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|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Title of the Course** | **Operating Systems** | | | | |
| **Course Code** | **R204GA05503** | | | | |
| **Class, Semester, Section** | **III B. Tech I Sem** | | | | |
| **Course Type** | Theory/Laboratory | | | | |
| **Regulation** | SRIT R-20 | | | | |
| **Course Structure** | Theory | | | Practical | |
| Lecture | Tutorials | Credits | Laboratory | Credits |
| 3 | 0 | 3 | 3 | 3 |
| **Course Coordinator** | Mr. M. Narasimhulu | | | | |

**1. Course Pre-requisites:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Level** | **Course Code** | **Semester** | **Prerequisites** |
| B. Tech |  | I |  |
| B. Tech |  |  |  |
| B. Tech |  |  |  |

# 2. COURSE OVERVIEW: (Write the description of the course in 30 to 40 words)

|  |
| --- |
| This course deals with the concepts of rapidly changing fields of operating systems and networking. This course includes detailed description of operating system services and functions, inter process communication, mass storage structures, handling deadlocks, file management techniques, I/O systems, protection and security of operating system. |

**3. MARKS DISTRIBUTION:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Subject** | **SEE** | **CIE** | **CAA** | **Total Marks** |
| **Operating Systems** | 70 marks | 20 marks | 10 marks | 1. marks |

# 4. CONTENT DELIVERY / INSTRUCTIONAL METHODOLOGIES:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Power Point Presentations |  | Chalk & Talk |  | Assignments | **x** | MOOC |
| **X** | Open Ended Experiments | **x** | Seminars | **x** | Mini Project | **x** | Videos |
| **X** | Course Project | **X** | Others |  |  |  |  |
|  |  | | | | | | |

**5. EVALUATION METHODOLOGY:**

The course will be evaluated for a total of 100 marks, with 30 marks for Continuous Internal Assessment (CIA) and 70 marks for Semester End Examination (SEE). CIA is conducted for a total of 30 marks, with 20 marks for Continuous Internal Examination (CIE), and 10 marks for Continuous Alternative Assessment (CAA).

**Semester End Examination (SEE):** End examination of theory courses shall have the

following pattern:

a. There shall be 6 questions and all questions are compulsory.

b. Question 1 shall contain 5 compulsory short answer questions for a total of 10

marks such that each question carries 2 marks. There shall be 1 short answer

questions from each unit.

c. In each of the questions from 2 to 6, there shall be either/or type questions of

10 marks each. Student shall answer any one of them.

d. The questions from 2 to 6 shall be set by covering one unit of the syllabus for

each question.

The expected percentage of cognitive level of the questions is broadly based on the criteria given in below Table.

|  |  |
| --- | --- |
| Percentage of Cognitive Level | Blooms Taxonomy Level |
| 35% | Remember |
| 35% | Understand |
| 30% | Apply |
| 0 % | Analyze |

# Continuous Internal Assessment (CIA):

CIA is conducted for a total of 40 marks, with 30 marks for continuous internal examination (CIE) and 10 marks for Alternative Assessment Tool (AAT).

|  |  |  |  |
| --- | --- | --- | --- |
| **Component** | | Marks | Total Marks |
| **CIA** | Continuous Internal Examination – 1 (Mid-term) | 15 | 40 |
| Continuous Internal Examination – 2 (Mid-term) | 15 |
| CAA-1 | 5 |
| CAA-2 | 5 |
| **SEE** | Semester End Examination (SEE) | 60 | 60 |
| **Total Marks** | | | 100 |

# Continuous Internal Examination (CIE):

# For each theory course, during the semester, there shall be two CIEs. Each CIE will be evaluated for 30 marks.The first CIE will be conducted for around 50% of the syllabus and the second CIE will be conducted for the remaining syllabus. Final or consolidated CIE marks will be arrived considering the marks secured by the student in both the CIEs with 80% weightage given to the better CIE and 20% to the other. The duration of CIE examination is 120 minutes. There shall be 4 questions and all are compulsory.

