TECHNICAL ENGLISH PRACTICAL
Course Code: 24CSS120 P

Applicable to all B. Tech. - II Semester

(CSE, EEE, ME)

L -0 T-0 P-2 C-1

COURSE OVERVIEW:

The Lab sessions will focus on the production and practice of sounds of language and familiarizes the students with the use of English in everyday situations both in formal andinformal contexts.

Course Objectives:

1. To facilitate computer-assisted multi-media instruction enabling individualized andindependent language learning and to sensitize students to the nuances of English speech sounds, word accent, intonation and rhythm.

2. To bring about a consistent accent and intelligibility in students' pronunciation of English by providing an opportunity for practice in speaking and to train students to use language appropriately for public speaking and interviews

Course Outcomes:

Students will be able to attain

1. Better understanding of nuances of English language through audio- visual experienceand group activities.
2. Speaking skills with clarity and confidence which in turn enhances theiremployability skills and will be able to neutralize accent for intelligibility.

Articulation Matrix
(Program Articulation Matrix is formed by the strength of correlation of COs with POs and PSOs. The strength of correlation is indicated as 3 for substantial (high), 2 for moderate (medium) correlation, and 1 for slight (low) correlation)

CO /PO / PSO	PO1	PO2	PO3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO 12	PS O1	P S O 2	PS O3	P S O 4
CO1	-	2	-	-	-	-	-	-	-	3	1	-	-	-	-	-
CO2	-	-	-	1	-	-	-	-	2	3	-	-	1	-	-	-

Unit-I Listening Skills **(15 hours)**

Listening for general content, listening to fill up information, intensive listening for specific information

Unit-II Speaking Skills **(15 hours)**

Oral practice: Just a minute (JAM) sSessions describing objects/situations/people, role play – individual / group activities

Total -30 hours

Exercise – I: Understand: Listening Skill- Its importance – Purpose- Process- Types- Barriers of Listening. Practice: Introduction to Phonetics – Speech Sounds – Vowels andConsonants. ICS Lab: Understand: Communication at Work Place- Spoken vs. Written language. Practice: Ice-Breaking Activity and JAM Session- Situational Dialogues –Greetings – Taking Leave – Introducing Oneself and Others.

Exercise – II: Understand: Structure of Syllables – Word Stress and Rhythm– Weak Formsand Strong Forms in Context. Practice: Basic Rules of Word Accent - Stress Shift - Weak Forms and Strong Forms in Context: Understand: Features of Good Conversation – Non- verbal Communication. Practice: Situational Dialogues – Role-Play- Expressions in VariousSituations –Making Requests and Seeking Permissions - Telephone Etiquette.

Exercise - III Understand: Intonation-Errors in Pronunciation-the Influence of Mother Tongue (MTI) Practice: Common Indian Variants in Pronunciation – Differences in British and American Pronunciation. Understand: How to make Formal Presentations. Practice: Formal Presentations

Exercise – IV Understand: Listening for General Details. Practice: Listening ComprehensionTests. ICS Lab: Understand: Public Speaking – Exposure to Structured Talks. Practice: Making a Short Speech – Extempore.

Exercise – V: Understand: Listening for Specific Details. Practice: Listening Comprehension Tests. Understand: Interview Skills. Practice: Mock Interviews.

REFERENCE BOOKS:

1. (2022). English Language Communication Skills – Lab Manual cum Workbook. Cengage Learning India Pvt. Ltd.

2. Shobha, KN & Rayen, J. Lourdes. (2019). Communicative English – A workbook. Cambridge University Press

3. Kumar, Sanjay & Lata, Pushp. (2019). Communication Skills: A Workbook. Oxford University Press

4. Board of Editors. (2016). ELCS Lab Manual: A Workbook for CALL and ICS LabActivities. Orient Black Swan Pvt. Ltd.

5. Mishra, Veerendra et al. (2020). English Language Skills: A Practical Approach.Cambridge University Press

TECHNICAL ENGLISH

Course Code-**24CSS120 T**

Applicable to I B. Tech. - II Semester

(CSE, EEE, ME)

L -1 T-1 P-0 C-2

Course Outline

This course aims to train the first year BE/B tech students in basic principles of English language, enabling them to use active and passive vocabulary in different academic and professional contexts, developing their LSRW skills, namely listening, speaking, reading and writing skills thereby improving their proficiency in oral and written communication in technical English.

Course Objectives:

To enable students to

1. Impart knowledge about the importance of vocabulary and grammar.
2. Help the students of engineering and technology develop a strong base in the use of English.
3. Improve the reading skills of the students so as to enable them to communicate with confidence in English.
4. Develop their basic speaking skills in order to deliver impromptu talks, participatewith confidence in conversations.
5. Enable students to write / draft effective essays and emails for effectivecommunication.

Course Outcomes:

Up on successful completion of this course, student will be able to:

1. To acquire an understanding of the rules of grammar.
2. To have a command of basic vocabulary related to different subject areas.
3. To have a grasp on the mechanics of writing and express their ideas through constructionof simple texts.
4. To assess the skills of writing business letters in various situations and generate skills of writing business letters, emails, reports, resumes and CVs.
5. To categorize the various structures of technical writing and learn to use them in a professional context.

Articulation Matrix

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CO1	-	-	-	-	-	1	-	-	2	3	-	-	-	-	-	-
CO2	-	1	-	2	-	-	-	-	-	3	-	-	1	-	-	-
CO3	-	-	-	-	-	-	-	2	-	3	-	1				
CO4	-	-	-	-	-	1	2	-	-	3	-	-				
CO5	-	-	-	3	-	2	-	-	-	-	-	-				

Course Content:

UNIT – I (6 Hours)

Grammar: Introduction to Grammar, Parts of Speech Vocabulary:

words often confused, one - word substitutes

Reading: Reading for the Main idea, finding specific information, reading for detail, Reading and transferring information, Understanding the attitudes.

