# B.TECH INFORMATION TECHNOLOGY
# Regulation 2026

## SEMESTER I

| Sl.No. | COURSE CODE | COURSE TITLE | L | T | P | C |
|---|---|---|---|---|---|---|
| | | Induction Programme | 0 | 0 | 0 | 0 |
| **THEORY** | | | | | | |
| 1 | 26CAHS101 | Professional English I | 3 | 0 | 0 | 3 |
| 2 | 26CABS102 | Matrices and Calculus | 3 | 1 | 0 | 4 |
| 3 | 26CABS103 | Applied Physics | 3 | 0 | 0 | 3 |
| 4 | 26CABS104 | Applied Chemistry | 3 | 0 | 0 | 3 |
| 5 | 26CAES105 | C Programming | 3 | 0 | 0 | 3 |
| 6 | 26CAHS109 | Heritage of Tamils | 1 | 0 | 0 | 1 |
| **PRACTICAL** | | | | | | |
| 7 | 26CAES106 | C Programming Laboratory | 0 | 0 | 3 | 1.5 |
| 8 | 26CABS107 | Physics and Chemistry Laboratory | 0 | 0 | 3 | 1.5 |
| 9 | 26CAHS108 | Communication Skills Laboratory | 0 | 0 | 2 | 1 |
| | | **Total** | **16** | **1** | **8** | **21** |

## SEMESTER II

| Sl.No. | COURSE CODE | COURSE TITLE | L | T | P | C |
|---|---|---|---|---|---|---|
| **THEORY** | | | | | | |
| 1 | 26CAHS201 | Professional English II | 3 | 0 | 0 | 3 |
| 2 | 26CABS202 | Advanced Calculus and its Applications | 3 | 1 | 0 | 4 |
| 3 | 26CAES203 | Python Programming | 3 | 0 | 0 | 3 |
| 4 | 26CABS204 | Physics for Information Science | 3 | 0 | 0 | 3 |
| 5 | 26CAES205 | Fundamentals of Electrical and Electronics Engineering | 3 | 0 | 0 | 3 |
| 6 | 26CAES104 | Engineering Graphics | 1 | 0 | 4 | 3 |
| 7 | 26CAHS202 | Tamils and Technology | 1 | 0 | 0 | 1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **PRACTICAL** | | | | | | |
| 8 | 26CAES107 | Engineering Practices Laboratory | 0 | 0 | 3 | 1.5 |
| 9 | 26CAES206 | Python Programming Laboratory | 0 | 0 | 3 | 1.5 |
| | | **Total** | **17** | **1** | **10** | **23** |

**26CAHS101** **PROFESSIONAL ENGLISH I** **SEMESTER I**

(Common to All Branches)

| L | T | P | C |
|---|---|---|---|
| 3 | 0 | 0 | 3 |

**COURSE OBJECTIVES:**

- To develop learners' core communication skills in LSRW, grammar, and vocabulary.
- To help learners use language effectively in academic /work contexts.
- To enhance learners' ability to understand, present, read, and write product-related information using correct grammar and vocabulary.
- To use language efficiently in expressing their opinions via various media.
- To develop learners' ability to read and write complex texts, articles, definitions and essays.

**UNIT-I: INTRODUCTION TO FUNDAMENTALS OF COMMUNICATION 9**

Listening-understanding listening and listening techniques; listening comprehension.
Speaking-introducing oneself; asking for information to fill details in a form.
Reading- skimming-scanning; speed reading.
Writing – AI assisted email writing; letter writing-permission/accepting/declining.
Grammar - parts of speech-tense-present.
Vocabulary – word formation; abbreviations & acronyms.

**UNIT-II: NARRATION AND SUMMATION 9**

Listening-listening conversation-note taking.
Speaking - narrating personal experiences; small talk.
Reading - reading comprehension-advertisements- cloze reading.
Writing - minutes of the meeting, short report on an event (field trip etc.).
Grammar –tense-past; articles.
Vocabulary – one-word substitution; synonyms and antonyms.

**UNIT-III: DESCRIPTION OF A PROCESS / PRODUCT 9**

Listening – listen to a product and process descriptions and advertisements about a products.
Speaking – presentation-PPT slides/project/innovative products; advertising a product.
Reading – reading and comparing different product specifications-reviews; user manuals.
Writing - writing definitions; instructions; and paragraph writing.
Grammar - tense-future- question types: wh/yes or no/ and tags.
Vocabulary - compound words, homonyms; and homophones.

**UNIT-IV: CLASSIFICATION AND RECOMMENDATIONS 9**

Listening – technical presentation-video clips and answering questions.
Speaking – welcome address-vote of thanks; interviewing a celebrity.
Reading – newspaper articles; responding to instant messages.
Writing – note-making; recommendations; transferring information (tables, chart, graph etc.).
Grammar –subject verb agreement-error correction.
Vocabulary - transition words- sentence completion.

**UNIT-V: EXPRESSION 9**

Listening – listening to debates and panel discussions.
Speaking –debate & role play activities.
Reading – reading editorials; newspaper report.
Writing – essay writing (descriptive or narrative) - discourse markers.
Grammar – degrees of comparison.
Vocabulary – idioms - phrasal verbs.

