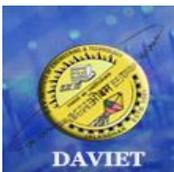# DAV Institute of Engineering and Technology

Department of Information Technology

COURSE OUTCOMES

DAV Institute of Engineering and Technology
Kabir Nagar Jalandhar
www.davietjal.org

DEPATMENT OF INFORMATION TECHNOLOGY

COURSE OUTCOMES

B.Tech-IT 1st and 2nd Semester	
Engineering chemistry (BTCH-101)	1. Analyze the need, design and perform a set of experiments. 2. Identify the structure of unknown/new compounds with the help of spectroscopy. 3. Differentiate hard and soft water; solve the related numerical problems on water purification and its significance in industry and daily life 4. Apply the principles of green chemistry in designing alternative reaction methodologies to minimize hazards and environmental degradation. 5. Explain the properties, separation techniques of natural gas and crude oil along with potential applications and role of petrochemicals in national economy. 6. Explain the properties, separation techniques of natural gas and crude oil along with potential applications and role of petrochemicals in national economy. 7. Acquire Basic knowledge of Nanochemistry to appreciate its applications in the field of Medicine, data storage devices and electronics. 8. Equipped with basic knowledge of polymer reinforced composites, applications of semiconductor photochemistry in energy harnessing and optical sensors.
Engineering Chemistry laboratory (BTCH-102)	**After the completion of the course the student will be able to:** 1analyze & generate experimental skills. 2enhance the thinking capabilities in the modern trends in Engineering & Technology. 3 learn and apply basic techniques used in chemistry laboratory for preparation, purification and identification.

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	4. employ the basic techniques used in chemistry laboratory for analyses such as Chromatography, Spectroscopy, Volumetric titrations, Conductometric, Pensky-Martens apparatus and Stalagmometer. 5. learn safety rules in the practice of laboratory investigations.
Engineering physics (BTPH-101)	**After the completion of the course the student will be able to:** 1. Understand the importance of Applied Physics in describing physical phenomena. 2. Employ the knowledge of crystallography and X-Rays to understand the structure-property relationship of materials. 3. Implement the concept of Theory of relativity and Quantum mechanics for research applications. 4. Recognize the use of Laser, Magnetic materials, Superconductors and optical fibers in various fields. 5. Acquire Basic knowledge of EMFT in communication and Nanophysics for its applications in the field of medicine, data storage devices and electronics.
Engineering physics laboratory (BTPH-102)	**After the completion of the course the student will be able to:** 1. Develop skills to impart practical knowledge in real time solutions. 2. Understand principle, concept, working and application of new technology and comparison of results with theoretical calculations. 3. Design new experiments/instruments with practical knowledge 4. Gain knowledge of new concept in the solution of practical oriented problems and to understand more deep knowledge about the

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	solution to theoretical problems. 5. Understand measurement technology, usage of new instruments and real time applications in engineering studies.
Engineering mathematics-I (BTAM-101)	**After Successful completion of the course the students are expected to:** 1. Understand the fundamentals of the mathematics to apply while designing technology and creating innovations 2. Compute limits and derivatives of functions of two and three variables, develops skill of higher derivative, expansion of functions in ascending power of variable & value of the function in neighborhood of some points. 3. Analyze multidimensional functions to find derivatives, tangent lines to level curves, and to solve optimization problems using extremum value of a given function related to engineering application 4. Find integrals, arc length, double and triple integrals for finding area, volume, centre of mass and various other engineering applications 5. Represent vectors analytically and geometrically, and compute dot and cross products for presentations of lines and planes and Differentiate vector fields, Determine gradient, Divergence & Curl of vector fields and Evaluate line & surface integrals directly and by the fundamental theorems which is useful to represent conservation principles for physical vector fields important in gravitation and electric fields 6. Develops the ability to understand basics of geometry, find radius of curvature & torsion of given curve which is helpful to trace the curve for a given equation of a curve & its nature
Engineering Mathematics-II (BTAM-102)	**After Successful completion of the course the students will be able to:** 1.Classify differential equations according to certain features and will be able to apply techniques to solve first order and first