Writing: Writing short messages that include certain information, Avoid discriminatory writing

UNIT – II (6 Hours)

Grammar: Sentence and Sentence Construction

Vocabulary: Homophones, Homographs, Homonyms

Reading: Reading for Opinion and writer's purpose, Reading for interpreting the visual reading for gist.

Writing: Letter writing (language to be used in a formal letter), Leave letter, letter of apology, Complaint letters, enquiry letters with replies, E-correspondence

UNIT – III (6 Hours)

Grammar: Verb - Tense

Vocabulary: Word Formation – prefix and suffix.

Reading: Reading for inference and Global meaning, Understanding Vocabulary and grammar in a short text

Writing: Significance, types, steps, formats of a report, Language and structure to be usedin a

formal report, model reports – assignments

UNIT - IV (6 Hours)

Grammar**:** Voice and Reported speech Vocabulary**:**

Acronyms & Idioms and Phrases

Reading**:** Reading for understanding short, real-world messages etc.

Writing**:** Types, purpose and design of Résumé, Differences among Bio-data, CurriculumVitaé and Résumé, Methods to build a winning Résumé Writing an effectiveCover Letter

UNIT – V (6 Hours)

Grammar: Concord, Modal Auxiliary, Question Tags. Vocabulary:

Business Vocabulary & Technical vocabulary

Reading: Reading for detailed comprehension of detailed material; Skimming and Scanning.

Writing: Review of technical articles, Technical research paper writing

Total: 30 hours

TEXT BOOKS:

1. Elango.K, & Co., "Resonance" Cambridge University Press India Pvt.Ltd. New Delhi, 2013.

2. Dhanavel, S.P. English and Communication Skills for Students of Science and Engineering. Orient Black swan, Chennai. 2011.

Reference Books:

1. Grussendorf, Marion, English for Presentations, Oxford University Press, Oxford: 2007
2. Kumar, Suresh. E. Engineering English. Orient Blackswan: Hyderabad, 2015
3. Means, L. Thomas And Elaine Langlois, English & Communication For Colleges. Cengage Learning, Usa: 2007
4. Raman, Meenakshi and Sharma, Sangeetha- Technical Communication Principles and Practice. Oxford University Press: New Delhi, 2014.
5. Rizvi, Ashraf. M. Effective Technical Communication. Tata McGraw-Hill, New Delhi.2005
6. Rutherford, Andrea. J Basic Communication Skills for Technology. Pearson, New Delhi. 2001.

B.Tech. Electrical and Electronics Engineering (EVT)
Semester-II

L-3, T-1, P-0, C-4

24CSE0800T: Introduction to Engineering Mathematics with Applications– II

Course Objective:

- To apply elementary transformations to reduce the matrix into the echelon form and normal form to determine its rank and interpret the various solutions of the system of linear equations, And to identify the special properties of a matrix such as the eigen value, eigen vector
- To provide students with an introduction to the theory of ordinary differential equations through applications, methods of solution
- To provide students with an introduction to the theory of Partial Differential Equations through applications, methods of solution
- To apply Probability and Statistic concepts to real-world problems in computer science and related fields. Empower students to develop statistical reasoning as well as the understanding and interpretation of probabilistic results
- To give understanding of the theoretical and practical aspects of the use of numerical methods

Course Outcomes (COs)

1. Understand the basic concept of the matrix
2. Apply various methods like – direct integration, separation of variables and integrating factor method, variation of parameter to solve differential equations
3. Analyze the physical problem to establish a mathematical model to solve PDEs in engineering.
4. Evaluate probability distributions models
5. Evaluate numerical integration

Articulation Matrix

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CO/PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	1	1	1	1	1	1	1	1	1	2	3	1
CO2	3	2	1	1	1	1	1	1	1	1	1	1	2	3	1
CO3	3	2	1	1	1	1	1	1	1	1	1	1	2	3	1
CO4	3	2	1	1	1	1	1	1	1	1	1	1	2	3	1
CO5	3	2	1	1	1	1	1	1	1	1	1	1	2	3	1

High-3 Medium-2 Low-1

Unit I: Matrices **10 Hours**

Rank of a Matrix (by reducing it to elementary transformation, Echelon & normal forms), solution of simultaneous equations by elementary transformation methods, consistency & inconsistency of equations, Eigen values & Eigen vectors, Cayley- Hamilton theorem.

Unit II:Differential Equation **15 Hours**

First-order differential equations (Separable, Homogeneous, Linear, Exact), linear differential equations with constant coefficients, Euler- Cauchy equations. Solution of second order differential equations by change of dependent and independent variables, Method of variation of parameters for second order differential equations. Simple applications.

Unit III: Partial Differential Equations and its Applications: **15 Hours**

Partial differential equations of first order, Linear partial differential equations of II order with constant coefficients and their classifications - parabolic, elliptic and hyperbolic with illustrative examples, Method of separation of variables. Wave and Heat equation of one-dimensions.

Unit IV: Probability and Statistics **10 Hours**

Introduction, Probability and events, Probability Theorems, Conditional Probability, Baye's Theorem, Binomial, Poisson distributions, Method of least squares and curve fitting - straight line.

