School of Engineering & Technology

Bachelor of Technology (B-TECH)(CSE)

S.No.	Code and Subject Name	Course Outcomes
1.	BTPH104-18 Semiconductor Physics	CO 1 Understand and explain the fundamental principles and properties of electronic materials and semiconductors
		CO 2 Understand and describe the interaction of light with semiconductors in terms of fermi golden rule.
		CO 3 Understand the design, fabrication, and characterization techniques of Engineered semiconductor materials.
		CO 4 Develop the basic tools with which they can study and test the newly developed devices and other semiconductor applications.
2.	BTPH114-18 Semiconductor Physics Lab	CO 1 Able to verify some of the theoretical concepts learnt in the theory courses.
		CO 2 Trained in carrying out precise measurements and handling sensitive equipment.
		CO 3 Introduced to the methods used for estimating and dealing with experimental uncertainties and systematic "errors."
		CO 4 Learn to draw conclusions from data and develop skills in experimental design.
		CO 5 Write a technical report which communicates scientific information in a clear and concise manner.
3.	BTAM104-18 Mathematics Paper-I	CO 1 The objective of this course is to familiarize the prospective engineers with techniques in basic calculus and linear algebra.
		CO 2 It aims to equip the students with standard concepts and tools at an intermediate to advanced level that will serve them well towards tackling more advanced level of mathematics and applications that they would find useful in their disciplines.
4.	BTME101-18 Engineering Graphics & Design	CO 1 Therefore, there are many areas in Engineering in which the skills of the CAD technicians play major roles in the design and development of new products or construction. Students prepare for actual work situations through practical training in a new state-of-the-art computer designed CAD laboratory using engineering software.
		CO 2 To prepare you to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
		CO 3 To prepare you to communicate effectively
		CO 4 to prepare you to use the techniques, skills, and modern engineering tools necessary for engineering practice
5.	Mentoring and Professional	CO 1 Overall Personality
		CO 2 Aptitude (Technical and General)

	Development	CO 3 General Awareness (Current Affairs and GK)
		CO 4 Communication Skills
		CO 5 Presentation Skills
6.	BTCH101-18 Basic Science Course	CO 1 The concepts developed in this course will aid in quantification of several concepts in chemistry that have been introduced at the 10+2 levels in schools. Technology is being increasingly based on the electronic, atomic and molecular level modifications.
		CO 2 Quantum theory is more than 100 years old and to understand phenomena at nanometer levels, one has to base the description of all chemical processes at molecular levels. The course will enable the student to:
		CO 3 Analyse microscopic chemistry in terms of atomic and molecular orbitals and intermolecular forces.
		CO 4 Rationalise bulk properties and processes using thermodynamic considerations.
		CO 5 Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular energy levels in various spectroscopic techniques.
		CO 6 Rationalise periodic properties such as ionization potential, electronegativity, oxidation states and electronegativity.
		CO 7 List major chemical reactions that are used in the synthesis of molecules
		CO 8 Estimate rate constants of reactions from concentration of reactants/products as a function of time
		CO 9 Measure molecular/system properties such as surface tension, viscosity, conductance of solutions, redox potentials, chloride content of water, etc
		CO 10 Synthesize a small drug molecule and analyse a salt sample
7.	BTPS101-18 Programming for Problem Solving	CO 1 To formulate simple algorithms for arithmetic and logical problems.
		CO 2 To translate the algorithms to programs (in C language).
		CO 3 To test and execute the programs and correct syntax and logical errors.
		CO 4 To implement conditional branching, iteration and recursion.
		CO 5 To decompose a problem into functions and synthesize a complete program using divide and conquer approach.
		CO 6 To use arrays, pointers and structures to formulate algorithms and programs.
		CO 7 To apply programming to solve matrix addition and multiplication problems and searching and sorting problems.
		CO 8 To apply programming to solve simple numerical method problems, namely rot finding of function, differentiation of function and simple integration.
8.	BTMP101-18 Workshop/Manufacturing Practices	CO 1 Upon completion of this course, the students will gain knowledge of the different manufacturing processes which are commonly employed in the industry
		CO 2 To fabricate components using different materials.
		CO 3 Upon completion of this laboratory course, students will be able to fabricate components with their

