| 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 Educational Objectives (CEOs):

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

differential equations.

Course Outcomes (COs):

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;Syllabus:

Syllabus:

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

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

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

UNIT IV   **7HRS**
Numerical methods for solving nonlinear equations:
Method of bisection, secant method, false position, Newton‐Raphson&#39;s method, fixed point method and their convergence.

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.

UNIT V   **8HRS**
Differential equations
Formation of differential equations, solution of differential equation of first order and first degree: separation of variable, homogeneous equations, reducible to homogeneous equations, linear equations, reducible to linear equations.

Text Books:

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;
*__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 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

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;
***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   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.

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

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.

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.

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   8**HRS**
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. Self Introduction
   2. Reading Skills and Listening Skills
   3. Oral Presentation
   4. Linguistics and Phonetics
   5. JAM (Just a Minute)
   6. Group Discussion

Suggested Readings:
   1. Ashraf Rizvi.(200**5**).Effective Technical Communication. NewDelhi: Tata McGrawHill
   2. Adair, John (2003). Effective Communication. London: Pan Macmillan Ltd.
   3. A.J.ThomsonandA.V.Martinet(1991).APracticalEnglishGrammar(4thed).Newyork:Ox-Ford IBH 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: Sudha Publications.

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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*				
BTCS 101M	BEC	Introduction to Computer Science and Engineering	60	20	20	0	0	3	0	0	3

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

Course Educational Objectives (CEOs):
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 (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.
4. Understand Networking, Internet, Communication and Security.

Syllabus:

Unit-I   **8HRS**
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   **6HRS**
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.

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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*				
BTCS 101M	BEC	Introduction to Computer Science and Engineering	60	20	20	0	0	3	0	0	3

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

Unit-III   **8HRS**
Introduction to Computer Network: Introduction, importance of Computer Network, LAN, MAN, WAN, Networking Devices, World Wide Web, Web Browser, viruses, worms, malware, Use of Antivirus software, Good Computer Security Habits.

Unit-IV   **8HRS**
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   **6HRS**
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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COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTCS107M	SEC	Program Development using C	0	0	0	30	20	0	0	2	1

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

Course 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.

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTCS107M	SEC	Program Development using C	0	0	0	30	20	0	0	2	1

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

UNIT II   **Introduction to 'C' Language**: Character Set. Variables and   **10HRS**
Identifiers, Built-In Data Types. Variable Definition, Arithmetic Operators and Expressions, Constants And Literals, Simple Assignment Statement, Basic Input/ Output Statement, Decision Making Within A Program, Conditions, Relational Operators, Logical Connectives, If Statement, If-Else Statement, Loops: While Loop, Do While, For Loop. Nested Loops, Switch Statement.

UNIT III   **Arrays and Pointers:** Array Manipulation; Searching, Insertion,   **8HRS**
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   **Functions:** Modular Programming and Functions, Prototype of a   **7HRS**
Function: Parameter List, Return Type, Function Call, Block Structure, Call by Reference, Call by Value, Recursive Functions and Arrays as Function Arguments

UNIT V   **Structure:** Structure Variables, Initialization, Structure Assignment,   **8HRS**
Structures and Arrays: Arrays of Structures.

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.

References:
1. Herbert Schildt "C: Complete Reference", Tata McGraw Hill 2000.
2. Yashwant Kanetkar, "Let us C", BPB Publication, 16th Edition 2018.

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTCS107M	SEC	Program Development using C	0	0	0	30	20	0	0	2	1

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

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.

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTCS107M	SEC	Program Development using C	0	0	0	30	20	0	0	2	1

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

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*				
BTAIML101M	DCC	Python for AI-ML	60	20	20	30	20	3	0	2	4

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical;   **C** - Credit;
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Course Educational Objectives (CEOs):

1. To introduce the fundamentals concepts Python Programming.
2. To understand the concepts and loops & functions in Python.
3. To impart Data Analytics Concepts using different libraries of python

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 Python programming language syntax and semantics.
2. Proficient in computer programming concepts like data types and variables.
3. Understand the use of programming concepts like conditional execution, loops & functions.
4. Understand the use of data analysis techniques using Numpy and Pandas.
5. Understand the use of data visualization techniques using Matplotlib and Seaborn.

Syllabus:

UNIT I   **10HRS**

Python: About Python Programming, Python History, Installing Python, Python Variables, Python Keywords, Python Identifiers, Python Statement, Multi-line statement , Python Indentation, Python Comments ,Multi-line comments, Python Operators, Decision making, Decision making, If Statement , If-Els, Elif statement , Nested If , Loop ,Different types of Loops , for loop, while loop, Loop Control Statements, break statement, continue statement ,pass, Nested Loops.