Unit V: Numerical Analysis **10 Hours**

Solution of polynomial and transcendental equations - bisection, Newton-Raphson, Finite differences, Newtons forward and backward interpolation formulae. Trapezoidal and Simpsons 1/3rd rules for numerical integration

Total: 60 Hours

Reference Books:

1. Ramana B.V., Higher Engineering Mathematics, Tata McGraw Hill New Delhi.
2. Dean G. Duffy, Advanced Engineering Mathematics with MATLAB, CRC Press.
3. S.L. Ross, Differential equation, John Wiley and Sons, Inc.
4. Iyenger M. K. Jain & R. K. Jain, Numerical Methods for scientific and engineering computation, Wiley Eastern (New Age)
5. Amaranath T. , An Elementary Course in Partial Differential Equation , Alpha science Publication.
6. M. Ray and Har Swarup Sharma, Mathematical Statistics

List of e-Learning Resources:

1. https://nptel.ac.in/
2. https://www.coursera.org/

Subject Expert	**Academic Coordinator**	**HoD**	**Appointed Senior Faculty by DOAA**

Bachelor of Technology (Computer Science and Engineering)

Semester-II

L-2, T-1, P-0, C-3

24CSE1000 T - Problem Solving and Python Programming

Course Objectives

1. To understand the basics of algorithmic problem solving.
2. To learn to solve problems using Python conditionals and loops.
3. To use Python data structures - lists, tuples, dictionaries to represent complex data.
4. To define Python functions and use function calls to solve problems and do input/output with files in Python.
5. To apply concepts of GUI and database and develop real world applications.

Course Outcomes (COs)

1. Understand algorithmic solutions to simple computational problems.
2. Design and execute Control Structures for Problem-Solving, Implement appropriate control structures such as decision-making statements, loops, and branching
3. Analyze simple Python programs using conditionals and looping for solving problems.
4. Decompose a Python program into functions and understanding file handling.
5. Applying concepts of Python data structure using GUI.

Articulation Matrix

(Program Articulation Matrix is formed by the strength of correlation of COs with POs and PSOs. The strength of correlation is indicated as 3 for substantial (high), 2 for moderate (medium) correlation, and 1 for slight (low) correlation)

CO/PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	2	-	-	-	-	-	-	-	-	1	-	-
CO2	3	2	2	1	3	-	-	-	-	-	-	-	2	1	-
CO3	3	3	3	2	3	-	-	-	-	-	-	-	1	2	-
CO4	3	2	2	1	3	-	-	-	-	-	-	-	2	1	-
CO5	3	3	3	2	3	-	-	-	-	-	-	-	1	1	-

High-3 Medium-2 Low-1

UNIT I: Introduction to Python Programming — 09 Hours

Introduction to Python: Evolution, features, applications, and comparison with other programming languages.
Installation & Setup: Setting up Python environment, using virtual environments.
Programming Paradigms: Imperative, Object-Oriented, and Functional programming in Python.
Data Types & Memory Management: Primitive and non-primitive data types (int, float, boolean, string, list, tuple, set, dictionary), dynamic typing, memory allocation.
Variables & Expressions: Variable storage, constants, expressions, and statements
Operators & Comments: Advanced operator usage, ternary operator, inline comments, and docstrings.
Modules & Functions: Importing and using modules, built-in vs. user-defined functions

UNIT II: Conditionals and Control Flow, Strings — 09 Hours

Conditionals: Boolean logic, nested if-else, switch-case alternatives.
Control Flow Mechanisms: While, for loops, range function, nested loops, break, continue, pass, else with loops.
Comprehensions: List, dictionary, and set comprehensions with conditional filtering.
Advanced String Handling:

- String immutability and deep copy vs. shallow copy.
- String functions and methods (split, join, replace, strip, find, and format).
- String formatting using f-strings and format specifiers.

UNIT III: Lists, Tuples, Dictionaries — 09 Hours

Lists: List operations, list slicing, mutability, aliasing, deep vs. shallow copying, performance considerations.
Tuples: Tuples as immutable sequences, tuple unpacking, named tuples.

Dictionaries: Hash tables, key-value pairs, dictionary operations, sorting dictionaries, defaultdict, OrderedDict.

Sets: Set operations, frozen sets, mathematical set operations.

NumPy for Data Handling:

- Introduction to NumPy arrays and performance comparison with lists.
- Array slicing, indexing, reshaping

UNIT IV Functions, Files, Modules, Packages **09 Hours**

Functions: Defining and Calling Functions: Syntax, return values, and scope. Function Arguments: Positional, keyword, default, and variable-length arguments (*args, **kwargs). Lambda and Higher-Order Functions: Anonymous functions

Recursion: Writing recursive functions with examples.

File handling and exception: text files, reading and writing files, format operator; command line arguments, errors and exceptions, handling exceptions

Modules & Packages:

- Importing built-in and third-party modules.
- Creating and using Python packages.
- Introduction to `pip` and virtual environments.

UNIT V: Python GUI and Python database connectivity **09 Hours**

GUI Programming using Tkinter:

- Widgets: Button, Entry, Label, Listbox, Menu, Message, Radiobutton, Scrollbar, Text, Spinbox, Canvas.
- Event handling and callback functions.
- Using Frames and Layouts (Grid, Pack, Place).
- Theming with `ttk`.

Database Connectivity with MySQL:

- Connecting Python with MySQL using `mysql-connector-python`.
- Performing CRUD operations (INSERT, UPDATE, DELETE, SELECT).
- Using parameterized queries and prepared statements to prevent SQL injection.