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	degree differential equations and apply them in engineering applications involving the Kinematics and Kinetics of Resisted Gravitational, Simple Harmonic & Vibratory Motion, Electric circuits
	2.Solve higher order & first degree linear non homogenous differential equation arising in various branches of engineering and related mathematical model develops arising to form mathematical modeling of Real World Problems involving rate of growth of population & Electric oscillators
	3. Use ideas of matrices and their applications in solving problems involving systems of linear equations and linear programming problems, Also they will be capable of representing geometric transformations by means of matrices and to express the volume of certain figures and equation of line using determinants.
	4.Show skills in computations and applications of infinite sequences and sums (infinite series). Students will show familiarity with the properties of infinite series to either converge to a finite value or diverge to an infinite value, and will learn about methods to determine convergence
	5.Express Complex Numbers in Cartesian, Polar, Trigonometric, Exponential and Logarithmic form, and use the theory of complex numbers to solve various practical problems in Engineering and Sciences.
Communicative English (BTHU-101)	**After the Completion of the Course the students will be able to:** 1 Demonstrate an understanding of written English language of varied complexity on most topics including some abstract topics 2Write grammatically correct English in diverse situations 3Produce on their own texts which are clear and coherent. They must show awareness of appropriate format and a capacity for explaining their views in a rational manner. 4Exhibit an ability to draft documents effectively to apply for

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	various job Interviews and to conduct business in general.
	5Display the ability to analyze data and present it in the form of a concise written document
	6Show an ability to generally read the stance or the point of view of the writer and present it in the form of a summary
Environmental sciences (EVSC-101)	**After the completion of the course the student will be able to:** 1. Develop critical thinking skills in relation to environmental affairs 2. Acquire knowledge about natural resources and their effective management 3.Expand awareness of self in a global society and effectively engage diverse perspectives, values, and cultures, ranging from local to global, in dealing with environmental and social issues 4. Interpret and propose solutions to various environmental pollution 5.Formulate an action plan for sustainable alternatives that integrate science, humanist, and social perspectives
Human Values and Professional Ethics(HPVE-101)	**After the completion of the course the student will be able to:** 1. Recognize what is valuable to human being and what are the basic aspirations of life. 2. Understand the importance of mutually satisfying human behavior and enriching interaction with nature. 3. Develop appropriate technologies and management patterns to create harmony in Nature/Existence 4. Implement the understanding of value education in solving the various practical problems of professional and personal life. 5. Acquire basic knowledge of harmony in existence and to

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	understand existence as coexistence.
FCPIT BTCS-101	1. To understand the basic building blocks of general purpose digital computer system like computer hardware/software, memory and peripheral devices, internet applications and services. 2. To understand the program development life cycle using various tools like flowcharts and algorithms and pseudo-code. 3. To classify operators, expressions, character set, data types and control structures. 4. To understand the concept of modular programming and code reusability using library functions. 5. To write programs using object oriented concepts like classes and objects, file handling.
B.Tech - IT 3rd Semester	
Computer Architecture (BTCS301)	After the completion of the course the student will be able to: **1.** Understand basic concepts of computer architecture including, syntax of register transfer language, micro operations, instruction cycle, and control unit. **2.** Understand the various various representation codes for both numeric and non-numeric data and perform different arithmetic operations on them. **3.** Understand the impact of instruction set architecture on cost-performance trade-off of computer design. **4.** Compare and Contrast various memory management techniques like associate memory, cache memory, virtual memory etc.in C++. **5.** Analyze the concept of pipelining, multiprocessors, and inter

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	processor communication and hence evoluation of different contemporary advanced architectures. **6.** Implement interfacing of computer with input and output devices.
Engg. Mathematics-III (BTAM302)	1. Perform operations on various discrete structures such as sets, functions, relations, and sequences. 2. Ability to solve problems using Counting techniques, Permutation and Combination, Recursion and generating functions. 3. Apply algorithms and use of graphs and trees as tools to visualize and simplify Problems. 4. Use of K-Maps and Truth Tables to construct and verify correctness of a Boolean expression. 5. Understand the various properties of algebraic systems like Rings, Monoids and Groups.
Digital Circuits and Logic Design **(BTCS303)**	1. Apply the principles of number system, binary codes and Boolean algebra to minimize logic expressions 2. Develop K-maps to minimize and optimize logic functions up to 5 variables 3. Acquire knowledge about various logic gates and logic families and analyze basic circuits of these families. 4. Design various combinational and sequential circuits such as encoders , decoders and counters using multiplexers, and flip - flops 5. Describe and compare various memory systems, shift registers and analog to digital and digital to analog conversion circuits
Data Structures (BTCS304)	1. Understand the concept of Dynamic memory management, data types, algorithms, Big O notation. 2. Understand basic data structures such as arrays, linked lists, stacks and queues. 3. Describe the hash function and concepts of collision and its resolution methods 4. Solve problem involving graphs, trees and heaps 5. Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data
Object Oriented Programming Using	**After the completion of the course the student:**

