Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Technology and Science
Choice Based Credit System (CBCS) in the Light of NEP-2020
B.Tech.
(2021-2025)

COURSE CODE	CATE-GORY	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTEE106		Fundamentals of Electrical and Electronics 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 10 marks.

Course Educational Objectives (CEOs):

1. To impart the basic knowledge about the Electric and Magnetic circuits.
2. To explain the working principle, construction, applications of Transformers, DC machines and AC machines.
3. To understand the concept of diode, and transistors.

Course Outcomes (COs):

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

1. Apply knowledge of mathematics to analyze and solve electrical circuit problems.
2. Illustrate basic knowledge about the Electric and Magnetic circuits.
3. Distinguish the working Principles of various Electrical Machines.
4. Understand the concept of diodes and transistors.

Syllabus

UNIT I **8 Hrs.**

DC Circuits: Electrical circuit elements (R, L and C), voltage and current sources, Kirchoff current and voltage laws, analysis of simple circuits with dc excitation. Superposition, Thevenin and Norton Theorems.

AC Circuits: Representation of sinusoidal waveforms, peak and rms values, phasor representation, real power, reactive power, apparent power, power factor. Analysis of single-phase ac circuits consisting of R, L, C, RL, RC, RLC combinations (series and parallel), Three-phase balanced circuits, voltage and current relations in star and delta connections.

UNIT II **9 Hrs.**

Magnetic Circuits: Basic definitions, self-inductance and mutual inductance, energy in linear magnetic systems, coils connected in series, AC excitation in magnetic circuits, magnetic field produced by current carrying conductor, Force on a current carrying conductor. Induced voltage, laws of electromagnetic Induction, direction of induced E.M.F.

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Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Technology and Science
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BTEE106		Fundamentals of Electrical and Electronics Engineering	60	20	20	30	20	3	0	2	4

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
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Single phase transformer: General construction, working principle, e.m.f. equation, equivalent circuits, phasor diagram, voltage regulation, losses and efficiency, open circuit, and short circuit test

UNIT III **8 Hrs.**

Electrical Machines: Construction, Classification & Working Principle of DC machine, induction machine and synchronous machine. Working principle of 3-Phase induction motor, Concept of slip in 3- Phase induction motor, Explanation of Torque-slip characteristics of 3-Phase induction motor. Types of losses occurring in electrical machines. Applications of DC machine, induction machine and synchronous machine.

UNIT IV **8 Hrs.**

PN Junction diode: Principle of operation, V-I characteristics, Junction breakdown, Avalanche breakdown, various types of diodes: Zener diode, Schottky diode, PIN diode, varactor diode, Zener diode as voltage regulator

Rectifier: Half wave rectifier and Full wave rectifier.

UNIT V **9 Hrs.**

Bipolar Junction Transistors: PNP and NPN transistors, Principle of operation, Ebers-Moll model, early effect, CB, CC, CE configuration and its input and output characteristics, transistor as an amplifier.

Textbooks:

1. E. Hughes, "Electrical and Electronics Technology", Pearson, 2010.
2. D.P Kothari, I.J Nagrath, "Basic Electrical and Electronics Engineering" , McGraw Hill Education (India) Private Limited, Second Edition 2020.
3. Boylestad and Nashelsky, "Electronic Devices and Circuit Theory", Pearson Education,11th Edition, 2013.

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Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Technology and Science
Choice Based Credit System (CBCS) in the Light of NEP-2020
B.Tech.
(2021-2025)

COURSE CODE	CATE-GORY	COURSE NAME	TEACHING & EVALUATION SCHEME								
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BTEE106		Fundamentals of Electrical and Electronics 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 10 marks.

References:

1. V.N Mittal & Arvind Mittal, " Basic Electrical Engineering", TMH, Second Edition.
2. R.K Rajput, "Basic Electrical and Electronics Engineering" , University Science Press, Second Edition 2012.
3. J.B Gupta, " Electronic Devices and Circuit", S.K. Kataria & Sons, ,2013.