Total: 45 Hours

Reference(s)

1. Allen B. Downey, “Think Python : How to Think like a Computer Scientist”, 2nd Edition, O’Reilly Publishers, 2016.
2. Karl Beecher, “Computational Thinking: A Beginner's Guide to Problem Solving and programming”, 1st Edition, BCS Learning & Development Limited, 2017.
3. Paul Deitel and Harvey Deitel, “Python for Programmers”, Pearson Education, 1st Edition, 2021.
4. G Venkatesh and Madhavan Mukund, “Computational Thinking: A Primer for Programmers and Data Scientists”, 1st Edition, Notion Press, 2021.
5. John V Guttag, "Introduction to Computation and Programming Using Python: With Applications to Computational Modeling and Understanding Data‘‘, Third Edition, MIT Press 2021
6. Eric Matthes, “Python Crash Course, A Hands - on Project Based Introduction to Programming”, 2nd Edition, No Starch Press, 2019.
7. Martin C. Brown, “Python: The Complete Reference”, 4th Edition, Mc-Graw Hill,2018

List of e-Learning Resources:

https://www.python.org/

Semester-II

L-0, T-0, P-2, C-1

24CSE1000 P - Problem Solving and Python Programming

Course Objectives

6. To understand the basics of algorithmic problem solving.
7. To learn to solve problems using Python conditionals and loops.
8. To use Python data structures - lists, tuples, dictionaries to represent complex data.
9. To define Python functions and use function calls to solve problems and do input/output with files in Python.
10. To apply concepts of GUI and database and develop real world applications..

Course Outcomes (COs)

6. Understand algorithmic solutions to simple computational problems.
7. Design and execute Control Structures for Problem-Solving, Implement appropriate control structures such as decision-making statements, loops, and branching
8. Analyze simple Python programs using conditionals and looping for solving problems.
9. Decompose a Python program into functions and understanding file handling.
10. Applying concepts of Python data structure using GUI.

Articulation Matrix

(Program Articulation Matrix is formed by the strength of correlation of COs with POs and PSOs. The strength of correlation is indicated as 3 for substantial (high), 2 for moderate (medium) correlation, and 1 for slight (low) correlation)

CO/PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	2	-	-	-	-	-	-	-	-	1	-	-
CO2	3	2	2	1	3	-	-	-	-	-	-	-	2	1	-
CO3	3	3	3	2	3	-	-	-	-	-	-	-	1	2	-
CO4	3	2	2	1	3	-	-	-	-	-	-	-	2	1	-
CO5	3	3	3	2	3	-	-	-	-	-	-	-	1	1	-

Practical:

1. Financial Calculator

Create a program that calculates **monthly loan payments** using the formula for an annuity. Allow the user to input principal, interest rate, and loan duration.

2. Traffic Light Simulation

- Write a program that simulates a traffic light system using a loop.
- The program should display "Red", "Yellow", and "Green" with a delay (use `time.sleep()` for simulation).
- It should continue running until the user manually stops it.

3. Automated ATM Withdrawal

- Ask the user for their PIN and validate it using if-else.
- Let the user choose from options (Check Balance, Withdraw, Deposit).
- Use loops to allow multiple transactions until the user exits.

4. Restaurant Menu Ordering System

- Display a food menu and let the user order items.
- Use a loop to allow multiple orders.
- Use if-else to check availability and calculate the bill.

5. Simple Password Strength Checker

- Ask the user to input a password.

- Use if-else to check if it meets conditions:
  - At least 8 characters
  - Contains a number
  - Contains an uppercase letter
- Loop until the user enters a strong password.

6. Movie Ticket Booking System

- Ask for age and apply ticket pricing rules using if-else:
  - Child (below 12): Discounted rate
  - Adult: Regular rate
  - Senior Citizen (above 60): Discounted rate
- Use loops to allow multiple bookings.

7. Expense Tracker

Build a program that allows users to log their daily expenses and **categorize** them. Display monthly expenditure reports using **dictionaries and lists**.

8. Smart Chatbot

Develop a **rule-based chatbot** that can respond to user queries on basic topics like weather, time, or greetings using **if-else conditions and dictionaries**.

9. Recipe Ingredient Lookup

- Create a dictionary where keys are dish names and values are lists of ingredients.
- Ask the user for a dish name and display its ingredients.
- If the dish is not found, suggest adding it.

10. Fake News Detector

Take a sample news article and check if it contains certain **misleading keywords** using **text analysis**.

11. Supermarket Billing System

- Store product prices and quantities in a NumPy array.
- Calculate the total bill and apply discounts dynamically.

12. Student registration system

Design a student registration system where users can enter Student Name, ID, Course, and Fees Paid. The system should store this data in MySQL and display a confirmation message that the student has been successfully registered.

13. Inventory LookUp

Create a product inventory system where users can fetch all product details (Product ID, Name, Stock, Price) from MySQL and display them in a Tkinter table. Also, allow searching for a specific product by ID.

14. Hands-on Project 1

Contact Book System

Write a Python program to implement a Contact Book that allows users to add, update, delete, and search contacts using a dictionary. Explain the logic used for each operation.Modify the Contact Book to store contact details in a MySQL database instead of a dictionary. Write a Python script to perform CRUD operations using MySQL.

15. Hands-on Project 2

Develop a Python program for a Bollywood Movie Guessing Game where the user guesses letters in a hidden movie name. Implement logic to track correct guesses, wrong attempts, and display hints.

Reference(s)

8. Allen B. Downey, “Think Python : How to Think like a Computer Scientist”, 2nd Edition, O’Reilly Publishers, 2016.
9. Karl Beecher, “Computational Thinking: A Beginner's Guide to Problem Solving and programming”, 1st Edition, BCS Learning & Development Limited, 2017.
10. Paul Deitel and Harvey Deitel, “Python for Programmers”, Pearson Education, 1st Edition, 2021.
11. G Venkatesh and Madhavan Mukund, “Computational Thinking: A Primer for Programmers and Data Scientists”, 1st Edition, Notion Press, 2021.
12. John V Guttag, "Introduction to Computation and Programming Using Python: With Applications to Computational Modeling and Understanding Data‘‘, Third Edition, MIT Press 2021
13. Eric Matthes, “Python Crash Course, A Hands - on Project Based Introduction to Programming”, 2nd Edition, No Starch Press, 2019.
14. Martin C. Brown, “Python: The Complete Reference”, 4th Edition, Mc-Graw Hill,2018

List of e-Learning Resources:

https://www.python.org/

Mandsaur University

Bachelor of Technology (Computer Science and Engineering)

Semester-II

L-0 T-0 P-2 C-1

24CSE1100 P: Web Development - II

Course Objectives

- To familiarize students with the fundamentals of web development.
- To utilize basic web technologies in designing static web pages.
- To develop interactive web pages using JavaScript & Bootstrap.
- To develop dynamic web site using PHP technology.
- To familiarize students with the steps to host the website and perform basic search engine optimization.