		own hands.
		CO 4 They will also get practical knowledge of the dimensional accuracies and dimensional tolerances possible with different manufacturing processes.
		CO 5 By assembling different components, they will be able to produce small devices of their interest
9.	BTEE-101-18 Basic Electrical Engineering	CO 1 To have the knowledge of DC circuits,
		CO 2 To have the knowledge AC Circuits, basic magnetic circuits,
		CO 3 To have the knowledge working principles of electrical machines
		CO 4 To have the knowledge Components of low voltage electrical installations.
10.	BTHU-101-18 English	CO 1 The objective of the course is to help the students become the independent users of English language.
		CO 2 Students will acquire basic proficiency in reading & listening, comprehension, writing and speaking skills.
		CO 3 Students will be able to understand spoken and written English language, particularly the language of their chosen technical field.
		CO 4 They will be able to converse fluently.
		CO 5 They will be able to produce on their own clear and coherent texts.
11.	BTHU-102-18 English Laboratory	CO 1 Students will acquire basic proficiency in listening and speaking skills.
		CO 2 Students will be able to understand spoken English language, particularly the language of their chosen technical field.
		CO 3 They will be able to converse fluently
		CO 4 They will be able to produce on their own clear and coherent texts.
12.	BTCS301-18 Data Structure & Algorithms	CO 1 For a given algorithm student will able to analyze the algorithms to determine the time and computation complexity and justify the correctness;
		CO 2 Student will be able to handle operation like searching, insertion, deletion, traversing on various Data Structures and determine time and computational complexity;
		CO 3 Student will able to write an algorithm Selection Sort, Bubble Sort, Insertion Sort, Quick Sort, Merge Sort, Heap Sort and compare their performance in term of Space and Time complexity;
		CO 4 Students will be able to choose appropriate Data Structure as applied to specific problem definition
		CO 5 Demonstrate the reusability of Data Structures for implementing complex iterative problems.
13.	BTCS302-18 Object Oriented Programming	CO 1 Identify classes, objects, members of a class and the relationships among them needed to solve a specific problem;
		CO 2 Demonstrate the concept of constructors and destructors. And create new definitions for some of the operators;
		CO 3 Create function templates, overload function templates;

		CO 4 Understand and demonstrate the concept of data encapsulation, inheritance, polymorphism with virtual functions; &
		CO 5 Demonstrate the concept of file operations, streams in C++ and various I/O manipulators.
14.	BTCS304-18 Object Oriented Programming Lab	CO 1 Develop classes incorporating object-oriented techniques;
		CO 2 Design and implement object-oriented concepts of inheritance and polymorphism;
		CO 3 Illustrate and implement STL class of containers and need for exceptions to handle errors for object oriented programs; &
		CO 4 Design and implement any real world based problem involving GUI interface using object-oriented concepts.
15.	BTAM304-18 Mathematics Paper-III)	CO 1 Understand the functions of several variables that are essential in most branches of engineering;
		CO 2 Apply multiple integrals to deal with areas and volumes of various structures which are quite significant in real world;
		CO 3 Formulate and solveengineering problems related to convergence, infinite series, power series and Taylor series;
		CO 4 Create, select and utilize the learnt techniques of first degree ordinary differential equationsto model real world problems &;
		CO 5 Be acquainted with the knowledge required to solve higher order ordinary differential equations.
		CO 6 Understand the functions of several variables that are essential in mostbranches of engineering;
16.	BTES301-18 Digital Electronics	CO 1 Demonstrate the operation of simple digital gates, identify the symbols, develop the truth table for those gates; combine simple gates into more complex circuits; change binary, hexadecimal, octal numbers to their decimal equivalent an vice versa.
		CO 2 Demonstrate the operation of a flip-flop. Design counters and clear the concept of shift registers.
		CO 3 Study different types of memories and their applications.Convert digital signal into analog and vice versa.
17.	BTES302-18 Digital Electronics Lab	CO 1 Realize combinational circuits using logic gates.
		CO 2 Realize sequential circuits using logic gates.
		CO 3 Realize various types of Flip-flops and counters
18.	BTES401-18 Computer Organization & Architecture	CO 1 Understand functional block diagram of microprocessor;
		CO 2 Apply instruction set for Writing assembly language programs;
		CO 3 Design a memory module and analyze its operation by interfacing with the CPU;
		CO 4 Classify hardwired and microprogrammed control units; &
		CO 5 Understand the concept of pipelining and its performance metrics.
19.	BTCS303-18	CO 1 Improve practical skills in designing and implementing basic linear data structure algorithms;

