Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Information Technology

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

Choice Based Credit System (CBCS) 2021-2025

SEMESTER-I

COURSE CODE	Category	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTMACS 101	BS	Mathematics - I	60	20	20	--	--	3	1	0	4

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

Course Educational Objectives (CEOs):

The student will have ability to:

1. To introduce the students with the Fundamentals of the Differential, Integral, Vector Calculus and Numerical Analysis.

Course Outcomes (COs):

After completion of this course the students are expected to be able to demonstrate following knowledge, skills and attitudes.

The students will be able to

1. Understand and apply the basics of the differential calculus.
2. Know the fundamental principles of the integral calculus and apply them.
3. Apply the techniques in the numerical analysis.
4. Know the numerical solution of the system of linear algebraic equations.
5. Understand and apply the basics of the vector calculus.

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SEMESTER-I

Syllabus

Unit-I **10HRS**

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

Unit-II **9HRS**

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

Unit-III **8HRS**

Numerical Analysis : Number Representation and Errors: Numerical Errors; Floating Point Representation; Finite Single and Double Precision Differences; Machine Epsilon; Significant Digits.

Numerical Methods for Solving Nonlinear Equations: Method of Bisection, Secant Method, False Position, Newton Raphson's Method, Multidimensional Newton's Method, Fixed Point Method and their convergence.

Unit-IV **7HRS**

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

Unit-V **8HRS**

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

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

Text Books:

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

References:

1. R. G. Bartle and D. R. Sherbert, Introduction to Real Analysis, 5th Ed, Wiley,1999.
2. J. Stewart, Calculus: Early Transcendentals, 5th Ed, Thomas Learning (Brooks/ Cole), Indian Reprint,2003.
3. J. Stewart, Calculus: Early Transcendentals, 5th Ed, Thomas Learning (Brooks/ Cole), Indian Reprint, 2003.
4. J. D. Hoffman, Numerical Methods for Engineers and Scientists, McGraw-Hill, 2001.
5. M.K Jain, S.R.K Iyengar and R.K Jain, Numerical methods for scientific and engineering computation (Fourth Edition), New Age International (P) Limited, New Delhi, 2004.
6. S. C. Chapra, Applied Numerical Methods with MATLAB for Engineers and Scientists, McGraw-Hill 2008.

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			THEORY			PRACTICAL		Th	T	P	CREDITS
			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 Educational Objectives (CEOs):

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 analyse the data obtained experimentally to reach substantiated conclusions.

Course Outcomes (COs):

After completion of this course the students are expected to be able to demonstrate following knowledge, skills and attitudes.

The students will be able to

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

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SEMESTER-I

Syllabus

Unit-I **10HRS**

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 **9HRS**

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 **8HRS**

Nuclear Physics: Nuclear Structure & Properties Nuclear models: Liquid drop with semi-empirical mass formula & shell model. Particle accelerators: Cyclotron, Synchrotron, Betatron. Counters and Detectors: Giger-Muller counters, Bainbridge Mass Spectrograph and Auston Mass Spectrograph.

Unit-IV **7HRS**

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 **8HRS**

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.

References:-

1. Concepts of Modern Physics by Beiser, TMH, NewDelhi.
2. Solid State Physics by Kittel,WileyIndia.
3. Atomic and Nuclear physics by Brijlal andSubraminiyan.
4. LASERSs and Electro Optics by Christopher C. Davis, Cambridge Univ. Press(1996).
5. Optroelectronics 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.

Practical List:-

1. Measurement of radius of curvature “R” of convex lens by Newton‟s ringexperiment.
2. Measurement of Numerical aperture of fiber byLASER.
3. Determination of Energy band gap „E_g‟ of Ge using Four Probemethod.
4. Measurement of Frequency of A.C. mains by electrically maintained vibratingrod.
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		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTEC 104	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 Educational Objectives (CEOs):

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 (COs):

After completion of this course the students are expected to be able to demonstrate following knowledge, skills and attitudes.

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.

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SEMESTER-I

Syllabus

Unit-I **10HRS**

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 **9HRS**

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

Unit-III **8HRS**

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

Unit-IV **7HRS**

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 **8HRS**

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.

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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, VikasPublishing House, 2012.

