

**Department of Information Technology
Central University of Kashmir**

B.Tech. CSE

(Batch 2020 and onwards)

Semester I			
S. No.	Course Code	Course Title	Credits
1	BT 101	Mathematics I	4
2	BT 102	Engineering Physics	3
3	BT 103	Chemistry	3
4	BT 104	Engineering Drawing	2
5	BT 105	Engineering Workshop	2
6	BT 106	Computer Programming	4
7	BT 107 L	Engineering Physics Lab	1
8	BT 108 L	Computer Programming Lab	2
9	BT 109 L	Chemistry Lab	1
10	BT 110	Sociology & Elements of Indian History for Engineers	2
		Total	24

Central University of Kashmir				
Course Title	Mathematics I	Course Code	BT 101	
Degree	B.Tech. CSE	Branch	Computer Science & Engg.	
Course Type	Theory	Department	Information Technology	
Credits	4	L	T	P
Semester	1 st	4	0	0
<i>Learning Outcomes</i>				
At the end of the course the student will be able to				
1. Learn about the set theory, Relation and Functions, sequences and series and their applicability in various domains.				
2. Differentiate the concept of scalars, vectors, gradient, divergence and curl.				
3. Learn the rules of finding nth derivative, to find the maximum and minimum value of the function, to trace the curves.				
4. Understand the concept of definite and indefinite integral.				
5. Find the arc length, area, surface area and volume of various curves.				
Course Outline / Content				
Unit	Topics			Week
1.	Elements of Logic - necessary and sufficient conditions, theorems and proofs (direct and contra positive). Sets and Functions - Elementary set theoretic operations, De Morgan's law. Relations and Correspondences and its types, number systems. Function overview and composition of function. Sequences and series - Arithmetic Progression, Geometric Progression and Harmonic Progression.			4
2.	Vectors – laws of vector algebra, operations – dot, cross, triple products. Vector function – limits, continuity and derivatives. Gradient, divergence and curl – formulae. Orthogonal coordinates.			4
3.	Differentiation - concept of derivative, standard rules of differentiation, total and partial derivatives, homogenous functions, Euler Theorem. Maxima and Minima. Lagrange's mean value theorem, Rolle's Theorem, Cauchy Mean value theorem.			4
4.	Integration – basic concept, definite and indefinite integral. Standard rules of integration, partial integration, Integration by parts, Integration by substitution. Surface, line and volume integrals.			4
References				
1.	Differential Calculus by M. L Kochhar, Kapoor brothers;			
2.	Integral Calculus by M. L Kochhar, Kapoor brothers;			
3.	Linear Algebra: Schaum's Outline Series, Tata McGraw Hill;			
4.	Discrete Mathematics: Schaum's Outline Series, Tata McGraw Hill			