List of Experiments:

1. Verification of KCL and KVL.
2. Separation of resistance and inductance of choke coil.
3. Study of Transformer and its name plate rating.
4. Determination of Turns ratio and polarity of Single-Phase Transformer.
5. Determination of 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 methods.
7. Measurement of various line & phase quantities for a 3-phase circuit.
8. Study of No-load characteristics of D.C shunt Generators.
9. To determine and analyse the V-I characteristics of PN Junction diode and Zener Diode.
10. To determine input and output characteristics of transistor amplifiers in CE, CC and CB configurations.

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Choice Based Credit System (CBCS) Scheme in light of NEP-2020

B. Tech/B.Tech+MBA in Mechanical Engineering

(2023-2027)

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTME101	BEC	ENGINEERING DRAWING	60	20	20	30	20	1	0	4	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):
To familiarize with concepts of (A) scale, conic sections and engineering curves (B) projections of points and line in all quadrants; (C)construction of geometrical figures& solids, with its orientation on horizontal and vertical planes, and its projection; section of solid, (D)development of solid and isometric projection view.

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 draw scale, conic sections and engineering curves.
2. Student would be able to draw projection of point and line; identify the use of these concepts in practical life.
3. Students would be able to understand plain & 3D model at various orientations and draw their projection.
4. Student would be able to draw the projections of with and without sectioning of solid models and surface development.
5. Students would be able to understand the difference between orthographic view and isometric projections.

Syllabus:

UNIT I **(8 Hrs)**

Scales, Conic Section & Engineering Curves Scales: Representative Factor, types of scales, principle and construction of different scales

Conic Section: Construction of ellipse, parabola and hyperbola by different methods; Normal and Tangent

Engineering Curves: Cycloid, Epicycloids, Hyper cycloid, Involutes, Archimedean and Logarithmic spirals

UNIT II **(9 Hrs)**

Projection of Points & Line Projection: Introduction to projection, Types of projection, terminology, first angle and third angle

Projection of Points: Introduction of point, conventional representation

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B. Tech/B.Tech+MBA in Mechanical Engineering

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COURSE CODE	CATEGORY	COURSE NAME	TEACHING &EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTME101	BEC	ENGINEERING DRAWING	60	20	20	30	20	1	0	4	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.

Projection of Lines: Introduction of straight line, orientation of straight line, true inclination and true length, concepts of end projectors, plan and traces and auxiliary planes.

UNIT III **(9 Hrs)**

Projections of Planes: Introduction of planes, types of planes, orientation of planes, projection of planes in different positions, traces of planes

Projection of Solids: Introduction of solids, classification of solids, recommended naming of corners of solids, orientation of solids

UNIT IV **(8 Hrs)**

Section of Solids: Introduction of section of solids, terminology, types of section planes, section of prisms, section of pyramid and section of composite solids

Development of Surfaces: Introduction of development of surfaces, classification of surfaces, methods of development, development of prisms, pyramids, cylinder and cone, anti-development

UNIT V **(7 Hrs)**

Isometric Projections: Introduction of isometric projection, terminology, isometric projections and isometric views, isometric views of planes, right solids, truncated solids and composite solids.

Text and Reference Books:

1. "Engineering Graphics" by P.I. Varghese, McGraw Hill Edu., 2012.
2. "Engineering Drawing and graphics" by K. Venugopal, New Age (I) Pub., 2004.
3. "Engineering Drawing" by N.D. Bhatt, Charotar Publishing House, 2014.
4. "Engineering Drawing" by Basant Agarwal & C.M. Agarwal, McGraw Hill Edu., 2013.
5. "Engineering Drawing" by P.S. Gill, S.K. Kataria & Sons, 2013.

List of Experiments:

1. Drawing various types of scales using representative fraction.
2. Drawing various conics section.
3. Projection of points in all quadrants.
4. Projection of straight lines in all quadrants in various orientations.

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Choice Based Credit System (CBCS) Scheme in light of NEP-2020

B. Tech/B.Tech+MBA in Mechanical Engineering

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COURSE CODE	CATEGORY	COURSE NAME	TEACHING &EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTME101	BEC	ENGINEERING DRAWING	60	20	20	30	20	1	0	4	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.