References:-

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

Practical List:-

1. To study and test of operation of all logic gates for various IC"s(IC7400,IC7403,IC408,IC74332,IC7486).
2. Verification of DeMorgan"stheorem.
3. To construct of half adder and fulladder.
4. To construct of half subtractor and full subtractorcircuits.
5. Verification of versatility of NANDgate.
6. Verification of versatility of NORgate.
7. Design a BCD to excess 3codeconverter.
8. Design a Multiplexer/Demultiplexer
9. Analysis of various flip flops with Preset and Clearcapability.
10. Design of Johnson and Ringcounter.
11. Design of synchronous and asynchronous up/downcounters.

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SEMESTER-I

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			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTCS101N	**DC**	**Introduction to Computer Science and Engineering**	**60**	**20**	**20**	**0**	**50**	**2**	**0**	**2**	**3**

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

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):

The student will have ability to:

1. To introduce the fundamentals concepts of Computer system.
2. To introduce about history of Computer.
3. Understanding the basic concepts and features of various kinds of Operating systems.
4. Learning the Concepts of Office Automation Tools.

Course Outcomes (COs):

After completion of this course the students are expected to be able to demonstrate following knowledge, skills and attitudes.

The 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.

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SEMESTER-I

Syllabus

Unit-I **10HRS**

Introduction to Computer Fundamentals: Introduction to Computer, Objectives, Hardware and Software, Block Diagram of the Computer, Functions of the different Units, Applications of Computers Representation of data and information, Computer Languages, Machine language, Assembly Language, High level Language, Number System and Conversion, Classification and History of Computers, Introduction to Free and Open Source Software, Computer Virus, Use of Antivirus software.

Unit-II **9HRS**

The Operating System: The Graphical User Interface (GUI), Definition of Operating System, Objective, Types and Functions of Operating Systems, Windows Operating System, Installing MS Windows, Working with Windows Operating System, System Tools and Applications in Windows, MS-DOS, Basic DOS commands, Comparison of DOS and Windows, case study of Unix, Linux OS.

Unit-III **8HRS**

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

Unit-IV **7HRS**

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

Unit-V **8HRS**

Office Automation Tools-III Power-point: Introduction to MS-PowerPoint, Basics of PowerPoint, MS- PowerPoint Screen and Its Components, Features of PowerPoint, Elementary,

Elementary Working with MS-PowerPoint, Preparation of Slides, Creation of Presentation, Providing aesthetics, Slide Manipulation and Slide Show, Presentation of the Slides.

Textbooks:-

1. E Balagurusamy , “Fundamentals of Computers ”,TMH .
2. Silakari and Shukla, “Basic Computer Engineering ”, Wiley India.
3. V. Rajaraman, Neeharika Adabala, “Fundamentals of Computers”, PHI
4. Ajoy Kumar Ray and Tinku Acharya ,“ Basic Computer Engineering”, PHI.
5. P K Sinha ,“Fundamentals of Computers ” , BPB Publications.

References:-

1. J. P. Tremblay and R.B. Bunt, “An Introduction of Computer Science –An Algorithmic Approach”,TMH.
2. Faithe Wempen , "Computing Fundamentals: Introduction to Computers ”, Wiley.
3. Norton, Peter, “Introduction to Computers”, Fourth revised ,Mc-Graw-Hill.
4. Reema Thareja , “Fundamental of Computers”, Oxford University Press.

Practical List:-

1. Study and Perform different MS –DOS Commands(Internal and External).
2. Create the "test" directory in the directory you are currently in using MS-DOS.
3. Study of Word – Templates, Styles.
4. Create a new user and give it Administrator privilege for Microsoft windows OS.
5. Create a MS-Word .doc file contain your complete CV.
6. Study and perform different Excel Commands/Functions.
7. Perform MS-Excel Accounting.
8. Create a MS-Excel .xls file contain mark sheet.
9. Display the student's result into a chart using MS-Excel.
10. Create a MS-Power Point Presentation .ppt file covers the topic “Computer's Evolution”.
11. Create a MS-Power Point Presentation .ppt file covers the topic “social responsibility”.
12. Create a MS-Access database .mdb file to store the results of students.

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COURSE CODE	Category	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTCS102N	DC	Principles of 'C' Language	60	20	20	30	20	2	0	2	3

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

Course Educational Objectives (CEOs):

The student will have ability to:

1. Identify situations where computational methods and computers would be useful.
2. Give 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 (COs):

After completion of this course the students are expected to be able to demonstrate following knowledge, skills and attitudes. The 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.

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SEMESTER-I

Syllabus

UNIT I	**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.	**7HRS**
UNIT II	**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.	**10HRS**
UNIT III	**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.	**8HRS**
UNIT IV	**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	**7HRS**
UNIT V	**Structure:** Structure Variables, Initialization, Structure Assignment, Structures and Arrays: Arrays of Structures.	**8HRS**

Text Books:

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. Tennence W.Pratt, "Programming languages design and implementation", Prentice Hall of India.

