Shri Vaishnav Vidyapeeth Vishwavidyalaya
Shri Vaishnav Institute Of Information Technology
B.Tech (CSE with specialization in Enterprise System in association with RedHat)
Choice Based Credit System (CBCS)-2025-29
SEMESTER-I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTCSH102	BS	Statistics, Probability and Calculas	60	20	20	0	0	3	0	0	1

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

Student will have ability:

1. To introduce fundamental concepts of statistics and probability.

COURSE OUTCOMES

Upon completion of the subject, Students will be able:

1. To learn and understand the basic concepts of probability theory.

2. To learn types of data and graphical representation.

3. To learn descriptive statistics, probability distribution and sampling techniques.

SYLLABUS

UNIT I

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

UNIT II

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

UNIT III

Probability: Concept of Experiments, Sample Space, Event. Definition of Combinatorial Probability. Conditional Probability, Bayes Theorem. Probability Distributions: Discrete &

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			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTCSH102	BS	Statistics, Probability and Calculas	60	20	20	0	0	3	0	0	1

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
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Continuous Distributions, Binomial, Poisson and Geometric Distributions, Uniform, Exponential, Normal, Chi-Square, T, F Distributions.

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

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

TEXT BOOKS:

1. Introduction of Probability Models, S.M. Ross, Academic Press, N.Y.
2. Fundamentals of Statistics, vol. I & II, A. Goon, M. Gupta and B. Dasgupta, World Press.
3. Higher Engineering Mathematics, B. S. Grewal, Khanna Publication, Delhi.

REFERENCES:

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

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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.

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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			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.

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.

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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.

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.

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

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SEMESTER-II

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.

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SEMESTER-II

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 III 8**HRS**

Basic Language Skills: Types of Sentence, Direct - Indirect, Active - Passive voice, Phrases& Clauses.

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.(2005**).**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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SEMESTER-I

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
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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			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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			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

UnitI **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.

UnitII **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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			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;
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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.

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BTCS103M	DCC	Computer System Organization	60	20	20	30	20	3	0	2	4

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

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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			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.

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			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.

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**

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Choice Based Credit System (CBCS)-2023-27
SEMESTER-I

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

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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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RH124N	BEC	Red Hat Administration I	0	0	0	0	100	0	0	2	1

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Course Educational Objectives (CEOs):

1. The objective of this course focuses on providing students with Linux administration "survival skills" by focusing on core administration tasks.

Course Outcomes (COs):

As a result of attending this course:

1. Students should be able to perform essential Linux administration tasks.

2. Understand installation, establishing network connectivity, managing physical storage, and basic security administration

Syllabus

• Access the command line

Log in to a Linux system and run simple commands using the shell.

• Manage files from the command line

o Copy, move, create, delete, and organize files from the bash shell prompt.

• Get help in Red Hat Enterprise Linux

o Resolve problems by using online help systems and Red Hat support utilities.

• Create, view, and edit text files

o Create, view, and edit text files from command output or in an editor.

• Manage local Linux users and groups

o Manage local Linux users and groups, and administer local password policies.

• Control access to files with Linux file system permissions

o Set Linux file system permissions on files and interpret the security effects of different permission settings.

• Monitor and manage Linux processes

o Obtain information about the system, and control processes running on it.

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- Control services and daemons
  - o Control and monitor network services and system daemons using system
- Configure and secure OpenSSH service
  - o Access and provide access to the command line on remote systems securely using OpenSSH
- Analyze and store logs
  - o and accurately interpret relevant system log files for troubleshooting purposes.
- Manage Red Hat Enterprise Linux networking
  - o Configure basic IPv4 networking on Red Hat Enterprise Linux systems.
- Archive and copy files between systems
  - o Archive files and copy them from one system to another.
- Install and update software packages
  - o Download, install, update, and manage software packages from Red Hat and yum package repositories.
- Access Linux file systems
  - o Access and inspect existing file systems on a Red Hat Enterprise Linux system.
- Use virtualized systems
  - o Create and use Red Hat Enterprise Linux virtual machines with KVM and libvirt.
- Comprehensive review
  - o Practice and demonstrate the knowledge and skills learned in this course.

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Text Books:

1. SA1 REDHAT SYSTEMADMINISTRATION I (Release en-1-20140606) By Wander Boessenkol, Bruce Wolfe,Scott McBrien, George Hacker, Chen Chang.

List of Experiments:

1. Access the command line
2. Manage files from command line
3. Create, view, and edit text files
4. Manage local Linux users and groups
5. Monitor and manage Linux processes
6. Control services and daemons
7. Control access to files with Linux file-system permissions
8. Analyze and store log files
9. Configure and secure the OpenSSH service
10. Install and update software packages
11. Access Linux file systems
12. Manage Linux networking

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