 अंक होंगे। प्रत्येक प्रश्न के दो भाग 'क' और 'ख' होंगे एवं अंक क्रमश: 08 एवं 07 होंगे। प्रश्नपत्र का पूर्णांक 75 निर्धारित

है।प्रश्नपत्रकेपूर्णांककादसप्रतिशतअंकआंतरिकमूल्यांकनकेलिएनिर्धारितहै।

पाठ्यक्रम अधिगम परिणाम:-

1. गद्य की विभिन्न विधाओं से परिचित हो सकेंगे एवंउनमेंसाहित्यिक रूझान पैदा होगा।
2. हिंदी के आधारभूत व्याकरणिक अवधारणाओं से विद्यार्थी परिचित हो सकेंगे। उनमें रचनात्मकताएवं भाषाकौशल का विकास होगा।
3. विभिन्नप्रतियोगी परीक्षाओं की तैयारी में यह पाठ्यक्रम सहायक होगा।

पाठ्यक्रम निर्माण का औचित्य :-

सुप्रसिद्ध विद्वानों के लेख/निबंध/संस्मरण के माध्यम से विद्यार्थियों के चिंतनपरक दृष्टिकोण एवं व्यक्तित्व का विकास करते हुए उन्हें व्याकरणिक एवं भाषा-प्रयोग विषयक पक्ष से परिचित कराते हुए प्रतियोगी परीक्षाओं की दृष्टि से तैयार करने की दिशा में यह पाठ्यक्रम उपयोगी रहेगा।

23/2/23 23/2/2023 23/2/23

Central Board of Studies Foundation Course Paper-II
English Language for Under Graduate Students

Programme Outcomes for English Language B.A/B.Sc/B.Com I, II, III

The programme enables a student to get acquainted

- With the rich cultural heritage and develops patriotic feelings through the works of Indian authors & poets.
- To get exposure of the usage of grammar according to contemporary times.
- To have an exposure about the literary genre with the help of the authors & poets across the globe.
- To develop an appreciation for English Language & Communication Skills.

21/6/23
(P C Choudhury)

(Dr. Sushama Mishra)

Learning Outcomes (English Language) B.A/B.Sc/B.Com - I, II,III

The learning outcomes are as follows:

1. To strengthen the linguistic skills -Listening, Speaking, Reading and Writing.
2. To refine the way of thinking and speaking which would lead them to have mighty ideas in day to day life.
3. To improve students speaking ability in English both in terms of fluency and comprehensibility.
4. To enhance practical use of English in day-to-day life.
5. To enrich the vocabulary of the students.

Dr. Sushama Mishra 12.6.2023

2/6/23

Programme Specific Outcomes FC_ Paper-II (English Language) B.A/B.Sc/B.Com - I, II,III

The Programme Specific outcomes are as follows:

1. To develop abilities of the students as a critical reader and writer.
2. To develop the ability of public interaction and speaking.
3. To develop self awareness about English language.
4. To develop critical thinking .

To give a practice in writing, drafting of English assignments.

Dr. Sushama Mishra

2/6/23

BA/B.Sc./B.Com/B.Sc. Home.Sc. (Part-II)
Foundation Course Paper-II English Language

Max. Marks:75
Total credits: 05

Qualifying Marks:26

Paper-II	Mark's	Period's	Credit
Unit-I English in Use: A Textbook for College Students (Semester III), Macmillan Publishers India Pvt Ltd	3x5=15	18	01
Unit -II Business Reports & Media Reports Writing Notices, Blog Writing	1x10=10	18	01
Unit -III Reading Comprehension (a) Unseen Passage (MCQ -based) (b) Vocabulary (Text-based)	1x5=05 1xl0=10	18	01
Unit -IV Essay Writing: Discursive Essay, Argumentative Essay	1x10=10	09	0.5
Unit-V Grammar : • Ordering of words • Voice • Conditional sentences • Use of some, any, enough, too,otherwise, few, many, such, very • Prepositions • Question tags • Transformation of sentences(like-Simple to Compound to Complex,Exclamatory to Assertive) • Transformation of sentences with positive, Comparative and superlative degrees • Grammatical items given in the textbook'English in Use'	1x25=25	27	1.5
Total	**75**	**90**	**05**
Recommended Books- 1. Essential English Grammar, 2nd Edition by Raymond Murphy, Cambridge Publication 2. English Grammar in use 5th edition by Raymond Murphy, Cambridge Publication. 3. Advanced English Grammar by Martin Hewings Cambridge University Press.			

2/6/23

1. **Title of the program:** The title of the programme shall be Bachelor of Computer Application (B.C.A.).
2. **Eligibility for admission:** Eligibility of admission in BCA will be as follow:
   i. Student must passed H.Sc. (Class 12th) in any stream/Three year diploma course in any branch of technical education or equivalent from recognized board.
   ii. Student must have minimum aggregate of 40% marks in H.Sc. examination (Relaxation in percentage will be as per rule of C.G. Govt.).
3. **Scheme of examination:** Each theory paper is divided into two components as follow, however there shall not be any Internal Assessment (IA) for practical subject.
   i. University Examination (UE): 75 Marks
   ii. Internal Assessment (IA): 25 Marks
4. **Internal Assessment (IA):** The structure of IA shall be as follow:
   i. **Internal test (15 Marks):** There shall be three internal tests of 15 marks each, the average of best two shall be considered as the marks of internal test.
   ii. **Other activity (10 Marks):** Presentation/Group discussion /Assignment/ MOOC course certification (List of MOOC course shall be provided to the students through notice board/college website by the HOD concern after mapping it from SWAYAM, Coursera or any other similar popular platforms at the beginning of each academic session) or any other similar activity.
5. **University Examination (UE):** The pattern of examination shall be as follow:
   i. There shall be two sections of question paper: A and B
   ii. Section A (15 Marks) shall be compulsory and shall consists 15 short/objective questions each of one mark covering the entire syllabus.
   iii. Section B (60 Marks) shall consist questions from 5 unites as per the syllabus with internal choice (Student has to attempt only one question from each unit). Each unit shall be of 12 marks.