**Contact Periods:**

**Lecture: 45 Periods Tutorial: 0 Periods Practical: 0 Periods Total: 45 Periods**

**TEXT BOOKS:**


1. Raman, Meenakshi, and Sangeeta Sharma. Technical Communication: Principles and Practice. 3rd ed., Oxford University Press, 2015**.**
2. Rizvi, M. Ashraf. Effective Technical Communication. 2nd ed., McGraw Hill Education, 2017**.**
3. Wren, P. C., and H. Martin. High School English Grammar and Composition. Revised by N. D. V. Prasada Rao, S. Chand Publishing, 2018.


**REFERENCES:**


1. Raymond Murphy, English Grammar in Use, Cambridge University Press, New Delhi, 2020
2. Richardson, Mathew. Advanced Communication Skills. Charlie Creative Lab, 2020.
3. English for Engineers and Technologists. Vol. 1, Orient Blackswan, 2022.
4. English for Science & Technology – I. Cambridge University Press, 2023.
5. Sambaiah, M. Technical English: An Integrated Text Book. Wiley India Pvt. Ltd., 2025.


**COURSE OUTCOMES:**

Upon completion of this course, the students will be able to:

| | | **Bloom's Level** |
|---|---|---|
| **CO1:** | Communicate effectively using proper language skills in academic and real-life situations. | K3 (Applying) |
| **CO2:** | Comprehend, articulate, interpret, and produce structured communication with accuracy and clarity. | K3 (Applying) |
| **CO3:** | Communicate technical and product information clearly and effectively. | K1 (Remembering) |
| **CO4:** | Comprehend technical and general content, communicate effectively in formal and informal contexts. | K2 (Understanding) |
| **CO5:** | Express their opinions effectively in both oral and written medium of communication. | K3 (Applying) |

**COs-POs & PSOs MAPPING:**

| **CO** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PSO1** | **PSO2** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CO1** | - | - | - | - | - | - | 2 | 2 | 2 | - | - | - | - |
| **CO2** | - | - | - | - | - | - | 2 | 2 | 2 | - | - | - | 1 |
| **CO3** | - | - | - | - | - | - | 1 | 2 | 3 | - | - | - | - |
| **CO4** | - | - | - | - | - | - | 1 | 3 | 2 | - | - | - | 1 |
| **CO5** | - | - | - | - | - | - | 2 | 1 | 3 | - | - | - | - |
| **AVG** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **1.6** | **2.0** | **2.6** | **0.0** | **0.0** | **0.0** | **1.0** |

**26CABS102** **MATRICES AND CALCULUS** **SEMESTER I**

**(Common to all Branches)**

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

**COURSE OBJECTIVES:**

- To obtain the knowledge of eigen values and diagonalization of a matrix.
- To obtain the knowledge of various Matrix decomposition Techniques
- To acquire knowledge of differentiation for more than one variable and its applications.
- To obtain the knowledge of various techniques of integration.
- To acquire the knowledge of multiple integration and related applications.

**UNIT-I: MATRICES** **9+3**

Eigen values and Eigenvectors of a real matrix - Characteristic equation - Properties of Eigen values and Eigenvectors - Cayley - Hamilton theorem - Reduction of a quadratic form to canonical form by orthogonal transformation.

**UNIT-II: MATRIX DECOMPOSITION** **9+3**

QR decomposition - Singular Value Decomposition (SVD) - Least Square solutions - simple problems (up to $3 \times 3$ matrices).

**UNIT-III: DIFFERENTIAL CALCULUS** **9+3**

Partial differentiation - Jacobians - Taylor's series for functions of two variables - Maxima and minima of functions of two variables - Lagrange's Method of undetermined multipliers.

**UNIT-IV: INTEGRAL CALCULUS** **9+3**

Definite and Indefinite integrals - Substitution rule - Techniques of Integration: Integration by parts - Trigonometric Substitution - Integration of rational functions by partial fraction.

**UNIT-V: MULTIPLE INTEGRALS** **9+3**

Double integrals - Change of order of Integration - Area enclosed by plane curves - Triple integrals - Volume of solids ( Sphere, Cylinder and tetrahedron only).

**Contact Periods:**

**Lecture: 45 Periods** **Tutorial: 15 Periods** **Practical: 0 Periods** **Total: 60 Periods**

**TEXT BOOKS:**


1. Grewal, B. S., "Higher Engineering Mathematics", 45th Edition, Khanna Publishers, New Delhi, 2023.
2. Kreyszig, E., "Advanced Engineering Mathematics", 11th Edition, John Wiley &Sons, 2025.
3. James Stewart, "Calculus : Early Transcendentals", 8th Edition, Cengage Learning, New Delhi, 2015.


**REFERENCES:**


1. Friedberg, S. H., Insel, A. J., & Spence, L. E., " Linear Algebra", 5th Edition, Pearson, 2021.
2. Strang, G., "Linear Algebra and Its Applications", 4th Edition, Cengage Learning, 2022.
3. Anton. H, Bivens. I and Davis. S, " Calculus ", 10th Edition, Wiley, 2016

4. Bali. N., Goyal. M. and Watkins. C., "Advanced Engineering Mathematics", Firewall Media, New Delhi, 7th Edition, 2009.
5. Jain, R. K., & Iyengar, S. R. K., "Advanced Engineering Mathematics", 5th Edition, Narosa Publications, New Delhi, 2016.

