

**DKTE Society's
TEXTILE & ENGINEERING INSTITUTE**

Rajwada, Ichalkaranji 416115

(An Autonomous Institute)

DEPARTMENT: TEXTILES

**CURRICULUM
B. Tech. Textile Chemistry Program**

First Year

With Effect From

2020-2021



Promoting Excellence in Teaching
Learning & Research

**First Year B. Tech. Textile Chemistry
Semester-I**

Sr. No.	Course Code	Name of the Course	Group	Teaching Scheme				Credits
				Theory Hrs/ Week	Tutorial Hrs/ Week	Practical Hrs/ Week	Total	
1	TCL161	Textile Mathematics - I	B	3			3	3
2	TCL162	Applied Mechanics	C	3			3	3
3	TCL163	Electrical Technology	C	3			3	3
4	TCL164	Organic Chemistry - I	D	3			3	3
5	TCL165	Physical Chemistry	B	3			3	3
6	TCP166	Electrical Technology Lab	C			2	2	1
7	TCP167	Professional Communication Lab	A	1		2	3	2
8	TCP168	Organic Chemistry - I Lab	D			2	2	1
9	TCP169	Physical Chemistry Lab	B			2	2	1
		Total		16	0	8	24	20

Group Details

A: Humanities, Social Science & Management

B: Basic Science

C: Engineering Science

D: Professional Core Courses

E: Professional Electives

F: Open Elective

G: Project / Seminar / Internship

H: Mandatory non-Credit Courses

First Year B. Tech. Semester – I
TCL161: TEXTILE MATHEMATICS- I

Teaching Scheme	
Lectures	3Hrs. / Week
Total Credits	3

Evaluation Scheme	
SE-I	25
SE-II	25
SEE	50
Total	100

Course Objectives	
1.	Introduce students with normal form, echelon form and rank of matrix. Prepare them to solve the problems of finding rank and solve system of equations.
2.	Introduce students with the theory of finding derivative numerically and fitting curve to given data. Prepare them to solve problems of numerical differentiation and curve fitting.
3.	Introduce students with basic concept of statistical data, collection and types of data, classification, graphical representation, frequency distribution with construction, central tendency and dispersion of data, measures of central tendency and dispersion. Prepare them to solve problem of these concepts with interpretation.
4.	Introduce students with concept of skewness and kurtosis, measures of skewness and kurtosis. Prepare them to solve and interpret problems of skewness.

Course Outcomes	
At the end of the course students have understood	
1.	The theory of normal form, echelon form and rank of matrix. Also, they can solve problems of finding rank and solve system of equations.
2.	The theory finding derivative numerically and fitting curve to given data. Also, they are able to solve problems related to numerical differentiation and curve fitting.
3.	Basic concept of statistical data, collection and types of data, classification, graphical representation, frequency distribution with construction, central tendency and dispersion of data, measures of central tendency and dispersion. Also, they are able to analyse and interpret given statistical data using these concepts.
4.	Concept of skewness and kurtosis, measures of skewness and kurtosis. Also, they are able to solve and interpret problems of skewness.

	Course Contents	Hrs.
Unit 1.	Matrix: Rank of matrix (Normal form of matrix, Echelon form of Matrix) Solution of simultaneous linear equations (Homogeneous & Non-Homogeneous) Characteristic equation, eigen values, eigen vectors. Caley Hamilton's theorem.	7
Unit 2.	Successive Differentiation & Partial Differentiation: Introduction, standard results, Leibnitz rule. Introduction of p. d., total differentiation,	7

