Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Information Technology

B.Tech. (CSE-Full Stack Development & Blockchain-IBM)
Choice Based Credit System (CBCS)-2025-29
SEMESTER-I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTCSH102	DCC	Statistics, Probability and Calculus	60	20	20	0	0	3	0	0	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 OBJECTIVES:

The student will have ability to:

1. To introduce fundamental concepts of statistics and probability.

COURSE OUTCOMES:

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

1. To learn and understand the basic concepts of probability theory.
2. To learn types of data and graphical representation.
3. To learn descriptive statistics, probability distribution and sampling techniques.

SYLLABUS

UNIT I — 10 HOURS

Introduction to Statistics: Definition of Statistics. Basic objectives. Applications in Various Branches of Science with Examples. Collection of Data: Internal and External Data, Primary and Secondary Data. Population and Sample, Representative Sample.

UNIT II — 9 HOURS

Descriptive Statistics: Classification and Tabulation of Univariate Data, Graphical Representation, Frequency Curves. Descriptive Measures - Central Tendency and Dispersion. Bivariate Data. Summarization, Marginal and Conditional Frequency Distribution.

UNIT III — 8 HOURS

Probability: Concept of Experiments, Sample Space, Event. Definition of Combinatorial Probability. Conditional Probability, Bayes Theorem. Probability Distributions: Discrete & Continuous Distributions, Binomial, Poisson and Geometric Distributions, Uniform, Exponential, Normal, Chi-Square, T, F Distributions.

UNIT IV — 7 HOURS

Expected Values and Moments: Mathematical Expectation and its Properties, Moments (Including Variance) and their Properties, Interpretation, Moment Generating Function

UNIT V — 8 HOURS

Calculus: Basic Concepts of Differential and Integral Calculus, Application of Double and Triple Integral.

TEXTBOOKS:

1. Introduction of Probability Models, S.M. Ross, Academic Press, N.Y.

Chairperson	Chairperson	Controller of Examination	Registrar
Board of Studies, Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore	Faculty of Studies, Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore	Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore	Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Information Technology

B.Tech. (CSE-Full Stack Development & Blockchain-IBM)
Choice Based Credit System (CBCS)-2025-29
SEMESTER-I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTCSH102	**DCC**	**Statistics, Probability and Calculus**	**60**	**20**	**20**	**0**	**0**	**3**	**0**	**0**	**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.

2.	Fundamentals of Statistics, vol. I & II, A. Goon, M. Gupta and B. Dasgupta, World Press.

REFERENCE:

1.	Higher Engineering Mathematics, B. S. Grewal, Khanna Publication, Delhi.
2.	A first course in Probability, S.M. Ross, Prentice Hall.
3.	Probability and Statistics for Engineers, (Fourth Edition), I.R. Miller, J.E. Freund and R. Johnson, PHI.
4.	Introduction to the Theory of Statistics, A.M. Mood, F.A. Graybilland D.C. Boes, McGraw Hill Education.
5.	Advanced Engineering Mathematics, (Seventh Edition), Peter V. O'Neil, Thomson Learning.
6.	Advanced Engineering Mathematics, (Second Edition) M. D. Greenberg, Pearson Education.
7.	Applied Mathematics, Vol. I & II, P. N. Wartikarand J. N. Wartikar, Vidyarthi Prakashan.

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Information Technology

B.Tech. (CSE-Full Stack Development & Blockchain-IBM)
Choice Based Credit System (CBCS)-2025-29
SEMESTER-I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTEC104	DC	Digital Logic and 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 OBJECTIVES:

The student will have ability 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:

Upon completion of the subject, 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.

SYLLABUS

UNIT I — **10 HOURS**

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 — **9 HOURS**

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 / Quine McCluskey method.

UNIT III — **8 HOURS**

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

UNIT IV — **7 HOURS**

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 — **8 HOURS**

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.

Chairperson	Chairperson	Controller of Examination	Registrar
Board of Studies, Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore	Faculty of Studies, Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore	Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore	Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Information Technology

B.Tech. (CSE-Full Stack Development & Blockchain-IBM)
Choice Based Credit System (CBCS)-2025-29
SEMESTER-I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTEC104	**DC**	**Digital Logic and 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.

TEXTBOOKS:	
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:	
1.	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 PRACTICALS	
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.

