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
BTMA 101		Applied Mathematics - I	60	20	20	-	-	3	1	-	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 Differential, Integral, Vector Calculus 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 differential calculus.
2. Know the fundamental principles of the integral calculus and apply them.
3. Apply the techniques in the numerical analysis.
4. Know the numerical solution of the system of linear algebraic equations.
5. Understand and apply the basics of the vector calculus.

UNIT I
Differential Calculus: Limits of functions, continuous functions, uniform continuity, montone and inverse functions. Differentiable functions, Rolle'sTheorem, mean value theorems and Taylor's theorem, power series. Functions of several variables, partial derivatives, chain rule, Tangent planes and normals, Maxima, minima, saddle points, Lagrange multipliers, exact differentials

UNIT II
Integral Calculus:Riemann integration, fundamental theorem of integral calculus, improper integrals. Application to length, area, volume, surface area of revolution,multiple integrals with application to volume, surface area, Change of variables.

UNIT III
Numerical Analysis:Number Representation and Errors: Numerical Errors; Floating Point Representation; Finite Single and Double Precision Differences; Machine Epsilon; Significant Digits. Numerical Methods for Solving Nonlinear Equations: Method of Bisection, Secant Method, False Position, Newton-Raphson's Method, Multidimensional Newton's Method, Fixed Point Method and their convergence.

UNIT IV
Numerical Analysis : Numerical Methods for Solving System of Linear Equations: Norms; Condition Numbers, Forward Gaussian Elimination and Backward Substitution; Gauss-Jordan Elimination; FGE with Partial Pivoting and Row Scaling; LU Decomposition; Iterative Methods: Jacobi, Gauss Siedal; Power method and QR method for Eigen Value and Eigen vector.

UNIT V
Vector Calculus:Gradient and directional derivative. Divergence and Curl of Vector point function, line and surface integrals. Green's, Gauss' and Stokes 'theorems and their applications

Text Books:
1. T. M. Apostol, Calculus, Volume I, 2nd Ed, Wiley, 1967.
2. T. M. Apostol, Calculus, Volume II, 2nd Ed, Wiley, 1969.
3. K. E. Atkinson, Numerical Analysis, John Wiley, Low Price Edition (2004).
4. S. D. Conte and C. de Boor, Elementary Numerical Analysis - An Algorithmic Approach, McGraw-Hill, 2005.
5. B. S. Grewal, Higher Engineering Mathematics, Khanna Publishers, Delhi

References:
1. R. G. Bartle and D. R. Sherbert, Introduction to Real Analysis, 5th Ed, Wiley, 1999.
2. J. Stewart, Calculus: Early Transcendentals, 5th Ed, Thomas Learning (Brooks/ Cole), Indian Reprint, 2003.
3. J. Stoer and R. Bulirsch, Introduction to Numerical Analysis, 2nd Edition, Texts in Applied Mathematics, Vol. 12, Springer Verlag, 2002.
4. J. D. Hoffman, Numerical Methods for Engineers and Scientists, McGraw-Hill, 2001.
5. 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.
6. S. C. Chapra, Applied Numerical Methods with MATLAB for Engineers and Scientists, McGraw-Hill2008.

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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*				
BTPH101		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.

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 IV
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:YAG, 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 half wave plate, circularly & elliptically polarized light.

Textbook and Reference Books:

1. Engineering Physics by Dr. S. L. Gupta and Sanjeev Gupta, DhanpatRai Publication, New Delhi.
2. Engineering Physics by Navneet Gupta, DhanpatRai Publication, New Delhi.
3. Engineering Physics by H. J. Sawant, Technical Publications, Pune, Maharastra.
4. Engg Physics by M.N. Avdhanulu& P.G. Kshirsagar, 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. LASERSs and Electro Optics by Christopher C. Davis, Cambridge Univ. Press (1996).
10. Optroelectronics an Introduction by J. Wilson &J.F.B.Hawkes, "" Prentice-Hall II Edition.
11. LASER theory and applications by A. K. Ghatak&Tyagarajan, TMH (1984).
12. Optics by Ghatak, TMH.