Central University of Kashmir				
Course Title	Engineering Physics	Course Code	BT 102	
Degree	B.Tech. CSE	Branch	Computer Science & Engg.	
Course Type	Theory	Department	Information Technology	
Credits	3	L	T	P
Semester	1 st	3	0	0
<i>Learning Outcomes</i>				
At the end of the course the student will be able to				
1. Understand the significance of Maxwell's equations as basis of Electromagnetic Theory.				
2. Differentiate between the various types of referential frames.				
3. Gain the knowledge on the basic concepts of Quantum Mechanics and its applications.				
4. Understand the working principle of various lasers and their application in various fields.				
Course Outline / Content				
Unit	Topics			Week
1.	A Brief introduction of vector algebra. Gradient of a scalar, Divergence and Curl of a vector with numerical. Gauss's law and its applications, Electric potential and electric field. Problems based upon E and V, Potential due to a monopole and dipole (qualitative). Work and energy in Electrostatics, Dielectrics, Polarization, Electric Displacement, Susceptibility and Permittivity. Lorentz Force Law: Magnetic field of a steady current (BiotSavart Law), Ampere's law, Electromotive force, Faraday's Law, Maxwell's equation (Basic Overview).			4
2.	Reference frames. Inertial frames, Review of Newton's Laws of Motion. Theory of Relativity: Galilean Transformation and its properties, Concept of Ether, Michelson-Morley experiment, Postulates of special theory of relativity and Lorentz transformation equations, Length contraction, Time dilation and Simultaneity in relativity, Addition of velocities, Variation of mass with velocity.			4
3.	Quantum theory: Limitations of classical theory, Plank's Hypothesis, De-Broglie Hypothesis, Wave particle duality, Matter waves, Davisson-Germer Experiment. Photoelectric effect and Compton Effect, Uncertainty principle and Heisenberg's Gamma Ray Microscope. Basic Postulates of Quantum mechanics: Wave function and its properties, Born's interpretation, Normalization of Wave function and Orthogonal Wave functions.			4
4.	Basic Concept of Schrodinger Wave equation: Time independent and time dependent, Eigen Values and Eigen functions, Particle in a 1-D box (Qualitative treatment). Lasers: Interaction of radiation with matter, Energy levels of the system and transitions, Emission and absorption of radiation, Spontaneous and stimulated emission, Einstein coefficients. Population inversion and optical pumping, Ruby, He-Ne, CO ₂ , Industrial and medical applications of lasers.			4
References				
1.	Introduction to Electrodynamics, David J. Griffiths Prentice Hall of India, New Delhi.			
2.	Concepts of Modern Physics by Arthur Bieser, McGraw Hill.			

Central University of Kashmir				
Course Title	Chemistry	Course Code	BT 103	
Degree	B.Tech. CSE	Branch	Computer Science & Engg.	
Course Type	Theory	Department	Information Technology	
Credits	3	L	T	P
Semester	1 st	3	0	0
<i>Learning Outcomes</i>				
At the end of the course the student will be able to				
1. Recognize the common physical, chemical process encountered in treatment process of water.				
2. Summarize the chemical structure, chemical properties, classification, vulcanization process and application of major type of rubber.				
3. Learn the different polymerisation processes to make thermoplastic and thermosetting plastics.				
4. Learn the various types of fuels and lubricants and their application.				
Course Outline / Content				
Unit	Topics			Week
1.	Water Sources, Hardness of water, soft and hard water, units of hardness, EDTA method of estimation of hardness, softening of hard water –Lime soda process-Zeolite process- Ion exchange process , Scale and sludge formation in boilers, removal of scales – carbonate conditioning-colloidal conditioning- calgon conditioning- phosphate conditioning , Concept of water harvesting, storage and recycling, desalination – water treatment for drinking purpose.			4
2.	Polymers Nomenclature, Functionality, Classification, Methods of Polymerization, Plastics, Thermoplastic and Thermosetting resins, Molecular weight of a Polymer, RubberVulcanization-Elastomers - Reclaimed Rubber, Conducting Polymers.			4
3.	Fuels and Lubricants Classification of fuels, Characteristics of Good Fuel, Calorific value and its determination, Bomb Calorimeter, Gas Calorimeter, Theoretical Calculation of Calorific values, Classification and selection of Coal. Lubricants, Mechanism of Lubrication, Classification of Lubricants, Properties of Lubricating oils-Viscosity and its measurement (Redwood viscometer)-Flash and Fire points-Oiliness, Cloud point , pour point, Emulsification.			4
4.	Green Chemistry Principles of Green Chemistry, R4M4 model (Reduce, Reuse, Recycle, Redesign; Multipurpose, Multidimensional, Multitasking, Multi-Tracking) Molecular and Atomic Economy, Life cycle analysis Technique.			4
References				
1.	P.C. Jain and M. Jain, Engineering Chemistry, DHANPAT RAI Publishing Co.			
2.	Shahshi Chawla, A Text Book of Engineering Chemistry, DHANPAT RAI Publishing Co.			
3.	S.S.Dara, S.S.Umare, A Text Book of Engineering Chemistry, S. Chand Publishing.			
4.	Thomas Bliss Stillman, Engineering Chemistry; A Manual of Quantitative Chemical Analysis.			

