SUBJECT CODE	Category	SUBJECT NAME	TEACHING & EVALUATION SCHEME									
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM	MST	Q/A	END SEM	Q/A				
BTMA 201	BS	Applied Mathematics - II	60	20	20	-	-	3	1	-	4

Course Objective

To introduce the students with the Fundamentals of the Calculus of Matrices, Differential Equations and Numerical Analysis

Course Outcomes

After the successful completion of this course students will be able to

1. understand and apply the basics of the calculus of matrices.
2. solve the fundamental problems of the ordinary differential equations.
3. apply the advanced techniques to find the solution of the ordinary differential equations.
4. know the techniques of the numerical analysis.
5. find the numerical solution of the ODE and PDE.

Course Content:

UNIT – I
Calculus of Matrices

Systems of linear equations and their solutions. Matrices, determinants, rank and inverse. Linear transformations. Range space and rank, null space and nullity. Eigenvalues and eigenvectors. Similarity transformations. Diagonalization of Hermitian matrices. Bilinear and quadratic forms.

UNIT – II
Differential Equation

Ordinary Differential Equations: First order linear and nonlinear ordinary differential equations, exactness and integrating factors. Ordinary linear differential equations of n-th order, solutions of homogeneous and non-homogeneous equations. Operator method. Method of undetermined coefficients and variation of parameters.

UNIT – III
Differential Equation

Power series methods for solutions of ordinary differential equations. Solution of Legendre equation and Legendre polynomials and solution of Bessel equation and Bessel functions of first and second kind.

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UNIT – IV

Numerical Analysis

Interpolation and Curve Fitting: Introduction to Interpolation; Calculus of Finite Differences; Finite Difference and Divided Difference Tables; Newton-Gregory Polynomial Form; Lagrange Polynomial Interpolation; Approximation by Least Square Method. **Numerical Differentiation and Integration:** Discrete Approximation of Derivatives: Forward and Backward Finite Difference Forms, Numerical Integration, Simple Newton-Cotes Rules: Trapezoidal and Simpson's (1/3) Rules; Weddle's Rule.
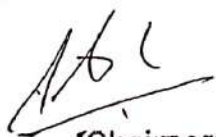
UNIT – V

Numerical Solution of ODE & PDE: Euler's Method for Numerical Solution of ODE; Modified Euler's Method; Runge-Kutta Method (RK2, RK4), Error estimate; Multistep Methods: Predictor-Corrector method, finite difference methods, numerical solutions of elliptic, parabolic, and hyperbolic partial differential equations.

Texts:
A. G. Strang, Linear Algebra And Its Applications, 4th Edition, Brooks/Cole, 2006
B. S. L. Ross, Differential Equations, 3rd Edition, Wiley, 1984.
C. E. A. Coddington, An Introduction to Ordinary Differential Equations, Prentice Hall, 1995.
D. W.E. Boyce and R.C. DiPrima, Elementary Differential Equations and Boundary Value Problems, 7th Edition, Wiley, 2001.
E, K. E. Atkinson, Numerical Analysis, John Wiley, Low Price Edition (2004).
F. S. D. Conte and C. de Boor, Elementary Numerical Analysis - An Algorithmic Approach, McGraw-Hill,2005.
G. B. S. Grewal, Higher Engineering Mathematics, Khanna Publishers, Delhi

References:
- E. Kreyszig, Advanced Engineering Mathematics, 9th Edition, Wiley, 2005.
- R. G. Bartle and D. R. Sherbert, Introduction to Real Analysis, 5th Ed, Wiley, 1999.
- J. Stewart, Calculus: Early Transcendentals, 5th Ed, Thomas Learning (Brooks/ Cole), Indian Reprint, 2003.
- J. Stoer and R. Bulirsch, Introduction to Numerical Analysis, 2nd Edition, Texts in Applied Mathematics, Vol. 12, Springer Verlag, 2002.
- J. D. Hoffman, Numerical Methods for Engineers and Scientists, McGraw-Hill, 2001.
- M.K Jain, S.R.K Iyengar and R.K Jain, Numerical methods for scientific and engineering computation (Fourth Edition), New Age International (P) Limited, New Delhi, 2004.
- S. C. Chapra, Applied Numerical Methods with MATLAB for Engineers and Scientists, McGraw-Hill 2008.