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Information Technology

B.Tech. (CSE-Full Stack Development & Blockchain-IBM)
Choice Based Credit System (CBCS)-2025-29
SEMESTER-I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTCS101M	BEC	Introduction to Computer Science and Engineering	60	20	20	0	0	3	0	0	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 OBJECTIVES:	
The student will have ability to:	
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.
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.
4.	Understand Networking, Internet, Communication and Security.

SYLLABUS

UNIT I	**8 HOURS**

Introduction: Introduction to Computers, Hardware and Software, Classification and History of Computers, Functions of the different Units, Applications of Computers, Representation of data and information, Machine language, Assembly Language, High level Language, Number System and Conversion.

UNIT II	**6 HOURS**

Introduction to Operating System: Definition of Operating System, Types and Functions of Operating Systems, Free and Open-Source Software.

Introduction to Database Management System: Introduction, File Oriented Approach and Database, importance and applications of DBMS.

UNIT III	**8 HOURS**

Introduction to Computer Network: Introduction, importance of Computer Network, LAN, MAN, WAN, Networking Devices, World Wide Web, Web Browser, viruses, worms, malware, Use of Antivirus software, Good Computer Security Habits.

UNIT IV	**8 HOURS**

Introduction to HTML: HTML Documents, SGML, Basic structure of an HTML document, Text Elements, Tag Elements, Special Character elements, Image tags, HTML Table tags and lists, Anchor tag, Name tag, Hyperlinks –

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Information Technology

B.Tech. (CSE-Full Stack Development & Blockchain-IBM)
Choice Based Credit System (CBCS)-2025-29
SEMESTER-I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTCS101M	BEC	Introduction to Computer Science and Engineering	60	20	20	0	0	3	0	0	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.

FTP/HTTP/HTTPS, Static and Dynamic Web Pages.

UNIT V — **6 HOURS**

Office Automation Tools: Introduction to Microsoft Word, Elements of word Processing and Working Objectives, MSWord Screen and its Components, Features of word, Introduction to MS-Excel, MS-Excel Screen and Its Components, Features of Excel, Manipulation of cells, Formatting of Spreadsheet and Cells, Formulas and Functions, Introduction to MS-PowerPoint, MS-PowerPoint Screen and Its Components, Features of PowerPoint, Working with MS-PowerPoint, Preparation of Slides, Creation of Presentation, Slide Manipulation and Slide Show, Presentation of the Slides.

TEXTBOOKS:

1. E Balagurusamy, “Fundamentals of Computers”, TMH.
2. Silakari and Shukla, “Basic Computer Engineering”, Wiley India.

REFERENCE:

1. V. Rajaraman, Neeharika Adabala, “Fundamentals of Computers”, PHI.
2. Ajoy Kumar Ray and Tinku Acharya, “Basic Computer Engineering”, PHI.
3. P K Sinha, “Fundamentals of Computers”, BPB Publications.
4. J. P. Tremblay and R.B. Bunt, “An Introduction of Computer Science –An Algorithmic Approach”, TMH.
5. Faithe Wempen, "Computing Fundamentals: Introduction to Computers”, Wiley.
6. Norton, Peter, “Introduction to Computers”, Fourth revised, Mc-Graw-Hill.
7. Reema Thareja, “Fundamental of Computers”, Oxford University Press.

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Information Technology

B.Tech. (CSE-Full Stack Development & Blockchain-IBM)
Choice Based Credit System (CBCS)-2025-29
SEMESTER-I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
HUCS101	SEC	Communication Skills	60	20	20	30	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 OBJECTIVES:	
The student will have ability to:	
1.	Develop the second language learners 'ability to enhance and demonstrate LSRW Skills.
2.	Enable students to acquire English Language Skills to further their studies at advanced levels.
3.	Prepare students to become more confident and active participants in all aspects of their undergraduate programs

COURSE OUTCOMES:	
Upon completion of the subject, students will be able to:	
1.	Enhance confidence in their ability to read, comprehend, organize, and retain written in formation.
2.	Write grammatically correct sentences for various forms of written communication to express oneself.

SYLLABUS

UNIT I	**10 HOURS**
C**ommunication**: Nature, Meaning, Definition,Verbal and Non Verbal Communication Barriers to Communication.	
UNIT II	**9 HOURS**
Basic Language Skills: Grammar and usage- Parts of Speech, Tenses, S-V Agreement, Preposition, Article.	
UNIT III	**8 HOURS**
Basic Language Skills: Types of Sentence, Direct - Indirect, Active - Passive voice, Phrases& Clauses.	
UNIT IV	**7 HOURS**
Business Correspondence: Business Letter, Parts & Layouts of Business Resume and Job application, E-mail writing.	
UNIT V	**8 HOURS**
Report Writing: Importance of Report, Types of Report, Structure of a Report.	