**COURSE OUTCOMES:**

| **Upon completion of this course, the students will be able to:** | | **Bloom's Level** |
|---|---|---|
| **CO1** | Understand the matrix algebra techniques for solving practical problems | K2 (Understanding) |
| **CO2** | Understand the concepts of decomposition of matrices | K2 (Understanding) |
| **CO3** | Apply differential calculus ideas on several variable functions | K3 (Applying) |
| **CO4** | Apply different method of integration in solving practical problems | K3 (Applying) |
| **CO5** | Apply multiple integrals ideas in solving areas and volumes and other practical problems | K3 (Applying) |

**COs-POs & PSOs MAPPING:**

| **CO** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PSO1** | **PSO2** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CO1** | 3 | 2 | 1 | 1 | - | - | - | - | 1 | 1 | 1 | | |
| **CO2** | 3 | 2 | 1 | 1 | - | - | - | - | 1 | 1 | 1 | | |
| **CO3** | 3 | 2 | 1 | 1 | - | - | - | - | 1 | 1 | 1 | | |
| **CO4** | 3 | 2 | 1 | 1 | - | - | - | - | 1 | 1 | 1 | | |
| **CO5** | 3 | 2 | 1 | 1 | - | - | - | - | 1 | 1 | 1 | | |
| **AVG** | **3.0** | **2** | **1** | **1** | **-** | **-** | **-** | **-** | **1.0** | **1.0** | **1.0** | | |

| 26CABS103 | APPLIED PHYSICS<br>(Common to all branches) | SEMESTER I<br>L T P C<br>3 0 0 3 |
|---|---|---|

**COURSE OBJECTIVES:**

- To impart knowledge on the fundamental concepts of elasticity, bending of beams, and their structural engineering applications.
- To explain the principles of heat transfer, rectilinear flow, and experimental methods to measure thermal conductivity.
- To introduce the formulations of quantum mechanics, wave equations, and the behavior of particles in microscopic domains.
- To familiarize with the basics of quantum computing, qubits, Bloch sphere representation, and foundational quantum logic gates.
- To understand the principles of architectural acoustics, production of ultrasonic waves, and their non-destructive and medical testing applications.

**UNIT-I: PROPERTIES OF MATTER** **9**

Elasticity- Hooke's law - Classification of Modulus of Elasticity- Poisson's Ratio - Stress-Strain diagram - Factors affecting elasticity - Moment, Couple and Torque - Derivation of Twisting Couple on a wire - Bending moment - Depression of a cantilever - Young's modulus by Uniform Bending – Non-Uniform bending - I shaped girders and its applications.

**UNIT-II: THERMAL PROPERTIES** **9**

Thermal Conductivity - Thermal Diffusivity - Specific Heat Capacity - Rectilinear Flow of Heat along a Uniform Bar - Heat conduction through compound media (Series and Parallel) - Determination of Thermal Conductivity of a Good Conductor by Forbe's Method: theory and experiment - Determination of Thermal Conductivity of a poor Conductor by Lee and Charlton's Disc Method: theory and experiment.

**UNIT-III: QUANTUM MECHANICS** **9**

Limitations of classical Physics - Introduction to Quantum theory - Dual nature of matter and radiation - Properties of matter waves - de Broglie wavelength in terms of voltage, energy, and temperature - Heisenberg's Uncertainty principle - physical significance of wave function - Schrodinger's Time independent and Time dependent wave equations - Particle in a one-dimensional potential well.

**UNIT-IV: QUANTUM COMPUTING** **9**

Introduction to Quantum Computing - Moore's law and its limitations - Differences between Classical and Quantum computing- Concept of qubit and its properties - Representation of qubit by Bloch sphere - Single and Two qubits Quantum devices - Qubit Gates, Single Qubit Gates: Quantum NOT Gate - Pauli - X, Y and Z Gates - Hadamard Gate - Phase (S) Gate, T Gate.

**UNIT- V: ACOUSTICS AND ULTRASONICS** **9**

Acoustics: Classification of Sound - Weber-Fechner law - Absorption coefficient and its determination - Factors affecting acoustics of buildings and their remedies.

Ultrasonics: Production of ultrasonics - magnetostriction and piezoelectric methods - Non Destructive testing: pulse echo system through transmission and reflection modes - Medical application: Sonogram.

**Contact Periods:**

**Lecture: 45 Periods** **Tutorial: 0 Periods** **Practical: 0 Periods** **Total: 45 Periods**

**TEXT BOOKS:**


1. M.N. Avadhanulu, P.G. Kshirsagar, and T.V.S. Arun Murthy, "A Textbook of Engineering Physics", 11th edition, S. Chand Publishing, New Delhi, 2022.
2. Parag K Lala, Quantum Computing - A Beginner's Introduction, Indian Edition, McGrawHill, Reprint 2020.
3. R.K. Gaur and S.L. Gupta, "Engineering Physics", 8th edition, Dhanpat Rai Publications, New Delhi, 2017


**REFERENCES:**


1. D.Halliday, R.Resnick and J.Walker, Principles of Physics, Wiley (Indian Edition), 2015.
2. N.Garcia, A.Damask and S.Schwarz, Physics for Computer Science Students. Springer Verlag, 2012.
3. Arthur Beiser, Shobhit Mahajan, S. Rai Choudhury, Concepts of Modern Physics, McGrawHill (Indian Edition), 2017.
4. R.Wolfson, Essential University Physics. Volume 1 & 2. Pearson Education (Indian Edition), 2009.
5. Charles Kittel, Introduction to Solid State Physics, Wiley India Edition, 2019.