# a. Question 1 contains 3 short answer questions from each unit with equal weightage for a total of 6 marks. The student has to answer all of them.

# b. Questions 2-4 contains 3 either/ or type questions from each unit with equal weightage of 8 marks.

# c. If the student is absent for the CIE examination, no re-exam shall be

# conducted and marks for that examination shall be considered as zero.

# Continuous Alternative Assessment (CAA):

# For each theory course, during the semester, there shall be two CAAs. Each CAA will be evaluated for 10 marks. The first CAA will be conducted for around 50% of the syllabus and the second CAA will be conducted for the remaining syllabus. Final or consolidated CAA marks will be arrived by considering the average of marks secured by the student in both the CAAs. Respective course coordinator has to evaluate CAAs through Assignment or any other such evaluation methods depending on the nature of the course. The course coordinator will announce the mode of the CAA to the respective class at the beginning of the course. It is responsibility of the course

# coordinator and Head of the department to maintain the complete record of

# CAAs and its evaluation.

**The final marks for CIA (for 40 marks) = Consolidated CIE marks (for**

**30 marks) + Consolidated CAA marks (for 10 marks)**

# 6. COURSE OBJECTIVES:

**From this course the students will try to learn:**

|  |  |
| --- | --- |
| I | To explore various interfaces in the operating system. |
| II | To acquire knowledge in design and implement web applications. |
| III | To demonstrates the uses of scripting languages. |
| IV | To explore the fundamental concepts of AngularJS, React JS and Node.js. |

# 7. COURSE OUTCOMES:

**After successful completion of the course, students should be able to:**

|  |  |  |
| --- | --- | --- |
| **CO** | **Course Outcomes**  At the end of the course students will be able to: | **Cognitive Level** |
| CO1 | Explain the fundamentals of operating systems like process, memory, storage, file system, security and protection. | Understand |
| CO2 | Illustrate various operating System services, interfaces and system calls. | Apply |
| CO3 | Demonstrate critics of process management and IPC. | Apply |
| CO4 | Implement page replacement algorithms, memory management techniques and deadlock issues. | Apply |
| CO5 | Illustrate architecture of file systems and I/O systems for mass storage structures. | Apply |
| CO6 | Utilize the methods of operating system security and protection. | Apply |

# COURSE KNOWLEDGE COMPETENCY LEVEL:

|  |  |  |  |
| --- | --- | --- | --- |
| **S. No.** | **Cognitive Level** | **No. of COs mapped** | **%** |
| **1** | Remember | **6** | **35** |
| **2** | Understand | **6** | **35** |
| **3** | Apply | **5** | **30** |
| **4** | Analyze |  |  |
| **5** | Evaluate |  |  |

# 8. Program Outcomes and & Program Specific Outcomes:

|  |  |
| --- | --- |
| **Program Outcomes** | |
| **PO 1** | **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. |
| **PO 2** | **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. |
| **PO 3** | **Design/Development of Solutions:** Design solutions for complex Engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and Environmental considerations |
| **PO 4** | **Conduct Investigations of Complex Problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. |
| **PO 5** | **Modern Tool Usage:** Create, select, and apply appropriate techniques, resources, and modern Engineering and IT tools including prediction and modeling to complex Engineering activities with an understanding of the limitations |
| **PO 6** | **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice. |
| **PO 7** | **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. |
| **PO 8** | **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. |
| **PO 9** | **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. |
| **PO 10** | **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. |
| **PO 11** | **Project management and finance:** Demonstrate knowledge and understanding of the engineering 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. |
| **PO 12** | **Life-Long Learning:** Recognize the need for and having the preparation and ability to engage in independent and life-long learning in the broadest context of technological change |
| **Program Specific Outcomes** | |
| **PSO1** | Design, implement, and test application software systems for desktop, web, and mobile platforms to meet the specified requirements. |
| **PSO2** | Use effectively and efficiently the functionality of systems software for building applications. |
| **PSO3** | Understand the organization and architecture of Computer Systems, Embedded Systems, and Networked Systems. |