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B. Tech. (Common for All branches)

Subject Code	Category	Subject Name	Teaching and Evaluation Scheme								CREDITS
			Theory			Practical		Th	T	P	
			End Sem University Exam	Two Term Exam	Teachers Assessment*	End Sem University Exam	Teachers Assessment*				
BTPH101	DC	Applied Physics	60	20	20	30	20	3	1	2	5

Course Objectives	1. To develop the comprehensive understanding of laws of physics. 2. To develop ability to apply laws of physics for various engineering applications. 3. To develop the experimental skills, ability to analyze the data obtained experimentally to reach substantiated conclusions.
Course Ourcomes	1. Student will be able to comprehend laws of physics. 2. 2. Student will be able to apply laws of physics for various engineering applications. 3. 3. Student will be able to determine physical parameter experimentally and will be able to analyze the data obtained experimentally to draw substantiate conclusions.

Abbreviation		Teacher Assessment (Theory) shall be based on following components: Quiz / Assignment/ Project / Participation in class (Given that no component shall be exceed 10 Marks).
Th	Theory	
T	Tutorial	Teacher Assessment (Practical) shall be based on following components: Viva / File / Participation in Lab work (Given that no component shall be exceed 50% of Marks).
P	Practical	

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BTPH101: Applied Physics

UNIT I: Quantum Physics

Introduction to Quantum hypothesis, Matter wave concept, Wave Group and Particle velocity and their relations, Uncertainty principle with elementary proof and applications to microscope and single slit, Compton Effect, Wave function and its physical significance. Development of time dependent and time independent Schrodinger wave equation, Applications of time independent Schrodinger wave equation.

UNIT II: Solid State Physics

Free electron model, Qualitative Analysis of Kronig Penney Model, Effective mass, Fermi level for Intrinsic and Extrinsic semiconductors, P-N junction diode, Zener diode, Tunnel diode, Photodiode, Solar-cells, Hall Effect, Introduction to Superconductivity, Meissner effect, Type I & II Superconductors.
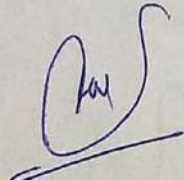
UNIT III: Nuclear Physics

Nuclear Structure & Properties Nuclear models: Liquid drop with semi-empirical mass formula & shell model. Particle accelerators: Cyclotron, Synchrotron, Betatron. Counters and Detectors: Giger-Muller counters, Bainbridge Mass Spectrograph and Auston Mass Spectrograph.

UNIT VI: Laser & Fiber Optics

Stimulated and Spontaneous Emission, Einstein's A&B Coefficients, Population Inversion, Pumping, Techniques of Pumping, Optical Resonator, Properties and Applications of Laser, Ruby, Nd:Y AG, He-Ne lasers. Introduction to Optical fibre, Acceptance angle and cone, Numerical Aperture, V-Number, Ray theory of propagation through optical fibre, Pulse dispersion, applications of optical fibre.

UNIT V: Wave Optics

Introduction to Interference, Fresnel's Bi-prism, Interference in Thin films, Newton's rings experiment, Michelson's interferometer and its application, Introduction to Diffraction and its Types, Diffraction at single slit, double slit, resolving power, Rayleigh criterion, Resolving power of grating, Concept of polarized light, Double refraction, quarter and halfwave plate, circularly & elliptically polarized light.

r. UTTAM SHARMA
Professor & Head
Department of Physics
Vaishnav Institute of Science