Central University of Kashmir				
Course Title	Engineering Workshop	Course Code	BT 105	
Degree	B.Tech. CSE	Branch	Computer Science & Engg.	
Course Type	Theory / Laboratory	Department	Information Technology	
Credits	02	L	T	P
Semester	1 st	0	0	2
Course Objectives				
To inculcate the ability to translate geometric and topological information of common engineering object (two/three dimensional) into engineering drawing using standard graphical techniques.				
Learning Outcomes				
<ul style="list-style-type: none"> • Comprehend general projection theory, with an emphasis on the use of orthographic projection to represent three-dimensional objects in two-dimensional views. • Apply auxiliary or sectional views to most practically represent engineered parts. • Understand the intersection, development of surface of body and fasteners. • To interpret Orthographic, Isometric and Perspective views of objects. 				
Course Synopsis				
<ul style="list-style-type: none"> • Unit one deals with general introduction of drawing and its concepts, unit second deals with orthographic projection, unit three there is projection of solids and sectioning of solids, and fourth unit carry isometric projection and introduction to computer aided drafting. 				
Course Outline / Content				
Unit	Topics			Week
1.	Engineering drawing concepts: Introduction, drawing instruments and their usage, sheet layout, Introduction to Quadrants, Concept of horizontal and vertical plane, projection of point in different quadrants, Projection of lines and planes positioned in different orientations with respect to the principal plane, lettering.			4
2.	Orthographic Projection: Introduction, Principle of Projection and methods, planes of projection, first angles and third angle projection, projection of auxiliary plane, Projection of planes, sketching.			3
3.	Projection of Solids: Introduction, Types of solids, Cube, Pyramid, Hexagonal Pyramid, Pentagonal pyramid, Triangular prism, cone, cylinder and frustum. Sections of Solids: Introduction, Sections of Prism, Sections of Cylinder, sections of cube, sections of pyramids.			4
4.	Isometric Projection: Principle of Isometric projection, Isometric scale, isometric views, Isometric drawing of some solids rhombus method and conventional method.(Iso plane, Iso axis) Free hand isometric view projection. Introduction to computer aided Drafting CADr: why CAD, Applications and limitations of CAD, Hardware of CAD System and introduction to CAD software with example. Commands and keyboard shortcuts used in CAD(Auto CAD).			4
Text Books/References				
1.	Bhat, N.D and M.Panchal (2008), Engineering Drawing character Pub			
2.	Gill, P.S (2006), Engineering Drawing (Geometrical Drawing) KATARIA pub.			

3.	Dhawan, R.K (2007) A textbook of Engineering Drawing S. Chand publications.
4.	Narayan, K.L & p. Kannoids (2008) Text Book on Engineering Drawing, Scitech publications.

Central University of Kashmir				
Course Title	Engineering Workshop	Course Code	BT 105	
Degree	Bachelor of Technology	Branch	Computer Science & Engg.	
Course Type	Theory / Laboratory	Department	Information Technology	
Credits	02	L	T	P
Semester	1 st	0	0	2
<i>Course Objectives</i>				
<p>Workshop practice is the backbone of the real industrial environment which helps to develop and enhance relevant technical hand skills required by the technician working in the various engineering industries and workshops. This course intends to impart basic know-how of various hand tools and their use in different sections of manufacturing. Irrespective of branch, the use of workshop practices in day to day industrial as well domestic life helps to dissolve the problems. The workshop experiences would help to build the understanding of the complexity of the industrial job, along with time and skills requirements of the job. Workshop curricula build the hands on experiences which would help to learn manufacturing processes and production technology courses in successive semesters. Workshop practice is also important since only practice can make the man perfect. The students are advised to undergo each skill experience with remembrance, understanding and application with special emphasis on attitude of enquiry to know why and how for the various instructions and practices imparted to them in each shop. To develop self-reliant ability in the practice field of life towards daily conventional material like metal, wood, tinsetc in order to have craftsmanship.</p>				
<i>Learning Outcomes</i>				
<ul style="list-style-type: none"> • On completion of the course, student will be able to: • Perform the operations of plain turning, taper turning, facing, knurling, grooving, drilling on a given cylindrical Mild steel work piece using various cutting, measuring & machine tools • Distinguish between various tools & joints. Design & develop different components like cylinder, funnel of a galvanized iron sheet work piece using various operations such as marking cutting, measuring, soldering etc. • Recognize suitable wood working hand tools & equipments to make various joints like half lap cross joint, mortise-tenon joint & bridle joint of soft wood (Deodar). Understand various pattern making techniques. • Develop various joints such as butt joint, lap joint, corner joint using different welding processes such as electrical arc welding, MIG welding & TIG Welding. Understand different welding electrodes & other welding processes such as resistance welding, submerged arc welding. • Identify & apply suitable hand tools & holding equipments to perform basic operations to make a square plate, snap joint, cross joint of a Mild Steel Work Piece. 				
<i>Course Synopsis</i>				
<ul style="list-style-type: none"> • Computer based optimization has been introduced in Workshop by in an initiative taken by Central university of Kashmir for students to become versatile in the computer systems technically. • In different units, operations of plain turning, taper turning, facing, knurling, grooving, drilling on a given cylindrical Mild steel work piece using various cutting, measuring & machine tools • Distinguish between various tools & joints. Design & develop different components like cylinder, funnel of a galvanized iron sheet work piece using various operations such as marking cutting, measuring, soldering etc. 				