6. **Programme Learning Outcomes for Bachelor of Computer Application (BCA)**

On completion of this programme, the students are expected to:

PLO1: Apply knowledge of computing fundamentals, computing specialization, mathematics, and domain knowledge appropriate for the computing specialization to the abstraction and conceptualization of computing models from defined problems and requirements.

PLO2: Identify, formulate, research literature, and solve complex computing problems reaching substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domain disciplines.

PLO3: Recognize the need, and have the ability, to engage in independent learning for continual development as a computing professional.

PLO4: Demonstrate knowledge and understanding of the computing and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PLO5: Communicate effectively with the computing community, and with society at large, about complex computing activities by being able to comprehend and write effective reports, design documentation, make effective presentations, and give and understand clear instructions.

PLO6: Identify a timely opportunity and using innovation to pursue that opportunity to create value and wealth for the betterment of the individual and society at large.

PLO7: Develop software projects in various languages as per the demand of the market.

PLO8: Work on research based projects.

PLO9: Develop live software projects and will be capable of working in IT companies.

PLO10: Explore and gain new knowledge through MOOC courses.
PLO11: Ability to pursue higher studies of specialization and to take up technical employment.
PLO12: Ability to formulate, to model, to design solutions, procedure and to use software tools to solve real world problems and evaluate.
PLO13: Apply standard Software Engineering practices and strategies in real-time software project development.
PLO14: The ability to work independently on a substantial software project and as an effective team member.
PLO15: Ability to operate, manage, deploy and configure software operation of an organization.

Scheme of BCA

Year	Course Code	Subject Name	Theory/ Practical	Total Credit	Marks			
					UE	IA	Total	
					Max	Max	Max	Min
Second	BCA-8T	Numerical ~~Mathematics~~ Analysis	Theory	6	75	25	100	33
	BCA-9T	Operating System	Theory	6	75	25	100	33
	BCA-10T	Relational Database Management System	Theory	4	75	25	100	33
	BCA-11T	Computer Networking and Cyber Technology	Theory	6	75	25	100	33
	BCA-12T	Web Technology	Theory	4	75	25	100	33
	BCA-13T	Hindi	Theory	5	50	-	50	17
	BCA-14T	English	Theory	5	50	-	50	17
	BCA-3P	LAB 3: Relational Database Management System	Practical	2	100	-	100	~~#~~ 33
	BCA-4P	LAB 4: Web Technology	Practical	2	100	-	100	~~#~~ 33

Note:

1. Syllabus of Foundation Courses: Hindi and English shall be similar to B.Sc. Computer Science/IT program.
2. Students has to pass environment studies subject as per the rule of any other B.Sc. program.
3. There shall be four extra credits in all the years of under graduation for internship/apprenticeship/skill development program. The certificate of extra credits would be provided by the concern university and is not mandatory.

Abbreviations used:

UE: University Exam
IA: Internal Assessment

Part A: Introduction

Program: **Diploma Course**	Class: **B.C.A. II Year**	Year: **2024**	Session: **2024-2025**

1.	Course Code	**BCA-8T**
2.	Course Title	**Numerical Analysis**
3.	Course Type	**Theory**
4.	Pre-requisite (if any)	Knowledge of basic mathematics
5.	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • Obtain numerical solutions of algebraic and transcendental equations. • Find out numerical solutions of system of linear equations and check the accuracy of the solutions. • Learn about various interpolating and extrapolating methods. • Solve initial and boundary value problems in differential equations using numerical methods. • Apply various numerical methods in real life problems.
6.	Credit Value	**Theory : 6**
7.	Total Marks	**Max. Marks: 25 +75** | **Min Passing Marks : 33**

Part B: Content of the Course

Total Periods: 90

Unit	Topics	No. of Periods
I.	**Numerical Methods for Solving Algebraic and Transcendental Equations:** Round-off error and computer arithmetic, Local and global truncation errors. Algorithms and convergence; Bisection method, False position method, Fixed point iteration method. Newton's method and secant method for solving equations.	18
II.	**Numerical Methods for Solving Linear Systems:** Partial and scaled partial pivoting. Lower and upper triangular (LU) decomposition of a matrix and its applications. Thomas method for tridiagonal systems; Gauss-Jacobi, Gauss-Seidel and successive over-relaxation (SOR) methods.	18
III.	**Interpolation:** Lagrange and Newton interpolations, Piecewise linear interpolation, Cubic spline interpolation, Finite difference operators, Gregory-Newton forward and backward difference interpolations.	18
IV.	**Numerical Differentiation and Integration:** First order and higher order approximation for first derivative, Approximation for second derivative; Numerical integration: Trapezoidal rule, Simpson's rules and error analysis, Bulirsch-Stoer extrapolation methods, Richardson extrapolation.	18
V.	**Initial and Boundary Value Problems of Differential Equations:** Euler's method, Runge-Kutta methods, Higher order one step method, Multi-step methods; Finite difference method, Shooting method, Real life examples: Google search engine, 1D and 2D simulations, Weather forecasting.	18

Keywords: Error, Decomposition, Interpolation, Differentiation, Integration, Higher order, Simulation.

Part C - **Learning Resource**
Text Books, Reference Books, Other Resources

Suggested Readings:

1. Brian Bradie (2006). A Friendly Introduction to Numerical Analysis. Pearson.
2. C. F. Gerald & P. O. Wheatley (2008). Applied Numerical Analysis (7th edition), Pearson Education, India.
3. F. B. Hildebrand (2013). Introduction to Numerical Analysis: (2nd edition). Dover Publications.
4. M. K. Jain, S. R. K. Iyengar & R. K. Jain (2012). Numerical Methods for Scientific and Engineering Computation (6th edition). New Age International Publishers.
5. Robert J. Schilling & Sandra L. Harris (1999). Applied Numerical Methods for Engineers Using MATLAB and C. Thomson-Brooks/Cole.