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REFERENCES

1. "Engineering Physics", by Dr. S. L. Gupta and Sanjeev Gupta, Dhanpat Rai Publication, New Delhi.
2. "Engineering Physics", by Navneet Gupta, Dhanpat Rai Publication, New Delhi.
3. "Engineering Physics", by H. J Sawant, Technical Publications, Pune, Maharashtra.
4. "Engineering Physics". by MN. Avdhanulu & P. G. Kshirsagar, S. Chand & Co.Edition (2012).
5. "Fundamentals of Physics", by Halliday, Wiley, India.
6. "Concepts of Modern Physics", by Beiser, TMH, New Delhi.
7. "Atomic and Nuclear physics", by Brijlal and Subraminiyan.
8. "LASERSs and Electro Optics". by Christopher C. Davis, Cambridge Univ. Press (1996).
9. "Optoelectronics an Introduction", by J Wilson & JF.B.Hawkes, "" Prentice-Hall II Edition.
10. "LASER theory and applications", by A. K. Ghatak & Tyaga raja n, TMH (1984).

List of experiments

1. Measurement of radius of curvature "R" of convex lens by Newton's ring experiment.
2. Measurement of Numerical aperture of fiber by LASER.
3. Determination of Energy band gap .Eg" ofGe using Four Probe method.
4. Measurement of Frequency of A.C. mains by electrically maintained vibrating rod.
5. Measurement of Resolving Power of Telescope.
6. Measurement of "'A" of LASER light source using Diffraction Grating.
7. Determination of Planck's constant by using photocell.
8. Determination of Energy band gap (Eg) using PN Junction Diode.
9. To determine the mass of cane sugar dissolved in water using half shade polarimeter.
10. To study forward and reverse characteristics of Zener diode.
11. To study forward and reverse characteristics of P-N diode.
12. To study characteristics of Photo diode.
13. To study characteristics of LDR.
14. μ and ω of given prism using spectrometer.
15. Measuring height of a given object using Sextant.

UTTAM SHARMA
Professor & Head
Department of Physics
Vaishnav Institute of Science

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B. Tech. in Mechanical Engineering

SUBJECT CODE	Category	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM UNIVERSITY EXAM	TWO TERM EXAM	TEACHER ASSESSTMENT *	END SEM UNIVERSITY EXAM	TEACHER ASSESSTMENT *				
BTME102		FUNDAMENTALS OF MECHANICAL ENGINEERING	60	20	20	30	20	3	0	2	4

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 20 marks.

Course Educational Objectives (CEOs):

To introduction with (A) Engineering Materials, (B) Thermodynamics, heat engines (C) Boiler and Steam (D) Refrigeration & Air conditioning, (E) Production.

Course Outcomes (COs):

After completion of this course the students are expected to be able to demonstrate following knowledge, skills and attitudes

1. Students would be able to understand the need of engineering materials, and its property, need and defects.
2. Students would be able to analyses basics of thermodynamics and able to understand various mechanical instruments.
3. Students would be able to understand I C engines, their working and operating conditions.
4. Students will be able to understand the basics of refrigeration & air conditioning.
5. Students would be able to recognize production methodology and their need.
6. Students would be able to demonstrate various case studies based on heat engines, basics of thermodynamics, productions.

Note: - Steam table is permit during examination.

Syllabus

Unit - I

Introduction to Engineering Materials: Introduction, classification materials, need of engineering materials, mechanical properties like strength, hardness, toughness, ductility, brittleness, malleability etc. of materials, Stress-strain diagram of ductile and brittle materials, Hooks law and Modulus of elasticity.

Unit - II

Introduction to Thermodynamics: Definition of thermodynamics, thermodynamic systems, Macroscopic and Microscopic views, thermodynamic equilibrium, properties of system, point & path function, Zeroth, First and second law of thermodynamics, thermodynamic processes at constant pressure, volume, enthalpy & entropy.

Unit - III

Introduction to Heat Engines: Introduction, need of heat engines, types of heat engines.
IC Engines: Introduction, terminology of IC engine, Carnot, Otto and Diesel cycles P-V & T-S diagrams and its efficiency, two and four stroke engines, latest technologies used in engines of vehicle.
Boilers: Introduction, classification of boilers, working of Cochran, Lancashire, Locomotive and Babcock and Wilcox boilers, mountings & accessories.
Introduction of steam, steam formation, properties of steam, use of steam table.