- Recognize suitable wood working hand tools & equipments to make various joints like half lap cross joint, mortise-tenon joint & bridle joint of soft wood (Deodar). Understand various pattern making techniques.

Course Outline / Content		
Unit	Topics	Week
1.	<p>Introduction to the Information Technology: Hardware and Software aspect.</p> <p>Task 1: a) Identify the peripherals of a computer, components in a CPU and its functions b) Block diagram of the CPU and configuration</p> <p>Task 2: a) Assembling, disassembling PC hardware to Working condition. b) Installation of system Software and applications software.</p> <p>Task 3: a) Windows trouble shoot hardware based b) Windows Trouble shoot software based.</p> <p>Task 4: a) Accessing the network b) Networking component</p> <p>Task 5: Introduction to MS Office</p> <p>i) MS Word ii) MS Power point iii) Excel for Schedule</p> <p>Machining Trade (Machinist Trade & Turning Section) (a) Theoretical Instructions: Safety Precautions, Introduction of machine tools such as lathe, Drilling machine & other related metal cutting tools. Parts of lathe & basic metal cutting operations. Introduction of various types of cutting tools (Nomenclature) and their material. (b) Practical Demonstrations: Demonstration on Lathe & basic operations such as drilling, facing, turning, taper turning, step turning, knurling, chamfering etc. Demonstration of basic measuring instruments. Job No. 1: TO MANUFACTURE THE JOBS ON THE CENTRE LATHE AS PER GIVEN DRAWING. Job No. 2: TO PERFORM ADDITIONAL OPERATIONS SUCH AS GROOVING, DRILLING, KNURLING on Job No. 1.</p>	04
2.	<p>Sheet Metal & Spray Painting section (a) Theoretical Instructions: Safety precautions, brief introduction of sheet metal, various tools, joints & operations. Soldering, brazing, & shearing, Fluxes & their applications. Introduction of different machines and pattern development in detail. Brief description of paints & varnishes (b) Practical Demonstrations: Demonstration of all basic hand tools & equipments. Fabrication of simple joints and jobs. Preparation & painting of surfaces for varnish & painting etc. Job No. 1: TO DEVELOP A CYLINDRICAL JOB. Job No. 2: TO DEVELOP A SQUARE ELBOW WITH SOLDERING AS PER THE DRAWING. Fitting & Bench Work section (a) Theoretical Instructions: Safety precautions, introduction to fitting & bench work. Demonstration of basic hand tools, holding devices and basic fitting operations such as measuring, marking, filing, sawing, drilling, tapping, buffing. (b) Practical Demonstrations:</p>	04