C++ (BTCS305)	1.Will have sufficient knowledge of object oriented programming 2. Will be able to map and solve real world problems using C++ programming. 3. Will be able to store and retrieve data from files through C++ programming. 4. Will have thorough knowledge about run time exceptions and they will be able to handle them practically.
Data Structures Lab (BTCS306)	1. Implement basic data structures such as arrays and linked list. 2. Programs to demonstrate fundamental algorithmic problems including Tree Traversals, Graph traversals, and shortest paths. 3. Implement various searching and sorting algorithms. 4. Programs to demonstrate the implementation of various operations on stack and queue.
H/W Lab-I **(Digital Circuits and Logic Design)** **(BTCS308)**	1. Study of logic gates and realization of OR,AND,NOT AND XOR Functions using universal gates 2. Design and implement combinational circuits like half adder/full adder, half subtractor/full subtractor, code converters, comparators, MUX/DEMUX 3. Design and implement sequential circuits like flip-flops, counters and shift registers 4. Study of 8-bit DAC and 8-bit ADC.
Software Lab-II **(OOPS)** **(BTCS309)**	1. Develop solutions for a range of problems using objects and classes. 2. Programs to demonstrate the implementation of constructors, destructors and operator overloading. 3. Apply fundamental algorithmic problems including type casting, inheritance, and polymorphism. 4. Understand generic programming, templates, file handling.
B.Tech - IT 4th Semester	
Operating Systems (BTCS401)	1. Identify the functions, structure and design issues associated with operating systems. 2. Familiarize with different concepts of process management like inter-process communication, semaphore, message passing, classical IPC problems, CPU scheduling, deadlock detection and prevention. **3.** Understand and analyze the theory and implementation of

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	physical and virtual memory, memory management policies, I/O system and secondary storage structure. **4.** Implement the different CPU scheduling, page replacement and device algorithms in C++. **5.** Install the various types of operating systems including UNIX, Windows. **6.** Contrast and compare the various file systems and their corresponding protection and security mechanisms.
Discrete Structures (BTCS402)	1. Perform operations on various discrete structures such as sets, functions, relations, and sequences. 2. Ability to solve problems using Counting techniques, Permutation and Combination, Recursion and generating functions. 3. Apply algorithms and use of graphs and trees as tools to visualize and simplify Problems. 4. Apply algorithms and use of graphs and trees as tools to visualize and simplify Problems. 5. Use of K-Maps and Truth Tables to construct and verify correctness of a Boolean expression. 6. Understand the various properties of algebraic systems like Rings, Monoids and Groups.
Computer Networks-I (BTCS403)	After the completion of the course the student will be able to: **1.** Understand the basic of data communication and data transmission. **2.** Know about the working of computer networks, various topologies and their use in real word applications. **3.** Study all seven layers related to OSI model with complete structure, functions and their role in data communication. **4.** A comprehensive analysis of security aspect related to computer networks.

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Microprocessor and Assembly Language Processing **(BTCS404)**	1. Understand the taxonomy of microprocessors and knowledge of contemporary microprocessors. 2. Describe the architecture, bus structure and memory organization of 8085 as well as higher order microprocessors. 3. Explore techniques for interfacing I/O devices to the microprocessor 8085 including several specific standard I/O devices such as 8251 and 8255. 4. Demonstrate programming using the various addressing modes and instruction set of 8085 microprocessor 5. Design structured, well commented , understandable assembly language programs to provide solutions to real world control problems
System Programming (BTCS405)	1. To understand the basics of system programs like editors, compiler, assembler, linker, loader, interpreter and debugger. 2. Describe the various concepts of assemblers and macro processors. 3. To understand the various phases of compiler and compare its working with assembler. 4. To understand how linker and loader create an executable program from an object module created by assembler and compiler. 5. To know various editors and debugging techniques
Operating System Lab (BTCS406)	1. Demonstrate the installation process of various operating systems. 2. Implement virtualization by installing Virtual Machine software. 3. Apply Unix/Linux operating system commands. 4. Understand different Unix/Linux shell scripts and execute various shell programs.
Computer Networks-I Lab **(BTCS407)**	1. Students can work as network engineer in the industy
Microprocessor & Assembly Language Programming Lab.	1. Solve basic binary math operations using the instructions of microprocessor 8085. 2. Apply programming knowledge using the capabilities of the stack, the program counter 3. Design, code and debugs Assembly Language programs to