5. Projection of geometrical planes with various orientations.
6. Projection of solid models with various orientations.
7. Projection of section of solids by using various types of cutting planes.
8. Drawing development of surface using various methods of prisms, pyramids, cone, cylinder, etc.
9. Drawing anti- development of surfaces.
10. Drawing isometric projections using various methods and isometric views.

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Choice Based Credit System (CBCS) in the Light of NEP-2020
All B.Tech. Programs including Specializations

w.e.f. 2023

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*				
BTEC104		Digital Logic & Circuit Design	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 on the following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives:

1. To use Boolean algebra and Karnaugh Map to simplify logic function.
2. To 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: Introduction to number systems: Decimal, Binary, Octal and Hexadecimal, Base Conversion. Signed Binary Numbers: Signed magnitude, 1's Complement and 2's Complement representation and their arithmetic operations, 32-bit Floating-point representation.
Codes: Types of code, Binary code, BCD, Gray code, Excess-3. BCD Addition, Code Conversion, Error Detecting and Correcting code: Even and Odd Parity, Hamming code.

UNIT II

Boolean algebra and Logic gates: Introduction to logic gates, Boolean Laws, De-morgan's theorem, Consensus theorem, Implementation using logic gates, Simplification of Boolean Expression using Boolean Laws, Canonical and Standard (SOP and POS) forms. Universal gates, NAND-NOR implementation of logic functions. Karnaugh Maps (K-maps), Minimization of logic functions using K-map. Don't Care Conditions.

UNIT III

Combinational circuits: Arithmetic circuits- Half adder, Full adder, Half subtractor, Full subtractor, Parallel Adder, BCD adder, Multiplexer, De-multiplexer, Encoder and Decoder. Design of Combinational circuits using Multiplexer and Decoder.

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UNIT IV

Sequential Circuits: Introduction, Asynchronous and Synchronous Sequential circuits, Latches and Flip Flops: SR, D, JK and T. Characteristic equation, Characteristic and Excitation table. Master-Slave Flip-flop, Race around conditions, Flip flop conversion.

UNIT V

Applications for Flipflops:
Shift Register: SISO, SIPO, PISO, PIPO, Left and Right Shift Register, Bidirectional Shift Register.
Counter: Ring counter, Johnson Counter, Asynchronous Up/down counter, Synchronous Up/down counters: State diagram, state table and realization, Mod-N Counter.

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, Zvanko Vranesic, "Fundamentals of Digital Logic Design", 3rd Edition, McGraw Hill, 2017.

List of experiments:

1. To study the operation of various logic gates and verify their truth tables.
2. To verify De morgans theorem
3. To verify the versatility of NAND and NOR gates
4. To compare and verify standard SOP/ POS expression with minimized Boolean form using K-map.
5. To design and verify Adder and subtractor circuits.
6. To design and verify multiplexer and demultiplexer using basic logic gates.
7. To realize 4-bit parallel adder circuit.
8. To design and verify encoder and decoder circuits using ICs.
9. To verify the truth table of different flip flops.
10. To verify the functionality of shift register.
11. To verify the functionality of counter circuit.

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SUBJECT CODE	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
		THEORY			PRACTICAL		Th	T	P	CREDITS
		END SEM	MST	Q/A	END SEM	Q/A				
BTMA101N	Mathematics I	60	20	20	-	-	3	1	-	4

Course Objective

To introduce the students to the fundamentals of differential calculus, linear algebra, and differential equations.

Course Outcomes

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

1. *understand and apply the basics of differential calculus;*
2. *understand, apply the techniques of matrices and analyze the system of linear equations;*
3. *apply the techniques of approximation to the root finding problems;*
4. *construct and solve the differential equations of first order;*

Course Content:

UNIT – I: Differential Calculus: Rolle's theorem, mean value theorem, expansion of functions of one variable, Taylors series Maclaurin series.

UNIT – II: Partial differentiation: Eulers theorem, total differentiations, maxima and minima of functions of two variables only.

UNIT – III: Matrices: Matrices, determinants, rank, normal form, Systems of linear equations and their solutions.

UNIT – IV: Numerical methods for solving nonlinear equations:

Method of bisection, secant method, false position, Newton-Raphson's method, fixed point method and their convergence.