	Demonstration of all basic hand tools/ measuring tools & equipments. Demonstration of simple operations such as marking, punching, filing, sawing, scrapping, drilling. Job No. 1: TO FABRICATE A SQUARE PLATE OF MILD STEEL WORK PIECE 50X50X7 mm. Job No. 2: TO ASSEMBLE THE MILD STEEL WORK PIECE WITH SNAP FITTING.	
3.	<p>Welding Section (a) Theoretical Instructions: Safety Precautions, Introduction of welding processes like electric arc welding, Gas Welding, MIG Welding, TIG welding, Submerged arc welding & spot welding.. Various Fluxes & electrodes used in welding. Introduction of ac & dc welding and its applications. (b) Practical Demonstrations: Demonstration of all basic tools & personal protective equipments. Demonstration of different types of joints by using arc welding & gas welding etc. Job No. 1: TO MAKE A SINGLE-V BUTT JOINT OF MILD STEEL 80x50x8mm Job No. 2: TO MAKE A LAP JOINT OF MILD STEEL 85x35x6mm</p> <p>Smithy & Forging section (a) Theoretical Instructions: Safety precautions, introduction of forging tools .Materials & their heat treatments. Description of all forging operations such as hand forging, upsetting, drawing & punching. Introduction of various forging methods. Comparison of hot & cold working. (b) Practical Demonstrations: Demonstration & practice of different smithy operations like forging, cutting, punching, bending etc. Demonstration & practice of MS rod into forged MS ring & octagonal cross section. Job No. 1: TO PREPARE MS-SQUARE 20X20MM FROM MS ROUND BY USING DIFFERENT FORGING HAND TOOLS. Job No. 2: TO PREPARE A SQUARE HEADED BOLT FROM MS-ROUND 60x30mm</p>	03
4.	<p>Carpentry & Pattern Making section (a) Theoretical Instructions: Safety Precautions, Introduction of carpentry & joinery, different tools used in carpentry. Seasoning of wood and defects of wood. Various types of joints. Brief description of wood working machines and pattern making. (b) Practical Demonstrations: Demonstration & practice of different carpentry operation like Planning, sawing & chiseling and joints. Demonstration of pattern making tools & materials. Job No. 1: TO PREPARE HALF LAP CROSSJOINT. Job No. 2: TO PREPARE A BRIDLE JOINT</p> <p>Foundry & Casting Section (a) Theoretical Instructions: Safety precautions, Brief Introduction to foundry. Different casting processes. hand tools, gating system. Molding sands & its properties. Types of pattern, allowances, gates. Selection of pattern. Core Sand & Core making. Defects & remedies. Cupola furnace. Molding sand tests. Melting temperature of different metals. (b) Practical Demonstrations: Demonstration & practice of mould making & metal pouring. use of split patterns & cores, sand preparation & testing . Use of hand tools to prepare the mould. Job No. 1: TO PREPARE A GREEN SAND MOULD BY USING SINGLE PIECE PATTERN. Job No. 2: TO PREPARE A CASTING OF SINGLE PIECE PATTERN.</p>	03

Text Books/References	
1.	Computer Fundamentals by V Raja Raman
2.	Mechanical workshop practice. K.C. John PHI.
3.	Workshop familiarization. E.Wilkinson Pitman engineering craft series.
4.	Workshop Technology-I. Hazra and Chaudhary Media promoters & Publisher private limited.
5.	Workshop Technology-I. W.A. J. Chapman Taylor & Francis.
6.	Comprehensive Workshop Technology (Manufacturing Processes). S.K. GargLaxmi publications.
7.	I.T.B. Handbook. - Engineering industry Training Board.
8.	Workshop practice manual. K.Venkata Reddy B.S.Publications.