**9. MAPPING OF EACH CO WITH PO(s),PSO(s):**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **COs** | **PROGRAM OUTCOMES** | | | | | | | | | | | | **PSO’S** | | |
| **PO 1** | **PO 2** | **PO 3** | **PO 4** | **PO 5** | **PO 6** | **PO 7** | **PO 8** | **PO 9** | **PO 10** | **PO 11** | **PO 12** | **PSO 1** | **PSO 2** | **PSO 3** |
| CO 1 | X | - | - | - | x | - | - | - | - | - | - |  | - | x | - |
| CO 2 | X | - | - | - | x | - | - | - | - | - | - | - | - | x | - |
| CO 3 | X | - | - | - | x | - | - | - | - | - | - | - | - | x | - |
| CO 4 | X | - | - | - | x | - | - | - | - | - | - |  | - | x | - |
| CO 5 | X | - | - | - | x | - | - | - | - | - | - | - | - | x | - |
| CO 6 | X | - | - | - | x | - | - | - | - | - | - | - | - | x |  |

# 10. JUSTIFICATIONS FOR CO – PO/ PSO MAPPING -DIRECT:

|  |  |  |  |
| --- | --- | --- | --- |
| **CO** | **POs/PSOs**  **mapped** | **Justification for mapping**  **(Students will be able to)** | **No. of key competencies** |
| CO 1 | **PO1, PO5, PSO2** | **Identify the Components of Operating Systems based on Mathematical Fundamentals.**  **Calculate the Performance of Algorithms on Scientific Principles.**  **Implement the Features of Operating Systems using C language tool.** | **2 ,1, 1** |
| CO 2 | **PO1, PO5, PSO2** | **Use the Operating System Services to inspect the components of Services.**  **Identify the interfaces based on Mathematical Fundamentals, Engineering and Scientific Principles.** | **2 ,1, 1** |
| CO 3 | **PO1, PO5, PSO2** | **Design Process Management and Process Communication using Mathematical Fundamentals, Engineering and Scientific Principles.** | **2 ,1, 1** |
| CO 4 | **PO1, PO5, PSO2** | **Evaluate the page replacement algorithms based on mathematical, Engineering and Scientific Principles.** | **2 ,1, 1** |
| CO 5 | **PO1, PO5, PSO2** | **Identify File System Architecture and IO systems methodologies for a storage system based on Engineering and Scientific Principles.** | **2 ,1, 1** |
| CO 6 | **PO1, PO5, PSO2** | **Identify the use of security level and protection methods based on Engineering and Scientific Principles.** | **2 ,1, 1** |

**11. TOTAL COUNT OF KEY COMPETENCIES FOR CO – PO/ PSO MAP- PING:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **COs** | **PROGRAM OUTCOMES** | | | | | | | | | | | | **PSO’S** | | |
| **PO 1** | **PO 2** | **PO 3** | **PO 4** | **PO 5** | **PO 6** | **PO 7** | **PO 8** | **PO 9-** | **PO 10** | **PO 11** | **PO 12** | **PSO 1** | **PSO 2** | **PSO 3** |
| CO 1 | 2 | - | - | - | 1 | - | - | - | - | - | - |  | - | 1 | - |
| CO 2 | 2 | - | 4 | - | 1 | - | - | - | - | - | - | - | - | 1 | - |
| CO 3 | 2 | 4 | - | - | 1 | - | - | - | - | - | - | - | - | 1 | - |
| CO 4 | 2 | 6 | - | - | 1 | - | - | - | - | - | - |  | - | 1 | - |
| CO 5 | 2 | 5 | - | - | 1 | - | - | - | - | - | - | - | - | 1 | - |
| CO 6 | 2 | - | - | - | 1 | - | - | - | - | - | - | - | - | 1 |  |