Practical's List:

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.
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.

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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*				
BTCC 102		**Introduction to Computer and Communication Engineering**	60	20	20	-	50	3	-	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 10 marks.

Course Objectives:
1. To introduce the fundamentals concepts of Computer System.
2. Understanding the basic concepts and features of various kinds of Operating Systems.
3. Learning the Concepts of Office Automation Tools (Like Word, Excel, Power-point, etc.)
4. To provide knowledge of Networking, Internet, Communication and Security.

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

1. Understand the basic terminologies of Computer System.
2. Gain knowledge about various kinds of Operating Systems and their features.
3. Learn the Concepts of Office Automation Tools (Like Word, Excel, Power-point, etc.)
4. Understand Networking, Internet, Communication and Security.

UNIT I
Introduction to Computer Fundamentals: Introduction: What is Computer, Objectives, Hardware and software, Block Diagram of The Computer, Functions of the different Units, CPU(Central Processing Unit), Input unit, Output unit, Memory, Storage Devices, Representation of data and information, Computer Languages, Machine language, Assembly language, High level language, Number System and Conversion, Classification of Computers, History and Generations of Computer, Types of Computers, Characteristics of Computers, Introduction to Free and Open Source Software, Definition of Computer Virus, Types of Viruses, Use of Antivirus software. Applications of Computers: Home, Education and Training, Entertainment, Science, Medicine, Engineering etc.

UNIT II
The Operating System: The Graphical User Interface (GUI), Definition of Operating System, Objective, Types and functions of Operating Systems, Windows Operating System, Installing MS-Windows, Working with Windows Operating System, System Tools and Applications in windows, MS-DOS (Disk Operating System), Basic DOS commands, Switching Between DOS and Windows, Comparison of DOS and Windows, System Tools and Applications in MS-DOS, Other Operating Systems Unix, Linux etc.

UNIT III

Office Automation Tools-I: Word Processing Basics, Elements of word Processing and Working, MS-Office (Word, Access, Outlook, Front page etc), Objectives, Starting MS-Word, MS-Word Screen and its Components, Working with MS-Word, Menu Bar, Creating Documents, Using Templates, Saving a documents, Working with documents, Setting up pages of a document, Printing Documents with different options, Using Tables and Columns, Object Linking and Embedding, Hyperlink, Envelopes & Label Creation, Grammar & Spell Check, Mail Merge, Macro Creation, Previewing and Printing Documents.

UNIT IV

Office Automation Tools-II: Spread Sheet: Introduction to MS-Excel, Starting MS-Excel, Basics of Workbook and Spreadsheet, MS-Excel Screen and Its Components, Features of Excel, Elementary Working with MS-Excel, Manipulation of cells, Formatting of Spreadsheet and Cells, Formulas and Functions, Spread sheets for Small accountings, Previewing and Printing a Worksheet.

Power-point: Introduction to MS-PowerPoint, Starting MS-PowerPoint, Basics of PowerPoint, MS-PowerPoint Screen and Its Components, Features of PowerPoint, Elementary, Elementary Working with MS-PowerPoint, Preparation of Slides, Creation of Presentation, Providing aesthetics, Slide Manipulation and Slide Show, Presentation of the Slides

UNIT V

Computer Communication and Internet: Data Communication, Components, data representation, Modes of data transmission. Computer Network: Definitions, Architecture, Classifications & Types.

ISO-OSI Reference Model: Principle, Model, Descriptions of various layers and its comparison with TCP/IP. Internet and World Wide Web, Communication and Collaboration, Basic of electronic mail, Introduction to HTML, Use of Computer in Commerce, Internet Applications, Internet Security, Privacy, Ethical Issues & Cyber Law.

Text 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.
5. Fundamentals of Computers: PK Sinha.

