ShriVaishnavVidyapeethVishwavidyalaya, Indore

ShriVaishnav Institute of Information Technology

B.Tech (Computer Science and Engineering with Specialization in AI Powered Mobile Applications - Apple Authorized Training Center)
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

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

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

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

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

UNIT V

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

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			THEORY			PRACTICAL					
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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.

TEXTBOOKS:	
1.	Introduction of Probability Models, S.M. Ross, Academic Press, N.Y.
2.	Fundamentals of Statistics, vol. I & II, A. Goon, M. Gupta and B. Dasgupta, World Press.
3.	Higher Engineering Mathematics, B. S. Grewal, Khanna Publication, Delhi.
REFERENCE:	
1.	A first course in Probability, S.M. Ross,Prentice Hall.
2.	Probability and Statistics for Engineers,(Fourth Edition), I.R. Miller, J.E. Freund and R. Johnson, PHI.
3.	Introduction to the Theory of Statistics, A.M. Mood, F.A. Graybilland D.C. Boes,McGraw Hill Education.
4.	Advanced Engineering Mathematics, (Seventh Edition), Peter V. O'Neil, Thomson Learning.
5.	Advanced Engineering Mathematics, (Second Edition) M. D. Greenberg, Pearson Education.

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			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTPH101	BS	Applied Physics	60	20	20	30	20	3	1	2	5

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

COURSE OBJECTIVES:	
The student will have ability to:	
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:	
Upon completion of the subject, students will be able to:	
1.	Comprehend laws of physics.
2.	Apply laws of physics for various engineering applications.
3.	Determine physical parameter experimentally and will be able to analyze the data obtained experimentally to draw substantiate conclusions.

SYLLABUS

UNIT I	**10 HOURS**

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	**9 HOURS**

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	**8 HOURS**

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.

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BTPH101	BS	Applied Physics	60	20	20	30	20	3	1	2	5

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

UNIT IV	**7 HOURS**
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	**8 HOURS**
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.	

TEXTBOOKS:	
1.	Engineering Physics by Dr. S. L. Gupta and Sanjeev Gupta, DhanpatRai Publication, NewDelhi.
2.	Engineering Physics by Navneet Gupta, DhanpatRai Publication, NewDelhi
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

REFERENCE:	
1.	Concepts of Modern Physics by Beiser, TMH, NewDelhi.
2.	Solid State Physics by Kittel,WileyIndia
3.	Atomic and Nuclear physics by BrijlalandSubraminiyan.
4.	LASERSs and Electro Optics by Christopher C. Davis, Cambridge Univ. Press(1996).
5.	Optoelectronics an Introduction by J. Wilson &J.F.B.Hawkes, “” Prentice-Hall IIEdition.
6.	LASER theory and applications by A. K. Ghatak&Tyagarajan, TMH(1984). Optics by Ghatak,TMH.

LIST OF PRACTICALS	
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 Probemethod
4.	Measurement of Frequency of A.C. mains by electrically maintained vibrating rod.

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			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTPH101	**BS**	**Applied Physics**	**60**	**20**	**20**	**30**	**20**	**3**	1	**2**	5

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

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-Ndiode
12.	To study characteristics of Photodiode.
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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			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	2	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: Definitionof 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.

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			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	2	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.

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 – 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.	

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			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
HUCS101	BS	Communication Skills	60	20	20	0	50	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 under graduate 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**
Communication: 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	

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-fordIBH Pub.

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			THEORY			PRACTICAL					
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HUCS101	BS	Communication Skills	60	20	20	0	50	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.

4.	Kratz, Abby Robinson (1995). Effective Listening Skills. Toronto: ON: Irwin Professional Publishing.
5.	Prasad, H. M.(2001) How to Prepare for Group Discussion and Interview. New Delhi: Tata McGraw-Hill.
6.	Pease, Allan. (1998).Body Language. Delhi: SudhaPublications

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			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 behaviour 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.

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

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BTCS107M	SEC	Programdevelopment using C	0	0	0	30	20	0	0	2	1

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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	**7 HOURS**

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.

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BTCS107M	SEC	Programdevelopment 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.

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 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.
3.	Allen B. Tucker, "Programming Languages", Tata McGraw Hill.
4.	TennenceW.Pratt, "Programming languages design and implementation", Prentice Hall of India
REFERENCE:	
1.	Herbert Schildt "C: Complete Reference", Tata McGraw Hill 2000.
2.	YashwantKanetkar, "Let us C", BPB Publication, 16th Edition 2018.
3.	Fundamentals of Programming Languages, R. Bangia,Cyber Tech
4.	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.