E Resources:

- Topics Related to Numerical Analysis from SWAYAM/NPTEL
  1. Introduction
     https://onlinecourses.swayam2.ac.in/cec20_ma11/preview
     https://onlinecourses.nptel.ac.in/noc19_ma21/preview

  2. Introduction to error analysis and linear systems
     https://www.youtube.com/watch?v=_cgzqVmvqtQ&list=PLq-Gm0yRYwTguDcfylj1ZicXxzdZCAr5S&index=2

  3. LU decomposition
     https://www.youtube.com/watch?v=1g0G_kjA560&list=PLq-Gm0yRYwTguDcfylj1ZicXxzdZCAr5S&index=4

  4. Jacobi and Gauss Seidel methods
     https://www.youtube.com/watch?v=K193avJMCd4&list=PLq-Gm0yRYwTguDcfylj1ZicXxzdZCAr5S&index=5

  5. Playlist
     https://www.youtube.com/channel/UCqpVOOZS6-OFQaPKWBZLKJQ
     https://www.youtube.com/watch?v=TWAN_T66Cps&list=PLq-Gm0yRYwTguDcfylj1ZicXxzdZCAr5S (NPTEL)

Part D: **Assessment and Evaluation**		
Suggested Continuous Evaluation Methods: Maximum Marks: 100 Continuous Comprehensive Evaluation (CCE): 25 Marks University Exam(UE): 75 Marks		
Internal Assessment: Continuous Comprehensive Evaluation (CCE)	Class Test/Assignment/Presentation	25 Marks

Part A: Introduction

Program: Diploma Course	Class: B.C.A. II Year	Year: 2024	Session: 2024-2025

1.	Course Code	BCA-9T
2.	Course Title	Operating System
3.	Course Type	Theory
4.	Pre-requisite (if any)	No
5.	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • Describe the important computer system resources and the role of operating system in their management policies and algorithms. • To understand various functions, structures and history of operating systems and should be able to specify objectives of modern operating systems and describe how operating systems have evolved over time. • Understanding of design issues associated with operating systems. • Understand various process management concepts including scheduling, synchronization, and deadlocks. • To have a basic knowledge about multithreading. • To understand concepts of memory management including virtual memory. • To have sound knowledge of various types of operating systems including Unix and Android. • Describe the functions of a contemporary operating system with respect to convenience, efficiency, and the ability to evolve.
6.	Credit Value	Theory : 6
7.	Total Marks	Max. Marks: 25 +75 / Min Passing Marks : 33

Part B: Content of the Course

Total Periods: 90

Unit	Topics	No. of Periods
I.	**Introduction to Operating System:** 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.	18
II.	**Operating System Organization and Process Characterization:** Processor and User Modes, Kernels, System Calls and System Programs, System View of the Process and Resources, Process Abstraction, Process Hierarchy, Threads, Threading Issues, Thread Libraries; Process Scheduling, Non-Pre-emptive and Pre- emptive Scheduling Algorithms.	18
III.	**Process Management (Deadlock):** Deadlock, Deadlock Characterization, Necessary and Sufficient Conditions for Deadlock, Deadlock Handling Approaches: Deadlock Prevention, Deadlock Avoidance and Deadlock Detection and Recovery. **Inter Process Communication and Synchronization:** Concurrent and Dependent Processes, Critical Section, Semaphores, Methods for Inter-process Communication: Process Synchronization, Classical Process Synchronization Problems: Producer-Consumer, Reader-Writer.	18

IV.	**Memory Management:** Physical and Virtual Address Space; Memory Allocation Strategies– Fixed and -Variable Partitions, Paging, Segmentation, Virtual Memory.	12
V.	**Introduction to Android Operating System:** Introduction to Android Operating System, Android Development Framework, Android Application Architecture, Android Process Management and File System, Small Application Development using Android Development Framework.	12
Keywords: Operating System (OS), Process, Kernel, Threads, Deadlock, Critical Section, Semaphores.		

Part C - **Learning Resources**

Text Books, Reference Books, Other Resources

Suggested Readings:

1. A Silberschatz, P.B. Galvin, G. Gagne, Operating Systems Concepts, 8th Edition, John Wiley Publications 2008.
2. A.S. Tanenbaum, Modern Operating Systems, 3rd Edition, Pearson Education 2007.
3. G. Nutt, Operating Systems: A Modern Perspective, 2nd Edition Pearson Education
4. 1997.
5. W. Stallings, Operating Systems, Internals & Design Principles 2008 5th Edition, Prentice Hall of India.
6. M. Milenkovic, Operating Systems- Concepts and design, Tata McGraw Hill 1992.

E Resources:

1. **SWAYAM/NPTEL - IITD**
   https://youtube.com/playlist?list=PLsylUObW5M3CAGT6OdubyH6FztKfJCcFB

2. **NPTEL - IIT Madras**
   https://youtube.com/playlist?list=PL3-wYxbt4yCjpcfUDz-TgD_ainZ2K3MUZ

3. **Coursera:**
   Introduction:
   https://www.coursera.org/specializations/codio-introduction-operating-systems?
   Memory Management:
   https://www.coursera.org/learn/codio-intro-to-operating-systems-2-memory-management?specialization=codio-introduction-operating-systems

4. **w3shool.com**
   https://www.w3schools.in/operating-system/intro#:~:text=An%20operating%20system%20falls%20under,networking%20hardware%2C%20printers%2C%20etc.