References:

1. J. P. Tremblay and R.B. Bunt, "An Introduction of Com puter Science –AnAlgorithmic Approach", TMH.
2. Raja Raman V., "Fundamental of Computers" (4th edition.), Prentice Hall of India, New Delhi.
3. Trainer T., et al, "Computers", McGraw Hill.
4. Norton, Peter, "Introduction to Computers, Mc-Graw-Hill.
5. S.Jaiswal, "Fundamental of Computer & IT", Wiley dreamtech India.

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PRACTICAL LIST:-

1. Change the date and time of computer system using MS-DOS.
2. Creates the "test" directory in the directory you are currently in using MS-DOS.
3. Create a new user and give it Administrator privilege for Microsoft window OS.
4. Create a MS-Word .doc file contain yours complete biodata.
5. Create a MS-Excel .xls file contain mark sheet of 10th and 12th Standards.
6. Display the student's result into a chart using MS-Excel.
7. Create a MS-Power Point Presentation .ppt file Covers the topic "Computer's Evolution".
8. Create a MS-Power Point Presentation .ppt file Covers the topic "social responsibility".
9. Create a MS-Access database .mdb file to store the results of students.
10. Delete history from web browser in MS windows.
11. Study of Different Type of LAN & Network Equipments.

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*				
BTEC 104		Digital Logic & Circuit Design	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 Educational Objectives:-
The objective of this course is to-
1. Use of Boolean algebra and Karnaugh Map to simplify logic function.
2. Describe the operation of different Combinational and Sequential Logic Circuits.

Course Outcomes:-
After completion of this course the students will be able to-
1. Design an optimal digital logic circuit to meet the given specifications.
2. Evaluate the performance of the given digital logic circuit based on specific criteria for reliable system implementation.

UNIT I

Number System & Codes: Introduction to number systems, Binary numbers, Octal & Hexadecimal Numbers, Number base Conversion, Signed binary numbers : 1's Complement & 2's Complement representation and their arithmetic operation, Floating point representation, binary codes, BCD,ASCII, EBCDIC, Gray codes, Error detecting and Correcting codes, Hamming codes.

UNIT II

Boolean algebra and Logic gates: Introduction, Logic operations, Axioms and laws of Boolean algebra, Demorgan's theorem, Boolean functions, Canonical and standard forms. Logic gates and their applications, universal gates, NAND-NOR implementation of logic functions. Minimization techniques for logic functions-K-map, Tabular / QuineMcCluskey method.

UNIT III

Combinational logic: Arithmetic circuits- Half adder, Full adder, Halfsubtractor, Full subtractor, Parallel and Serial adder, BCD adder, Multiplexer, De-multiplexer, Encoder & Decoder.

UNIT IV

Sequential logic: Introduction, Latch and Flip Flop- S-R, D, JK and T, State diagram, characteristic equation, state table and excitation table, Flip flop conversion, applications of Flip flop, Counters, Registers.

UNIT V

Semiconductor Memories and A/D and D/A converters: Semiconductor Memory – RAM, ROM-Organization, operation and their Types, PLD- PAL, PLA, PROM, FPGA, Analog to Digital (A/D)and Digital to Analog (D/A) converters and their types.

Text Books:

1. M. Morris Mano,"Digital Logic and Computer Design", Pearson Education, 2016.
2. S Salivahanan and S Arivazhagan: Digital Circuits and Design,4th Edition, Vikas Publishing House, 2012.

Reference Books:

1. A. Anand Kumar, "Fundamentals of Digital Circuits", 4th Edition, PHI, 2016.
2. Floyd and Jain,"Digital Fundamentals", 10th Edition, Pearson Education India, 2011.
3. Roland J.Tocci,Widmer,Moss, "Digital Systems Principles and Applications", 10th Edition, Pearson 2009.
4. Stephen Brown, ZvankoVranesic, "Fundamentals of Digital Logic Design", 3rd Edition, McGraw Hill, 2017.

