DAV Institute of Engineering and Technology

Department of Information Technology

COURSE OUTCOMES



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B.Tech-IT 1st and 2nd Semester	
	After completion of the course, the students will be able to: 1. Understand and explain the fundamental principles and properties of
Physics (BTPHXX-18)	 Understand and describe the interaction of light with semiconductors in terms of fermi golden rule. Understand and describe the impact of solid-state device capabilities and limitations on electronic circuit performance. Understand the design, fabrication, and characterization techniques of Engineered semiconductor materials. Develop the basic tools with which they can study and test the newly developed devices and other semiconductor applications.
	After the completion of the course the student will be able to:
Physics Lab (BTPHXX-18)	 Able to verify some of the theoretical concepts learnt in the theory courses. Trained in carrying out precise measurements and handling sensitive equipment. Introduced to the methods used for estimating and dealing with experimental uncertainties and systematic "errors." Learn to draw conclusions from data and develop skills in experimental design. Write a technical report which communicates scientific information in a clear and concise manner.

Maths-I (BTAMXX-18)	After the completion of the course the student will be able to: 1. The fallouts of Rolle's Theorem that is fundamental to application of analysis to Engineering problems. 2. To apply differential and integral calculus to evaluate definite, improper integrals and its applications. 3. The convergence of sequence and series and to apply different tests of convergence. 4. To deal with functions of several variables that are essential in most branches of engineering. 5. The essential tool of matrices and linear algebra in a comprehensive manner.
Basic Electrical Engineering (BTEE101-18)	 After the completion of the course the student will be able to: Have the knowledge of DC circuits, AC Circuits, basic magnetic circuits, working principles of electrical machines, and components of low voltage electrical installations. Be able to analyze of DC circuits, AC Circuits. Understand the basic magnetic circuits and apply it to the working of electrical machines. Be introduced to types of wiring, batteries, and LT switchgear.

Basic Electrical Engineering (Lab) (BTEE102-18)	 After Successful completion of the course the students are expected to: The ability to use common electrical measuring instruments and understand the fundamentals of electrical engineering. The ability to make electrical connections, and measure power, power factor using appropriate equipments. Have the knowledge of electrical machines, components and their ratings. Understand the operation of transformers and electrical machines.
Engineering Graphics & Design (BTME101-21)	 After Successful completion of the course the students will be able to: Prepare and understand drawings. Use the principles of orthographic projections. By studying about projections of solids, students will be able to visualize three dimensional objects and that will enable them to design new products. Design and fabricate surfaces of different shapes. Represent the objects in three dimensional appearances.

	The objective of mentoring will be development of:
Mentoring and Professional Development (BMPD101-18)	 Overall Personality Aptitude (Technical and General) General Awareness (Current Affairs and GK) Communication Skills Presentation Skills

Chemistry-I (BTCH101-18)	 The course will enable the student to: Analyse microscopic chemistry in terms of atomic and molecular orbitals and intermolecular forces. Rationalise bulk properties and processes using thermodynamic considerations. Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular energy levels in various spectroscopic techniques. Rationalise periodic properties such as ionization potential, electronegativity, oxidation states and electronegativity. List major chemical reactions that are used in the synthesis of molecules.
Chemistry-I (Lab) (BTCH102-18)	 After the completion of the course the student will be able to: Estimate rate constants of reactions from concentration of reactants/products as a function of time. Measure molecular/system properties such as surface tension, viscosity, conductance of solutions, redox potentials, chloride content of water, etc Synthesize a small drug molecule and analyse a salt sample.

	After the completion of the course the student will be able to:
	1. To formulate simple algorithms for arithmetic and logical problems.
Programming for Problem Solving	2. To translate the algorithms to programs (in C language).
	3. To test and execute the programs and correct syntax and logical errors.
	4. To implement conditional branching, iteration and recursion.
(BTPS101-18)	5. To decompose a problem into functions and synthesize a complete
	program using divide and conquer approach.
	6. To use arrays, pointers and structures to formulate algorithms and programs.
	7. To apply programming to solve matrix addition and multiplication
	problems and searching and sorting problems.
	8. To apply programming to solve simple numerical method problems,
	namely rot finding of function, differentiation of function and simple integration.
	1. To formulate the algorithms for simple problems.
	2. To translate given algorithms to a working and correct program.
Programming for Problem Solving (Lab) (BTPS102-18)	3. To be able to correct syntax errors as reported by the compilers.
	4. To be able to identify and correct logical errors encountered at run
	time.
	5. To be able to write iterative as well as recursive programs.
	6. To be able to represent data in arrays, strings and structures and
	manipulate them through a program.
	7. To be able to declare pointers of different types and use them in
	defining self referential structures.
	8. To be able to create, read and write to and from simple text files.
	Course Outcomes: Upon completion of this course, the students will gain
Workshop / Manufacturing	knowledge of the different manufacturing processes which are commonly
Practices (BTMP101-18)	employed in the industry, to fabricate components using different
(D11411 101-10)	materials.