Course Outcomes (COs)

1. Understand the fundamentals of web applications and their working.
2. Create web pages using HTML & CSS to enhance the appearance and layout.
3. Apply the knowledge to create web pages using JavaScript to develop interactive web pages.
4. Understand Bootstrap framework and utility basics to integrate web pages.
5. Create interactive website using databases, SQL and PHP.

Articulation Matrix

(Program Articulation Matrix is formed by the strength of correlation of COs with POs and PSOs. The strength of correlation is indicated as 3 for substantial (high), 2 for moderate (medium) correlation, and 1 for slight (low) correlation)

CO/PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
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CO2	1	2	2	-	-	1	-	-	-	-	1	-	2	-	1
CO3	1	1	1	-	-	3	-	-	-	-	1	-	2	-	2
CO4	1	2	1	-	-	1	-	-	-	-	1	-	2	-	2
CO5	3	1	1	-	-	1	-	-	-	-	1	-	1	1	1

High-3 Medium-2 Low-1

PRACTICALS

1. To understand and implement various methods of linking Cascading Style Sheets (CSS) to HTML, including External, Internal, and Inline methods.
2. Change the background color of the page and at the bottom creates a link to take user to the top of the page.
3. Create a table to list various web browsers and web servers with their icons.
4. Write JavaScript to validate the following fields of the Registration page. 1. First Name 2. Password 3. E-mail id 4. Mobile Number 5. Last Name and Address
5. Use frames inside a web page and divide it into 3 frames 30% on left to show index of various pages, 70% in center to show body of page.
6. Develop and demonstrate JavaScript with POP-UP boxes and functions
7. Design a HTML page including any required JavaScript that takes a number from text field in the range of 0 to 999 and shows it in words. It should not accept four and above digits, alphabets and special characters.
8. Create a responsive layout using the grid system.
9. Design a basic webpage with a navigation bar, buttons, and a card layout.
10. Style a form with Bootstrap form components and input groups.
11. Develop and demonstrate PHP Script to find out the Sum of the Individual Digits.
12. Write a PHP Script to check whether the given number is Palindrome or not.

13. Develop a program to design a simple calculator using (a) JavaScript (b) PHP.
14. To create a program in PHP for a simple email processing with attachment using forms
15. Design a program for PHP for a login script; create a login database and store username and password.

Total: 30 Hours

Reference(s)

1. Jackson J. C. (2009). Web Technologies: A Computer Scince Perspective. Prentice Hall.
2. Godbole A. and Kahate A (2017). Web Technologies: TCP/IP, Web/Java Programming and Cloud Computing. 3rd edition. Mc Graw Hill Education.
3. Powell T. and Schneider F. (2012). Java Script: The Complete Reference. 3rd edition. McGraw Hill Education.
4. Powell T. (2010). HTML & CSS: The Complete reference. 5th edition. McGraw Hill Education.
5. Web Technologies: HTML, JavaScript, PHP, Java, JSP, ASP.net, XML and AJAX Black Book. Kogent Learning Solutions Inc., Dreamtech Press.
6. Pollock P. (2013). Web Hosting for Dummies. Wiley Publishing Inc.
7. Ledford J. (2008). SEO: Search Engine Optimization Bible. Wiley Publishing Inc.

List of e-Learning Resources:

1. https://nptel.ac.in/
2. https://www.coursera.org/

Subject Tr. **Academic Coordinator** **HoD** **Sr. Faculty Nominated by DOAA**

Mandsaur University

Bachelor of Technology (Computer Science and Engineering)

Semester-II

L-2 T-1 P-0 C-3

24CSE1100 T: Web Development - II

Course Objectives

- To familiarize students with the fundamentals of web development.
- To utilize basic web technologies in designing static web pages.
- To develop interactive web pages using JavaScript & Bootstrap.
- To develop dynamic web site using PHP technology.
- To familiarize students with the steps to host the website and perform basic search engine optimization.

Course Outcomes (COs)

1. Understand the fundamentals of web applications and their working.
2. Create web pages using HTML & CSS to enhance the appearance and layout.
3. Apply the knowledge to create web pages using JavaScript to develop interactive web pages.
4. Understand Bootstrap framework and utility basics to integrate web pages.
5. Create interactive website using databases, SQL and PHP

Articulation Matrix

(Program Articulation Matrix is formed by the strength of correlation of COs with POs and PSOs. The strength of correlation is indicated as 3 for substantial (high), 2 for moderate (medium) correlation, and 1 for slight (low) correlation)

CO/PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	1	1	-	-	1	-	-	-	-	1	-	1	2	-
CO2	1	2	2	-	-	1	-	-	-	-	1	-	2	-	1
CO3	1	1	1	-	-	3	-	-	-	-	1	-	2	-	2
CO4	1	2	1	-	-	1	-	-	-	-	1	-	2	-	2
CO5	3	1	1	-	-	1	-	-	-	-	1	-	1	1	1

High-3 Medium-2 Low-1

UNIT I: HTML & CSS — 09 Hours

Introduction to HTML: HTML and its versions; document structure, Tags and elements; Attributes and properties; Headings Text and Paragraphs; Styles; Hyperlinks; Images; Tables; Forms; Introduction to CSS: Cascade: Importance, Specificity and Source order; Rules, Syntax; Selectors and selector combinations; Comment; Colors; Background; Borders; Properties: Color, Length and Property list; The Box model, Methods of linking CSS to HTML: External, Internal and Inline.

