Shri Vaishnav Vidyapeeth Vishwavidyalaya
Bachelor of Technology (Civil Engineering)
SEMESTER II

COURSE CODE	CATEGORY	COURSE NAME	THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTMA 201	BS	APPLIED MATHEMATICS-II	60	20	20	0	0	3	1	0	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 10 marks.

Course Objectives:
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.

Syllabus:

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. Legendre equation and Legendre polynomials, Bessel equation and Bessel functions of first and secondkind.

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; Theoretical Errors in Interpolation; Spline Interpolation;

Approximation by Least Square Method.

Numerical Differentiation and Integration: Discrete Approximation of Derivatives: Forward, Backward and Central Finite Difference Forms, Numerical Integration, Simple Newton-Cotes Rules: Trapezoidal and Simpson's (1/3) Rules; Weddle's Rule, Gaussian Quadrature Rules: Gauss-Legendre, Gauss-Laguerre, Gauss-Hermite, Gauss-Chebychev.

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, Adams-Moulton Method; Boundary Value Problems and Shooting Method; finite difference methods, numerical solutions of elliptic, parabolic, and hyperbolic partial differential equations.

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

Reference Books:
1. E. Kreyszig, Advanced Engineering Mathematics, 9th Edition, Wiley, 2005.
2. R. G. Bartle and D. R. Sherbert, Introduction to Real Analysis, 5th Ed, Wiley, 1999.
3. J. Stewart, Calculus: Early Transcendentals, 5th Ed, Thomas Learning (Brooks/ Cole), Indian Reprint, 2003.
4. J. Stoer and R. Bulirsch, Introduction to Numerical Analysis, 2nd Edition, Texts in Applied Mathematics, Vol. 12, Springer Verlag, 2002.
5. J. D. Hoffman, Numerical Methods for Engineers and Scientists, McGraw-Hill, 2001.
6. 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.
7. S. C. Chapra, Applied Numerical Methods with MATLAB for Engineers and Scientist

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COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	Th	T	P	CREDITS
BTPH 101	BS	APPLIED PHYSICS	60	20	20	30	20	3	1	2	5

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 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 Outcomes:
1. Student will be able to comprehend laws of physics.
2. Student will be able to apply laws of physics for various engineering applications.
3. Student will be able to determine physical parameter experimentally and will be able to analyze the data obtained experimentally to draw substantiate conclusions.

Syllabus:

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 dependent and 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: Synchrotron, Betatron.
Counters and Detectors: Giger-Muller counters, Bainbridge Mass Spectrograph and Auston Mass Spectrograph.

UNIT IV

Laser & Fiber Optics: Stimulated and Spontaneous Emission, Einstein's A&B Coefficients, Population Inversion, Pumping, Techniques of Pumping, Two three and four level lasers. Optical Resonator, Properties and Applications of Laser, Ruby, Nd:YAG, He-Ne, CO_2 lasers.

Introduction to Optical fiber, Types of Optical fiber, Acceptance angle and cone, Numerical Aperture, V- Number, Fractional refractive index change Δ, Ray theory of propagation through optical fiber, Pulse dispersion and its types, Attenuation, losses and applications of optical fiber.

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 and diffraction grating. Rayleigh criterion, resolving power of grating.

Concept of polarized light, Brewster's laws, Double refraction, Nicol prism, quarter and half wave plate, circularly & elliptically polarized light.

Text Books and Reference Books:
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, Maharastra.
4. M.N. Avdhanulu & P.G. Kshirsagar, "Engg Physics" S.Chand & Co.Edition 2010.
5. Fundamentals of Physics by Halliday, Wiley, India.
6. Concepts of Modern Physics by Beiser, TMH, New Delhi.
7. Solid State Physics by Kittel ,Wiley, India.
8. Atomic and Nuclear physics by Brijlal and Subraminiyan.
9. Christopher C. Davis, "LASERSs and Electro Optics" Cambridge Univ. Press, 1996.
10. J.Wilson & J.F.B.Hawkes, "Optroelectronics an Introduction" Prentice-Hall II Edition.
11. A.K. Ghatak & Tyagarajan, "LASER theory and applications" 1984.
12. Optics By Ghatak, TMH.

List of Practical's:
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 'E_g' of Ge 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 "λ" of LASER light source using Diffraction Grating.
7. Determination of Planck's constant by using photocell.
8. Determination of Energy band gap (E_g) 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.