Workshop / Manufacturing Practices (BTMP101-18) 1. Upon completion of this laboratory course, students will be able to fabricate components with their own hands. 2. They will also get practical knowledge of the dimensional accuracies and dimensional tolerances possible with different manufacturing processes. 3. By assembling different components, they will be able to produce small devices of their interest After the completion of the course, students will be able to: 1. The objective of the course is to help the students become the independent users of English language. 2. Students will acquire basic proficiency in reading & listening comprehension, writing and speaking skills. 3. Students will be able to understand spoken and written English language, particularly the language of their chosen technical field. 4. They will be able to produce on their own clear and coherent text.
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 English (BTHU101-18) Students will acquire basic proficiency in reading & listening comprehension, writing and speaking skills. Students will be able to understand spoken and written English language, particularly the language of their chosen technical field. They will be able to converse fluently.
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independent users of English language.
English (Lab) (BTHU102-18) 2. Students will acquire basic proficiency in listening and speaking skills.
3. Students will be able to understand spoken English language
particularly the language of their chosen technical field.
4. They will be able to converse fluently.
5. They will be able to produce on their own clear and coherent texts.
Course Outcomes:
1. The mathematical tools needed in evaluating multiple integrals and their
Maths-II usage.
(BTAMXX-18) 2. The effective mathematical tools for the solutions of differential
equations that model physical processes.
3. The tools of differentiation and integration of functions that are used in
various techniques dealing engineering problems.

	B.Tech - IT 3 rd Semester
	After the completion of the course the student will be able to:
	1: Understand functional block diagram of microprocessor;
Computer Architecture	2: Apply instruction set for Writing assembly language programs;
(BTES302-18)	3: Design a memory module and analyze its operation by interfacing
	with the CPU;
	4: Classify hardwired and microprogrammed control units; &
	5: Understand the concept of pipelining and its performance metrics.

Mathematics Paper-III (Calculus and Ordinary Differential Equations) (BTAM304-18)	 After completion of the course, students will be able to: Understand the functions of several variables that are essential in most branches of engineering; Apply multiple integrals to deal with areas and volumes of various structures which are quite significant in real world; Formulate and solve engineering problems related to convergence, infinite series, power series and Taylor series; Create, select and utilize the learnt techniques of first degree ordinary differential equations to model real world problems &; Develop knowledge to solve higher order ordinary differential equations.
Digital Electronics (BTES301-18)	 After completion of the course, students will be able to: 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 and vice versa. Demonstrate the operation of a flip-flop. Design counters and clear the concept of shift registers. Study different types of memories and their applications. Convert digital signal into analog and vice versa.

	After completion of the course, the students will be able to:
	1. For a given algorithm student will able to analyze the algorithms to determine the time and computation complexity and justify the
Data Structures &	correctness;
Algorithms	2. Student will be able to handle operation like searching, insertion,
(BTIT-301-18)	deletion, traversing on various Data Structures and determine time and computational complexity;
	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;
	4. Students will be able to choose appropriate Data Structure as applied
	to specific problem definition; &
	5. Demonstrate the reusability of Data Structures for implementing
	complex iterative problems.

Object Oriented Programming (BTIT302-18)	After completion of the course, the students will be able to: 1. Identify classes, objects, members of a class and the relationships among them needed to solve a specific problem; 2. Demonstrate the concept of constructors and destructors. And create new definitions for some of the operators; 3. Create function templates, overload function templates; 4. Understand and demonstrate the concept of data encapsulation, inheritance, polymorphism with virtual functions; & 5. Demonstrate the concept of file operations, streams in C++ and various I/O manipulators.
Data Structures & Algorithms Lab (BTIT303-18)	 The student will be able to: Improve practical skills in designing and implementing basic linear data structure algorithms; Improve practical skills in designing and implementing Non-linear data structure algorithms; Use Linear and Non-Linear data structures to solve relevant problems; Choose appropriate Data Structure as applied to specific problem definition; & Implement various searching algorithms and become familiar with their design methods.

Digital Electronics Lab (BTES303-18)	 Realize combinational circuits using logic gates. Realize sequential circuits using logic gates. Realize various types of Flip-flops and counters.
Object Oriented Programming Lab (BTIT304-18)	The student will be able to: 1. Develop classes incorporating object-oriented techniques; 2. Design and implement object-oriented concepts of inheritance and polymorphism; 3. Illustrate and implement STL class of containers and need for exceptions to handle errors for object oriented programs; & 4. Design and implement any real world based problem involving GUI interface using object-oriented concepts.
Operating Systems	B.Tech - IT 4 th Semester After completion of the course, the students will be able to: 1. Explain basic operating system concepts such as overall architecture,
(BTIT402-18)	 system calls, user mode and kernel mode; Distinguish concepts related to processes, threads, process scheduling, race conditions and critical sections; Analyze and apply CPU scheduling algorithms, deadlock detection and prevention algorithms; Examine and categorize various memory management techniques like caching, paging, segmentation, virtual memory, and thrashing; Design and implement file management system; & Appraise high-level operating systems concepts such as file systems, disk-scheduling algorithms and various file systems.