5. **gatevidyalay.com**
   https://www.gatevidyalay.com/operating-system/

6. **javatpoint.com**
   https://www.javatpoint.com/os-tutorial

Part D: **Assessment and Evaluation**		
Suggested Continuous Evaluation Methods: Maximum Marks: 100 Continuous Comprehensive Evaluation (CCE): 25 Marks University Exam(UE): 75 Marks		
Internal Assessment: Continuous Comprehensive Evaluation (CCE)	Class Test/Assignment/Presentation	25 Marks

Part A: Introduction

Program: **Diploma Course**	Class: **B.C.A. II Year**	Year: **2024**	Session: **2024-2025**

1.	Course Code	**BCA-10T**
2.	Course Title	**Relational Database Management System**
3.	Course Type	**Theory**
4.	Pre-requisite (if any)	No
5.	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • Learn about Database Concepts, Architecture, various Users, Data Models and Data Management which helps them to interact with various Databases. • Develop various Tables and Databases which helps them to develop new Software. • Practice various SQL commands which help them to generate new relationships among various Tables and Databases which are useful for Software Development. • Familiar about RDBMS Software like Oracle and SQL Server which are used as Backend for Software Development. • Develop new Databases for their Minor and Major Project Development which enhances their Data Storage, Data Accessibility and Data Management.
6.	Credit Value	**Theory : 4**
7.	Total Marks	**Max Marks: 25+75** — **Min Passing Marks : 33**

Part B: Content of the Course

Total Periods: 60

Unit	Topics	No. of Periods
I.	**Overview of Database Management**: Data, Information and Knowledge, Data Processing versus Data Management, File Oriented Approach verses Database Oriented Approach, Data Independence, Database Administration Roles, Overview of Database, DBMS Architecture, Different kinds of DBMS users, Introduction to Data Dictionary. Data Models: Network Model, Relational Model, Hierarchical Model. Database Languages: DDL, DML, DCL, And TCL. Structured Query Language :Basic Data Types, Commands : Create, Insert, Select, Delete, Truncate , Drop, Alter, Grant ,Revoke, Commit, Rollback, Queries on Multiple Relation, Join Operation, String Operation, Set Operation, Grouping, Nested Subqueries.	12
II.	**Concepts of Database Management System** : Definition of Tables, Cardinality relationships in a Database, Constraints in a Database, Entity, Attributes, Strong and weak entities, ER-Diagram, Symbols and Implementation, Concept of keys: Candidate key, Primary key, Alternate key, Foreign key, Case studies of ER modeling Generalization, Specialization and Aggregation, Converting an ER model into relational Schema, Extended ER features.	12

	Schema. Extended ER features.	
III.	**Relational Database Design:** Normalization concept in logical model, Pitfalls in database design, Functional dependencies, Join dependencies, Natural Join, Normal forms (1NF, 2NF, 3NF), Boyce Codd Normal form, Decomposition, Multi-Valued Dependencies, 4NF, 5NF. Issues in physical design: Concepts of indexes, File organization for relational tables, De-normalization. Relational Database :Structure of Relational Database, Schema, Relational Operation : Selection, Projection, Cartesian Production, Union, Intersection and Minus operation .Relational Algebra: Select operation, Project operation, Union operation, Cartesian Product operation, Intersection operation, Join operation, Different types of joins (Inner join, Outer join, Self join).	12
IV.	**SQL Server Basics:** Microsoft SQL Server 2019, Overview of SQL Server 2019,Versions of SQL Server, Installation of SQL Server 2019, SQL Server Management Studio(SSMS), Azure Data Studio(ADS), Features of SQL Server Express, SQL Server Support Life Cycle, Data Definition Language (DDL) Commands, Data Manipulation Language (DML) Commands, Data Control Language (DML) Commands, Transaction Control Language (TCL) Commands, Data Constraints, Stored Procedure, Function .	12
V.	**Oracle Basics :** Oracle Corporation, Versions of Oracle, Oracle Products, Oracle Installation, Oracle Client and Server Products, Online Transaction Processing, Hybrid cloud Installation, Data Definition Language (DDL) Commands, Data Manipulation Language (DML) Commands, Data Control Language (DML) Commands, Transaction Control Language (TCL) Commands, Data Constraints, Introduction to PL/SQL Programming, Data Types, Looping Statements, Cursors, Stored Procedure, Function .	12

Keywords: Data Models, Keys, SQL Commands, DBMS, RDBMS, Oracle, SQL Server.

Part C - Learning Resources

Text Books, Reference Books, Other Resources

Suggested Readings:

1. Database system concept , H. Korth and A. Silberschatz, TMH Publications .
2. Data Base Management System, Alexies&Mathews,Vikash publication.
3. Data Base Management System, C. J. Date ,Narosha Publication.
4. Data Base Management System By James Matin .
5. Principles of Database System By Ullman.
6. Program Design, Peter Juliff, PHIPublications .
7. The Complete Reference, Kevin Loney, Oracle Press.
8. SQL, PL/SQL The Programming Language of Oracle, Ivan Bayross , PustakKosh Publication.
9. Microsoft SQL Server Management and Administration, Ross, STM Publications .

E Resources:

1. SWAYAM url link for DBMS and RDBMS :https://youtu.be/f6LGtJutWyA
2. SWAYAM url link for DBMS and RDBM : https://youtu.be/IoL9Ve2SRwQ
3. SWAYAM url link for DBMS and RDBMS : https://**swayam**.gov.in/courses/4434-database-management-system

Part D: Assessment and Evaluation		
Suggested Continuous Evaluation Methods: Maximum Marks: 100 Continuous Comprehensive Evaluation (CCE): 25 Marks University Exam (UE): 75 Marks		
Internal Assessment: Continuous Comprehensive Evaluation (CCE)	Class Test/Assignment/Presentation	25 Marks