	Euler's theorem on homogeneous function. Jacobean ($J.J'=1$) only, Errors & approximation.	
Unit 3.	Numerical Differentiation & curve fitting: Newton's forward & backward formulae, Sterling's formula. Newton's divided difference formula. Fitting of curves: $y=a+bx$, $y=a+bx+cx^2$, $y=a.x^b$ by least square method	6
Unit 4.	Introduction of Statistics: Definitions of Population, Variable, Attribute, Census Survey, Sample Survey, Random sample. Raw statistical data, collection, classification, Frequency distribution, class limits & boundary, class width, mid-point. Histogram, Frequency polygon, Frequency curve. Measures of central tendency: Arithmetic Mean (A.M.), Median, Mode, Combined Mean & Computation Partition values : Quartiles deciles and percentiles & Computation	7
Unit 5.	Measures of dispersion: Range, Quartile deviation, Mean deviation, Standard deviation as Absolute measures of dispersion, Coefficient of range, quartile deviation, mean deviation, coefficient of variation as Relative measures of dispersion, consistency of data & computation	7
Unit 6.	Measures of Skewness& kurtosis: Skewness, types, Karl Pearson's & Bow ley's coefficient of skewness& Computation. Kurtosis definition and types only. (No Examples of Kurtosis)	5

Reference Books

1	A textbook of applied mathematics Vol.-I & II by P.N. & J.N. Wartikar
2	Higher engineering mathematics by B.S. Grewal
3	A textbook of applied mathematics by Bali, Saxena&Iyengar.
4	Mathematical Statistics by J.E. Freund.
5	Probability & Statistics for engineers by Johnson.
6	Statistical methods by Kumbhojkar

First Year B. Tech. Semester – I
TCL162: APPLIED MECHANICS

Teaching Scheme	
Lectures	3 Hrs. /Week
Total Credits	3

Evaluation Scheme	
SE-I	25
SE-II	25
SEE	50
Total	100

Course Objectives	
1.	To understand the concept of forces and various laws related to force with basic principles, theorems and concepts of mechanics.
2.	To understand the concepts like equilibrium, support reactions, friction, moment of inertia and use of simple machines
3.	To study and analyse the effect of various types of forces on the bodies in static and dynamic conditions.
4.	To interpret the concept of transmission of motion and power in various machines by using various drives and bearings used in textile machines

Course Outcomes	
At the end of the course students will be able to	
1.	Understand the concept of forces and various laws related to force with basic principles, theorems and concepts of mechanics.
2.	Understand the concepts like equilibrium, support reactions, friction, moment of inertia and use of simple machines.
3.	Analyse the effect of various types of forces on the bodies in static and dynamic conditions.
4.	Interpret the concept of transmission of motion and power in various machines by using various drives and bearings used in textile machines

	Course Contents	Hrs.
Unit 1.	Fundamentals of statics Statics, dynamics, Fundamental units of measurements, Metric system of units, SI. System, Scalar and Vector quantities. Force, system of forces, Resultant force and equilibrant, principle of transmissibility of force, moment of force. Couple, Law of parallelogram of forces, Varignon's theorem, Composition and resolution of Coplanar concurrent and non-concurrent forces.	8
Unit 2.	Equilibrium Equilibrium of Coplanar forces, Conditions of equilibrium, free body diagram, Lami's theorem. Friction: Introduction to friction, types of friction, Laws of friction. Cone	7

	of Friction. Beams: Types of beams, Types of Loads, Types of supports, Analysis of Simply supported beams.	
Unit 3.	Moment of Inertia Centroid and Centre of gravity, Centroid of composite areas, Radius of gyration, parallel axis theorem, perpendicular axis theorem, Moment of inertia of composite sections.	7
Unit 4.	Lifting Machines Mechanical advantage, velocity ratio, efficiency, law of machine, effort lost in friction, load lost in friction, Study and numerical examples on simple machines- Simple screw jack, Simple axle and wheel, differential axle and wheel, worm and worm wheel.	6
Unit 5.	Kinematics and Kinetics Kinematics of Linear motion: Equations of linear motion with constant and variable acceleration, motion under gravity. Kinematics of Angular motion: Relation between angular motion & linear motion, Equations of angular motion, Centrifugal & centripetal forces, Motion along a curved path, Banking of roads. Kinetics: Newton's laws of motion, Mass moment of inertia, D'Alemberts principle, work, power, energy, impulse, Work- Energy Principle, Impulse- Momentum Principle, Principle of conservation of energy.	8
Unit 6.	Transmission of motion and power Belt, rope, chain and gear drives, P.I.V. drives, Type of gears and gear drives, Gear trains, velocity ratio, advantages of gear drives, uses in textile machines, Concept of epicyclic gearing. Types of bearing and their applications (Only theory, no numerical examples on this topic)	6