UNIT II: JavaScript — 09 Hours

Introduction: Client side Vs. server side, Implementations: Browser Object Model (BOM) and Document Object Model (DOM), Data types: Primitive and Reference, Variables; Functions and Methods; Scoping in JavaScript; Operators; Control statements: if, iterative, labeled, break and continue, with and switch; JavaScript HTML DOM: Methods, Properties; HTML DOM Document Object; HTML DOM Elements; DOM HTML; JavaScript Forms: Validation, Automatic validation, HTML constraint validation

UNIT III: Bootstrap — 09 Hours

Introduction to Bootstrap: Definition, Overview of Bootstrap documentation, Bootstrap Grid System: Understanding rows and columns, Breakpoints and responsive behavior, Nesting grids, Building a basic responsive layout, Bootstrap Components: Navigation bar, Buttons, Forms and input groups, Modals, Cards. Customizing components with classes.

UNIT IV: Bootstrap Utilities

Bootstrap Utilities: Typography: Text, headings, and alignment. Spacing: Margins and paddings. Colors: Using utility classes for background and text colors. Display utilities: Show/hide and visibility classes. Creating a Responsive Webpage: Combining grids, components, and utilities to build a functional webpage. Applying custom styling alongside Bootstrap classes.

UNIT V: PHP & Database — 09 Hours

PHP Introduction and basic syntax of PHP, decision and looping with examples, combining PHP and HTML, Arrays, Functions, Browser control and detection, string, Form processing, Files. Database Access: overview

of Database, SQL Connecting to database in PHP, Basic commands with PHP examples, Introduction to PHP MyAdmin, connection to MySQL server from PHP

Total: 45 Hours

Reference(s)

1. Jackson J. C. (2009). Web Technologies: A Computer Scince Perspective. Prentice Hall.
2. Godbole A. and Kahate A (2017). Web Technologies: TCP/IP, Web/Java Programming and Cloud Computing. 3rd edition. Mc Graw Hill Education.
3. Powell T. and Schneider F. (2012). Java Script: The Complete Reference. 3rd edition. McGraw Hill Education.
4. Powell T. (2010). HTML & CSS: The Complete reference. 5th edition. McGraw Hill Education.
5. Web Technologies: HTML, JavaScript, PHP, Java, JSP, ASP.net, XML and AJAX Black Book. Kogent Learning Solutions Inc., Dreamtech Press.
6. Pollock P. (2013). Web Hosting for Dummies. Wiley Publishing Inc.
7. Ledford J. (2008). SEO: Bible. Wiley Publishing Inc.

List of e-Learning Resources:

1. https://nptel.ac.in/
2. https://www.coursera.org/

Subject Tr. **Academic Coordinator** **HoD** **Sr. Faculty Nominated by DOAA**

Mandsaur University

Bachelor of Technology (Computer Science and Engineering)

Semester-II

L-0 T-0 P-2 C-1

24CSE1100 P: Web Development - II

Course Objectives

- To familiarize students with the fundamentals of web development.
- To utilize basic web technologies in designing static web pages.
- To develop interactive web pages using JavaScript & Bootstrap.
- To develop dynamic web site using PHP technology.
- To familiarize students with the steps to host the website and perform basic search engine optimization.

Course Outcomes (COs)

1. Understand the fundamentals of web applications and their working.
2. Create web pages using HTML & CSS to enhance the appearance and layout.
3. Apply the knowledge to create web pages using JavaScript to develop interactive web pages.
4. Understand Bootstrap framework and utility basics to integrate web pages.
5. Create interactive website using databases, SQL and PHP.

Articulation Matrix

(Program Articulation Matrix is formed by the strength of correlation of COs with POs and PSOs. The strength of correlation is indicated as 3 for substantial (high), 2 for moderate (medium) correlation, and 1 for slight (low) correlation)

CO/PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	1	1	-	-	1	-	-	-	-	1	-	1	2	-
CO2	1	2	2	-	-	1	-	-	-	-	1	-	2	-	1
CO3	1	1	1	-	-	3	-	-	-	-	1	-	2	-	2
CO4	1	2	1	-	-	1	-	-	-	-	1	-	2	-	2
CO5	3	1	1	-	-	1	-	-	-	-	1	-	1	1	1

High-3 Medium-2 Low-1

PRACTICALS

1. To understand and implement various methods of linking Cascading Style Sheets (CSS) to HTML, including External, Internal, and Inline methods.
2. Change the background color of the page and at the bottom creates a link to take user to the top of the page.
3. Create a table to list various web browsers and web servers with their icons.
4. Write JavaScript to validate the following fields of the Registration page. 1. First Name 2. Password 3. E-mail id 4. Mobile Number 5. Last Name and Address
5. Use frames inside a web page and divide it into 3 frames 30% on left to show index of various pages, 70% in center to show body of page.
6. Develop and demonstrate JavaScript with POP-UP boxes and functions
7. Design a HTML page including any required JavaScript that takes a number from text field in the range of 0 to 999 and shows it in words. It should not accept four and above digits, alphabets and special characters.
8. Create a responsive layout using the grid system.
9. Design a basic webpage with a navigation bar, buttons, and a card layout.

10. Style a form with Bootstrap form components and input groups.
11. Develop and demonstrate PHP Script to find out the Sum of the Individual Digits.
12. Write a PHP Script to check whether the given number is Palindrome or not.
13. Develop a program to design a simple calculator using (a) JavaScript (b) PHP.
14. To create a program in PHP for a simple email processing with attachment using forms
15. Design a program for PHP for a login script; create a login database and store username and password.