	Data Structure & Algorithms Lab	CO 2 Improve practical skills in designing and implementing Non-linear data structure algorithms;
		CO 3 Use Linear and Non-Linear data structures to solve relevant problems;
		CO 4 Choose appropriate Data Structure as applied to specific problem definition; &
		CO 5 Implement Various searching algorithms and become familiar with their design methods.
20.	BTCS402-18 Operating Systems	CO 1 Explain basic operating system concepts such as overall architecture, system calls, user mode and kernel mode;
		CO 2 Distinguish concepts related to processes, threads, process scheduling, race conditions and critical sections;
		CO 3 Analyze and apply CPU scheduling algorithms, deadlock detection and prevention algorithms;
		CO 4 Examine and categorize various memory management techniques like caching, paging, segmentation, virtual memory, and thrashing;
		CO 5 Design and implement file management system; &
		CO 6 Appraise high-level operating systems concepts such as file systems, disk-scheduling algorithms and various file systems
21.	BTCS403-18 Design and Analysis of Algorithms	CO 7 For a given algorithms analyze worst-case running times of algorithms based on asymptotic analysis and justify the correctness of algorithms;
		CO 8 Explain when an algorithmic design situation calls for which design paradigm (greedy/ divide and conquer/backtrack etc.);
		CO 9 Explain model for a given engineering problem, using tree or graph, and writethe corresponding algorithm to solve the problems;
		CO 10 Demonstrate the ways to analyze approximation/randomized algorithms (expected running time, probability of error); &
		CO 11 Examine the necessity for NP class based problems and explain the use of heuristic techniques.
		CO 12 For a given algorithms analyze worst-case running times of algorithms based on asymptotic analysis and justify the correctness of algorithms;
22.	BTES401-18 Computer Organization & Architecture Lab	CO 13 Assemble personal computer;
		CO 14 Implement the various assembly language programs for basic arithmetic and logical operations; &
		CO 15 Demonstrate-the-functioning-of microprocessor/microcontroller based systems with I/O interface.
23.	BTCS 404-18 Operating Systems Lab	CO 1 Understand and implement basic services and functionalities of the operating system;
		CO 2 Analyze and simulate CPU Scheduling Algorithms like FCFS, Round Robin, SJF, and Priority;
		CO 3 Implement commands for files and directories;
		CO 4 Understand and implement the concepts of shell programming;
		CO 5 Simulate file allocation and organization techniques; &
		CO 6 Understand the concepts of deadlock in operating systems and implement them in multiprogramming system.

24.	BTCS405-18 Design and Analysis of Algorithms Lab	CO 7 Improve practical skills in designing and implementing complex problems with different techniques;
		CO 8 Understand comparative performance of strategies and hence choose appropriate, to apply to specific problem definition;
		CO 9 Implement Various tree and graph based algorithms and become familiar with their design methods; &
		CO 10 Design and Implement heuristics for real world problems.
25.	HSMC122-18 UNIVERSAL HUMAN VALUES	CO 1 By the end of the course, students are expected to become more aware of themselves, and their surroundings (family, society, nature); they would become more responsible in life, and in handling problems with sustainable solutions, while keeping human relationships and human nature in mind.
		CO 2 They would have better critical ability. They would also become sensitive to their commitment towards what they have understood (human values, human relationship and human society).
		CO 3 It is hoped that they would be able to apply what they have learnt to their own self in different day-to-day settings in real life, at least a beginning would be made in this direction.
26.	BTCS401-18 Discrete Mathamatics	To be able to express logical sentence in terms of predicates, quantifiers, and logical connectives
		To derive the solution for a given problem using deductive logic and prove the solution based on logical inference
		For a given a mathematical problem, classify its algebraic structure
		To evaluate Boolean functions and simplify expressions using the properties of Boolean algebra
		To develop the given problem as graph networks and solve with techniques of graph theory.
27.	HSMC102-18/ PHILOSOPHY	Students will develop strong natural familiarity with humanities-along with right-understanding enabling them to eliminate conflict and strife in the individual and society. Students shall l
		Students shall be able to relate philosophy to literature, culture, society and lived experience can be considered.
		understanding enabling them to eliminate conflict and strife in the individual and society.