Unit - IV

Introduction to Refrigeration: Introduction, need of refrigeration, reverse Carnot cycle, unit of refrigeration, coefficient of performance, Vapor compression cycle, P-h and T-S diagrams, deviations from theoretical cycle.
Air Conditioning: Introduction and need of air conditioning, air conditioning components and control.

Unit-V

Introduction to Manufacturing: Introduction of basic manufacturing process, introduction to casting, Rolling, Extrusion, Arc and Gas welding, Brazing, Soldering. Introduction to Lathe and Drilling machines and their various operations.

Reference Books:

1. *"Mechanical Engineering", by R. K. Rajput*
2. *"Basic Mechanical Engineering", by D. K. Gupta*
3. *"Basic Mechanical Engineering (MP",) by Domkundwar*
4. *"Mechanical Engineering", Handbook (CRC Press)*
5. *"Mechanical Engineering Reference Book", by E.H. Smith*
6. *"An Introduction to Mechanical Engineering", by Wickert/Lewis*
7. *"Engineering Fundamentals: An Introduction to Engineering:, by Moaveni*

List of Experiments

1. To perform tensile test, plot the stress-strain diagram and evaluate the tensile properties of a given metallic specimen.
2. To calculate Mechanical Advantage, Velocity ratio and efficiency of various temperature and pressure measuring devices and plot graphs.
3. To study Two-Stroke and Four-Stroke Diesel Engines.

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Bachelor of Technology (Civil Engineering)

COURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	THEORY			PRACTICAL		
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BTCE 103		APPLIED MECHANICS	2	1	2	4	60	20	20	30	20

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objectives:
The Students (A) Will Be Able to familiarize with different branches of mechanics (B) with emphasis on their analysis and application to practical engineering problems(C) efficiently & effectively (D)

Course Outcomes:
The students will be able to
1. To apply knowledge of mathematics, science in engineering.
2. To identify, formulate, and solve engineering problems
3. Demonstrate various types of forces and their analysis.
4. Demonstrate shear force and bending moment on structural member i.e. beams
5. Demonstrate centre of gravity and moment of inertia determination of different geometrical shaped figures.

Syllabus:
UNIT I
Static & Dynamic Forces: Introduction to Engineering Mechanics, Classification of Engineering Mechanics, Statistics, Dynamics, Kinematics, Kinetics etc. Fundamental Laws of Mechanics. Introduction to Dynamics, basic concepts and terms used in Dynamic motion, Types of Motion.
Force, Pressure and Stress, Free Body Diagram , Bow's Notation, Characteristics and Effects of Force, System of Forces, Resolution of a Force, Composition of Forces, Resultant / Equilibrant Force.

UNIT II
Law of Parallelogram of Forces, Law of Triangle of Forces, Polygon Law of Forces, Lami's Theorem, Equilibrium of a Body under Two / Three/ more than Three Forces. Law of Superposition of Forces. Moment Force, of a Principle of Moments/ Varignon's Theorem, Parallel Forces, Resultant of Parallel Forces, Couple, Moment of a Couple, Resolution of Force into a Couple.

UNIT III
Analysis of Framed Structure: Frame, Types of frame, Truss, Types of truss, Analysis of Truss, Various methods of Analyzing the truss, Numerical analysis of truss

UNIT IV
Beams: Types of Beams: Simply Supported Beam, Overhanging Beam, Cantilever Beam. Types of Supports of a Beam or Frame: Roller, Hinged and Fixed Supports. Load on the Beam or Frame: Different Types of Loading. Support Reaction of a Beam, Shear force, Bending Moment.