Central University of Kashmir				
Course Title	Computer Programming	Course Code	BT 106	
Degree	Bachelor of Technology	Branch	Computer Science & Engg.	
Course Type	Theory / Laboratory	Department	Information Technology	
Credits	4	L	T	P
Semester	1 st	4	0	0
<i>Course Objectives</i>				
<ol style="list-style-type: none"> 1. To understand the various steps in Program processing/execution. 2. To be able to develop programs for mathematical and scientific problems. 3. To be able to choose data types and structures to solve mathematical and scientific problem. 4. To be able to develop modular programs using control structures. 5. To be able to develop the programming skills in general, this will create the backbone of programming concepts in future 				
<i>Learning Outcomes</i>				
<ol style="list-style-type: none"> 1. Learn to develop simple algorithms/programs and flow charts to solve a problem. 2. Develop problem solving skills coupled with top down design principles. 3. To be able to write efficient and well-structured computer algorithms/programs. 4. Develop the skills for formulating iterative solutions to a problem. 5. Learn array processing programs coupled with iterative methods. 6. To be able to apply recursive techniques in programming. 7. To be able to develop text and string processing efficient programs. 8. Learn searching techniques and use of pointers. 9. Learn about dynamic memory allocation. 10. Learn about designing user defined data types. 11. Learn to work on data from files 				
<i>Course Synopsis</i>				
<ol style="list-style-type: none"> 1. Development of programming logic by the use of flowcharts. 2. Familiarize student with the C programming language preliminaries. 3. Study about input-output operations. 4. Familiarize student with operators and expressions. 5. Development of selection logic. 6. Development of iterative approach. 7. Development of recursive approach. 8. Development of modular programming approach. 9. Familiarize student with pointers and Arrays. 10. Development of Dynamic memory Allocation. 11. Development of user defined data types. 12. Development of ideas and skills to access data in files. 				

Course Outline / Content		
Unit	Topics	Week
1.	<p>Introduction to C Programming: Engineering problem solving methodology, Flowcharts, Tracing flow charts, Algorithms, Need for computer Languages, computer languages, High-level languages, History of C, A simple C Program.</p> <p>C Language preliminaries: Program structure, C character set, Identifiers and keywords, Data types(User Defined & Inbuilt), Declarations, Expressions, statements symbolic constants, Library functions, preprocessors, #include, #define</p> <p>Input-Output: getchar, putchar, scanf, printf, gets, puts and other related input output functions.</p>	2.5
2.	<p>Operators and expressions: operators in C,Arithmetic ,unary, logical, bit-wise, assignment and conditional operators.</p> <p>Control statements: if else, switch, break, Continue, and goto statements, While, do-while, for statements, nested loops, loops using goto. comma operators and variants of above control structure.</p>	2.5
3.	<p>Functions: Defining and accessing, passing arguments, Function prototypes, Recursion, Library functions, Static functions</p> <p>Arrays: Defining and processing, Passing arrays to a function, matrices as 2D arrays, Multi-dimensional arrays.</p> <p>Enumerated, Structure, and Union Types: The Type Definition(typedef), Enumerated types, Structures –Declaration, initialization, accessing structures, operations on structures, Complex structures, structures and functions, Passing structures through pointers, self referential structures, unions.</p>	4
4.	<p>Pointers: Declarations, Passing pointers to a function, Operations on pointers, Pointer Arithmetic, Pointers and arrays, Arrays of pointers and function pointers. Dynamic memory allocation of arrays and higher dimensional arrays using malloc() function.</p> <p>Strings Fundamentals: of character and strings, string handling library functions, pointer to strings, dynamic allocation for strings.</p> <p>File Handling: Files, ASCII files , binary files, File operation such as storing , retrieving and Updating a file.</p>	3
Text Books		

1.	Schaums outline of Theory and Problems of programming with C : Gottfried
2.	Mastering C by Venugopal, Prasad – TMH
3.	Programming in ANSI C, BalaguruSwamy
4.	Let us C, YashavantKanetkar
References	
1.	Complete reference with C Tata McGraw Hill
2.	Engineering Problem Solving with ANSI C, Delores M. Etter, Prentice Hall
3.	C Programming, Ivor Horton, Wrox Press Limited
4.	The C programming language : Kernighan and Ritchie