List of experiments:

1. To study and test of operation of all logic gates for various IC"s (IC7400,IC7403,IC408,IC74332,IC7486).
2. Verification of DeMorgan's theorem.
3. To construct of half adder and full adder.
4. To construct of half subtractor and full subtractor circuits.
5. Verification of versatility of NAND gate.
6. Verification of versatility of NOR gate.
7. Design a BCD to excess 3code converter.
8. Design a Multiplexer/ Demultiplexer
9. Analysis of various flip flops with Preset and Clear capability.
10. Design of Johnson and Ring counter.
11. Design of synchronous and asynchronous up/down counters.

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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*				
BTEC105	EC	Analog & Digital Communication	60	20	20	30	20	3	1	2	5

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

Course Objective:
To provide the basic fundamentals, principles, concepts of communication systems and variousmodulation techniques of analog and digital communication systems.

Course Outcomes:
After completion of this course the students are expected to be able to demonstrate followingattributes:
1. Ability to analyze signals in the time domain and frequency domains.
2. Ability to demonstrate various analog modulation and demodulation techniques and apply suitable modulation techniques for various applications.
3. Ability to demonstrate various digital modulation and demodulation techniques and apply suitable modulation techniques according to applications.

UNIT I

SIGNALS: Types of Signals, Time domain and frequency domain representation of Signals, Fourier Transform and its properties, Transforms of Impulse, Gate, Periodic gate and Periodic Impulse functions; Fourier Transform of sine and cosine wave. Concept of Energy Spectral Density (ESD) and Power Spectral Density (PSD), and Parseval's theorem.

UNIT II

ANALOG COMMUNICATION: Communication System and its elements, Need of modulation, Definition of Modulation and Demodulation, Classification and Representation of various Modulation scheme (Analog and Digital), Amplitude modulation(Full Carrier), Equation and its frequency domain representation, Bandwidth, Power distribution, modulation index, AM Generation (Balanced modulator) and Envelope detection technique.

UNIT III

ANGLE MODULATION: Frequency and phase modulation equation and their relative phase and frequency deviations, modulation index frequency spectrum&Bandwidth, NBFM and WBFM, Generation of FM using Direct and indirect method, and detection of FM using PLL detector.

UNIT IV

DIGITAL COMMUNICATION: Sampling of signal,Types of sampling: Instantaneous,Natural and flat top, Sampling theorem for Low Pass signals and its reconstruction, Pulse amplitude modulation (PAM), Time Division Multiplexing (TDM), Digital signal representation: Quantization, Quantization error, Pulse code modulation, Signal to Noise Ratio, Data rate and Baud rate, Bit rate.

UNIT V

DIGITAL MODULATION TECHNIQUES: Generation and Detection: Amplitude shift keying, Binary Phase shift Keying, Quadrature PSK, M-ary PSK, Frequency Shift Keying, M-ary FSK, Quadrature Amplitude Modulation. Bandwidth, spectrum and constellation diagram of various shift keying techniques.

TEXT BOOKS:

1. B.P. Lathi and Zhi Ding, "Modern Digital and Analog Communication System"; 4th Edition, Oxford University Press, 2011.
2. Herbert Taub, Donald L Schilling, GautamSaha, "Principles of Communication Systems, McGraw Hill Education; 4th Edition, 2013.
3. R.P. Singh and S.D. Sapre, "Communication Systems: Analog and Digital", McGraw Hill Education; 3rd Edition, 2012.

REFERENCE BOOKS:

1. H P. Hsu: "Schaum's Outline Analog and Digital Communications", McGraw Hill Education, 3rd Edition, 2009.
2. Simon Haykin, Michael Moher, "Communication System", John Wiley, 5th Edition, 2010.
3. Wayne Tomasi, "Electronic Communication Systems: Fundamentals Through Advanced", Pearson Edition, 5th Edition, 2008.
4. Martin S. Roden, Analog & digital communication system; Discovery Press.