UNIT V
Centre of Gravity and Moment of Inertia: Centroid, Centre of Gravity, Determination of Centroid of Simple Figures, Centroid of Composite Sections. Centre of Gravity of Solid Bodies. Area Moment of Inertia: Basic Concept of Inertia, Definition of Moment of Inertia, Theorems of Moment of Inertia, Radius of Gyration, Polar Moment of Inertia of Standard Sections, Moment of Inertia of Composite Section, Principal Moment of Inertia , Mass Moment of Inertia.

Suggested Readings:
1. Prasad I.B., Applied Mechanics, Khanna Publication.
2. Shesha Prakash and Mogaveer; Elements of Civil Engineering & Engineering Mechanics; PHI
3. S.P,Timoshenko, Mechanics of stricture, East West press Pvt.Ltd.
4. R.C. Hibbler – Engineering Mechanics: Statics & Dynamics.
5. R.K. Rajput, Engineering Mechanics S.Chand & Co. Delhi

List of Practical's:
1. To verify the law of Triangle of forces
2. To verify the Lami's theorem.
3. To verify the law of parallelogram of forces.
4. To verify law of polygon of forces
5. To determine support reaction and shear force at a given section of a simply Supported beam and verify in analytically using parallel beam apparatus.
6. To determine the moment of inertia of fly wheel by falling weight method.
7. To verify bending moment at a given section of a simply supported beam.
8. Study of Various Beams and their Loading conditions

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Bachelor of Technology (Electrical Engineering)
SEMESTER I (w.e.f. Batch 2018-19)

COURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	TEACHING & EVALUATION SCHEME					
							THEORY			PRACTICAL		
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	
BTEE 102		FUNDAMENTALS OF ELECTRICAL ENGINEERING	3	0	2	4	60	20	20	30	20	

Legends: L - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objectives:
(A) To impart the basic knowledge about the Electric and Magnetic circuits. (B) To explain the working principle, construction, applications of DC machines, AC machines.

Course Outcomes:
After the successful completion of this course students will be able to
1. Understand and Analyze basic circuit concepts.
2. Apply knowledge of mathematics to analyze and solve electrical circuit problems.
3. Understand the AC fundamentals.
4. Illustrate basic knowledge about the Electric and Magnetic circuits.
5. Distinguish the working Principles of various Electrical Machines.
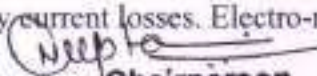
Syllabus:

UNIT I
Electrical circuit analysis- Definition of electric circuit, network, linear circuit, non-linear circuit, bilateral circuit, unilateral circuit, Kirchhoff's law, Voltage and current sources, dependent and independent sources, source conversion, DC circuits analysis using mesh & nodal method, Thevenin's theorem, Norton's theorem, Superposition theorem, star-delta transformation.

UNIT II
A C Fundamentals-Production of alternating voltage, waveforms, average and RMS values, peak factor, form factor, phase and phase difference, phasor representation of alternating quantities, phasor diagram, behavior of AC series, parallel and series parallel circuits, power factor, power in AC circuit, 1-phase AC circuits under sinusoidal steady state, active, reactive and apparent power, physical meaning of reactive power, power factor, 3-phase balanced and Unbalanced supply, star and delta connections.

UNIT III
Electromagnetism: Biot-savart law, Ampere's circuital law, field calculation using Biot-savart and ampere's circuital law. Magnetic circuits, Analogous quantities in magnetic and electric circuits, Faraday's law, self and mutual inductance. Energy stored in a magnetic field, Hysteretic and Eddy-current losses. Electro-mechanical energy conversion.

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UNIT IV

Transformers-Review of laws of electromagnetism, mmf, flux, and their relation, analysis of magnetic circuits. Single-phase transformer, basic concepts and construction features, voltage, current and impedance transformation, equivalent circuits, phasor diagram, voltage regulation, losses and efficiency, OC and SC test.