UNIT–V: Differential equations

Formation of differential equations, solution of differential equation of first order and first degree: separation of variable, homogeneous equations, reducible to homogeneous equations, linear equations, reducible to linear equations.

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Program Name: Bachelor of Technology

SUBJECT CODE	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
		THEORY			PRACTICAL		Th	T	P	CREDITS
		END SEM	MST	Q/A	END SEM	Q/A				
BTMA101N	Mathematics I	60	20	20	-	-	3	1	-	4

Texts:

- T. M. Apostol, Calculus, Volume I, 2nd Ed, Wiley, 1967.
- T. M. Apostol, Calculus, Volume II, 2nd Ed, Wiley, 1969.
- B. S. Grewal, Higher Engineering Mathematics, Khanna Publishers, Delhi.
- Erwin Kreyszig, Advanced Engineering Mathematics, 10th Ed, John Wiley Publisher.
- M.D. Raisinghania, Ordinary and Partial Differential Equations, 14th Ed, S. Chand.

References:

- 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.
- G.F. Simmons, Differential Equations with Applications and Historical Notes, 2ndEd, CRC Press.
- 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.

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Choice Based Credit System (CBCS) in Light of NEP-2020
HUMANITIES
Semester I / Semester II

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
HUCS101	AECC	Communication Skills	60	20	20	-	20	1	0	2	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.

Course educational Objectives (CEOs): The students will be

- **CEO1** Provided an overview of Business Communication and an outline to effective Organizational Communication.
- **CEO2** Familiarized with the usage pattern of English language to help them to learn and identify language structures for correct English usage.
- **CEO3** Explained ways to put in use the basic mechanics of Grammar.
- **CEO4** Imparted the nuances of Business correspondence and different types of letter writing required in an official setup.
- **CEO5** Imparted the different types of Reports used in an organizational setup.

Course Outcomes (Cos): The students will be able to

- **CO1** Demonstrate strong conceptual knowledge of organizational communication and its different barriers and at the same time develop an understanding of verbal and non verbal communication in a business set up.
- **CO2** Demonstrate his/her ability to write error free sentences and speak in the required Communicative competence.
- **CO3** apply knowledge of spotting common errors and rectify them and develop coherence, cohesion and competence in oral and written discourse.
- **CO4** Draft effective business correspondence (letters) with brevity and clarity depending on the various prescribed formats.
- **CO5** Delineate effective business reports with brevity and clarity depending on the various prescribed Formats.

COURSE CONTENTS:

UNIT I

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

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Choice Based Credit System (CBCS) in Light of NEP-2020
HUMANITIES
Semester I / Semester II

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME								
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			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
HUCS101	AECC	Communication Skills	60	20	20	-	20	1	0	2	2

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
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UNIT II

Basic Language Skills: Grammar and usage- Parts of Speech, Tenses, S-V Agreement, Preposition, Article.

UNIT III

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

UNIT IV

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

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

Suggested Readings

- Ashraf Rizvi.(2005). *Effective Technical Communication*. New Delhi:Tata Mc Graw Hill
- Adair, John (2003). Effective Communication. London: Pan Macmillan Ltd.

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HUMANITIES

Semester I / Semester II

COURSE CODE	CATEGORY	COURSE NAME	TEACHING &EVALUATION SCHEME								
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			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
HUCS101	AECC	Communication Skills	60	20	20	-	20	1	0	2	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 componen shall exceed more than 10 marks.

- A.J. Thomson and A.V. Martinet(1991).*A Practical English Grammar*(4th ed). Newyork: Oxford 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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Shri Vaishnav Vidyapeeth

SVIIT/CSE/2021/12484

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Information Technology
Choice Based Credit System (CBCS) in the Light of NEP-2020
B.Tech. (Non CSE & IT Branch)
(2021-2025)

COURSE CODE	CATEGORY	COURSE NAME	TEACHING&EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			ENDSEM University Exam	Two Term Exam	Teachers Assessment*	ENDSEM University Exam	Teachers Assessment*				
BTCS101	BEC	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;
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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 course, 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.

Syllabus

Unit - I

Introduction to Programming Languages: Introduction to 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-

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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.

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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.

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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.

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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 allocation using calloc(), 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++.

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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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