Reference Books	
1	Engineering Mechanics by R. K. Bansal and Sanjay Bansal, Laxmi Publications.
2	Applied Mechanics by R.S. Khurmi, S. Chand Publications.
3	Engineering Mechanics by S. S. Bhavikatti, New Age International Pvt. Ltd.
4	Engineering Mechanics by S. Ramamrutham, Dhanpat Rai and Sons.
5	Fundamentals of Engineering Mechanics by S. Rajasekaran, Sankarasubramanian, Vikas Publishing House.
6	Applied Mechanics by S.N. Saluja, SatyaPrakashan, New Delhi
7	Engineering Mechanics by S. B. Junnarkar, Charotar Publishing House Pvt. Ltd.
8	Vector Mechanics for Engineers Vol. I & II, by Beer & Jonhstan, Tata Mc-Graw Hill Publication

First Year B. Tech. Semester – I
TCL163: ELECTRICAL TECHNOLOGY

Teaching Scheme	
Lectures	3 Hrs. /Week
Total Credits	3

Evaluation Scheme	
SE-I	25
SE-II	25
SEE	50
Total	100

Course Objectives	
1.	To understand basic concepts involved in electrical & magnetic circuits.
2.	To understand concepts of elements & parameters in single phase and three phase AC circuits. Three phase Induction motor .
3.	To understand working and importance of electrical transformer.
4.	To study different types of electrical accessories, electric earthing & Lamps. Energy auditing and Power quality .

Course Outcomes	
At the end of the course students will be able to	
1.	Apply the fundamental laws and principles to solve the electrical & magnetic circuits.
2.	Analyse the behaviour of any element with respect to AC supply
3.	Analyse the characteristics behaviour of electrical transformer.
4.	Apply the knowledge of switchgear and lamps in electrical installation.

	Course Contents	Hrs.
Unit 1.	D. C. Circuit Basic electrical quantities, Concept of E.M.F, Potential Difference, current, Resistance, Ohm's Law, Kirchhoff's laws, mesh and node analysis, Energy Bill calculation. Numericals	8
Unit 2.	Magnetic Circuits Flux, flux density, Reluctance, field intensity, permeability, mmf, comparison of Electric and Magnetic circuit, leakage and fringing, B-H curve, series magnetic circuits. Numericals.	6
Unit 3.	Single Phase A.C. Circuits Faraday's Laws, Lenz's Law, types of emfs, generation of sinusoidal voltage, R.M.S. & Average value, form factor, peak factor, phasor representation of A.C. quantities, impedance, R-L, R-C, R-L-C series circuits, powers, power factor and its improvement by capacitor method. Numericals	8
Unit 4.	Three Phase A.C. Circuits Introduction to three phase supply and its advantages, Generation of three phase A.C. voltage, balanced system, relation between line and phase	8

	quantities in star and delta. Numericals. Three Phase Induction Motor Working Principle, Constructional Details, Types, Rotating Magnetic Field Theory. Speed Control Methods, Necessity of starters, Types of Starters, modern starter variable Frequency Drive (VFD), application in Textile Industry	
Unit 5.	Single Phase Transformer Construction, operating principle, Types, EMF equation, Concept of Ideal Transformer, Transformation Ratio, operation on no load and with load, losses, efficiency, voltage regulation, testing, applications. Numericals.	6
Unit 6.	Electrical Switchgear and Lamps , Power Quality , Energy Audit Necessity of Earthing, Earthing methods, Fuse (rewireble and HRC), MCB, Fluorescent tube, CFL, Mercury vapour lamp, LED lamp, single line diagram of electrical system. Introduction of energy audit, power quality, Harmonics concept of energy efficient lighting system & motors [EEM]	6