UNIT V

Basic concepts of Rotating Electric machines- Constructional details of DC machine, Basic concepts of winding (Lap and wave).Principle of operation, EMF equation, characteristics (open circuit, load). DC motors: Principle of operation, Speed-torque Characteristics (shunt and series machine), starting (by 3 point starter), speed control (armature voltage and field control).
Induction machine and Synchronous machine, Working principle of 3-Phase Induction motor, Emf equation of 3-Phase induction motor, Concept of slip in 3-Phase induction motor, Explanation of Torque-slip characteristics of 3-Phaseinduction motor.Principle of operation of Synchronous Machine.

Reference Books:

1. Basic Electrical engineering, D.P Kothari & I.J Nagrath, TMH, Second Edition.
2. Basic Electrical Engineering, V.N Mittle & Arvind Mittal, TMH, Second Edition.
3. Electrical Engineering Fundamental, Vincent.D.Toro, Pearson Education, Second Edition.

List of Practicals:

1. Verification of KCL and KVL Law's.
2. Separation of resistance and inductance of choke coil.
3. Study of Transformer, name plate rating.
4. Determination of Turns ratio and polarity of Single Phase Transformer.
5. Determination of equivalent circuit parameters of a single phase transformer by O.C. and S.C. tests.
6. Measurement of power in a three phase circuit by two wattmeter method.
7. Measurement of power in a three phase circuit by three wattmeter method
8. Measurement of various line & phase quantities for a 3-phase circuit.
9. Study of No load characteristics of D.C shunt Generators.
10. Study of comparative features of Synchronous Machine and Induction Machine.

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COURSE CODE	Category	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTCS1 01		Computer Programming-I	-	-	-	30	20	-	-	2	1

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objectives:
1. To introduce the fundamental concepts of computer programming.
2. To design programs in C involving different data types, decision structures, loops and functions, arrays and pointers.
3. To equip students with techniques for developing structured computer programs.
4. To equip students with sound skills in C/C++ programming language.

Course Outcomes:
Upon completion of the subject, students will be able to:

1. Understand the basic terminologies used in computer programming.
2. Be proficient in using the basic constructs of C/C++, to develop a computer program.
3. Understand the use of functions, pointers, arrays and files in programming.
4. Understand the fundamentals of object-oriented programming and be able to apply it in computer program development.

UNIT I
Introduction to Programming Languages : What is a Programming Language; Types of Programming Languages – Machine-level, Assembly-level and High-level Languages, Scripting Languages, Natural Languages, Advantages and Limitations of programming language, High-level Programming Language Tools – Compiler, Linker, Interpreter, Intermediate Language Compiler and Interpreter, Editor, MATLAB, GUI, Overview of some popular High level Languages – FORTRAN, COBOL, BASIC, Pascal, C, C++, JAVA, LISP, Characteristics of a Good Programming Language.

UNIT II
Design of Program:Introduction to Algorithms, Complexities and Flowchart, Introduction to Programming, Categories of Programming Languages, Program Design, programming language

processing, Algorithm / pseudo code, program development steps, selecting a Language out of many Available Languages for Coding an Application, Subprograms and subroutines.

UNIT III

Basics of C language : Introduction to C language, Basic Programming concepts, Program structure in C,header files, C preprocessor, Variables and Constants, Data types, User Defined Data Types – Structure and Union, Conditional statements, control statements, Functions, Arrays, Structures, pointers, strings, File Systems, c preprocessor and macro expansion.
Structure of C program, Expressions, type conversion, selection making decisions, initialization and updating, loops in C, Standard Library functions, Control Structures, Loop Structures, Functions, Scope Rule of Functions, Calling Convention, Advanced Features of Functions.

UNIT IV

C Programming : Arrays - Pointers and arrays, two-dimensional arrays, arrays of pointer, String Manipulation functions, Structures & Unions, Processing and use of structures, arrays of structure.
Pointers - Operations on Pointers, Pointers and Multidimensional Arrays, Array of pointers, pointers to pointers, bitwise operators, and dynamic memory managements functions.
Files - File creation, File processing, Opening and closing a file, text files and binary files, streams, error handling.