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References:

1. Herbert Schildt "C: Complete Reference", Tata McGraw Hill 2000.
2. Yashwant Kanetkar, "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 Experiments:

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 "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.

a. (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 noOfEmployee as member variables. Read name of company, its address, phone and noOfEmployee. Finally display these members‟ value.
33. Write a program to read RollNo, 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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COURSE CODE	Category	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTCS104N	DC	COMPUTER PERIPHERALS & INTERFACES	60	20	20	---	---	2	0	0	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):

1. To learn the concept of memory and its types along with HDD/SDD.
2. To learn the input/output components presents on the motherboard.
3. To learn different modes of power supply to the PC and it's troubleshooting.
4. To learn the concept of BIOS.
5. To learn the device drivers and peripherals attached to the PC board.

Course Outcomes (COs):

Upon completion of the course, students will be able:

1. To understand the hierarchy of the Memory used for PC and its applications.
2. To understand the use and working of I/O components.
3. To understand the principles behind the power supply and its usage.
4. To understand the BIOS concept and its configuration.
5. To understand the use and requirement of peripherals and their device drivers.

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Information Technology

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

Choice Based Credit System (CBCS) 2021-2025

SEMESTER-I

Syllabus:

UNIT I **8 HRS**

Memory& Storage Devices: Introduction to memory, classification of Memory and its use, Overview Memory chips and Modules, and its working principle and Trouble shooting of Memory. Hard Disk Drives, SSD, Optical disk drive and Flash Drives.

UNIT II **6HRS**

Hardware Organization of PCs: Types of motherboard and their details (Form Factor, Chipset), types of processors (INTEL,AMD) and their compatibility with motherboards, serial and parallel ports, PS/2, USB Ports, Interconnection between units, connectors and cables,

UNIT III **4 HRS**

Power Supply: Working of SMPS, On-Line/Off-Line/Line-Interactive/uninterrupted power supplies (UPS), basic principle of working their importance and maintenance.

UNIT IV **4 HRS**

Basic Input/output System: Concept of BIOS. Function of BIOS, software interrupts, testing and initialization, configuring the system.

UNIT V **6 HRS**

Device Drives and Peripherals: Overview of Input devices and Output devices, Software drivers for various output devices and their role.

Text Books:

1. Craig Zacker & John Rourtre, PC Hardware- The complete reference, First Edition, TMH, 2017
2. S.K. Chauhan, PC Upgrading, maintenance and troubleshooting guide, First Edition,.
3. B. Govindarajalu, IBM PC and CLONES: Hardware, Troubleshooting and Maintenance McGraw Hill Education, 2nd Edition 2002
4. Mark Minasi, The Complete PC Upgrade and Maintenance Guide, Sixteenth edition Wiley, 2005
5. Mike Meyers, Introduction to PC Hardware and Troubleshooting, 1st edition, McGraw Hill Education, 2017.

References:

1. Stephen Bigelow, Bigelow's Troubleshooting, Maintaining & Repairing PCs, 5 edition, McGraw Hill Education, 2017
2. Manahar Lotia, Pradeep Nair, Payal Lotia, Modern Computer Hardware Course, Second Revised Edition, BPB Publications, 2007
3. Vikas Gupta, Comdex Hardware and Networking Course Kit: Revised & Upgraded, Dreamtech Press, 2014
4. Dan Gookin, Troubleshooting and Maintaining Your PC All–in–One For Dummies, 3rd edition, John Wiley & Sons, 2017
5. Robert Bruce Thompson, Barbara Fritchman Thompson, Building the Perfect PC, 3 edition, O′Reilly, 2010

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SEMESTER-I

COURSE CODE	Category	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTCSMOB101N	DC	Mobile Application Development-I	---	---	---	60	40	0	0	4	2

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

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):

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, Datatypes and Control flow in Swift.
4. To provide knowledge of Swift for Moblie app development using Xcode..

Course Outcomes (COs):

After completion of this course the students are expected to be able to demonstrate following knowledge, skills and attitudes.

The 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.

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SEMESTER-I

Syllabus

Unit-I **10HRS**

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 **9HRS**

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 **8HRS**

Introduction to Swift: Introduction of Swift, features of Swift ,Data types,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 **7HRS**

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

Unit-V **8HRS**

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

References:-

1. Paris Buttfield-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.

Practical List:-

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.