Chairperson	Chairperson	Controller of Examination	Registrar
Board of Studies, Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore	Faculty of Studies, Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore	Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore	Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Information Technology

B.Tech. (CSE-Full Stack Development & Blockchain-IBM)
Choice Based Credit System (CBCS)-2025-29
SEMESTER-I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
HUCS101	SEC	Communication Skills	60	20	20	30	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.

TEXTBOOKS:	
1.	Ashraf Rizvi.(2005).EffectiveTechnical Communication. NewDelhi:TataMcGrawHill
2.	Adair, John (2003). Effective Communication. London: Pan Macmillan Ltd.
3.	A.J.ThomsonandA.V.Martinet(1991).APracticalEnglishGrammar(4thed).Newyork:Ox-ford IBH Pub.
REFERENCE:	
1.	Kratz, Abby Robinson (1995). Effective Listening Skills. Toronto: ON: Irwin Professional Publishing.
2.	Prasad, H. M.(2001) How to Prepare for Group Discussion and Interview. New Delhi: Tata McGraw-Hill.
3.	Pease, Allan. (1998).Body Language. Delhi: SudhaPublications.
LIST OF PRACTICALS	
1.	Self Introduction
2.	Reading Skills and ListeningSkills
3.	OralPresentation
4.	Linguistics andPhonetics
5.	JAM (Just aMinute)
6.	GroupDiscussion

Chairperson	Chairperson	Controller of Examination	Registrar
Board of Studies, Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore	Faculty of Studies, Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore	Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore	Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Information Technology

B.Tech. (CSE-Full Stack Development & Blockchain-IBM)
Choice Based Credit System (CBCS)-2025-29
SEMESTER-I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTCS103M	DCC	Computer System Organization	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 OBJECTIVES:	
The student will have ability to:	
1.	To understand the basic model of a modern computer with its various processing units.
2.	To impart knowledge on CPU and it's processing of programs.
3.	To provide the information for hardware utilization methodology.
4.	To impart knowledge of Multiprocessor and inter-process communication.

COURSE OUTCOMES:	
Upon completion of the subject, students will be able to:	
1.	Understand the architecture of a modern computer.
2.	Explain the functional behavior of CPU and its other processing units.
3.	Knowledge of the Peripherals of a Computer System.
4.	Give the information to speed-up the working of Computer System.

SYLLABUS

UNIT I	**10 HOURS**

Computer Basics: Von Newman model, CPU, Memory, I/O, Bus, Memory registers, Program Counter, Accumulator, Instruction register, Micro-operations, Register Transfer Language, Instruction cycle, Instruction formats and addressing modes.

UNIT II	**9 HOURS**

Control Unit Organization: Hardwired control unit, Micro-programmed control unit, Control Memory, Address Sequencing, Micro Instruction formats, Micro program sequencer, Microprogramming.
Arithmetic and Logic Unit: Arithmetic Processor, Addition, subtraction, multiplication, and division, Floating point, and decimal arithmetic.

UNIT III	**8 HOURS**

Input Output Organization: Modes of data transfer – program controlled, interrupt driven and direct memory access, Interrupt structures, I/O Interface, Asynchronous data transfer, I/O processor, Data transferring approaches and modes.

UNIT IV	**7 HOURS**

Memory organization: Memory Hierarchy, Cache Memory - Organization and types of cache mappings, Virtual memory, Memory Management Hardware.

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Information Technology

B.Tech. (CSE-Full Stack Development & Blockchain-IBM)
Choice Based Credit System (CBCS)-2025-29
SEMESTER-I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTCS103M	DCC	Computer System Organization	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.

UNIT V	**8 HOURS**
Multiprocessors: Pipeline and Vector processing, Instruction and arithmetic pipelines, Vector and array processors, Interconnection structure and inter-processor communication.	

TEXTBOOKS:	
1.	M. Morris Mano, Computer System Architecture, Fourth edition, Pearson Education, 2015.
2.	William Stallings, Computer Organization and Architecture, Seventh Edition, PHI, 2009.