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(BTCS408)	implement simple programs 4. Execute a machine code program on the training boards
System Programming Lab. **(BTCS409)**	1. Design, implement, test, debug and document programs in C++. 2. Develop programs to create symbol table for assembly and high level language program. 3. Implement Single Pass Assembler. 4. Explore features of debug command. 5. Use of LEX and YACC Tools
B.Tech. – IT 5th Semester	
System Analysis & Design BTIT-501	1. Describe the concepts of systems analysis and information systems development 2. Describe the project selection and management techniques 3. Develop and analyze the systems requirements documentation 4. Identify use case analysis elements and alternatives 5. Analyze systems process modeling 6. Describe process modeling techniques 7. Describe data modeling techniques 8. Analyze design alternatives 9. Describe systems architecture design 10. Describe user interface design 11. Describe program design 12. Analyze data storage design 13. Analyze object oriented design 14. Identify system implementation & testing techniques 15. Analyze techniques for transitioning to a new information system 16. Analyze system security & threats

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Database Management System Lab BTIT-503	1. Students will have adequate understanding of concepts of data base and data base management system with its applications. 2. Students will be able to conceptualize and design data bases using ER modeling for real world application.eg: Online Banking, Air Reservation etc. 3. Students will have sufficient knowledge of concepts related to data base to prepare for professional certification (OCP, OCA etc.) and professional exams (GATE).
Cyber Laws & IPR **(BTIT- 504)**	**After the completion of the course the student:** 1. Will be able to understand the basics of Internet, ISP, domain name and various Network Security techniques. 2. Will understand various IPR Regime in the Digital Society, Copyright and Patents, International Treaties and Conventions, Business Software Patents, Domain Name Disputes and Resolution. 3. Will know the Overview of the Act, Jurisdiction, Role of Certifying Authority, Regulators under IT Act, Cyber Crimes-Offences and Contraventions, Grey Areas of IT Act.
Computer Networks **BTCS-501**	After studying the course, the student must be able to- 1. Explain the concepts of IPv6 and the need for implementing it. 2. Describe the evolution and History of Wireless Technology 3 Explain the function of Mobile station roaming number 4 Describe the basic operation of GSM GPRS 5 Differentiate between Wireless LAN and Wired LAN 6 Demonstrate use of various private and public key encryption techniques used in modern cryptosystems (IKE) 7 Understand the need, features and applications of Mobile Adhoc Networks 8 Describe various Routing and MAC protocols used in Mobile Adhoc Networks.

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Programming in Java BTIT502	Upon completion of the subject, students will be able to 1. knowledge of the structure and model of the Java programming language, 2. use the Java programming language for various programming technologies 3. develop software in the Java programming language. 4. evaluate user requirements for software functionality required to decide whether the Java programming language can meet user requirements. 5. propose the use of certain technologies by implementing them in the Java programming language to solve the given problem.
Database Management System Lab BTIT-505	1. Students will be able to create, update and implement data base with the help of structured query language on platforms like ORACLE and MYSQL as individual or team.
Programming in JAVA Lab BTIT-506	
Computer Networks-II Lab BTCS-507	1. Students will be able to work on the packet capturing software like wiireshark. 2. Students will be able to install and design different network scenarios on network simulator CISCO Packet Tracer.