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COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	Th	T	P	CREDITS
BTME 102	ODS	FUNDAMENTAL OF MECHANICAL ENGINEERING	60	20	20	30	20	3	1	2	5

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:
To introduction with (A) Engineering Materials, (B) thermodynamics, heat engines, refrigeration & air conditioning, (C) Production

Course Outcomes: After completion of this course the students are expected to be able to demonstrate following knowledge, skills and attitudes
1. Student would be able to understand the need of engineering materials, and its property, need and defects.
2. Student would be able to analyse 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. Student 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, etc.

Syllabus:

UNIT I
Introduction to Engineering Materials- Introduction, classification materials, need of engineering materials, important properties of materials. Atomic structure, crystal geometry & structure, crystal imperfection, deformation of materials, phase transformation and mechanical properties.

UNIT II
Introduction to Thermodynamics- Definition of thermodynamics, thermodynamic systems, Macroscopic and Microscopic views, thermodynamic equilibrium, properties of system, point & path function, Temperature & pressure terminology and its measurement, laws of thermodynamics.

UNIT III
Introduction to Heat Engines- Introduction, need of heat engines, types of heat engines.
IC Engines- Introduction, terminology of IC engine, cycles used in IC engine, two and four stroke engines, latest technologies used in engines of vehicle.
Boilers- Introduction, steam, types of steam, properties of steam, boilers, types of boilers,

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terminology related to steam and boilers, boiler mountings & accessories

UNIT IV

Introduction to Refrigeration & Air Conditioning- Introduction, need of refrigeration, fundamentals of refrigeration, refrigeration systems, refrigerants.
Introduction, need of air conditioning, air conditioning systems, equipment's, components and Control.

UNIT V

Introduction to Manufacturing- Material properties, Definition and classification of basic manufacturing process, introduction to casting, Rolling, Extrusion, welding, Brazing, Soldering.

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 Practical's:
1. To perform tensile test, plot the stress-strain diagram and evaluate the tensile properties of
2. a given metallic specimen.
3. To calculate Mechanical Advantage, Velocity Ratio and Efficiency of various temperature
4. and pressure measuring devices and plot graphs.
4. To study Four-Stroke Diesel Engines.
5. To study Four-Stroke Petrol Engines.
6. To study the fire tube boiler, water tube boiler.
7. To study the working and function of mountings and accessories in boilers.
8. To study the Refrigeration System.
9. To study the functioning of Window Room Air Conditioner.

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| COURSE CODE | CATEGORY | COURSE NAME | TEACHING & EVALUATION SCHEME | | | | | | | | |
| | | | THEORY | | | PRACTICAL | | | | | |
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	Th	T	P	CREDITS
BTCE 103	DCS	APPLIED MECHANICS	60	20	20	30	20	3	1	2	5

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:
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 Dynamics, Motion, Types of Motion.
Force, Pressure and Stress, Free Body Diagram , Bow's Notation, Characteristics and Effects of a 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
CG and MI: 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.

Reference Books:
1. Prasad I.B., Applied Mechanics, Khanna Publication.
2. Shesha Prakash and Mogaveer; Elements of Civil Engg & Engg. Mechanics; PHI
3. S.P,Timoshenko, Mechanics of stricture, East West press Pvt.Ltd.
4. R.C. Hibbler – Engineering Mechanics: Statics & Dynamics.
5. Boresi & Schmidt- Engineering Mechines- statics dynamics, Thomson' Books
6. R.K. Rajput, Engineering Mechanics S.Chand & Co

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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COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	Th	T	P	CREDITS
BTEE 102	ODS	FUNDAMENTAL OF ELECTRICAL ENGINEERING	60	20	20	30	20	3	1	2	5

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 impart the basic knowledge about the Electric and Magnetic circuits.
2. To explain the working principle, construction, applications of DC machines, AC machines.

Course Outcomes: 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, Faradays's law, self and mutual inductance. Energy stored in a magnetic field, Hysteretic and Eddy current losses. Electro-mechanical energy conversion.

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-Phase induction motor. Principle of operation of Synchronous Machine.