REFERENCE:	
1.	Andrew S. Tanenbaum, Structured Computer Organization, Sixth Edition, Pearson Education, 2016.
2.	John P. Hayes, Computer Architecture and Organizations, Third edition, Mc-Graw Hills, New Delhi, 2017.
3.	John L. Hennessy and David A. Patterson, Computer Architecture a quantitative approach, Fourth Edition, Elsevier, 2007.
4.	Ramesh Gaonkar, Microprocessor Architecture, Programming and Applications with 8085, fifth Edition, Prentice Hall, 2015.
5.	Nicholas Carter, Computer Architecture (Schaum's), Third Edition, TMH, 2012.
6.	Carl Hamacher, Computer Organization, Fifth Edition, TMH, 2002.

LIST OF PRACTICALS	
1.	Study of peripherals, components of a Computer System.
2.	Write a C program for sum of two binary numbers.
3.	Write a C program for multiplication of two binary numbers.
4.	Write a C program to implement Booth's algorithm for multiplication.
5.	Write a C program to implement Restoring Division Algorithm.
6.	Write the working of 8085 simulator GNUsim8085 and basic architecture of 8085 along with small introduction.
7.	Study the complete instruction set of 8085 and write the instructions in the instruction set of 8085 along with examples.
8.	Write an assembly language code in GNUsim8085 to implement data transfer instruction.
9.	Write an assembly language code in GNUsim8085 to store numbers in reverse order in memory location.
10.	Write an assembly language code in GNUsim8085 to add two 8 bit numbers stored in memory and also storing the carry.

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Information Technology

B.Tech. (CSE-Full Stack Development & Blockchain-IBM)
Choice Based Credit System (CBCS)-2025-29
SEMESTER-I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTCS107M	SEC	Program Development using C	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:	
The student will have ability to:	
1.	Identify situations where computational methods and computers would be useful.
2.	Given a computational problem, identify and abstract the programming task involved.
3.	Approach the programming tasks using techniques learned and write pseudo-code.
4.	Choose the right data representation formats based on the requirements of the problem.
5.	Use the comparisons and limitations of the various programming constructs and choose the right one for the task in hand.
6.	Write the program on a computer, edit, compile, debug, correct, recompile and run it.
7.	Identify tasks in which the numerical techniques learned are applicable and apply them to write programs, and hence use computers effectively to solve the task.

COURSE OUTCOMES:	
Upon completion of the subject, students will be able to:	
1.	Understand the basic terminologies used in computer programming.
2.	Proficient in using the basic constructs of C, to develop a computer program.
3.	Understand the use of functions, pointers, arrays and files in programming.
4.	Understand the fundamentals of procedure-oriented programming and be able to apply it in computer program development.

SYLLABUS

UNIT I	**7HOURS**

Introduction to Programming Languages: Evolution of Programming Languages, Structured Programming, The Compilation Process, Object Code, Source Code, Executable Code, Operating Systems, Interpreters, Linkers, Loaders, Fundamentals Of Algorithms, Flowcharts.

UNIT II	**10 HOURS**

Introduction to 'C' Language: Character Set. Variables and Identifiers, Built-In Data Types. Variable Definition, Arithmetic Operators and Expressions, Constants And Literals, Simple Assignment Statement, Basic Input/ Output Statement, Decision Making Within A Program, Conditions, Relational Operators, Logical Connectives, If Statement, If-Else Statement, Loops: While Loop, Do While, For Loop. Nested Loops, Switch Statement.

UNIT III	**8 HOURS**

Arrays and Pointers: Array Manipulation; Searching, Insertion, Deletion of an Element from an one dimensional Array; Finding the Largest/Smallest Element in an Array; Two Dimensional Arrays, Addition/Multiplication of

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Information Technology

B.Tech. (CSE-Full Stack Development & Blockchain-IBM)
Choice Based Credit System (CBCS)-2025-29
SEMESTER-I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTCS107M	SEC	Program Development using C	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.

Two Matrices, Transpose of a Square Matrix, Address Operators, Pointer Type Declaration, Pointer Assignment, Pointer Initialization, Pointer Arithmetic, Pointer Arrays.

UNIT IV — **7 HOURS**

Functions: Modular Programming and Functions, Prototype of a Function: Parameter List, Return Type, Function Call, Block Structure, Call by Reference, Call by Value, Recursive Functions and Arrays as Function Arguments

UNIT V — **8 HOURS**

Structure: Structure Variables, Initialization, Structure Assignment, Structures and Arrays: Arrays of Structures.