**COURSE OUTCOMES:**

| **Upon completion of this course, the students will be able to:** | | **Bloom's Level** |
|---|---|---|
| **CO1** | Apply the concepts of elasticity and bending moments to analyze deformations in cantilevers, beams, and structural components like I-shaped girders. | K3 (Applying) |
| **CO2** | Understand the heat conduction through uniform and compound media, and their thermal conductivity. | K2 (Understanding) |
| **CO3** | Solve quantum mechanical problems using Schrödinger's time-dependent and independent wave equations. | K3 (Applying) |
| **CO4** | Understand difference between classical and quantum computing systems and the operations of single-qubit quantum gates. | K2 (Understanding) |
| **CO5** | Apply the acoustic parameters of buildings for noise control and application of ultrasonic waves in medical imaging and non-destructive testing (NDT). | K3 (Applying) |

**COs-POs & PSOs MAPPING:**

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PSO1 | PSO2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CO1** | 2 | 2 | 1 | 1 | - | 1 | - | - | - | - | - | - | - |
| **CO2** | 2 | 2 | 1 | 1 | - | - | - | - | - | - | - | - | - |
| **CO3** | 3 | 2 | 1 | 1 | - | 1 | - | - | - | - | - | - | - |
| **CO4** | 3 | 2 | 2 | 1 | - | 1 | - | - | - | - | - | - | - |
| **CO5** | 2 | 2 | 1 | 1 | - | 1 | - | - | - | - | - | - | - |
| **AVG** | **2.4** | **2.0** | **1.2** | **1.0** | **-** | **1.0** | **-** | **-** | **-** | **-** | **-** | **-** | **-** |

**26CABS104** **APPLIED CHEMISTRY** **SEMESTER I**

**(Common to AI&DS, CSE and IT Branches)**

| L | T | P | C |
|---|---|---|---|
| 3 | 0 | 0 | 3 |

**COURSE OBJECTIVES:**

- To inculcate sound understanding of water quality parameters and water treatment techniques.
- To impart knowledge on the basic principles and preparatory methods of nanomaterials.
- To understand the principles of electrochemistry and electroanalytical methods.
- To acquire knowledge about principles of corrosion and corrosion control techniques.
- To learn the principles and applications of energy conversion and storage devices.

**UNIT-I: WATER CHEMISTRY AND ITS TREATMENT** **9**

Water quality parameters: Alkalinity, TDS, COD, BOD, hardness estimation (EDTA method) - Boiler troubles - Treatment boiler feed water: internal conditioning methods and external conditioning - demineralization processes. Water purification: Desalination by reverse osmosis and forward osmosis. Municipal water treatment for potable water supply - Break Point Chlorination.

**UNIT-II: NANOCHEMISTRY** **9**

Nanomaterials and bulk materials; Size-dependent properties - types of nanomaterials: Definition, properties, and uses of – nanoparticle, nanorod and nanotube. Preparation of nanomaterials: top-down and bottom up process - chemical vapour deposition, electrodeposition, precipitation, thermolysis and laser ablation. Applications of nanomaterials in medicine, energy and electronics.

**UNIT-III: ELECTROCHEMISTRY** **9**

Electrode potential - electrochemical cells – reversible and irreversible cells – reference electrodes (SHE and SCE) - EMF series and its applications - Nernst equation. Glass electrode - pH measurement. Potentiometric redox titration - estimation of ferrous ion – conductometric titration – estimation of HCl.

**UNIT-IV: CORROSION AND ITS CONTROL** **9**

Chemical and electrochemical corrosion mechanisms - nature of oxides- Pilling–Bedworth rule-galvanic series and its importance. Factors influencing corrosion – Corrosion control methods - design of materials and cathodic protection techniques. Protective coatings - Electroplating of Cr and Ni – galvanizing- anodizing of aluminium.

**UNIT-V: ENERGY CONVERSION AND STORAGE DEVICES** **9**

Solar cell - working principles of photovoltaic cell and organic solar cell. Batteries – classifications and working of Leclanche cell, Lithium Ferro Phosphate (LFP) and Sodium ion batteries. Fuel cells:

Proton Exchange Membrane and Microbial Fuel cell. Electric vehicles-working principles. Supercapacitors-working principles.

**Contact Periods:**
**Lecture: 45 Periods Tutorial: 0 Periods Practical: 0 Periods Total: 45 Periods**

**TEXT BOOKS:**


1. Jain P.C. and Monica Jain, "Engineering Chemistry", Dhanpat Rai Publications Pvt. Ltd, New Delhi, 17th Edition, 2018.
2. Vairam S and Subha Ramesh, "Engineering Chemistry", Wiley India, 2015.
3. Ravikrishnan A, "Engineering Chemistry", Sri Krishna Hitech Publishing Company Pvt. Ltd, 2021.