Reference Books

1	Elements of electrical Engineering by U.A. Bakshi
2	Electrical Technology by U.A. Bakshi
3	Basic Electrical Engineering by B. H. Deshmukh.
4	A text book in electrical technology by B. L. Thareja
5	Fundamentals of Electrical Engineering by Ashfaq Husain
6	Elements of electrical Engineering by U.A. Bakshi

First Year B. Tech. Semester – I
TCL164: ORGANIC CHEMISTRY-I

Teaching Scheme	
Lectures	3 Hrs. / Week
Total Credits	3

Evaluation Scheme	
SE-I	25
SE-II	25
SEE	50
Total	100

Course Objectives

1.	To recognize impure organic compounds by using testing methods, get the knowledge of different purification techniques.
2.	To explain stereochemistry of organic compounds via geometric, conformational and optical isomerism.
3.	To get the knowledge of different spectroscopic methods of analysis of organic compounds such as UV, IR and Mass spectroscopy.
4.	To get the awareness about the hazardous organic solvents and importance of sustainable chemistry. To get the knowledge of different environment benign approaches in organic synthesis.

Course Outcomes

At the end of the course students will be able to,

1.	Recognize impure organic compounds by using testing methods, get the knowledge of different purification techniques and apply it during troubleshoot in industry or in society.
2.	Explain stereochemistry of organic compounds via geometric Isomerism, conformational Isomerism and optical isomerism.
3.	Apply the knowledge of various spectroscopic methods of analysis of organic compounds such as UV, IR and Mass spectroscopy in industry.
4.	Get the awareness about the hazardous organic solvents and importance of sustainable chemistry in industry or in society. Apply the knowledge of different environment benign approaches in organic synthesis during troubleshoot in industry.

Course Contents		Hrs.
Unit 1.	Purification and testing of organic compounds Crystallization, Sublimation, Distillation, Solvent extraction, Chromatography. Determination of physical constant such as melting point and boiling point by open capillary method and with instrumental method. Determination of type determination of binary organic mixture.	06
Unit 2.	Geometric Isomerism and Conformational Isomerism Introduction, classification, cis-trans isomerism, E-Z system. Introduction	06

	to conformational isomerism, conformational isomerism of ethane, n-butane and cyclohexane.	
Unit 3.	Optical isomerism and R-S Nomenclature Symmetry and chirality, optical activity, optical isomerism of lactic acid, enantiomers, diastereomers, l and d isomers, meso form, racemic modification, optical isomerism of tartaric acid. R and S nomenclature.	06
Unit 4.	Beer-Lambert's Law and UV Spectroscopy Introduction, Lambert's Law, Beer-lambert Law, advantage and disadvantages of Beer-lambert Law, applications. Introduction, chromophores, auxochrome, red shift, blue shift, hypochromic shift, hyperchromic shift, effect of conjugation on position of UV and visible band.	08
Unit 5.	IR Spectroscopy and Mass Spectroscopy Introduction to IR Spectroscopy, principle, fundamental modes of vibrations, Hook's law, fundamental group region of IR spectrum, functional group region, factors affecting IR band values. Introduction to mass spectroscopy, mass spectrometer, isotopic abundance.	08
Unit 6.	Sustainable chemistry Introduction, hazardous and toxic organic solvents, sustainable solvents, environment benign approaches in organic synthesis such as use of ultrasound, microwave, ionic liquid, phase transfer catalyst, host-guest system.	05

Reference Books	
1.	Organic Chemistry by R. T. Morrison and R. N. Boyd.
2.	Stereochemistry of organic compounds by D. Nasipuri.
3.	A text book of Organic Chemistry by P.L. Soni.
4.	A text book of Organic Chemistry by B.S. Bahl and A. Bahl.
5.	Spectroscopy of Organic Compounds by P. S. Kalasi.
6.	Instrumental Methods of Chemical Analysis by G. Chatwal and S. Anand
7.	Green Chemistry: A Textbook by V. K. Ahluwalia.
8.	A text-book of practical organic chemistry by A. I. Vogel.