TEXTBOOKS:

1. Gottfried BS – Programming with C, TMH publications.
2. David Griffiths**, "**Head First C: A Brain-Friendly Guide**"** O Reilly Media Inc. 2011.

REFERENCE:

1. Allen B. Tucker, "Programming Languages", Tata McGraw Hill.
2. Tennence W. Pratt, "Programming languages design and implementation", Prentice Hall of India.
3. Herbert Schildt "C: Complete Reference", Tata McGraw Hill 2000.
4. Yashwant Kanetkar, "Let us C", BPB Publication, 16th Edition 2018.
5. Fundamentals of Programming Languages, R. Bangia, Cyber Tech.
6. Greg Perry and Dean Miller, "C Programming Absolute Beginner's Guide 3rd Edition", Que Publishing 2013.

LIST OF PRACTICALS

1. Write a C program to display "This is my first C Program".
2. Write a C program to calculate area and circumference of a circle.
3. Write a C program to perform addition, subtraction, division and multiplication of two numbers.
4. Write a program to calculate simple and compound interest.
5. Write a program to swap values of two variables with and without using third variable.
6. Write a program to display the size of every data type using "size of" operator.
7. Write a program to illustrate the use of unary prefix and postfix increment and decrement operators.
8. Write a program to input two numbers and display the maximum number.
9. Write a program to find the largest of three numbers using ternary operators.
10. Write a program to find the roots of quadratic equation.
11. Write a program to input name, marks of 5 subjects of a student and display the name of the student, the total

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Information Technology

B.Tech. (CSE-Full Stack Development & Blockchain-IBM)
Choice Based Credit System (CBCS)-2025-29
SEMESTER-I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTCS107M	SEC	Program Development using C	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.

	marks scored, percentage scored and the class of result.
12.	Write a Program to Check Whether a Number is Prime or not.
13.	Write a program to find the largest and smallest among three entered numbers and also display whether the identified largest/smallest number is even or odd.
14	Write a program to find the factorial of a number.
15.	Write a program to check number is Armstrong or not.(Hint: A number is Armstrong if the sum of cubes of individual digits of a number is equal to the number itself).
16.	Write a program to check whether a number is Palindrome or not
17.	Write a program to generate Fibonacci series.
18.	Write a program to find GCD (greatest common divisor or HCF) and LCM (least common multiple) of two numbers.
19.	Write a Program to Search an element in array.
20.	Write a Program to perform addition of all elements in Array.
21.	Write a Program to find the largest and smallest element in Array.
22.	Write a Program for deletion of an element from the specified location from Array.
23.	Write a Program to access an element in 2-D Array.
24.	Write a program for addition of two matrices of any order in C.
25.	Write a Program to multiply two 3 X 3 Matrices.
26.	Write a program to add, subtract, multiply and divide two integers using user-defined type function with return type.
27.	Write a program to generate Fibonacci series using recursive function.
28.	Write a program to find the sum of all the elements of an array using pointers.
29.	Write a program to swap value of two variables using pointer.
30	Write a program to add two numbers using pointers.
31	Write a program to input and print array elements using pointer.
32	Write a program to create a structure named company which has name, address, phone and Of Employee as member variables. Read name of company, its address, phone and non-employee. Finally display this member's value.
33	Write a program to read Roll No, Name, Address, Age & average-marks of 12 students in the BCT class and display the details from function.
34	Write a program to add two distances in feet and inches using structure.

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Information Technology
B.Tech. (CSE-Full Stack Development & Blockchain-IBM)
Choice Based Credit System (CBCS)-2025-29
SEMESTER-I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTIBM106N	DC	Front End Development	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:	
The student will have ability to:	
1.	To gain and understand the fundamental concepts Front-end development.
2.	To get in-depth knowledge of the learning objective of web front end development is to acquire the skills and knowledge necessary to build and maintain the front-end components of a web application.
3.	This includes understanding and proficiency in various programming languages, frameworks, and technologies used in client-side (front-end) development.
4.	To expose students to the understanding of basic concepts of HTML, CSS, JavaScript.
5.	Be able to Deploy applications on cloud services.

COURSE OUTCOMES:	
Upon completion of the subject, students will be able to:	
1.	Understand the fundamentals of HTML and CSS for building responsive web pages.
2.	Gain proficiency in JavaScript for dynamic content manipulation and DOM handling
3.	Learn the core concepts of JavaScript client-side applications
4.	Develop skills in creating RESTful APIs using Express.js in Node.js.
5.	Master React.js for building interactive, component-based user interfaces.