**REFERENCES:**


1. Renu Bapna and Renu Gupta, "Engineering Chemistry", Macmillan Publishers India Ltd, 2010.
2. B. S. Murty, P. Shankar, Baldev Raj, B. B. Rath and James Murday, "Text book of nanoscience and nanotechnology", Universities Press-IIM Series in Metallurgy and Materials Science, 2018.
3. Sivasankar B. "Engineering Chemistry, Tata McGraw-Hill Publishing Company Ltd, New Delhi, 2012.
4. S.S. Dara, "A Text book of Engineering Chemistry. S. Chand Publishing, 12th Edition, 2018.
5. O.V. Roussak and H.D. Gesser, Applied Chemistry-A Text Book for Engineers and Technologists, Springer Science Business Media, New York, 2nd Edition, 2013.


| **COURSE OUTCOMES:** Upon completion of this course, the students will be able to: | | **Bloom's Level** |
|---|---|---|
| **CO1:** | Understand the quality of water from quality parameter data and propose suitable treatment methodologies to treat water. | K3 (Applying) |
| **CO2:** | To identify and apply basic concepts of nanoscience and nanotechnology in designing the synthesis of nanomaterials for engineering and technology applications. | K2 (Understanding) |
| **CO3:** | Understand the basic principles of electrochemistry and electroanalytical techniques for quantitative chemical estimation. | K3 (Applying) |
| **CO4:** | Know the principles, various types of corrosion and corrosion control techniques. | K2 (Understanding) |
| **CO5:** | Identify different energy conversion methods and apply them for suitable applications in energy sectors. | K3 (Applying) |

**COs-POs & PSOs MAPPING:**

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PSO1 | PSO2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CO1** | 2 | **1** | 1 | **-** | **-** | - | 1 | **-** | **-** | - | - | | |
| **CO2** | 2 | **1** | 1 | **-** | **-** | - | 1 | **-** | **-** | - | - | | |
| **CO3** | 3 | 1 | 1 | **-** | **-** | - | **1** | **-** | **-** | - | - | | |
| **CO4** | 3 | 1 | 1 | **-** | **-** | - | 1 | **-** | **-** | - | - | | |
| **CO5** | 2 | **1** | 1 | - | - | - | 1 | **-** | **-** | - | - | | |
| **AVG** | **2.4** | **1.0** | **1.0** | **-** | **-** | **-** | **1.0** | **-** | **-** | **-** | **-** | | |

**26CAES105** **C PROGRAMMING** **SEMESTER I**

| L | T | P | C |
|---|---|---|---|
| 3 | 0 | 0 | 3 |

**COURSE OBJECTIVES:**

- Implement computer fundamentals and structure logical solutions using C.
- Develop programs using control structures and arrays.
- Analyze modular and pointer-based techniques for efficient code design.
- Implement user-defined data types and memory management techniques.
- Apply file handling techniques for persistent data storage.

**UNIT-I: BASICS OF C PROGRAMMING** **11**

Generation and Organization of Computers - Number System - Binary - Decimal - Conversion - Problems. Need for logical analysis and thinking - Algorithm - Pseudo code - Flow Chart. Introduction to programming paradigms: Structure of C program - Data Types - Constants - Keywords - Operators and Expressions - Input / Output statements.

**UNIT-II: ARRAYS AND STRINGS** **9**

Decision making statements - Switch statement - Looping statements - Arrays - Initialization - Declaration - One dimensional, Two dimensional arrays - String: String operations - String Arrays - Simple programs: Sorting - Searching - Matrix operations.

**UNIT-III: FUNCTIONS AND POINTERS** **9**

Introduction to functions: Function prototype, function declaration, function definition, function call, Built-in functions (string functions, math functions) - Recursion - Pointers - Pointer operators - Pointer arithmetic - Arrays and pointers - Array of pointers - Parameter passing: Pass by value, Pass by reference- Storage classes and Visibility.

**UNIT-IV: STRUCTURES AND UNION** **9**

Structure - Nested structures – Pointer and Structures – Array of structures – Self referential structures – Dynamic memory allocation: malloc(), calloc(), realloc(), free() - Singly linked list – typedef – Union.

**UNIT-V: FILE PROCESSING** **7**

Files: File opening modes - File operations: Open, Read, Write, Close - Sequential access, Random access – Common errors in the file handling- File Pointers: ftell(), fseek(), rewind()- Preprocessor directives - Command line arguments.

**Contact Periods:**

**Lecture: 45 Periods** **Tutorial: 0 Periods** **Practical: 0 Periods** **Total: 45 Periods**

**Text Books:**


1. Reema Thareja, Computer Fundamentals and Programming in C, 3rd Edition, Oxford University Press, 2023.
2. Kernighan, B.W and Ritchie, D.M, "The C Programming language", 2nd Edition, Pearson Education, 2015.


**Reference Books:**


1. Paul Deitel and Harvey Deitel, "C How to Program with an Introduction to C++", 8th Edition, Pearson Education, 2018.
2. Anita Goel and Ajay Mittal, "Computer Fundamentals and Programming in C", 1st Edition, Pearson Education, 2019.
3. Yashavant P. Kanetkar. "Let Us C", BPB Publications, 16th revised edition, 2020.