Part A: Introduction

Program: **Diploma Course**	Class: **B.C.A. II Year**	Year: **2024**	Session: **2024-2025**
1 Course Code	**BCA-IIT**		
2 Course Title	**Computer Networking and Cyber Technology**		
3 Course Type	**Theory**		
4 Pre-requisite (if any)	No		
5 Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • Understand the basic computer network technology. • Understand and explain the Data Communications System and its components. • Identify the different types of network topologies and protocols • Understand the layers of the OSI model and TCP/IP. • Expose wireless and wired LANs. • Understand the cyber laws in India.		
6 Credit Value	**Theory: 6**		
7 Total Marks	**Max. Marks: 25+75**	**Min Passing Marks: 33**	

Part B:Content of the Course

Total Periods: 90

Unit	Topics	No. of Periods
I	**Introduction to Computer Network and Physical Layer:** Computer network Fundamentals and Types of computer networks: LAN, MAN, WAN, Wireless and wired networks, broadcast and point to point networks, Network topologies, ISO-OSI reference model, TCP/IP model, Concept of Analog & Digital Signal, Bandwidth, Multiplexing: TDM, FDM, WDM, CDMA, Transmission Media : Twisted pair, Coaxial cable, Fiber-optics, Wireless transmission (radio, microwave, infrared), Switching: Circuit Switching, Message Switching ,Packet Switching & their comparisons, Line Coding techniques: Bipolar, Unipolar, RZ, NRZ, Manchester, AMI, B8ZS, Block coding techniques.	18
II	**Data Link Layer:** Functions at Data Link Layer, Framing, Error detection and correction codes: checksum, CRC, hamming code, Flow Control: Stop & Wait and Sliding Window Protocols, Data link protocols: HDLC and PPP, Medium Access Sub-Layer: LLC Protocol, IEEE 802.2, Overview of IEEE 802.3,802.4,802.5, 802.6 and brief knowledge of 802 series up to present scenario.	18
III	**Network Layer and Transport Layer:** Functions of Network Layer, Routing Protocols & Algorithms, Principles of Congestion Control, IPv4 addresses, IPv4 Addressing, IPv6 addresses, Internetworking basics, Functions of Transport Layer, Flow Control & Buffering, Introduction to TCP/UDP protocols and their comparison.	18

IV	**Common Network Architecture:** Protocol Stack for Example Networks, Connection oriented & Connectionless N/Ws, Frame Relay, Example of N/Ws-P2P, X.25, ATM, Ethernet, Wireless LANs - 802.11, 802.11x, Gigabit, Broadband Networks: Integrated Service Digital Networks (ISDN), BroadBand ISDN, ATM, Introduction to Very Small Aperture Terminal (VSAT).	12
V	**Application Layer:** World Wide Web (WWW), Domain Name System (DNS), E-mail, File Transfer Protocol (FTP), HyperText Transfer Protocol (HTTP), Email Protocols: MIME & SMTP, POP, IMAP, Telnet – Remote Communication Protocol, Proxy Server, Proxy Web Servers. **Cyber Laws in India:** Information Technology Act, 2000 – a brief overview; E – commerce; E – governance; Concept of Electronic Signature; Concept of Cyber contraventions and Cyber Offences.	12

Keywords: Computer Network, TCP/IP Model, OSI Model, Wireless & Wired Networks, Cyber Laws

Part C - Learning Resource

Text Books, Reference Books, Other Resources

Suggested Readings:

Text Books:

1. Computer Networks, Andrew S. Tanenbaum, PHI / Pearson Education Inc.
2. Data Communication and Networking, Behrouz A. Forouzan, Tata McGraw-Hill.
3. Internet Law-Text and Materials, Chris Reed, Universal Law Publishing Co., New Delhi
4. Hand book of Cyber Laws, Vakul Sharma, Macmillan India Ltd, New Delhi

Reference Books:

1. Data and Computer Communication, William Stallings, Pearson Education.
2. Computer and Communication Networks, Nader F. Mir, Pearson Education, 2007.
3. Data & Computer Communication, Black, PHI

E Resources:

- NPTEL URL link for Data Communication:
  https://nptel.ac.in/courses/106105082
  Topics From SWAYAM Portal
- Introduction to Data Communication
  https://www.youtube.com/watch?v=swtH_okidQc&list=PLUtfVeb-iqn8dG1-Cn7NTEdILR3hRVgeN&index=1
- Layered Architecture
  https://www.youtube.com/watch?v=xHO6IjSHeo0&list=PLUtfVeb-iqn8dG1-Cn7NTEdILR3hRVgeN&index=2
- Data and Signal
  https://www.youtube.com/watch?v=6ZGV7gUeeE&list=PLUtfVeb-iqn8dG1-Cn7NTEdILR3hRVgeN&index=3
- Guided Transmission Media
  https://www.youtube.com/watch?v=y7v3EAIsWXA&list=PLUtfVeb-iqn8dG1-Cn7NTEdILR3hRVgeN&index=5
- Unguided Transmission Media
  https://www.youtube.com/watch?v=hKqItY1VxdQ&list=PLUtfVeb-iqn8dG1-Cn7NTEdILR3hRVgeN&index=6

Part D: Assessment and Evaluation		
Suggested Continuous Evaluation Methods: Maximum Marks: 100 Continuous Comprehensive Evaluation (CCE): 25 Marks University Exam (UE): 75 Marks		
Internal Assessment: Continuous Comprehensive Evaluation (CCE)	Class Test/Assignment/Presentation	25 Marks

Part A: Introduction

Program: **Diploma Course**	Class: **B.C.A. II Year**	Year: **2024**	Session: **2024-2025**
Course Code	**BCA-12T**		
Course Title	**Web Technology**		
Course Type	**Theory**		
Pre-requisite (if any)	No		
Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • Analyze a web page and identify its elements and attributes. • Create web pages using HTML, CSS, JAVASCRIPT, XHTML. • Build dynamic web pages using JavaScript (Client side programming). • Create XML documents and Schemas. • Build interactive web applications using, PHP, AJAX. • Handling Database using MYSQL		
Credit Value	**Theory: 4**		
Total Marks	**Max. Marks: 25+75**	**Min Passing Marks: 33**	