EXPERIMENT LIST:

1. To study the various components used in the Communication Lab.
2. To understand the Fourier Series Decomposition and Reconstruction for periodic Signals.
3. To analyze and understand Amplitude modulation and demodulation.
4. To analyze and understand Frequency modulation and demodulation.
5. To Study sampling process and signal reconstruction and aliasing.
6. To Study PAM signal and different types of sampling.
7. To Study PCM transmitter and receiver circuits and analyze the digital signal.
8. To Study Amplitude Shift Keying and generate the transmitted and received signals.
9. To Study Frequency Shift Keying and generate the transmitted and received signals.
10. To Study Phase Shift Keying and generate the transmitted and received signals.

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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*				
BTCS101		**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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			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	Th	T	P	CREDITS
BTHU 101		**Communication Skills-I**	-	-	-	-	50	-	-	4	2

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.

The Language Lab focuses on the production and practice of sounds of language and familiarises the students with the use of English in everyday situations and contexts.

Course Objectives:
1. To help the students cultivate the habit of reading passages from the computer monitor, thus providing them with the required facility to face computer-based competitive exams such GRE, TOEFL, GMAT etc.
2. To train them to use language effectively to face interviews, group discussions, public speaking.

Course Outcome :
1. The student will be able to learn better pronunciation through stress on word accent, intonation, and rhythm.
2. The student will be able to initiate them into greater use of the computer in resume preparation, report writing, format-making etc.

Syllabus:
The following course content is prescribed for the English Language Laboratory sessions:
1. Introduction to Phoneticsthe Sounds of English- Vowels, Diphthongs & Consonants.
2. Reading Comprehension
3. Situational Dialogues / Role Play.
4. Oral Presentations-
5. Extempore.
6. 'Just A Minute' Sessions (JAM).
7. Describing Objects / Situations / People.
8. Debate
9. Telephoning Skills.
10. Group Discussions.

References:
i) Spoken English (CIEFL) in 3 volumes with 6 cassettes, OUP.
ii) English Pronouncing Dictionary Daniel Jones Current Edition with CD.

Chairperson
Board of Studies
(Computer Science & Engineering,
Information Technology & Computer Applications)
Shri Vaishnav Vidyapeeth Vishwavidyalaya
Indore

Deputy Registrar
Shri Vaishnav Vidyapeeth Vishwavidyalaya
Indore

iii)Spoken English- R. K. Bansaland J. B. Harrison, Orient Longman 2006 Edn.

iv)Speaking English Effectively by Krishna Mohan & NP Singh (Macmillan)

v) A Practical Course in English Pronunciation, (with two Audio cassettes) by J. Sethi, KamleshSadanand& D.V. Jindal, Prentice-Hall of India Pvt. Ltd., New Delhi.

vi)A text book of English Phonetics for Indian Students by T.Balasubramanian (Macmillan)

Suggested Software:

i) Aristoclass

ii) Hiclass

iii)K-VAN solutions

iv)Globarina

v) Console OCL-908W

vi)HistudioMHi Tech

Minimum Requirement:

The English Language Lab shall have two parts:

i) The Computer aided Language Lab for 60 students with 60 systems, one teacher /instructor console, LAN facility and English language software for self- study by learners.

ii) The Communication Skills Lab with movable chairs and audio-visual aids with a P.A System, a T. V., a digital stereo -audio & video system and camcorder etc.

System Requirement (Hardware component):

Computer network with Lan with minimum 60 multimedia systems with the following specifications:

i) P - IV Processor

a) Speed - 2.8 GHZ

b) RAM - 512 MB Minimum

c) Hard Disk - 80 GB

ii) Headphones of High quality

Distribution of marks

i) The practical examinations for the English Language Laboratory shall be conducted as per the University norms prescribed for the core engineering practical sessions.

ii) For the Language lab sessions, there shall be a continuous evaluation during the year for 20 sessional marks and 30 year-end Examination marks.

   iii) Of the 20 marks, 10 marks shall be awarded for day-to-day work and 10 marks to be awarded by conducting Internal Lab Test(s). The year- end Examination shall be conducted by the teacher concerned with the help of another member of the staff of the same department of the same institution.