**COURSE OUTCOMES:**

| **Upon completion of this course, the students will be able to:** | | **Bloom's Level** |
|---|---|---|
| CO1 | Interpret fundamental concepts and constructs of C language. | K2 (Understand) |
| CO2 | **Apply** C programming concepts to solve engineering problems. | K3 (Apply) |
| CO3 | Analyze the programs for errors and efficiency | K4 (Analyze) |
| CO4 | Create efficient C programs for engineering applications. | K6 (Create) |
| CO5 | Develop innovative solutions using emerging programming concepts and technologies through independent or joint projects. | K6 (Create) |

**COs-POs & PSOs MAPPING**

| CO | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PSO1** | **PSO2** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | – | – | – | – | – | – | – | – | – | – | – | – | – |
| CO2 | 3 | 3 | 2 | – | 1 | – | – | – | – | – | – | 2 | 1 |
| CO3 | 3 | 3 | 2 | 2 | 2 | – | – | – | – | – | – | 2 | 1 |
| CO4 | 3 | 2 | 3 | 2 | 3 | – | – | – | 1 | 1 | 2 | 2 | 1 |
| CO5 | 2 | 2 | 3 | 1 | 2 | – | – | – | 2 | 2 | 2 | 3 | 2 |
| **AVG** | **2.75** | **2.50** | **2.50** | **1.67** | **2.00** | **–** | **–** | **–** | **1.50** | **1.50** | **2.00** | **2.25** | **1.25** |

**26CAHS109** **HERITAGE OF TAMILS** **SEMESTER I**

| L | T | P | C |
|---|---|---|---|
| 1 | 0 | 0 | 1 |

**UNIT-I: LANGUAGE AND LITERATURE** **3**

Language Families in India - Dravidian Languages – Tamil as a Classical Language - Classical Literature in Tamil – Secular Nature of Sangam Literature – Distributive Justice in Sangam Literature Management Principles in Thirukural - Tamil Epics and Impact of Buddhism & Jainism in Tamil Land Bakthi Literature Azhwars and Nayanmars - Forms of minor Poetry - Development of Modern literature in Tamil - Contribution of Bharathiyar and Bharathidhasan.

**UNIT-II: HERITAGE - ROCK ART PAINTINGS TO MODERN ART – SCULPTU** **3**

Hero stone to modern sculpture - Bronze icons - Tribes and their handicrafts - Art of temple car making - - Massive Terracotta sculptures, Village deities, Thiruvalluvar Statue at Kanyakumari, Making of musical instruments - Mridhangam, Parai, Veenai, Yazh and Nadhaswaram - Role of Temples in Social and Economic Life of Tamils.

**UNIT-III: FOLK AND MARTIAL ARTS** **3**

Therukoothu, Karagattam, Villu Pattu, Kaniyan Koothu, Oyillattam, Leather puppetry, Silambattam, Valari, Tiger dance - Sports and Games of Tamils.

**UNIT-IV: THINAI CONCEPT OF TAMILS** **3**

Flora and Fauna of Tamils & Aham and Puram Concept from Tholkappiyam and Sangam Literature - Aram Concept of Tamils - Education and Literacy during Sangam Age - Ancient Cities and Ports of Sangam Age - Export and Import during Sangam Age - Overseas Conquest of Cholas.

**UNIT-V: CONTRIBUTION OF TAMILS TO INDIAN NATIONAL MOVEMENT AND INDIAN CULTURE** **3**

Contribution of Tamils to Indian Freedom Struggle - The Cultural Influence of Tamils over the other parts of India – Self-Respect Movement - Role of Siddha Medicine in Indigenous Systems of Medicine – Inscriptions & Manuscripts – Print History of Tamil Books.

**TOTAL : 15 PERIODS**

**REFERENCES:**


1. தமிழக வரலாறு – மக்களும் பண்பாடும் – மற்றும் கல்வியியல் பணிகள் கழகம்).
2. கணினித் தமிழ் – முனைவர் இல. சுந்தரம். (விகடன் பிரசுரம்).
3. கீழடி – வைகை நதிக்கரையில் சங்ககால நகர நாகரிகம் (தொல்லியல் துறை வெளியீடு)
4. பொருநை – ஆற்றங்கரை நாகரிகம். (தொல்லியல் துறை வெளியீடு)
5. Social Life of Tamils (Dr.K.K.Pillay) A joint publication of TNTB & ESC and RMRL – (in print)
6. Social Life of the Tamils - The Classical Period (Dr.S.Singaravelu) (Published by: International Institute of Tamil Studies.