Part B: Content of the Course

Total Periods: 60

Unit	Topics	No. of Periods
I	**Introduction** :Introduction to web, protocols governing the web, web development strategies, Web applications, Introduction to Web Publishing: Introduction, Domain Name Registration, choosing a web host and signing up for an Account, web hosting, web design and development, Testing web site, uploading web pages.	12
II	**HTML:** Introduction, Basic formatting tags: heading, paragraph, line break, bold, italic, underline, superscript, subscript, font and image. Different attributes like align, color, bgcolor, font face, border, size. Navigation Links using anchor tag: internal, external, mail and image links, Link to different web pages and sections. Lists: ordered, unordered and definition, Table tag, HTML Form controls: form, text, password, text area, button, checkbox, radio button, select box, hidden controls, Frameset and frames, Basics of DHTML, XML.	12
III	**Scripting Languages:** Usefulness of Style Sheets, Creating Style sheets, Classes and Pseudo Classes, CSS Tags, Background, Font, Text, Position etc. JavaScript: Overview, Syntax & Conventions, Variables, Expression, Branching & Looping, Function, Array, Objects, Events & Document Object model, Alerts, prompts and conforms.	12

IV	PHP: Introduction to PHP, Server side scripting, Role of Web Server software, including files, comments, variables and scope, echo and print, Operators: Logical, Comparison and Conditional operators, Branching statements, Loops, break and continue PHP functions, Passing information between pages, HTTP GET and POST method, String functions: strlen, strops, strstr, strcmp, substr, str_replace, string case, Array constructs: array(), list() and foreach(), PHP advanced functions: Header , Session, Cookie, Object Oriented Programming using PHP: class, object, constructor, destructor and inheritance.	12
V	**MySQL:** Features of MySQL, data types, Introduction to SQL commands-SELECT, DELETE,UPDATE, INSERT, PHP functions for MySQL operations: mysql_connect, mysql_select_db, mysql_query,mysql_fetch_row, mysql_fetch_array, mysql fetch_object, mysql_result, Insertion and Deletion of data using PHP, Displaying data from MYSQL in webpage.	12
Keywords: HTML, PHP, CSS, CSS3, JAVASCRIPT, MYSQL, Dynamic website, Commercial website, Web applications		

Part C - Learning Resource

Text Books, Reference Books, Other Resources

Suggested Readings:

TEXT BOOKS/ REFERENCE BOOKS:

1. Xavier, C, "Web Technology and Design", New Age International.
2. Ivan Bayross, "HTML, DHTML, Java Script, Perl & CGI", BPB Publication.
3. Ramesh Bangia, "Internet and Web Design", New Age International.
4. Ullman, "PHP for the Web: Visual Quick Start Guide", Pearson Education.
5. Jim Converse & Joyce Park, "PHP & MySQL Bible", Wiley India Publication
6. "Internet and Internet Engineering", Daniel Minoli, TMH.
7. Chuckmusiano & Bill Kenndy, O Reilly, HTML The Definite Guide"
8. Joseph Schmuller, Dynamic HTML, BPB, 2000.
9. Deitel, Deitel, Goldberg, "Internet & World Wide Web How to Program", Third Edition, Pearson Education, 2006.
10. Raj Kamal, "Internet and Web Technologies", Tata McGraw-Hill.

Part D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:
Maximum Marks: 100
Continuous Comprehensive Evaluation (CCE): 25 Marks
University Exam (UE): 75 Marks

Internal Assessment: Continuous Comprehensive Evaluation (CCE)	Class Test/Assignment Presentation	25 Marks

Part A: Introduction				
Program: **Diploma Course**		Class: **B.C.A. II Year**	Year: **2024**	Session:**2024-2025**
1	Course Code	**BCA-3P**		
2	Course Title	**LAB 3: Relational Database Management System**		
3	Course Type	**Practical**		
4	Pre-requisite (if any)	Basic Knowledge of SQL		
5	Course Learning. Outcomes (CLO)	At the end of course, Students will be able to: • Learn about Database Concepts, Architecture, various Users, Data Models and Data Management which helps them to interact with various Databases. • Develop various Tables and Databases which helps them to develop new Software. • Practice various SQL commands which helps them to generate new relationships among various Tables and Databases which are useful for Software Development. • Familiar about RDBMS Software like Oracle and SQL Server which are used as Backend for Software Development. • Develop new Databases for their Minor and Major Project Development which enhances their Data Storage, Data Accessibility and Data Management.		
6	**Credit Value**	**Practical: 2**		
7	**Total Marks**	**Max. Marks: 100**	**Min Passing Marks: 33**	

Part B: Content of the Course	
Total Periods: 30	
Tentative Practical List	**Note:** This is tentative list; the teachers concern can add more program as per requirement. 1. Design an employee table in Oracle/SQL Server having eid(primary key) ename, edesignation, edoj, edob, eaddress, salary, econtact as fields and answer the following questions : a) Insert five records in above created table. b) Display all five records. c) Delete the fourth record. d) Update the third record of field ename as 'hari'. e) Add one new field in the table. 2. Design a salary table Oracle/SQL Server with one primary key and foreign key(employee table) having following fields : Month, working days, deptid, gross, incentive, deduction and net salary. a) Insert five records in above created table.

b) Display all five records.
c) Use foreign key relation and display records.
d) Update the second record of field deptid as 'Sales '.
e) Add one new field in the table.