Central University of Kashmir				
Course Title	Engineering Physics Lab	Course Code	BT 107 L	
Degree	B.Tech. CSE	Branch	Computer Science & Engg.	
Course Type	Laboratory	Department	Information Technology	
Credits	1	L	T	P
Semester	1 st	0	0	1
<i>Course Outcomes</i>				
1. Students will be able to understand the basic principle of designed experiments through simple scientific tools. 2. Students will be able to evaluate and interpret scientific data. 3. Students will be able to create different experiments based on scientific understand				
<i>Course Outline / Content</i>				
Unit	Topics			Week
1.	Photoelectric Effect (Plank's Constant)			1
2.	Laser (Determination of wavelength of He-Ne Laser)			1
3.	Michelson's Interferometer.			1
4.	Diode-Laser Experiment			1
5.	Diffraction Grafting			1
6.	Magnetic field of a circular coil			1
7.	Carry Foster Bridge			1

Central University of Kashmir				
Course Title	Computer Programming Lab	Course Code	BT 108 L	
Degree	Bachelor of Technology	Branch	Computer Science & Engg.	
Course Type	Theory / Laboratory	Department	Information Technology	
Credits	2	L	T	P
Semester	1 st	0	0	2
<i>Course Objectives</i>				
1. The student should be able to combine the elements of the C language in developing structured programs. 2. The student should be able to demonstrate the skills necessary to correctly compile, debug, and test programs in C.				
<i>Learning Outcomes</i>				
1. Able to implement the algorithms and flowcharts in terms of programs for solving Mathematical and Engineering problems. 2. To learn elementary techniques involving arithmetic operators and mathematical expressions, appropriate use of selection (if, switch, conditional operators) and control structures. 3. Ability to design and develop Computer programs, analyzes, and interprets the concept				

- of pointers, declarations, initialization, operations on pointers and their usage.
4. Able to define data types and use them in simple data processing applications also he/she must be able to use the concept of array of structures.
 5. Student must be able to define union and enumeration user defined data types.

Course Synopsis

1. Developing programs to implement Concepts of Basic data types, variables, input and output statements.
2. Developing programs to implement Concepts of Conditional and control structures.
3. Developing programs to implement Concepts of Arrays (one and two dimensional).
4. Developing programs to implement Concepts of Searching and Sorting.
5. Developing programs to implement Concepts of Functions and Recursion.
6. Developing programs to implement Concepts of Pointers.
7. Developing programs to implement Concepts of Structures, Unions and Enumeration.
8. Developing programs to implement Concepts of Dynamic memory allocation.
9. Developing programs to implement Concepts of Linked Structures.
10. Developing programs to deal with data in files.

Course Outline / Content

Programs to be implemented in Lab	Week
<ol style="list-style-type: none"> 1. Programs to understand how integers, characters, and strings are stored and represented in C. 2. Programs to understand the ASCII character encoding. 3. Programs to understand how to use different operators available in C. 4. Programs to understand differences between a logical and arithmetic operators. 5. Programs to understand differences between a logical and bitwise operators. 6. Programs to obtain a full understanding of signed, unsigned, long and short numbers in C. 7. Programs to understand exactly how numbers are represented in computers (octal, hexadecimal and binary numbers systems). 8. Programs to evaluate algebraic expressions in C. 9. Programs to understand printing of message on output screen. 10. Programs to understand printing of various data types using different output functions. 11. Programs to exercise all flags in printf() functions. 12. Programs to understand printing of display patterns of numbers and asterisks. 13. Programs to understand taking input from user using different input functions. 14. Programs to exercise all flags in scanf() functions. 	<p>In accordance with the Theory course of BT106</p>

15. Programs to understand how arrays work in C, how to use them, and how they are stored in memory.
16. Programs to understand searching in an array.
17. Programs to understand sorting techniques using arrays.
18. Programs to understand pointers in C.
19. Programs to understand the relationship between array indexing and pointer arithmetic.
20. Programs to understand dynamic memory allocation especially with respect to 1D and 2D arrays.
21. Programs to understand modularize of code using functions.
22. Programs to implement function with/without arguments and with/without return types.
23. Programs to understand direct and indirect recursions using functions.
24. Programs to use pointer to pass the address of data and arrays to functions.
25. Programs to understand static data types and static functions.
26. Programs to understand creating, accessing and using structures.
27. Programs to understand use of arrays of structures.
28. Programs to understand pointers to structures and pointers as structures members.
29. Programs to understand creating, reading, writing a file.
30. Programs to understand taking input through arguments to main() function