7. Historical Heritage of the Tamils (Dr.S.V.Subatamanian, Dr.K.D. Thirunavukkarasu) (Published by: International Institute of Tamil Studies).
8. The Contributions of the Tamils to Indian Culture (Dr.M.Valarmathi) (Published by: International Institute of Tamil Studies.)
9. Keeladi - 'Sangam City Civilization on the banks of river Vaigai' (Jointly Published by: Department of Archaeology & Tamil Nadu Text Book and Educational Services Corporation, Tamil Nadu)
10. Studies in the History of India with Special Reference to Tamil Nadu (Dr.K.K.Pillay) (Published by: The Author)
11. Porunai Civilization (Jointly Published by: Department of Archaeology & Tamil Nadu Text Book and Educational Services Corporation, Tamil Nadu)
12. Journey of Civilization Indus to Vaigai (R.Balakrishnan) (Published by: RMRL) – Reference Book.

| 26CAES106 | C PROGRAMMING LABORATORY | SEMESTER I | | | |
|---|---|---|---|---|---|
| | | L | T | P | C |
| | | 0 | 0 | 3 | 1.5 |

**COURSE OBJECTIVES:**

- Outline control and iterative logic to build decision-driven C programs.
- Develop modular, memory-efficient solutions using data organization and addressing.
- Design real-world team applications using persistent storage and quality practices.
- Analyze modular and memory-oriented programming techniques for efficient problem solving.
- Apply data organization and file-handling techniques to develop efficient solutions.

**LIST OF EXPERIMENTS:**

1. I/O statements, operators, expressions
2. Decision-making constructs: if-else, goto, switch-case, break-continue
3. Loops: for, while, do-while
4. Arrays: 1D and 2D, Multi-dimensional arrays, traversal
5. Strings: operations
6. Functions: call, return, passing parameters by (value, reference), passing arrays to function.
7. Recursion
8. Pointers: Pointers to functions, Arrays, Strings, Pointers to Pointers, Array of Pointers
9. Structures: Nested Structures, Pointers to Structures, Arrays of Structures and Unions.
10. Files: reading and writing, File pointers, file operations, random access, processor directives.
11. Mini Project : Library Management, Hospital Management System, Banking Application, Inventory Management, Ticket Reservation, Student Attendance Maintenance, Restaurant Billing, Employee Management, College Course Registration System, Supermarket Billing Process, Hotel Reservation application, Currency Convertor.

**Contact Periods:**

| Lecture: 0 Periods | Tutorial: 0 Periods | Practical: 45 Periods | Total: 45 Periods |
|---|---|---|---|

**COURSE OUTCOMES:**

| Upon completion of this course, the students will be able to: | | Bloom's Level |
|---|---|---|
| **CO1** | Illustrate core programming concepts and constructs for solving computational problems. | K2 (Understand) |
| **CO2** | Apply control and iterative logic to build decision-driven solutions. | K3 (Apply) |
| **CO3** | Analyze modular and memory-addressing techniques for efficient problem solving. | K4 (Analyze) |
| **CO4** | Create efficient software solutions using structured data and persistent storage. | K6 (Create) |
| **CO5** | Demonstrate programming skills through individual or team-based application development. | K6 (Create) |

**LIST OF EQUIPMENT'S AND COMPONENTS**

- Software Required – Turbo C Compiler / GNU C Compiler / Equivalent
- Operating System – Windows 7 / 8.1 / 10 / Linux
- Computers Required – 30 Nos.

**COs-POs & PSOs MAPPING**

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PSO 1 | PSO2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CO1** | – | – | – | – | – | – | – | – | – | – | – | – | – |
| **CO2** | **3** | **3** | **2** | – | **1** | – | – | – | – | – | – | **2** | **2** |
| **CO3** | **3** | **3** | **3** | **2** | **2** | – | – | – | – | – | – | **2** | **1** |
| **CO4** | **3** | **2** | **3** | **2** | **3** | – | – | – | **1** | **1** | **2** | **2** | **1** |
| **CO5** | **2** | **2** | **3** | **1** | **2** | – | – | – | **2** | **2** | **2** | **2** | **1** |
| **AVG** | **2.75** | **2.50** | **2.75** | **1.67** | **2.00** | – | – | – | **1.50** | **1.50** | **2.00** | **2.00** | **1.25** |

| 26CABS107 | PHYSICS AND CHEMISTRY LABORATORY (Common to all branches) | SEMESTER I |
|---|---|---|

| L | T | P | C |
|---|---|---|---|
| 0 | 0 | 3 | 1.5 |

**COURSE OBJECTIVES:**

- To introduce different experiments to test basic understanding of physics concepts applied in properties of matter.
- To learn problem solving skills related to physics principles and interpretation of experimental data in Laser, fibre optics, spectrometer and Ultrasonics.
- To develop practical skills in determining water quality parameters through volumetric analysis and enhance experimental understanding of hardness, alkalinity and iodine content.
- To impart practical knowledge of conductometric and potentiometric methods for the quantitative estimation of HCl and $Fe^{2+}$.
- To equip the students for determination of hydrochloric acid by pH measurement.

**PHYSICS LABORATORY:**

**LIST OF EXPERIMENTS:**

1. Determination of Young's modulus of a beam by Cantilever bending.
2. Determination of moment of inertia and rigidity modulus of wire Torsional pendulum.
3. Determination of Young's modulus of a beam by Non-uniform bending method.
4. a) Determination of wave length of the given laser using grating.
   b) Determination of Numerical Aperture and acceptance angle using optical fiber.
5. Determination of compressibility of the given liquid using Ultrasonic interferometer.
6. Determination of the prominent lines wavelength of the mercury spectrum using Spectrometer.