UNIT V

C++ Programming: Introduction to C++, Tokens, expressions and control structures, Functions in C++, Basic principles of Object Oriented Programming.

Text Books:
1. Fundamentals of Computers : E Balagurusamy, TMH
2. Fundamentals of Computers : V Rajaraman, PHI
3. Yashavant P. Kanetkar. "Let Us C", BPB Publications, 2011.
4. Robert Lafore, "Object Oriented Programming in C++", SAMS Publication.

References:
1. Byron S Gottfried, "Programming with C", Schaum's Outlines, Second Edition, Tata McGraw-Hill, 2006
2. Herbert Schildt, "The Complete Reference", 4th Edition, MGH Publication.
3. Dromey R.G., "How to Solve it by Computer", Pearson Education, Fourth Reprint, 2007

Practical's List:
1. Study of procedural programming paradigm and object-oriented programming paradigm.
2. To demonstrate use of data types.
3. Write a program on operators (Arithmetic Operator, Relational Operators and Conditional Operators etc.).
4. Write a program using decision making statements (switch case, if and if-else, nested structures).
5. Write a program using simple loops and nested loops.(For, While, Do-While Loop)
6. Write a program to user defined functions using C.

7. Write a program for recursive functions.
8. Write a program for array and multidimensional array (2-d arrays).
9. Write a program of pointers and strings (strings and pointers).
10. Write a program of dynamic memory allocationusingcalloc(), malloc() and realloc().
11. Write a program on structure and union.
12. Write a program in C++ using (i) if-then-else (ii) loops
13. Write a program illustrate Function in C++
14. Write a program for Operator overloading in C++
15. Write a program for nested function call.
16. Write a program of call by value using C++
17. Write a program of call by reference using C++
18. Write a program for Inline Function.
19. Write a program for Friend Function.
20. Write a program of dynamic memory management using new and delete.
21. Write a program on file handling using C++

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SUBJECT CODE	Category	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
HUCS101	I	Communication Skills	60	20	20	0	20	1	0	2	2

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
*Teacher's Assessment shall be based upon following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs): The students will be able to:

- Develop the second language learners' ability to enhance and demonstrate LSRW Skills.
- Acquire English language skills to further their studies at advanced levels.
- Become more confident and active participants in all aspects of their undergraduate programs.

Course Outcomes (COs): The students should be able to:

- Have confidence in their ability to read, comprehend, organize, and retain written information.

- Write grammatically correct sentences for various forms of written communication to express themselves.

COURSE CONTENTS:

UNIT I

Communication: Nature, Meaning, Definition, Verbal and Non Verbal Communication, Barriers to Communication.

UNIT II

Basic Language Skills: Grammar and usage, Parts of Speech, Tenses, Subject and Verb Agreement, Prepositions, Articles.

UNIT III

Basic Language Skills: Types of Sentences, Direct - Indirect, Active & Passive voice, Phrases & Clauses.

UNIT IV

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Business Correspondence: Business Letter, Parts & Layouts of Business Resume and Job application, E-mail writing, E-mail etiquettes.

UNIT V
Report Writing: Importance of Report, Types of Report, Structure of a Report.

Practical:
- Self Introduction
- Reading Skills and Listening Skills
- Oral Presentation
- Linguistics and Phonetics
- JAM (Just a Minute)
- Group Discussion
- Role Plays

Suggested Readings

- Ashraf Rizvi.(2005). *Effective Technical Communication*. New Delhi:Tata Mc Graw Hill
- Adair, John (2003). Effective Communication. London: Pan Macmillan Ltd.
- A.J. Thomson and A.V. Martinet(1991).*A Practical English Grammar*(4th ed). Newyork: Ox- ford IBH Pub.
- Kratz, Abby Robinson (1995). Effective Listening Skills. Toronto: ON: Irwin Professional Publishing.
- Prasad, H. M.(2001*) How to Prepare for Group Discussion and Interview*. New Delhi: Tata McGraw-Hill.
- Pease, Allan. (1998).*Body Language*. Delhi: Sudha Publications.

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