# 12. PERCENTAGE OF KEY COMPETENCIES FOR CO – PO/ PSO

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **COs** | **PROGRAM OUTCOMES** | | | | | | | | | | | | **PSO’S** | | |
| **PO 1** | **PO 2** | **PO 3** | **PO 4** | **PO 5** | **PO 6** | **PO 7** | **PO 8** | **PO 9** | **PO 10** | **PO 11** | **PO 12** | **PSO 1** | **PSO 2** | **PSO 3** |
| No. of Vital Features | | | | | | | | | | | | | | |
| 3 | 10 | 10 | 11 | 1 | 5 | 3 | 3 | 12 | 5 | 12 | 12 |  |  |  |
| CO 1 | 100 | - | - | - | - | - | - | - | - | - | - |  | - |  | - |
| CO 2 | 66.66 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CO 3 | 66.66 | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CO 4 | 100 | 50 | - | - |  | - | - | - | - | - | - |  |  |  | - |
| CO 5 | 66.66 | 60 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CO 6 | 100 | - | - | - |  | - | - | - | - | - | - | - | - | - |  |

**13. COURSE ARTICULATION MATRIX (PO / PSO MAPPING):**

The Correlation levels of POs and PSOs are as follows.

Correlation **Level 3:** Percentage of vital features of PO/PSO >=60%

Correlation **Level 2:** Percentage of vital features of PO/PSO >40% and < 60%.

Correlation **Level 1:** Percentage of vital features of PO/PSO >5% and <= 40%.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **COs** | **PROGRAM OUTCOMES** | | | | | | | | | | | | **PSO’S** | | |
| **PO 1** | **PO 2** | **PO 3** | **PO 4** | **PO 5** | **PO 6** | **PO 7** | **PO 8** | **PO 9** | **PO 10** | **PO 11** | **PO 12** | **PSO 1** | **PSO 2** | **PSO 3** |
| No. of Vital Features | | | | | | | | | | | | | | |
| 3 | 10 | 10 | 11 | 1 | 5 | 3 | 3 | 12 | 5 | 12 | 12 |  |  |  |
| CO 1 | 3 | - | - | - | - | - | - | - | - | - | - |  | - |  | - |
| CO 2 | 3 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CO 3 | 3 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CO 4 | 3 | 2 | - | - |  | - | - | - | - | - | - |  |  |  | - |
| CO 5 | 3 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CO 6 | 3 |  | - | - |  | - | - | - | - | - | - | - | - | - |  |

# 14. ASSESSMENT METHODOLOGY-DIRECT:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CIE Exams |  | Laboratory Practices |  | Term Paper |  |
| SEE Exams |  | Student Viva |  | 5 minutes video |  |
| Seminars |  | Certification |  | Course Project |  |
| Assignments |  | Open ended experiments |  | Others |  |

**15. ASSESSMENT METHODOLOGY-INDIRECT:**

|  |  |  |  |
| --- | --- | --- | --- |
| Assessment of mini projects by experts |  | Course Exit Survey |  |