Design & Analysis of Algorithms (BTIT403-18)	 After completion of the course, the students will be able to: For a given algorithms analyze worst-case running times of algorithms based on asymptotic analysis and justify the correctness of algorithms; Explain when an algorithmic design situation calls for which design paradigm (greedy/ divide and conquer/backtrack etc.); Explain model for a given engineering problem, using tree or graph, and write the corresponding algorithm to solve the problems; Demonstrate the ways to analyze approximation/randomized algorithms (expected running time, probability of error); & Examine the necessity for NP class based problems and explain the use of heuristic techniques.
Discrete Mathematics (BTES401-18)	 After completion of the course, the students will be able to: 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.
Computer Networks (BTIT401-18)	 After the completion of the course, the student will be able to: Explain the functions of the different layer of the OSI Protocol; Describe the function of each block of wide-area networks (WANs), local area networks (LANs) and Wireless LANs (WLANs); Develop the network programming for a given problem related TCP/IP protocol; & Configure DNS DDNS, TELNET, EMAIL, File Transfer Protocol (FTP), WWW, HTTP, SNMP, Bluetooth, Firewalls using open source available software and tools.

Design and Analysis of Algorithms Lab (BTIT406-18)	 Improve practical skills in designing and implementing complex problems with different techniques; Understand comparative performance of strategies and hence choose appropriate, to apply to specific problem definition; Implement Various tree and graph based algorithms and become familiar with their design methods; & Design and Implement heuristics for real world problems.
Operating Systems Lab(BTIT405-18)	 Understand and implement basic services and functionalities of the operating system; Analyze and simulate CPU Scheduling Algorithms like FCFS, Round Robin, SJF, and Priority; Implement commands for files and directories; Understand and implement the concepts of shell programming; Simulate file allocation and organization techniques; & Understand the concepts of deadlock in operating systems and implement them in multiprogramming system.
Computer Networks Lab (BTIT404-18)	 Know about the various networking devices, tools and also understand the implementation of network topologies; Create various networking cables and know how to test these cables; Create and configure networks in packet tracer tool using various network devices and topologies; Understand IP addressing and configure networks using the sub netting; Configure routers using various router configuration commands;& Troubleshoot the networks by using various networking commands.

Development of Societies	Students will develop strong natural familiarity with humanities along
(HSMC101-18)	with right understanding enabling them to eliminate conflict and strife in the individual and society.

	B.Tech. – IT 5 th Semester
	The student will be able to:
Formal Language &	Understand a formal notation for strings, languages and machines.
Automata Theory	2. Design finite automata to accept a set of strings of a language.
(BTIT501-18)	3. Design context free grammars to generate strings of context free language.
	Write the hierarchy of formal languages, grammars and machines.
	 Distinguish between computability and non-computability and Decidability and undecidability.

	The student will be able to:
Database Management Systems (BTIT502-18)	 Write relational algebra expressions for that query and optimize the Developed expressions. Design the databases using ER method and normalization. Construct the SQL queries for Open source and Commercial DBMS-MYSQL, ORACLE, and DB. Determine the transaction atomicity, consistency, isolation, and durability. Implement the isolation property, including locking, time stamping based on concurrency control and Serializability of scheduling.

	After the completion of the course the student:
Cyber laws and IPR (BTIT509-18)	 Explain the various digital crimes and comprehend the basic features of these crimes. Analyze how laws are enforced in the digital and cyber environment and the challenges that are forced in their enforcement. Understand to identify what is a Protectable Subject matter under Copyright Laws and what is the manner of obtaining Copyright protection. Gain expert knowledge in application of various provisions of Copyright law to determine the rights to which the IP holder will be entitled.