SYLLABUS

UNIT I	**8 HOURS**

Introduction of HTML and CSS and JavaScript: Introduction to frontend development principles and best practices, HTML basics: Elements, document structure, semantic HTML, HTML5 features: Multimedia elements, forms, canvas, CSS basics: Selectors, properties, values, CSS box model, CSS layout techniques: Floats, positioning, Flexbox, Grid, Responsive web design principles and techniques, JavaScript fundamentals: Variables, data types, operators, control flow, JavaScript DOM manipulation: Selecting, modifying, creating elements dynamically, Event handling: Handling user interactions and browser events, Asynchronous JavaScript: Promises, async/await for handling asynchronous operations, Error handling in JavaScript: Try...catch statements.

UNIT II	**8 HOURS**

Intermediate HTML, CSS, and JavaScript: Advanced HTML: HTML5 semantic elements, multimedia elements, forms, CSS advanced techniques: Transforms, transitions, animations, filters, CSS preprocessors: SASS or LESS for efficient styling, Advanced CSS layout techniques: CSS Grid layout, responsive design patterns, JavaScript ES6 features: Arrow functions, template literals, destructuring, spread syntax, JavaScript closures and scope, Working with the Document Object Model (DOM) in depth, JavaScript event delegation and bubbling,

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Information Technology

B.Tech. (CSE-Full Stack Development & Blockchain-IBM)
Choice Based Credit System (CBCS)-2025-29
SEMESTER-I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTIBM106N	**DC**	**Front End Development**	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.

Client-side storage: Local Storage, Session Storage, Cookies, Debugging JavaScript applications using browser developer tools.

UNIT III — **8 HOURS**

Introduction of React.js and Chakra UI: Introduction to React.js: Components, props, state, JSX syntax, React component lifecycle: Mounting, updating, unmounting phases, React Router DOM for client-side routing and navigation, State management in React using Context API, React Hooks: useState, useEffect, useContext, custom hooks, Presentational components, Higher Order Components (HOCs), Styling in React with Chakra UI: Theming, styled components, responsive design, Form handling and validation in React, Handling asynchronous operations in React components, Optimizing React applications for performance.

UNIT IV — **8 HOURS**

Advance React.js and Libraries: Advanced state management in React: Redux, react performance optimization techniques, working with external APIs: Fetch API, Axios for data fetching, Authentication and authorization in React applications, integrating third-party libraries and components with React, Deploying React applications to various hosting platforms, Introduction of Next.js, Working of Next.js

UNIT V — **8 HOURS**

Project Development and Integration: Project planning and design: Requirement gathering, wireframing, prototyping, implementing a full-fledged frontend project using React.js, Chakra UI, and external libraries, integrating external APIs and services to enhance project functionality, Deployment of the project to a cloud platform like IBM Cloud: Continuous integration and deployment pipelines, Project presentation and evaluation: Demonstrating features, discussing challenges and solutions.

TEXTBOOKS:

1. "Eloquent JavaScript: A Modern Introduction to Programming" by Marijn Haverbeke
2. "You Don’t Know JS: Up & Going" by Kyle Simpson
3. "CSS: The Definitive Guide" by Eric Meyer and Estelle Weyl
4. "JavaScript and JQuery: Interactive Front-End Web Development" by Jon Duckett

REFERENCE:

1. "React Up & Running: Building Web Applications" by Stoyan Stefanov
2. "Learning React: Functional Web Development with React and Redux" by Alex Banks and Eve Porcello

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Information Technology

B.Tech. (CSE-Full Stack Development & Blockchain-IBM)
Choice Based Credit System (CBCS)-2025-29
SEMESTER-I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTIBM106N	**DC**	**Front End Development**	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.

LIST OF PRACTICALS	
1.	**Frontend Developer:** Implements user-facing components, ensuring a seamless and responsive user interface with HTML, CSS, and JavaScript.
2.	**ReactJS Developer:** Develops and maintains complex web applications using React, focusing on reusable components and state management.
3.	**Vanilla JS Developer:** Builds web applications using core JavaScript, creating dynamic functionalities without relying on frameworks.
4.	**Next.js or Anguar.js Developer:** Implements user-facing components, ensuring a seamless and responsive user interface with Advanced JS libraries.
5.	**Testing Software Engineer:** Develops and executes test cases to ensure the quality, functionality, and reliability of software applications.