Total: 30 Hours

Reference(s)

2. Jackson J. C. (2009). Web Technologies: A Computer Scince Perspective. Prentice Hall.
2. Godbole A. and Kahate A (2017). Web Technologies: TCP/IP, Web/Java Programming and Cloud Computing. 3rd edition. Mc Graw Hill Education.
3. Powell T. and Schneider F. (2012). Java Script: The Complete Reference. 3rd edition. McGraw Hill Education.
4. Powell T. (2010). HTML & CSS: The Complete reference. 5th edition. McGraw Hill Education.
5. Web Technologies: HTML, JavaScript, PHP, Java, JSP, ASP.net, XML and AJAX Black Book. Kogent Learning Solutions Inc., Dreamtech Press.
6. Pollock P. (2013). Web Hosting for Dummies. Wiley Publishing Inc.
7. Ledford J. (2008). SEO: Search Engine Optimization Bible. Wiley Publishing Inc.

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2. https://www.coursera.org/

Subject Tr. **Academic Coordinator** **HoD** **Sr. Faculty Nominated by DOAA**

B Tech: Computer Science and Engineering
Semester-II

L-0 T-0 P-2 C-1

24CSE1200 P: Digital Circuit & Systems

Course Objectives:

- To study various number systems and to simplify the mathematical expressions using Boolean functions – simple problems.
- To introduce the fundamentals of digital circuits, combinational and sequential circuit.
- To study implementation of combinational and sequential circuits.
- To study the design of various synchronous and asynchronous circuits.
- To study the various types of memories and program instructions.

Course Outcomes (COs):

1. Understand to manipulate numeric information in different forms, e.g. different bases, Signed integers, various codes such as ASCII, Gray and BCD
2. Apply Boolean laws and theorems to manipulate simple Boolean expressions to minimize Boolean functions
3. Analyze combinational circuits such as decoders, encoders, multiplexers, demultiplexers
4. Analyze various sequential logic circuits such as flip flops and shift registers
5. Evaluate the designing of various counters and ALU instructions

Articulation Matrix

(Program Articulation Matrix is formed by the strength of correlation of COs with POs and PSOs. The strength of correlation is indicated as 3 for substantial (high), 2 for moderate (medium) correlation, and 1 for slight (low) correlation)

CO/PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	-	-	1	2	1	-	1	-	1	1	-	-
CO2	2	1	3	2	1	-	-	1	-	1	-	1	1	-	-
CO3	2	3	1	1	1	1	1	1	-	-	-	1	1	-	-
CO4	2	2	3	1	1	-	1	1	-	-	-	1	1	-	1
CO5	2	2	1	-	3	-	1	1	1	1	1	2	3	1	3

High-3 Medium-2 Low-1

List of suggested Practical's:-

1. To Verify Basic logic Gates.
2. To Verify Universal Gates.
3. Implementation & Verification of Half Adder & Full Adder using basic gates.
4. Implementation & Verification of Half Subtractor& Full Subtractor using basic gates.
5. Verification of Multiplexer using IC74LS157.
6. Verification of D-flip flop using IC74LS74
7. Verification of Shift register using IC74LS164.
8. Implementation of the gates AND gate, OR gate & NOT gate by using "NAND" gate using IC 74LS00.
9. Implementation of the gates AND gate, OR gate & NOT gate by using "NOR" gate using IC 74LS02.
10. Verification of J-K flip flop using IC74LS76.

Total: 15 Hours

Reference(s)

1. M. Mano; Digital design; Pearson Education Asia
2. Jain RP; Modern Digital Electronics; TMH
3. M. Mano; Digital Logic & Computer Design; PHI
4. Tocci ; Digital Systems Principle & Applications; Pearson Education Asia
5. Gothmann; Digital Electronics; PHI
6. Malvino, Leech; Digital Principles and Applications
7. S. Salivahanan; Digital Circuits and Design; Vikas Publishing House PVT. LTD.

List of e-Learning Resources:

1. https://nptel.ac.in/courses/117106086/
2. https://www.youtube.com/playlist?list=PLF322552FBCA61BA7

Subject Tr. **Academic Coordinator** **HoD** **Sr. Faculty Nominated by DOAA**

B Tech: Computer Science and Engineering

Semester-II

L-2 T-1 P-0 C-3

24CSE1200 TR1: Digital Circuit & Systems

Course Objectives:

- To study various number systems and to simplify the mathematical expressions using Boolean functions – simple problems.
- To introduce the fundamentals of digital circuits, combinational and sequential circuit.
- To study implementation of combinationaland sequential circuits.
- To study the design of various synchronous and asynchronous circuits.
- To study the various types of memories and program instructions.

Course Outcomes (COs):

1. Understand to manipulate numeric information in different forms, e.g. different bases, Signed integers, various codes such as ASCII, Gray and BCD
2. Apply Boolean laws and theorems to manipulate simple Boolean expressions to minimize Boolean functions
3. Analyze combinational circuits such as decoders, encoders, multiplexers, demultiplexers
4. Analyze various sequential logic circuits such as flip flops and shift registers
5. Evaluate the designing of various counters and ALU instructions

Articulation Matrix

(Program Articulation Matrix is formed by the strength of correlation of COs with POs and PSOs. The strength of correlation is indicated as 3 for substantial (high), 2 for moderate (medium) correlation, and 1 for slight (low) correlation)

CO/PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	-	-	1	2	1	-	1	-	1	1	-	-
CO2	2	1	3	2	1	-	-	1	-	1	-	1	1	-	-
CO3	2	3	1	1	1	1	1	1	-	-	-	1	1	-	-
CO4	2	2	3	1	1	-	1	1	-	-	-	1	1	-	1
CO5	2	2	1	-	3	-	1	1	1	1	1	2	3	1	3

High-3 Medium-2 Low-1

Unit-I: Introduction to Digital Circuits 9 Hours

Introduction to digital circuits: number systems binary, octal and hexadecimal numbers, codes: weighted and un weighted codes, hamming code , error detection & correcting code , binary arithmetic, subtraction using 2's complement, 8-bit addition using 2's complement, quinc & Mccluskey's method, basic of information : information, entropy, encoding, Huffman encoding ,data compression ,channel capacity

Unit-II: Introduction to Logic Gates 9 Hours

Introduction to logic gates: AND, OR, NOT, Universal gates: NAND ,NOR, exclusive gates: XOR, XNOR, Boolean algebra, Boolean Laws, simplification of function, Demorgan's theorem, Canonical SOP & POS, Karnaugh map method: SOP & POS , Minterm, Maxterm, cases with don't care terms, multiple output switch function.