**CHEMISTRY LABORATORY :**

**LIST OF EXPERIMENTS:**

1. Estimation of hardness by EDTA method.
2. Determination of types and amount of alkalinity in water sample.
3. Estimation of Iodine content in common salt by Iodometry.
4. Conductometric titration of strong acid and strong base.
5. Estimation of iron content of the given solution using potentiometer.
6. Determination of HCl by pH titration.

**Contact Periods:**

**Lecture: 0 Periods Tutorial: 0 Periods Practical: 45 Periods Total: 45 Periods**

**REFERENCES:**

1. Laboratory manual prepared by the department.

**COURSE OUTCOMES:**

| Upon completion of this course, the students will be able to: | | Bloom's Level |
|---|---|---|
| **CO1** | Find the Young's modulus and Rigidity modulus of the material. | K3 (Applying) |
| **CO2** | Gain knowledge in handling laser and fiber optics. They will be able to find velocity of ultrasonics and compressibility for different liquids and also to determine the wavelengths of the prominent lines of the mercury spectrum. | K3 (Applying) |
| **CO3** | Outfit with hands on knowledge in the quantitative chemical analysis of water quality parameters and estimate the type and amount of alkalinity in water sample. | K3 (Applying) |
| **CO4** | Equip with the principles and techniques involved in conductometric and potentiometric measurements for quantitative analysis of chemical substances. | K3 (Applying) |
| **CO5** | Estimate the amount of hydrochloric acid by pH measurement. | K3 (Applying) |

**COs-POs & PSOs MAPPING:**

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PSO1 | PSO2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CO1** | 1 | 1 | 1 | 1 | - | 1 | - | 1 | - | - | - | - | - |
| **CO2** | 2 | 2 | 2 | 1 | - | 1 | - | 1 | - | - | - | - | - |
| **CO3** | 2 | 2 | 1 | 1 | - | 1 | - | 1 | - | - | - | - | - |
| **CO4** | 1 | 1 | 1 | 1 | - | 1 | - | 1 | - | - | - | - | - |
| **CO5** | 2 | 2 | 1 | 1 | - | 1 | - | 1 | - | - | - | - | - |
| **AVG** | **1.6** | **1.6** | **1.2** | **1** | **-** | **1** | **-** | **1** | **-** | **-** | **-** | **-** | **-** |

**26CAHS108 COMMUNICATION SKILLS LABORATORY SEMESTER I**

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

**COURSE OBJECTIVES:**

- Enhance the employability and career skills of students
- Orient the students towards grooming as a professional
- Make them Employability Graduates
- Develop their confidence and help them attend interviews successfully.
- Demonstrate an understanding of job applications and interviews for internship and placements.

**LIST OF EXPERIMENTS:**

1. Listening & Answering to a Lecture
2. Giving & asking personal information
3. Reading Comprehension
4. Oral presentation
5. Editing E-mail Writing using AI
6. Job Application Letter with Resume
7. Group Discussion
8. Soft Skills
9. Mock Interview
10. Digital portfolio presentation

**Contact Periods:**
**Lecture: 0 Periods Tutorial: 0 Periods Practical: 30 Periods Total: 30 Periods**

**REFERENCES:**


2. Feekery, Angela, Shawn Michael Condon, and Mieke Witsel. Communication Skills for Business Professionals. 3rd ed., Cambridge University Press, 2025.
3. Markel, Mike, and Stuart A. Selber. Technical Communication. 13th ed., Bedford/St. Martin's, 2021
4. Kumar, Sanjay, and Pushp Lata. Communication Skills. 2nd ed., Oxford UP, 2018.
5. Rizvi, M. Ashraf. Effective Technical Communication. McGraw Hill Education, 2017.
6. Swan, Michael. Practical English Usage. 4th ed., Oxford UP, 2016.

**COURSE OUTCOMES:**

| Upon completion of this course, the students will be able to: | | Bloom's Level |
|---|---|---|
| **CO1** | Recall and demonstrate the fundamentals of effective listening and self-introduction skills for academic and professional communication. | K1 (Remembering) |
| **CO2** | Explain and demonstrate reading comprehension strategies and presentation techniques for effective communication. | K2 (Understanding) |
| **CO3** | Apply professional writing skills to prepare effective e-mails, job application letters, and resumes for employment opportunities. | K3 (Applying) |
| **CO4** | Apply interpersonal communication, group discussion, and soft skills to interact effectively in professional environments. | K3 (Applying) |
| **CO5** | Apply interview techniques and career planning strategies to enhance employability and placement readiness. | K3 (Applying) |

**COs-POs & PSOs MAPPING:**

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PSO1 | PSO2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CO1** | - | - | - | - | - | - | 2 | 2 | 3 | - | - | - | - |
| **CO2** | - | - | - | - | - | - | 2 | 3 | 2 | - | - | - | 1 |
| **CO3** | - | - | - | - | - | - | 2 | 2 | 3 | - | - | - | - |
| **CO4** | - | - | - | - | - | - | 1 | 2 | 2 | - | - | - | 1 |
| **CO5** | - | - | - | - | - | - | 2 | 1 | 3 | - | - | - | - |
| **AVG** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **1.8** | **2.0** | **2.6** | **0.0** | **0.0** | **0.0** | **1.0** |