B.Tech. – IT 6th Semester

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Information Security and Risk Management **BTIT-602**	1. To select appropriate techniques to tackle and solve problems in the discipline of information security management 2. To understand why security and its management are important for any modern organisation 3. To understand how an information security management system should be planned, documented, implemented and improved,

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	according to the information security management. 4. To understand the concept of risk, resolving risks in information technology. 5. To study and write various algorithms used for encryption and decryption in cryptosystem.
Web Technologies **BTIT-603**	1. Students will have clear understanding of hierarchy of objects in HTML and XML. 2. Students will be able to validate user input using JavaScript. 3. Students will have sufficient knowledge of advantages and applications of different types of CSS. 4. Students will have knowledge of basics of ASP, AJAX and various other aspects of web technologies.
Software Engineering **BTCS603**	1. Understand the complete Software life cycle models for development of various functional Software's. **2.** Know about the working of each phase for software development form feasibility study to final deployment of the software application**.** **3.** Analyze the various software performance metric like effort of development and time for development of a software product which are very critical for software delivery. **4.** Focus on the fundamental steps on software development which include rigorous testing at various levels of the product before final installation. **5.** Ensure to compile the final product with highest level of quality standards which include ISO, Six Sigma or CMM Levels for complete satisfaction of the client matching world Class standards in software delivery.
Cloud Computing **BTCS-912**	After the completion of the course the student will be able to: 1. Understanding the key dimensions of the challenge of Cloud Computing

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	2. Compare and Contrast different Cloud Deployment and Service models in order to be able to Assess financial, and technological implications in selecting cloud model for own organization.
	3. Analyzing the different underlying technologies used in implementing a Cloud.
	4. Write comprehensive case studies analysing and contrasting different cloud computing solutions.
	5. Assessing the need of Security in Cloud Computing.
Network Programming **BTIT601**	After the completion of the course the student will be able to: **1.** Implement various Inter Process Communication techniques in Linux/Unix environment. **2.** Explore various Network APIs available in Linux/Unix environment. **3.** Comprehend and compare various communication protocols **4.** Understand socket options at different layers.
Software Engineering **Lab BTCS-606**	The students can work as Software Engineers in the industry.

Web Technologies Lab **BTIT-605**	Students will be able to make web pages using HTML and HTML5 JavaScript PHP AJAX JQUERY
B.Tech – IT 7th Semester	
Building Enterprise Application BTIT-701	1. Introduction to Enterprise & its applications 2. Skills required to build an enterprise application 3. Inception of enterprise applications 4. Use case modeling, prototyping Concept of architecture 6. Construction readiness of enterprise applications 7. Types and methods of testing an enterprise application
Software Project Management BTIT-702	1.The student will be able to understand and practice the process of project management 2.The student will be able to develop the scope of work, provide accurate cost estimates and to plan the various activities 3.The student will be able to understand and use risk management analysis techniques that identify the factors that put a project at risk and to quantify the likely effect of risk on project timescales 4.The students will be able to identify the resources and people required for a project and to produce a work plan and resource schedule.
Software Testing and Quality Assurance **BTCS-905**	After the completion of the course the student will be able to: 1. Analyze different approaches to software testing and quality assurance, and select optimal solutions for different situations and project. 2. Create test strategies and plans, design test cases, prioritize and execute them **3.** Manage incidents and risks within a project and generate

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	a risk projection.
	4. Contribute to efficient delivery of software solutions and implement improvements in the software development processes.
	5. Compare and Contrast the various activities of Quality Assurance, Quality planning and Quality Control
Advanced Java BTIT906	Upon completion of the subject, students will be able to 1. Develop Swing-based GUI 2. Develop client/server applications and TCP/IP socket programming 3. Update and retrieve the data from the databases using SQL 4. Develop distributed applications using RMI. 5. Develop component-based Java software using JavaBeans.
Building Enterprise Applications Lab **BTIT-704**	1. Students will be able to generate various diagrams like Class Diagrams, Object Diagrams, Composite Structure Diagrams, Use Case Diagrams, Activity Diagrams, and Sequence Diagrams using software tools. 2. Students will be able to learn how to work in a team and work on live projects. 3. Students will be able to use various test cases for the given projects. 4. Students will have knowledge to define, formulate and analyze a problem. 5. Students will have sufficient knowledge of tools to draw various networking architectures.

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Major Project **BTIT-703**	1. Students should be able to design and construct a hardware and software system, component, or process to meet desired needs. 2. Students are provided to work on multidisciplinary Problems. 3. Students should be able to work as professionals, with portfolio ranging from data management, network configuration, designing hardware, database and software design to management and administration of entire systems.