| 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*				
BTMA101N	BS	**Mathematics - I**	60	20	20	0	0	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 Objective

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

Course Outcomes
After the successful completion of this course students will be able to:
1. Understand and apply the basics of differential calculus;
2. Understand, apply the techniques of matrices and analyze the system of linear equations;
3. Apply the techniques of approximation to the root finding problems;
4. Construct and solve the differential equations of first order.

Course Content:
UNIT – I: Differential Calculus: Rolle's theorem, mean value theorem, expansion of functions of one variable, Taylors series Maclaurin series.   **10HRS**

UNIT – II: Partial differentiation: Eulers theorem, total differentiations, maxima and minima of functions of two variables only**.**   **9 HRS**

UNIT – III: Matrices: Matrices, determinants, rank, normal form, Systems of linear equations and their solutions.   **8 HRS**

UNIT – IV: Numerical methods for solving nonlinear equations: **7HRS**
Method of bisection, secant method, false position, Newton‐Raphson's method, fixed point method and their convergence.
UNIT–V: Differential equations   **8 HRS**
Formation of differential equations, solution of differential equation of first order and first degree: separation of variable, homogeneous equations, reducible to homogeneous equations, linear equations, reducible to linear equations.

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			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTMA101N	**BS**	**Mathematics - I**	60	20	20	0	0	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.

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

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. G.F. Simmons, Differential Equations with Applications and Historical Notes, 2ndEd, CRC Press.
4. ☐ M.K Jain, S.R.K Iyengar and R.K Jain, Numerical methods for scientific and engineering computation (Fourth Edition), New Age International (P) Limited, New Delhi, 2004.

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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*				
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;
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Course Educational Objectives (CEOs):

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 (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. 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   **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
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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*				
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;
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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.

Text Books:

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.

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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.

Reference Books:
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.

List of Practical's:

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 | | | | | |
			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 Educational Objectives (CEOs):

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 (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. 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   **10HRS**
   Communication: Nature, Meaning, Definition,Verbal and Non Verbal Communication Barriers to Communication.

UNIT II   **9HRS**
   Basic Language Skills: Grammar and usage- Parts of Speech, Tenses, S-V Agreement, Preposition, Article.

UNIT III   **8HRS**
   Basic Language Skills: Types of Sentence, Direct - Indirect, Active - Passive voice, Phrases & Clauses.

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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	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.

UNIT IV   7HRS
Business Correspondence: Business Letter, Parts & Layouts of Business Resume and Job application, E-mail writing.

UNIT V   8HRS
Report Writing: Importance of Report, Types of Report, Structure of a Report.

List of Practical's:
1. SelfIntroduction
2. Reading Skills and ListeningSkills
3. OralPresentation
4. Linguistics andPhonetics
5. JAM (Just aMinute)
6. GroupDiscussion

Suggested Readings:
1. Ashraf Rizvi.(200**5).**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.
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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Course Educational Objectives (**CEOs**):
1. The student will have ability to
2. Understand fundamentals of Information Technology.
3. Understand the social impact of Information Technology.

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. To understand the basics of Computer Network and its working.
2. To understand the basics of DBMS and its use in real world.
3. To understand the basics and working of devices and software᾽s in the computer.
4. To understand the basic Internet Services like E-mail, Telnet, FTP, WWW, HTML, and URL.
5. To understand the basic concepts of Cloud Computing.
6. To understand social impact of IT services in Real World.

Syllabus:
Unit-I   **8HRS**
Data and Information: Introduction: Data & Information, Simple model of Computer, CPU, Register, Bus Architecture, Instruction Set, Memory & Storage Systems, I/O Devices, and System & Application Software.
Unit-II   **6HRS**
Introduction to Database Management System: Introduction, File Oriented Approach and Database Approach, Data Models, Architecture of Database System. Introduction to Operating System: Function, Types, Management of File, Process & Memory.
Unit-III   **8HRS**
Introduction to Computer Networks: Introduction and Working of Internet, Network Protocols. Types of Network: ISO-OSI Model, TCP/IP Model, Functions of Layers, Networking Devices, Web Browser.
Introduction to Cloud Computing: Types, Services, Models, Characteristics, Benefits and Challenges, Application, Limitations.

Unit-IV   **8HRS**
IT Applications in Multimedia: Introduction, Components of Multimedia and Challenges, Video Compression, Lossy and lossless compression, Video Coding Technology: JPEG, MPEG.
Unit-V   **6HRS**
IT Application in E-Commerce and E-Governance: Introduction, Different Types of ECommerce with Examples, Advantages and Disadvantages, E-Commerce in India, E-Services, Introduction to E-Governance, Challenges, Application, Advantages,

Text Books:
1. Fundamentals of Computers: E Balagurusamy, TMH
2. Information Technology Principles and Application: Ajoy Kumar Ray & Tinku Acharya PHI.

References:
1. V.Rajaraman, Introduction to Information Technology; PHI
2. Santiram Kal Basic Electronics, PHI
3. M.N. Rao Cloud Computing, PHI

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BTIT101N	BS	Introduction to Information Technology	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.

4. Computer Networks:Andrew Tananbaum, PHI
5. Data Base Management Systems, Korth, TMH
6. William Cy Lee , Mobile Cellular Telecommunications, 2ndEdition, MC Graw Hill.

List of Experiments:
1. To study about the Generation of the Computer.
2. To study about MS-DOS Internal & External Commands.
3. To study about the Installation process of Windows Operating System.
4. To study about Widows related operation: Control Panel, Device Manager.
5. Creation and editing of text files using MS-Word.
6. Creation and operating of spreadsheet using MS -Excel.
7. Creation and editing power - point slides using MS -Power Point.
8. To study about MP-Online website and create report on it.
9. To study about IRCTC website and create report on it.
10. To study about NPTEL website and create report on.

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BTCS107M	SEC	Program development using C	0	0	0	30	20	0	0	2	1

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*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. Given a computational problem, identify and abstractthe 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.

Syllabus:

UNIT I **Introduction to Programming Languages:** Evolution of Programming **7HRS** Languages, Structured Programming, The Compilation Process, Object Code, Source Code, Executable Code, Operating Systems, Interpreters, Linkers, Loaders, Fundamentals Of Algorithms, Flowcharts.

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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;
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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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COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
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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.

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.

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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;
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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.

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 Educational Objectives (CEOs):

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 (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 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   **10HRS**
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   **9HRS**
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.

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Unit-III   8HRS
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   7HRS
Memory organization: Memory Hierarchy, Cache Memory - Organization and types of cache mappings, Virtual memory, Memory Management Hardware.

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

Text Books:
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

References:
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.

Chairperson	Chairperson	Controller of Examination	Joint Registrar
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Vishwavidyalaya,Indore	Vishwavidyalaya,Indore		

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List of Experiments:

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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Vishwavidyalaya,Indore	Vishwavidyalaya,Indore		