ShriVaishnavVidyapeethVishwavidyalaya, Indore

ShriVaishnav Institute of Information Technology

B.Tech (Computer Science and Engineering - Mobile Applications-Apple Authorized Training Center)

Choice Based Credit System (CBCS)-2023-27

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**	**Programdevelopment 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.

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 “sizeof” 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 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.

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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 nonemployee as member variables. Read name of company, its address, phone and noOfEmployee. Finally display this members‟ 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.

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BTCSMOB101N	**SEC**	**Mobile Application Development - I**	0	0	0	30	20	0	0	2	1

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COURSE OBJECTIVES:	
The student will have ability to:	
1.	To introduce the Swift Language
2.	Understanding the basic concepts and features of Swift
3.	Learning the Concepts of Variables, Data types and Control flow in Swift
4.	To provide knowledge of Swift for Mobile app development using Xcode

COURSE OUTCOMES:	
Upon completion of the subject, students will be able to:	
1.	Understand the basic terminologies used in Swift programming Language
2.	Proficient in using the basic constructs of Swift, to develop program
3.	Code and debug Swift programs using Xcode and Playground
4.	Understand the fundamentals of Swift and be able to apply it in iOS app development

SYLLABUS

UNIT I	**10 HOURS**
Installation of Swift: Installation of Swift on macOS and Linux, REPL, Package manager, creating a package, Building an Executable, Working with multiple Source File.	

UNIT II	**9 HOURS**
Introduction to Xcode and Swift Playgrounds: Installation of Xcode ,Working with Xcode, create a simple program and execute it using Xcode , Working with swift playgrounds , create a simple program and execute it using swift playgrounds.	

UNIT III	**8 HOURS**
Introduction to Swift: Introduction of Swift, features of Swift ,Datatypes,constant and variables,opertaors ,Type Annotations, Naming Constants and Variables, Printing Constants and Variables, Semicolons, Integers: Integer Bounds ,Int, UInt. Floating-Point Numbers: Double ,Float. Type Safety and Type Inference. Numeric Literals, Numeric Type Conversion, Integer Conversion, Integer and Floating-Point Conversion, Boolean.	

UNIT IV	**7 HOURS**
Strings and Characters: String Literals, Multiline String Literals, Special Characters in String Literals, Initializing an Empty String, String Mutability, Working with Characters, Concatenating Strings and Characters,	

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String Interpolation, Counting Characters, Substrings, Comparing Strings, Prefix and Suffix Equality

UNIT V **8 HOURS**

Control Flow: For-In Loops, While Loops: While, Repeat-While. Conditional Statements: if-else, Switch, Control Transfer Statements: continue, break, fall through, return, and throw.

TEXTBOOKS:

1.	Swift Matthew Mathias, John Gallagher, Swift Programming: The Big Nerd Ranch Guide 2nd edition, 2015
2.	Matt Neuberg, iOS 12 Programming Fundamentals with Swift, OReilly; 5th edition.
3.	IBook Apple, Introduction to Swift.

REFERENCE:

1.	Paris Butt field-Addison, Jonathon Manning , Tim Nugent Learning Swift: Building Apps for macOS, iOS, and Beyond, O'Reilly Media, Inc., 3rd ed, 2018.
2.	Jon Hoffman, Mastering Swift 4, Packt Publishing Limited ,4th edition,2017

LIST OF PRACTICALS

1.	Installation of Swift, Xcode and Playground.
2.	Program to print Hello world (Using terminal and Xcode)
3.	Program to demonstrate variable and constant declaration in Swift
4.	Program to demonstrate different arithmetic operators in Swift.
5.	Program to demonstrate type Annotations and type Inference in Swift
6.	Program to demonstrate numeric type and other conversions in Swift
7.	Program to demonstrate String Literals, Multiline string and special characters
8.	Program to demonstrate String mutability, Empty String and String Interpolation
9.	Program to demonstrate Characters in Swift
10.	Program to demonstrate various String comparisons in Swift.
11.	Program to demonstrate For-In loop in Swift
12.	Program to demonstrate While loop in Swift
13.	Program to demonstrate Repeat-While in Swift.
14.	Programs to demonstrate various control statements in Swift

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Chairperson	Chairperson	Controller of Examination	Registrar
Board of Studies, ShriVaishnavVidyapeeth Vishwavidyalaya, Indore	Faculty of Studies, ShriVaishnavVidyapeeth Vishwavidyalaya, Indore	ShriVaishnavVidyapeeth Vishwavidyalaya, Indore	ShriVaishnavVidyapeeth Vishwavidyalaya, Indore