Reference Books:
1. S 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 Practical's:
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					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	Th	T	P	CREDITS
BTCS 101	**ODS**	**COMPUTER PROGRAMMING - I**	**0**	**0**	**0**	**30**	**20**	**0**	**0**	**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 understand the concepts of programming languages (object oriented programming and its implementation).
2. To understand the concept of program design, program coding, debugging, testing for development.
3. To describe the concepts of loops, arrays.
4. To understand the concepts of memory, pointers, functions, variables.
5. To understand the concepts of class, constructor, destructor.

Course Outcomes:
1. Student will able to explain and implement the object oriented programming concepts.
2. Student will design, develop & test program for development.
3. Student will able to apply loop concept in program and design an array program.
4. Student will able to apply & implement the concept of class, constructor & destructor.

Syllabus:

UNIT I
Introduction ,History Types of languages Structured Language Object oriented programming OOPS terminology and features, Algorithms Definition, needs and characteristics Flow Charts Rules, Advantages and implementation Concepts of loping and counting.

UNIT II
Program Development Program identification Analysis Program design Coding Debugging Testing Documentation Maintenance Characteristics of a Good program Data Types: Primary data types Tokens Variables and literals Keywords and operators C++ Data Types Operators and Expressions Types of operators Precedence of operators.

UNIT III
Decision Making, Branching and Looping Branching if, if- else, if-else-if statement switch Statement Conditional operator goto statement Looping while, do- while, for statements Nesting of loops, jumping in loops. Arrays :One dimensional array Two dimensional arrays,Multidimensional arrays
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Pointers, Introduction Dynamic and Static allocation of memory Pointer variable Pointer and arrays Arrays of pointers Dynamic memory allocation operators this pointer, User defined functions, Functions, arguments and return values Recursion of functions Variables in functions Automatic, External, Static and register variables

UNIT V
Structures and Unions, Definition of class and object OOPs properties Member variable and member functions Friend functions Class member access- private, public and protected Array of class objects structured union, nested class, Constructors and Destructors, Polymorphism, Inheritance and file handling.

Reference Books:
1. Fundamentals of Computers : E Balagurusamy, TMH
2. Basic Computer Engineering: Silakari and Shukla, Wiley India
3. Fundamentals of Computers : V Rajaraman, PHI
4. Information Technology Principles and Application: Ajoy Kumar Ray & Tinku Acharya PHI.

List of Practical's:
1. Introduction to different generations of languages (Structured Language Object oriented programming), OOPS terminology and features.
2. Study of procedural programming paradigm and object-oriented programming paradigm.
3. To demonstrate use of data types, simple operators (expressions).
4. To demonstrate decision making statements (switch case) decision making statements (if and if-else, nested structures).
5. To demonstrate use of simple loops and nested loops.
6. To demonstrate menu driven programs and use of standard library functions.
7. To demonstrate writing C programs in modular way (use of user defined functions
8. To demonstrate recursive functions.
9. To demonstrate use of 1D array and multidimensional array(2-d arrays).
10. To demonstrate use of pointers and concept of strings (strings and pointers).
11. Write a program to illustrate functions.
12. [Classes and Objects] Write a program that uses a class where the member functions are defined inside a class.
13. [Classes and Objects] Write a program to demonstrate the use of static data members.
14. [Constructors and Destructors] Write a program to demonstrate the use of zero argument and parameterized constructors.
15. [Constructors and Destructors] Write a program to demonstrate the use of dynamic constructor.
16. [Constructors and Destructors] Write a program to demonstrate the use of explicit constructor.
17. [Operator Overloading] Write a program to demonstrate the overloading of increment and decrement operators.
18. [Operator Overloading] Write a program to demonstrate the overloading of binary arithmetic operators.
19. [Typecasting] Write a program to demonstrate the typecasting of basic type to class type.
20. [Typecasting] Write a program to demonstrate the typecasting of class type to basic type.
21. [Inheritance] Write a program to demonstrate the multilevel inheritance.
22. [Inheritance] Write a program to demonstrate the multiple inheritances.
23. [Inheritance] Write a program to semonstrate the virtual derivation of a class.

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24. [Polymorphism] Write a program to demonstrate the runtime polymorphism.
25. [Exception Handling] Write a program to demonstrate the exception handling.
26. [File Handling] Write a program to demonstrate the reading and writing of objects.

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HUCS 101	BS	COMMUNICATION SKILLS	60	20	20	0	20	2	0	2	3

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 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

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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