# 16. SYLLABUS:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **III B.Tech - I Semester SRIT R20** | | | | | | | | |
| **Course Code** | **Category** | **Hours/Week** | | | **Credits** | **Maximum Marks** | | |
| **R204GA05501** | **PCC** | **L** | **T** | **P** | **C** | **CIA** | **SEE** | **Total** |
| 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| Objectives   1. To explore the fundamental concepts of web, internet protocols, client-server model, and applications. 2. To acquire knowledge in design and implement web applications. 3. To demonstrates the uses of scripting languages. 4. To explore the fundamental concepts of AngularJS, React JS and Node.js. | | | | | | | | |
| **Unit I – Introduction to Web and Internet** | | | | | | | | |
| Introduction to Networks, Internet, Web Protocols, URL, Domain Name.  **Web Browsers, Web Servers**: Apache HTTP Server, Apache Tomcat Server, XAMPP Server, Installations of above Servers, Web System Architecture, Client-Side and Server-Side Scripting Technologies.  **Learning Outcomes:**  At the end of this unit, the student will be able to   1. Explore fundamentals of Internet and Web. 2. Illustrate Client-Server Model. 3. Demonstrate the installation of Web Servers. 4. Explain the Scripting Technologies. | | | | | | | | |
| **Unit II – Web Designing** | | | | | | | | |
| **HTML5**: Basics of HTML5 Elements, Form Elements, Input Types and Media Elements.  **CSS3**: Properties, Selectors, Types of CSS. Introduction to Bootstrap & its Components.  **XML**: Document Type Definition (DTD), XML Schema XML-DOM  **Learning Outcomes:**  At the end of this unit, the student will be able to   1. Create HTML forms, tables, Lists. 2. Apply various styles using CSS. 3. Create DTD, XML based web applications. 4. Explain the concepts of Bootstrap components. | | | | | | | | |
| **Unit III – JavaScript** | | | | | | | | |
| **Basics**: Introduction to JavaScript, Data Types and Variables, Expressions, Operators, Statements, Objects, Array, Functions, Regular Expressions, Windows Object, Scripting Documents, Handling Event.  **Advanced JavaScript**: Introduction to JSON – JSON Structure, The jQuery Library, Introduction to AJAX.  **Learning Outcomes:**  At the end of this unit, the student will be able to   1. Explain the basic concepts of JavaScript. 2. Demonstrate web page using jQuery. 3. AJAX. | | | | | | | | |
| **Unit IV – PHP & DATABASE CONNECTIVITY** | | | | | | | | |
| **Introduction to PHP**: Introduction, Download, Install and Configure of PHP, Anatomy of A PHP.  **Overview of PHP Data Types and Concepts**: Variables and Data Types, Operators, Expressions and Control Statements, Strings, Arrays and Functions, Regular Expressions.  **PHP advanced concepts**: Using Cookies, Using HTTP Headers, Using Sessions, Authenticating Users:  **MySQL Basics**: Introduction to MySQL, Querying Single and Multiple MySQL databases with PHP – PHP data objects.  **Learning Outcomes:**  At the end of this unit, the student will be able to   1. To learn how to configure PHP. 2. To demonstrate the need of Regular Expressions. 3. To explain PHP advanced concepts like Cookies, HTTP Headers, Sessions. 4. To the basic concepts of Database Connectivity using MySQL. | | | | | | | | |
| **Unit V – Application Development Using Node.js** | | | | | | | | |
| **Overview of Node.js**: Introduction to Node.js, Installing Node.js, Understanding the Node.js Event Model. Introduction to Mongodb, Accessing (CRUD)Mongodb from Node.js  **Learning Outcomes:** At the end of this unit, the student will be able to   1. Explain the fundamentals of Node.js. 2. Explain the importance of mongodb . 3. Demonstrate various concepts of Node,js. | | | | | | | | |
| **Text Books:** | | | | | | | | |
| 1. [Chris Bates](https://www.wiley.com/en-us/search?pq=%7Crelevance%7Cauthor%3AChris+Bates), Web Programming: Building Internet Applications, 3rd Edition. 2. Brad Dayley, Brendan Dayley, and Caleb Dayley, Node.js, MongoDB and Angular Web Development: The definitive guide to using the MEAN stack to build web applications, 2nd Edition, Pearson Education, 2018. | | | | | | | | |
| **Reference Books:** | | | | | | | | |
| 1. Paul Deitel, Harvey Deitel, Abbey Deitel, Internet & World Wide Web - How to Program, 5th edition, Pearson Education, 2012. 2. Beginning PHP and MySQL, 3rd Edition, Jason Gilmore, A press Publications (Dream tech.). 3. David Flanagan, “JavaScript: The Definitive Guide, Sixth Edition”, O'Reilly Media, 2011. | | | | | | | | |
| **Course Outcomes:** | | | | | | | | |
| **At the end of the course, student will be able to**   1. Describe fundamentals of web and internet technologies to design web pages.Design server-side programming with PHP. 2. Demonstrate installation of different web servers.. 3. Implement dynamic web pages effectively by using HTML5, CSS3 and XML.. 4. Develop an application using JS objects, JQuery, JSON, AJAX . 5. Implement server side programming using Cookies, HTTP Headers, Sessions in PHP. 6. Develop application using Node.js , React JS and MongoDB. | | | | | | | | |