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			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTAIML101M	DCC	Python for AI-ML	60	20	20	30	20	3	0	2	4

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical;   **C** - Credit;
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Unit I   9 HRS

Python
Python Data Structure , List, Tuple, Dictionary, Sets. What is Function, Types of Arguments, Docstrings, Python Module, Python packages. Input / Output Operation, Python String, Creating String in Python, Strings indexing and splitting, Reassigning Strings, Deleting the String, Strings Library function, Exception Handling, Syntax Errors, Exceptions, Handling Exceptions, Handling Exceptions (Try-Except), Handling Exceptions (Try-Except-Else), Handling Exceptions (Try-Finally), Raising Exception.

UNIT III   9 HRS

Numpy
Python list vs NumPy arrays, Creating a NumPy Array, Basic ndarray, Shape of NumPy array, Size of NumPy array, Array of zeros, Array of ones, Random numbers in ndarray, The Shape and Reshaping of NumPy Array, Dimensions of NumPy array, Reshaping a NumPy array, Flattening a NumPy array, Transpose of a NumPy array, Indexing and Slicing of NumPy Array, NumPy Ufuncs, Maths with NumPy Arrays, Mean, Median and Standard deviation, Min-Max values and their indexes, Sorting in NumPy Arrays, NumPy Arrays and Images.

UNIT IV   8 HRS

Pandas
Pandas Series, Pandas DataFrames, Common Operations in Pandas, How To Deal With Missing Data in Pandas, How To Merge DataFrames in Pandas, How To Join DataFrames in Pandas, How To Concatenate DataFrames in Pandas. Data Input and Output in Pandas, How To Save Pandas DataFrames. Data visualization.

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UNIT V   **9 HRS**

Matplotlib and Seaborn

Installing Matplotlib , Line Chart, Scatter Plot ,Bar Graph, Histogram, Subplots , Pie Chart , Matplotlib with Pandas and Numpy. specify color, markings and line styles, adjust thickness, label

and legend, save the graph, legend (), title(). Installing Seaborn, Load Datasets To Construct Seaborn Plots, Histogram, Bar Plot, Count Plot, Joint Plot, Regplot, Lm Plot, KDE Plot, Box Plot, Violin Plot, Heatmap, Pair Plot.

Text Books:

 1. Fundamentals of Python First Programs, Kenneth. A. Lambert, Cengage learning, second edition, 2018.

 2. Python Programming: A Modern Approach, Vamsi Kurama, Pearson publisher, 2018.

References:

1. Introduction to Python Programming, Gowrishankar.S, Veena A, CRC Press, Nov 2018.
2. Introduction to Programming Using Python, Y. Daniel Liang, Pearson, 2012.
3. "Think Python: An Introduction to Software Design", Allen B. Downey, Green Tea Press, 2009.
4. "Head First Python", Paul Barry, O'REILLY.
5. Python Documentation - https://docs.python.org/3.8/.
6. NumPy Documentation - https://numpy.org/doc/.
7. Pandas Documentation - https://pandas.pydata.org/docs/.
8. Matplotlib Documentation - https://matplotlib.org/3.4.3/contents.html.
9. Seaborn Documentation - https://seaborn.pydata.org/.

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LIST of EXPERIMENTS:

1. WAP to take first name and Last name using input function from user and display full name.
2. WAP to take 2 numbers from user and display addition.
3. WAP to calculate the area of Rectangle.
4. WAP to calculate the area of Square.
5. WAP to calculate the area of cuboid.
6. WAP to calculate the addition of digits for the given number x =531 without using any loop, you have to use only Arithmetic operator.
7. WAP to check that given number is even.
8. WAP to check that given number is even or odd.
9. WAP to check the person completed the age of 18, if not so how many years remaining to complete 18.
10. WAP to check the given number is negative, positive or zero.
11. WAP to check the number is divided from 3 and 5 both".
12. WAP to print for loop with list (String).
13. WAP to print for loop with list (Numeric).
14. WAP to print for loop with string.
15. WAP to print 1 to 10 number using range ().
16. WAP to print the table of 5.
17. WAP to print the table of 5 in format 5 x 1 = 5 , 5 x 2 = 10.
18. WAP to print even number between 323 to 360.
19. WAP to print and count even number between 323 to 360.
20. WAP to print count and sum even number between 1 to 10.