Text Books

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| 1. | Schaums outline of Theory and Problems of programming with C : Gottfried |
| 2. | Mastering C by Venugopal, Prasad – TMH |
| 3. | Programming in ANSI C, BalaguruSwamy |
| 4. | Let us C, YashavantKanetkar |

References

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| 1. | Complete reference with C Tata McGraw Hill |
| 2. | Engineering Problem Solving with ANSI C, Delores M. Etter, Prentice Hall |
| 3. | C Programming, Ivor Horton, Wrox Press Limited |
| 4. | The C programming language : Kerninghan and Ritchie |

Central University of Kashmir				
Course Title	Chemistry Lab	Course Code	BT 109 L	
Degree	B.Tech. CSE	Branch	Computer Science & Engg.	
Course Type	Laboratory	Department	Information Technology	
Credits	1	L	T	P
Semester	1 st	0	0	1
<i>Course Outcomes</i>				
1. Students will be able to understand the basic principle of designed experiments through simple scientific tools. 2. Students will be able to evaluate and interpret scientific data. 3. Students will be able to create different experiments based on scientific understanding.				
Course Outline / Content				
Unit	Topics			Week
1.	To determine the total, permanent and temporary hardness of water by EDTA method.			1
2.	To determine alkalinity of given water samples/alkali mixtures by warder's Method.			1
3.	To estimate percentage of available chlorine (free chlorine) in bleaching powder/water.			1
4.	Synthesis of Phenol formaldehyde resin.			1
5.	Synthesis of Urea formaldehyde resin.			1
6.	Proximate analysis of coal.			1
7.	To determine the acid value of given lubricating oils.			1
8.	To determine the aniline point of given lubricating oils.			1

Central University of Kashmir				
Course Title	Sociology & Elements of Indian History for Engineers	Course Code	BT 110	
Degree	B.Tech. CSE	Branch	Computer Science & Engg.	
Course Type	Theory	Department	Information Technology	
Credits	2	L	T	P
Semester	1 st	2	0	0
<i>Learning Outcomes</i>				
<p>The objective of this course is to familiarize the prospective engineers with elements of Indian history and sociological concepts and theories by which they could understand contemporary issues and problems in Indian society. The course would enable them to analyse critically the social processes of globalization, modernization and social change. All of this is a part of the quest to help the students imbibe such skills that will enhance them to be better citizens and human beings at their work place or in the family or in other social institutions.</p>				
Course Outline / Content				
Unit	Topics			Week
1.	Approaches and Concepts 1. Understanding Family, Society and Social Order 2. Social Stratification: Class, Caste and Gender 3. Concepts of Liberty, Equality, Justice and Rights 4. Social Plurality: Ethnicity, Language and Religion			4
2.	: Modern History and Politics of India 1. Colonialism and Nationalism 2. Government and its Structure: Executive, Legislature and Judiciary 3. Processes of Social Inclusion and Exclusion 4. Globalisation and Sustainable Development			4
Text Books				
1.	A. R. Desai, (2005), Social Background of Indian Nationalism, Popular Prakashan.			
2.	Anthony Giddens (2006), Sociology, Polity Press.			
3.	Bhowmik, S (ed.) (2010), Street Vendors in the Global Urban Economy, Routledge.			
4.	Chandoke, Neera & Praveen Priyadarshi (2009), Contemporary India: Economy, Society and Politics, Pearson.			
5.	George Ritzer, (2010), Globalisation: A Basic Text, John Wiley and Sons.			
6.	Jean Dreze and Amartya Sen (2014), An Uncertain Glory: India and its Contradictions, Princeton University Press.			
7.	John Rawls (1971), A Theory of Justice, Cambridge Belknap Press			
8.	M. Haralambos and R. M Heald (2007), Sociology: Themes and Perspectives, Oxford University Press			
9.	R. S. Sharma.(1965), Indian Feudalism, Macmillan.			
10	Rajeev Bhargav and Ashok Acharya (2008), Political Theory: An Introduction, Pearson Education.			