# Google Classroom Link:

**III B.Tech -I sem A/s :** **https://classroom.google.com/c/NTM5Mjg0NTc2NzQw?cjc=kmiddje**

**17. Academic Calendar & Lesson Plan:**

**Academic Calendar:**

|  |  |  |
| --- | --- | --- |
| I Spell of instructions | **22-08-2022 to 16-10-2022** | **8 weeks** |
| I CIE | **17-10-2022 to 23-10-2022** | **1 week** |
| II Spell of instructions | **24-10-2022 to 11-12-2022** | **7 weeks** |
| II CIE | **12-12-2022 to 18-12-2022** | **1 week** |
| Preparation and Practicals | **19-12-2022 to 27-12-2022** | **2 weeks** |
| End Examinations | **28-12-2022 to 12-01-2023** | **2 weeks** |

**Lesson Plan:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sr. No.** | **Topics to be covered** | **Mode of Delivery** | **Periods Required** | **Books followed** | **Scheduled Date** |
| **Unit 1:** | | | | | |
| **1** | Introduction to Networks | ICT | 1 | T1.T2.R1 | 22-08-2022 |
| **2** | Internet | ICT | 1 | T1.T2.R1 | 23-08-2022 |
| **3** | Web Protocols, URL | ICT | 1 | T1.T2.R1 | 24-08-2022 |
| **4** | Domain Name. | ICT | 1 | T1.T2.R1 | 26-08-2022 |
| **5** | Web Browsers, Web Servers | ICT | 2 | T1.T2.R1 | 29-08-2022 |
| **6** | Installations of above Servers | ICT | 1 | T1.T2.R1 | 30-08-2022 |
| **7** | Web System Architecture | ICT | 1 | T1.T2.R1 | 01-09-2022 |
| **8** | Client-Side and Server-Side Scripting Technologies. | ICT | 1 | T1.T2.R1 | 02-09-2022 |
| **9** | Differences between client and server scripting | ICT | 1 | T1.T2.R1 | 05-09-2022 |
| **Unit 2:** | | | | | |
| **1** | Basics of HTML5 Elements | ICT | 1 | T1.T2.R1 | 06-09-2022 |
| **2** | Text Formatting Tags | ICT | 2 | T1.T2.R1 | 07-09-2022 |
| **3** | Hyperlink tags & elements | ICT | 1 | T1,T2,R1 | 09-09-2022 |
| **3** | Form Elements | ICT | 1 | T1.T2.R1 | 12-09-2022 |
| **5** | Input Types and Media Elements | ICT | 1 | T1.T2.R1 | 13-09-2022 |
| 6 | Cascading style sheets | ICT | 1 | T1.T2.R1 | 14-09-2022 |
| 7 | Properties ,selectors | ICT | 1 | T1,T2,R1 | 16-09-2022 |
| **8** | Types of CSS | ICT | 2 | T1.T2.R1 | 19-09-2022 |
| **9** | Introduction to Bootstrap & its Components | ICT | 1 | T1.T2.R1 | 20-09-2022 |
| **10** | XML | ICT | 2 | T1.T2.R1 | 21-09-2022 |
| **11** | Document type definition | ICT | 1 | T1.T2.R1 | 23-09-2022 |
| **12** | XML Schema | ICT | 1 | T1.T2.R1 | 26-09-2022 |
| **13** | XML-DOM | ICT | 1 | T1.T2.R1 | 27-09-2022 |
| **14** | Examples of XML | ICT | 1 | T1.T2.R1 | 28-09-2022 |
| **Unit 3:** | | | | | |
| **1** | Introduction to JavaScript | ICT | 1 | T1.T2.R1 | 30-09-2022 |