Programming in Java (BTIT503-18)	 The students will be able to: Understand the features of Java such as operators, classes, objects, inheritance, packages and exception handling. Learn latest features of Java like garbage collection, Console class, Network interface, APIs. Acquire competence in Java through the use of multithreading, applets. Get exposure to advance concepts like socket and database connectivity.
Database Management System Lab (BTIT505-18)	 The student will be able to: This practical will enable students to retrieve data from relational databases using SQL. students will be able to implement generation of tables using datatypes. Students will be able to design and execute the various data manipulation queries. Students will also learn to execute triggers, cursors, stored procedures etc.
Software Engineering (BTIT504-18)	 Understanding of Software process models such as the waterfall, prototyping and spiral models. Understanding of the role of project management including planning, scheduling, risk management, etc. Understanding of object models, data models, context models and behavioral models. Describe implementation issues such as modularity and coding standards. Understanding of software testing approaches such as unit testing, integration testing and system testing.
Prog. In Java lab (BTIT506-18)	 At the end of the course the student should be able to: Implement the features of Java such as opeartors, classes, objects, inheritance, packages and exception handling. Design problems using latest features of Java like garbage collection, Console class, Network interface, APIs Develop competence in Java through the use of multithreading, Applets etc Apply advance concepts like socket and database connectivity, and develop project based on industry orientation.

Software Engineering Lab (BTIT507-18)	 Select a software engineering process life cycle model. Define the requirements of the software. Analyze the given specification into a design. Contrast the various testing and quality assurance techniques. Apply modern engineering tools for specification, design, implementation, and testing.
	B.Tech – IT 6 th Semester
Machine Learning (BTIT 608-18)	 The students will be able to: Analyse methods and theories in the field of machine learning. Analyse and extract features of complex datasets. Deploy techniques to comment for the Regression Comprehend and apply different classification and clustering techniques Understand the concept of Neural Networks and Genetic Algorithm.
Agile Software Development (BTIT 609-18)	 Understand concept of agile software engineering and its advantages in software development. Explain the role of design principles in agile software design. Define the core practices behind Scrum framework. Understand key principles of agile software development methodology-Kanban. Describe implications of functional testing, unit testing, and continuous integration. Understand the various tools available to agile teams to test the project.
Wireless Communication (BTEC-601-18)	 Understand the basic elements of Cellular Radio Systems and its Design. Learn about the concepts of Digital Communication through fading multipath channels. Understand various Multiple Access techniques for Wireless communication. Know about the Wireless Standards and Systems.

Big Data (BTIT 601-18)	 After the completion of the course the student will be able to: Understand fundamental concepts of Big Data and its technologies Apply concepts of MapReduce framework for optimization. Analyze appropriate NoSQL database techniques for storing and processing large volumes of structured and unstructured data. Understand various components of Hadoop ecosystems. Explore modern tools and packages for data visualization
Web Technologies (BTIT602-18)	 After the completion of the course the student will be able to: Understand and apply the knowledge of web technology stack to deploy various web services. Analyze and evaluate web technology components for formulating web related problems. Design and develop interactive client server internet application that accommodates user specific requirements and constraint analysis. Program latest web technologies and tools by creating dynamic pages with an understanding of functions and objects. Apply advance concepts of web interface and database to build web projects in multidisciplinary environments. Demonstrate the use of advance technologies in dynamic websites to provide performance efficiency and reliability for customer satisfaction.
Cloud Computing (BTIT613-18)	 Understand the core concepts of the cloud computing paradigm. Understanding importance of virtualization along with their technologies Analyze various cloud computing service and deployment models and apply them to solve problems on the cloud. Implementation of various security strategies for different cloud platform.

MANAGEMENT INFORMATION SYSTEMS (BTIT 611-18)	 Understand the role of Information System and its strategic use. Understand the concept of Enterprise Applications and its various types Learn about core concepts of CRM, ERP and SCM Know about e-commerce platforms along with intelligent decision support system.
Software Project Management (BTIT702-18)	 Explain project management in terms of the software development process. Estimate project cost and perform cost-benefit evaluation among projects Apply the concepts of project scheduling and risk management. Explain Software configuration management and the concepts of contract management. Apply quality models in software projects for maintaining software quality and reliability.
Data Warehousing and Mining (BTIT706-18)	 Understand the functionality of the various data mining and data warehousing component Appreciate the strengths and limitations of various data mining and data warehousing models Explain the analyzing techniques of various data Describe different methodologies used in data mining and data ware housing. Compare different approaches of data ware housing and data mining with various technologies.

After the completion of the course the student will be able to:

Software Testing and Quality Assurance (BTIT 701-18)	 Test the software by applying testing techniques to deliver a product free from bugs. Investigate the scenario and to select the proper testing technique. Explore the test automation concepts and tools and estimation of cost, schedule based on standard metrics. Understand how to detect, classify, prevent and remove defects. Choose appropriate quality assurance models and develop quality.
Artificial Intelligence (BTIT511-18)	 Understand the basics of Artificial Intelligence Understand and design the search algorithms used in AI Integrate the mathematics backbone of required for solving AI based problems. Determine the application of AI to solve problems and build logistics required for them.
Mobile Communication &	 Understand the working principles of Mobile Communication Systems. Understand the relations between the user features and

underlying technology.

performance.

3. Analyze Mobile communication systems for improved

Networks

(BTEC-908B-18)