3) Create a new user in Oracle/SQL Server.
4) Create a view in Oracle/SQL Server.
5) Create a new table in Oracle/SQL Server and practice for join operation.
6) Create a new user in Oracle/SQL Server and practice for commit and rollback command.
7) Create a new database in Oracle/SQL Server having atleast five tables for Hotel Management System.
8) Create a new database in Oracle/SQL Server having atleast four tables for Covid Vaccination Management System.
9) Create a new database in Oracle/SQL Server having atleast five tables for Library Management System.
10) Create a new table in Oracle/SQL Server and practice for Group by and Order by Clause.
11) Create a new table in Oracle/SQL Server and practice for max(), min(), avg() and count() functions.
12) Create a new table in Oracle/SQL Server and practice for lower(), substr(),trim() and upper() functions.
13) Create a new table in Oracle/SQL Server and practice for unique and check constraint.
14) Create a new table in Oracle/SQL Server and practice for any two date formats.
15) Create a new table in Oracle/SQL Server and practice for using clause.
16) Create a new table in Oracle/SQL Server and practice for having clause with sub queries.
17) Create a new table in Oracle/SQL Server and practice for alias in any table.
18) Create a new table in Oracle/SQL Server and practice for inner and outer join.
19) Create a new table in Oracle/SQL Server and practice for Drop command.
20) Write a PL/SQL program for addition of two numbers .
21) Write a PL/SQL program to find the factorial value of any entered number.
22) Write a PL/SQL program for swapping of two numbers.
23) Write a PL/SQL program to print first ten Natural Numbers.

		24) Write a PL/SQL program to generate Even series upto five digits starting from 2 and sum all the terms. 25) Write a PL/SQL program to practice for implicit and explicit cursor.

Part C - Learning Resource

Text Books, Reference Books, Other Resources

Suggested Readings:

1. Database system concept , H. Korth and A. Silberschatz, TMH Publications .
2. Data Base Management System, Alexies&Mathews,Vikash publication.
3. Data Base Management System, C. J. Date ,Narosha Publication.
4. Data Base Management System By James Matin .
5. Principles of Database System By Ullman.
6. Program Design, Peter Juliff, PHIPublications .
7. The Complete Reference, Kevin Loney, Oracle Press.
8. SQL, PL/SQL The Programming Language of Oracle, Ivan Bayross , PustakKosh Publication.
9. Microsoft SQL Server Management and Administration, Ross, STM Publications .

E Resources:

1. SWAYAM url link for DBMS and RDBMS: https://youtu.be/f6LGtJutWyA
2. SWAYAM url link for DBMS and RDBM: https://youtu.be/IoL9Ve2SRwQ
3. SWAYAM url link for DBMS and RDBMS : https://**swayam**.gov.in/courses/4434-data-base-management-system

Part D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): Not Applicable

University Exam(UE): 100 Marks

Internal Assessment: Continuous Comprehensive Evaluation (CCE)	Class Test/Assignment/Presentation	Not Applicable

Part A: Introduction				
Program: **Diploma Course**		Class: **B.C.A. II Year**	Year: **2024**	Session: 2024-2025
1	Course Code	**BCA-4P**		
2	Course Title	**LAB 4: Web Technology**		
3	Course Type	**Practical**		
4	Pre-requisite (if any)	Theoretical knowledge of Web Technology		
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • Analyze a web page and identify its elements and attributes. • Create web pages using HTML, CSS, JAVASCRIPT, XHTML • Build dynamic web pages using JavaScript (Client side programming). • Create XML documents and Schemas. • Build interactive web applications using, PHP, AJAX. • Handling Database using MYSQL		
6	**Credit Value**	**Practical: 2**		
7	**Total Marks**	**Max. Marks: 100**	**Min Passing Marks : 33**	

Part B: Content of the Course

Total Periods: 30

Tentative Practical List

Note: This is tentative list; the teachers concern can add more program as per requirement.

HTML

1. Write an HTML program to create the following table:

Class	Subject 1	Subject 2	Subject 3
BCA-I	Visual Basic	PC Software	Electronics
BCA-II	C++	DBMS	English
BCA-III	Java	Multimedia	CSA

2. Write an HTML program to create the following lists:
   - C
   - C++
   - Fortran
   - COBOL
3. Write an HTML program to create the following lists:
   1. Java
   2. Visual Basic
   3. Basic
   4. COBOL
4. Write an HTML program to demonstrate hyper linking between two web pages.
5. Create a marquee & also insert an image.
6. Write an HTML program to create frame in HTML with 3 columns (width= 30%, 30%, 40%).
7. Write an HTML program to create a webpage with a blue background and print the following text with white background.
8. Write an HTML program to create the following table:

Course	OC	BC	MB	SC/ST	Total
Computer Science	9	18	5	5	37
Commerce	14	25	6	5	50

Grand Total		87

9. Write an HTML program to create the following table:

Maruti		Tata		Ford	
Model	**Price**	**Model**	**Price**	**Model**	**Price**
Maruti 800	2 Lac	Sumo	2 Lac	Icon	5 Lac
Omni	3 Lac	Scorpio	3 Lac	Gen	2 Lac

10. Write an HTML program to create the following table:

Pandit Ravishankar Shukla University		
Name	**Roll No.**	**Class**
Rahul	40	BCA-I
Preeti	85	BCA-I
Priya	74	BCA-I
Richa	95	BCA-I

11. Write an HTML program to create the following table:

Students Record

Name	Subject	Marks
Arun	Java	70
	C	80
Ashish	Java	75
	C	69

12. Write an HTML program to create the following table and also insert an image in the webpage.

Subject	Max	Min	Obtain
Java	100	33	75
Multimedia	100	33	70
Operating System	100	33	68
C++	100	33	73

13. Write an HTML program to create the following table:

Name Roll No.		Rahul 101	
Subject	**Max**	**Min**	**Obtain**
Java	100	33	75
Multimedia	100	33	70

14. Write an HTML program to create a form as the following:

Enter Name :

Enter Roll No. :

Enter Age :

Enter DOB :

15. Write an HTML program to create the following webpage with background and the following text:
16. Write an HTML program to create the following form:

User Name :

Password :

When user types characters in a password field. The browser displays asterisks or bullets instead of character.