| **2** | Data Types and Variables | ICT | 1 | T1.T2.R1 | 03-10-2022 |
| **3** | Expressions, Operators | ICT | 1 | T1.T2.R1 | 04-10-2022 |
| **4** | Statements | ICT | 1 | T1.T2.R1 | 07-10-2022 |
| **5** | Objects, Array | ICT | 1 | T1.T2.R1 | 10-10-2022 |
| **6** | Functions | ICT | 1 | T1.T2.R1 | 11-10-2022 |
| **7** | Regular Expressions | ICT | 1 | T1.T2.R1 | 12-10-2022 |
| **8** | Windows Object, Scripting Documents | ICT | 1 | T1.T2.R1 | 14-10-2022 |
| **9** | Handling Event. | ICT | 1 | T1.T2.R1 | 24-10-2022 |
| **10** | Introduction to JSON | ICT | 1 | T1.T2.R1 | 26-10-2022 |
| **11** | JSON Structure | ICT | 1 | T1.T2.R1 | 27-10-2022 |
| **12** | The jQuery Library | ICT | 1 | T1.T2.R1 | 31-10-2022 |
| **13** | Introduction to AJAX. | ICT | 1 | T1.T2.R1 | 1-11-2022 |
| **Unit 4:** | | | | | |
| **1** | Introduction to PHP | ICT | 2 | T1.T2.R1 | 02-11-2022 |
| **2** | Download, Install and Configure of PHP | ICT | 1 | T1.T2.R1 | 04-11-2022 |
| **3** | Anatomy of A PHP | ICT | 1 | T1.T2.R1 | 07-11-2022 |
| **4** | Variables and Data Types | ICT | 2 | T1.T2.R1 | 09-11-2022 |
| **5** | Operators | ICT | 1 | T1.T2.R1 | 11-11-2022 |
| **6** | Expressions and Control Statements | ICT | 1 | T1.T2.R1 | 14-11-2022 |
| **7** | Strings, Arrays | ICT | 1 | T1.T2.R1 | 15-11-2022 |
| **8** | Functions | ICT | 2 | T1.T2.R1 | 16-11-2022 |
| **9** | Regular Expressions. | ICT | 1 | T1.T2.R1 | 18-11-2022 |
| **10** | Using Cookies | ICT | 1 | T1.T2.R1 | 21-11-2022 |
| **11** | Using HTTP Headers, Using Sessions | ICT | 2 | T1.T2.R1 | 22-11-2022 |
| **12** | Introduction to MySQL | ICT | 1 | T1.T2.R1 | 23-11-2022 |
| **13** | Querying Single and Multiple MySQL | ICT | 1 | T1.T2.R1 | 24-11-2022 |
| **14** | PHP data objects. | ICT | 1 | T1.T2.R1 | 28-11-2022 |
| **15** | PHP data objects | ICT | 1 | T1.T2.R1 | 29-11-2022 |
| **Unit 5:** | | | | | |
| **1** | Introduction to Node.js | ICT | 2 | T1.T2.R1 | 30-11-2022 |
| **2** | Installing Node.js | ICT | 1 | T1.T2.R1 | 02-12-2022 |
| **3** | Understanding the Node.js Event | ICT | 1 | T1.T2.R1 | 05-12-2022 |
| **4** | Introduction to Mongodb | ICT | 1 | T1.T2.R1 | 06-12-2022 |
| **5** | Accessing (CRUD)Mongodb from Node.js | ICT | 1 | T1.T2.R1 | 07-12-2022 |
| **6** | Operations on CRUD | ICT | 1 | T1,T2,R1 | 09-12-2022 |

**18. Content beyond the Syllabus**

|  |  |  |
| --- | --- | --- |
| **S. No.** | **Topics covered beyond the syllabus** | **COs Mapped** |
| **1** |  |  |
| **2** |  |  |
| **3** |  |  |
| **4** |  |  |
| **5** |  |  |

# Course Coordinator Head of the Department

# Dr.B.Hari chandana