Unit-III: Combinational Circuits 9 Hours

Combinational circuits : half adder, half subtractor, full adder, full subtractor circuits, serial & parallel adder BCD adders , look ahead carry generator, decoders, encoders, multiplexers, demultiplexers and their types, designing of combinational circuits.

Unit-IV: Sequential Circuits 9 Hours

Sequential circuits: Flip-flops, classification of flip flop and its types like RS, D, JK flip flops, master slave JK flip flop, introduction to shift registers: SISO, SIPO, PIPO, PISO. Introduction to various semiconductors memories: RAM, SRAM, DRAM, ROM,PROM,EPROM.

Unit-V: Counters **9 Hours**

Counters, synchronous & asynchronous counters, ring counter, designing of counter: MOD 10, BCD counter, finite state machine and its properties. Associative memory, memory hierarchy, cache memory, virtual memory. ALU instructions, memory access, assembly language, program control instructions.

Total: 45 Hours

Reference(s)

1. M. Mano; Digital design; Pearson Education Asia
2. Jain RP; Modern Digital Electronics; TMH
3. M. Mano; Digital Logic & Computer Design; PHI
4. Tocci ; Digital Systems Principle & Applications; Pearson Education Asia
5. Gothmann; Digital Electronics; PHI
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2. https://www.youtube.com/playlist?list=PLF322552FBCA61BA7

Subject Tr. **Academic Coordinator** **HoD** **Sr. Faculty Nominated by DOAA**

DEPARTMENT OF ALLIED SCIENCES

24CSE1300P Environmental Sciences

Syllabus to be offered at B.Tech (CSE/ME/EEE)/Diploma (ME/EEE)/BCA(CC/SACS) Sem -II

L-0 T-0 P-4 C-2

Course Objective:

- To explore the interconnectedness of environmental components and systems.
- To assess renewable energy sources like rainwater harvesting and solar panels/biogas systems.
- To promote sustainable plantation development and protection measures.
- To raise awareness about environmental issues and solutions.

Course Outcomes (COs)

1. Understand skills in solving environmental and social impacts of resource depletion.
2. Apply the knowledge and get a clear idea regarding treatment of biodegradable wastes.
3. Analyze factors contributing to food waste generation.
4. Evaluate the performance of solar panels, including efficiency and output.
5. Create the sustainable solution of environmental issues.

Articulation Matrix

CO/PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CO1	2	1	-	-	-	2	3	1	-	1	1	-	-	1	1	1
CO2	2	1	-	-	-	2	2	2	1	-	1	1	1	-	-	1
CO3	2	1	1	-	-	1	2	1	-	1	1	-	1	1	-	1
CO4	2	1	-	-	-	2	2	1	1	-	1	1	1	-	1	1
CO5	3	2	-	-	-	1	2	1	1	-	1	-	1	1	1	2

High-3 Medium-2 Low-1

List of Experiments **45 Hours**

1. Proposal for the rain water harvesting system in college campus/nearby.
2. Analysis of solar panel/Biogas energy functioning at college campus/nearby.
3. Sustainable plantation development and protection in college campus/nearby.
4. Develop and maintain compost/vermicompost using biodegradable waste in the College campus.
5. Seed Ball Development and Implementation in college campus and Nearby Areas.
6. Assessment of Monthly Food Waste Generation in College Campus/ Home.

Suggested Environmental Science Project Topic **15 Hours**

1. The contribution of atmospheric pollution to climate change.
2. The effect of waste management practice on waste disposal in Mandsaur distric (a case study).
3. Resource exploitation and environmental impact (a case study of Mandsaur (M.P.) region)
4. The causes and effect of flooding.
5. The problem of solid waste management.
6. Assessment of poor drainage system in Mandsaur district M.P.
7. Environmental pollution and its associated health risk among residents of Mandsaur district M.P.
8. Identification of the floral diversity of Mandsaur district and other districts. Documentation of the plants by clicking pictures, finding out the scientific names/ local names through literature or mobile applications.

Total: 60 Hours

References

1. Rajagopalan, R. (2011). *Environmental Studies.* Oxford IBH Pub
2. Kogent Learning Solutions Inc. (2012). *Energy, Environment, Ecology and Society.* Dreamtech.
3. Odum, E. P. (1971). *Fundamentals of Ecology.* Philadelphia: Saunders.
4. Centre for Science and Environment. (2021). *Climate Change: Science and Politics.* New Delhi.
5. Rosencranz, A., Divan, S., & Noble, M. L. (2001). *Environmental law and policy in India.*
6. Kaushik, A., & Kaushik, C. P. (2018). *Perspectives in Environmental Studies.* New Age International Publishers.

List of e-Learning Resources:

1. https://nptel.ac.in/courses/122/102/122102006/
2. https://nptel.ac.in/courses/105/102/105102089/
3. https://www.nature.com
4. IntroductiontoEnvirorunentalLawandPolicy(coursera)
5. OurEarth:It'sClimate,History,andProcesses(coursera)