Submit

17. Write a HTML Program to create Student Registration Form
18. Write a HTML Program to create Contact Form
19. Write a HTML Program to insert Audio & Video in HTML
20. Write the HTML coding for the following equations:

$C_2H_5OH+PCL_5=C_2H_5CL+POCL_3+HCL$

$4H_3PO_3=3H_3PO_4+PH_3$

$PCL_3+CL_2=PCL_5$

21. Write the HTML code to display the following:
    - Actors
        - Bruce Wills
        - Gerand Butler
        - Vin Diesel
        - Bradd Pitt
        - Paul Walker
        - Jason Statham
    - Actress
        - Julia Roberts
        - Angelina Jolie
        - Kate Wins let
        - Cameron Diaz
22. Write the HTML code to display the following:
    1. Cricket Players
        A. Batsman
            i. Sachin Tendulkar
            ii. Rahul Dravid
            iii. Virendra Sehwag
        B. Bowlers
            i. Kumble
            ii. Zaheer Khan
            iii. Balaji
        C. Spinner
            i. Harbhajan
            ii. Ravindra Jadeja
            iii. Kartik

JavaScript

1. Create a script using for loop to prime number between 1 and 50.
2. Write a script to get the largest value in an array.
3. Write a function to calculate the factorial of a number (a non-negative integer).
4. Write a script to demonstrate data validation.
5. Write a program to print date using JavaScript.
6. Write a program to Sum and Multiply two numbers using Javascript.

DHTML

1. Create a web page which shows the changes of header dynamically.
2. Create a webpage which explains the use of relative positioning.
3. Display an alert box to alert the x and y coordinates of the cursor.

PHP

1. Create a script using for loop to all integers between 0 and 30 and display the total.
2. Create a script to construct the following pattern, using nested for loop exercises.
3. Write a PHP script to get the largest key in an array.
4. Write a function to calculate the factorial of a number (a non-negative integer).
5. Write a PHP script to check string for palindrome.

MySQL

1. **Create the following table in MySQL:**

   College (cname, city, caddress, cphone)
   Staffjoins (sid, cname, dept, doj, post, salary)
   Staffs (sid, sname, saddress , scontacts)
   Teaching (sid, class, paprid, fsession, tsession)
   Subject (paperid, subject, paper, papername)

1. List the name and post of teacher teaching computer subject.
2. List the name and city of all staffs working in your college.
3. List the name and city all staffs working in your college who earn more then 15000.
4. Find the staff whose date of joining is 2005.
5. Find the staffs whose names start with 'M' or 'R' and 'A' and/or 7 character long.
6. Modify the database so that staffN1 now work in C2 college .
7. List maximum, average, minimum salary of each college.
8. Acquire detail of staffs by name in a college or each college.
9. List names of staffs in ascending order according to salary who are working in all colleges.
10. Find the staffs that earn a higher salary who earn greater than average salary of their college.

2. **Create the following table MySQL:**

   Enrollment (enrollno, name, gender, DOB, address, phone)
   Admission (adno, enrollno, course, yearsem, date, cname)
   Feestucture (course_yearsem, fee)
   Payment (billno, admno, amount, pdate,purpose)

1. Get full detail of all students who took admission this year class wise.
2. Get detail of students who took admission in sai colleges.
3. Calculate the total amount of fees collected in this session.
4. List the student who have not payed full fee in your colleges.
5. List the number of admission in your college in every year.
6. List the students in colleges in your city and also live in your city.

3. **Create the following table MySQL:**

   Subject (paperid, subject, paper, papername)
   test(paperid,tdate,max,min)
   score(rollno,paperid,marks,attendance)
   students(admno,rollno,class,yearsem)

Part D: Assessment and Evaluation		
Suggested Continuous Evaluation Methods: Maximum Marks: 100 Continuous Comprehensive Evaluation (CCE): Not Applicable University Exam(UE): 100 Marks		
Internal Assessment: Continuous Comprehensive Evaluation (CCE)	Class Test/Assignment/Presentation	Not Applicable

	1. List roll no of students who were present in a paper of a subject. 2. List all roll numbers who have passed in first division. 3. List all students in BCA-II who have scored higher than average in your college. 4. List the highest score

Part C - Learning Resources

Text Books, Reference Books, Other Resources

Suggested Readings:

1. Xavier, C, "Web Technology and Design", New Age International.
2. Ivan Bayross, "HTML, DHTML, Java Script, Perl & CGI", BPB Publication.
3. Ramesh Bangia, "Internet and Web Design", New Age International.
4. Ullman, "PHP for the Web: Visual Quick Start Guide", Pearson Education.
5. Jim Converse & Joyce Park, "PHP & MySQL Bible", Wiley India Publication
6. "Internet and Internet Engineering", Daniel Minoli, TMH.
7. Chuckmusiano & Bill Kenndy, O Reilly, HTML The Definite Guide"
8. Joseph Schmuller, Dynamic HTML, BPB, 2000.
9. Deitel, Deitel, Goldberg, "Internet & World Wide Web How to Program", Third Edition, Pearson Education, 2006.
10. Raj Kamal, "Internet and Web Technologies", Tata McGraw-Hill.

E Resources:

1. HTML different topics from Javatpoint
   https://www.javatpoint.com/html-tutorial/
2. JavaScript different topics from Javatpoint
   https://www.javatpoint.com/javascript-tutorial
3. JavaScript different topics from Javatpoint
   https://www.javatpoint.com/php-tutorial
4. DHTML different topics from Javatpoint
   https://www.javatpoint.com/dhtml
5. PHP different topics from W3Schools
   https://www.w3schools.com/php/
6. PHP different topics from W3Schools
   https://www.w3schools.com/html/
7. MySQL different topics from W3Schools
   https://www.w3schools.com/mySQl/default.asp
8. MySQL different topics from Javatpoint
   https://www.javatpoint.com/mysql-tutorial