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BTCS101M(P)	SEC	Introduction to Computer Science and Engineering Lab	0	0	0	0	50	0	0	2	1

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Course Educational Objectives (CEOs):

1. Students will use a variety of design software to organize, create, publish, and manage a website.
2. This course also puts emphasis on basic concepts of web design
3. Provide you the conceptual and technological developments in the field of Internet and web designing.
4. Course content includes creating a variety of graphic elements including video, animations, rollover effects, backgrounds, and page images

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. Create an HTML Documents, and establish adequate formatting for presentation purposes.
2. Import, insert and modify images.
3. Insert and manipulate tables.
4. Establish and maintain internal and external link to available resources.
5. Use special effect to make the expressive, evocative documents.
6. Insert and manipulate multi-media objects

Syllabus

Unit I   **8 HRS**
Introduction to HTML: What is 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, Links to

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send email messages, Text and Background fonts and styles, Marquee Behavior, Forms related tags. (Action, method, name, input etc.)

Unit II **9 HRS**
HTML5: Introduction of HTML5, Migration from HTML4 to HTML5, New Elements in HTML5, HTML5 different parts layout of a web page, HTML5 Graphics: Canvas, SVG, HTML Media Tags: Inserting audio/video files, Screen / Media control attributes, HTML Object.

Unit-III **8 HRS**
CSS: Introduction of CSS, CSS Syntax CSS Id & Class. CSS Styling: styling Backgrounds, styling Text, styling Fonts, styling Links, styling Lists, styling Tables. CSS Box Model: Border, Outline, Margin, Padding.

Unit-IV **7 HRS**
CSS Advanced: Grouping/Nesting, Dimension, Display, Positioning, Floating, Align, Pseudo-class, Pseudo-element, Navigation Bar, Image Gallery, Image capacity, Image Sprites, Media Types, and Attribute Selectors.

Unit-V **8 HRS**
XML: Introduction of XML, Cross scripting of XML, XML as intermediate language, Difference between XML and HTML, XML DOM, Tree, Syntax, Elements, Attributes, Namespaces, XPath, XML DTD, Applications, XQuery, XML Schema, XML Parser, XHTML: Introduction of XHTML, XHTML rules over the HTML, conversation HTML to XHTML.

Text Books:
1. Jennifer Niederst Robbins. Learning Web Design, Fifth Edition, O'Reilly Media, Inc, May 2018.
2. Frain and Ben. Responsive Web Design with HTML5 and CSS3, Second Edition, 2015.

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3. Nicholas c.Zakas. Java Script for Web Developers, Third edition, 2012.
4. George Q. Huang, K. L Mak. Internet Applications in Product Design and Manufacturing,
   ISBN: 3540434658, 2003 edition, springer, 2012.

References:-
1. Steven M. Schafer, "HTML, XHTML, and CSS Bible", Fifth Edition, WileyIndia, 2010.
2. John Duckett,"Beginning HTML, XHTML, CSS, and JavaScript ",WileyIndia, 2010.
3. Ian Pouncey, Richard York, "Beginning CSS: Cascading Style Sheets for Web Design",3rd edition, Wiley India, 2011.
4. Achyut S. Godbole, Atul Kahate, Web Technologies, ISBN: 9781259062681,3rd edition, TMH, 2013.

List of Practicals:
1. Design a Web Page, Insert an image on to the web page such that image is of height 300 and width 300 pixels. The image should have an ALT text in it.
2. Create a Web page that holds a bulleted list of the names of your friends. Make sure that the bullets are in plain circle.
3. Create a Frame which would hold both the web page that was created earlier. The frame should be split row-wise into equal halves.
4. Create a Web Page to display the marks you got in all subjects of last semester using table.
5. Create a Form having two boxes with labels as First Name and Last Name. The User should not be allowed to enter the names directly in the text boxes. The input has to be given in the prompt box and then entered values should be given in the textboxes.
6. Create a Web Page that has a button in the center of the page. Using mouse events change the Message in the statusbar.
7. Design a Web page that accepts Username and Password. Opens a new window when the password corresponds to a particular value is set by the develop

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8. Design a Web page that consists of 2 text boxes. When the page is first loaded set the focus to the first textbox. The user should not be allowed to leave the box unless enters a value in it.
9. To convert the HTML code to XHTML code.
10. To study the XML tree.
11. To study of Dreamweaver Tool.
12. To study of a Flash Animation Tool.

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