First Year B. Tech. Semester – I
TCL165: PHYSICAL CHEMISTRY

Teaching Scheme	
Lectures	3 Hrs. / Week
Total Credits	3

Evaluation Scheme	
SE-I	25
SE-II	25
SEE	50
Total	100

Course Objectives

1.	To describe chemical kinetics and factors affecting the rate of chemical reaction.
2.	To explain laws of thermodynamics, thermochemistry and their applications.
3.	To explain different types solutions and application of phase rule.
4.	To explain phenomenon of photochemistry, catalysis and adsorption.

Course Outcomes

At the end of the course students will be able to,

1.	Apply the knowledge of chemical kinetics in industry.
2.	Apply the laws of thermodynamics and thermochemistry.
3.	Explain different types solutions and apply the phase rule.
4.	Describe significance as well as applications of photochemistry, catalysis and adsorption in industry.

	Course Contents	Hrs.
Unit 1.	Chemical Kinetics Introduction, rate of chemical reactions, rate equations, order of reaction, zero, first, second and third order reactions with their examples, pseudo first order reactions, rate constant and its units, integrated rate equation, half-life of reaction: (zero order and first order reactions), numerical problems, factors affecting rate of chemical reactions.	6
Unit 2.	Thermodynamics Basic terms involved in thermodynamics-Energy, work, heat, system and surroundings, thermodynamic variables, thermodynamic functions, internal energy. Thermodynamic process- isothermal, adiabatic, isochoric, isobaric, cyclic, reversible and irreversible processes. Zeroth, first, second and third law of thermodynamics, spontaneous and non-spontaneous processes, Carnot cycle and its efficiency. Entropy and its significance, numerical problems.	8
Unit 3.	Thermochemistry Heat changes in chemical reaction, heat of reaction at constant pressure and constant volume, heat of formation, heat of combustion, heat of	6

	neutralization, heat of dilution, effect of temperature on heat of reaction, derivations of $C_p - C_v = R$ and Kirchhoff's equation, numerical problems.	
Unit 4.	Solution and Phase Rule Introduction, pH, normality, molarity, types of solution-true solution and colloidal solution. Surface tension, surfactant and biosurfactant, cleansing action of surfactant, applications, viscosity. Introduction, Gibb's phase rule, advantages and limitations, phase diagram, one component, two component and three component system.	7
Unit 5.	Photochemistry Introduction, laws of photochemistry- Grothus-Draper, Stark-Einstein, comparison between thermal and photochemical reactions, photo excitation of organic molecules, Norrish Type-I reaction, Jablonski diagram, fluorescence, phosphorescence, chemiluminescence, thermoluminescence.	6
Unit 6.	Adsorption and Catalysis Introduction, comparison of absorption and adsorption, types of adsorption, Freundlich adsorption isotherm, Langmuir adsorption isotherm, BET equation, General characteristics of catalysed reactions, types of catalyst, catalyst poisoning, theories of catalysis, criteria for choosing catalyst for industrial processes, applications of catalysts for industrially important processes.	6

Reference Books	
1	A Text book of Physical Chemistry by Samuel Glasstone.
2	Principles of Physical Chemistry by Maron & Prutton.
3	Essentials of Physical Chemistry by Bahl and Tuli.
4	A Text book of Physical Chemistry by L.K. Sharma.
5	Principles of Physical Chemistry by B. R. Puri, Madan S. Pathania.
6	Physical Chemistry by G.M. Barrow.
7	Textbook of Quantitative Chemical Analysis by G. H. Jeffery, J. Bassett, J. Mendham, R. C Denny.

First Year B. Tech. Semester – I
TCP166: ELECTRICAL TECHNOLOGY LAB

Teaching Scheme	
Practical	2 Hrs. /Week
Total Credits	1

Evaluation Scheme	
CIE	50
Total	50

List of Experiments	
1.	General Introduction to Electrical Engineering laboratory.
2.	Verification of Ohm's Laws.
3.	Verification of Kirchhoff's Current Law.
4.	Verification of Kirchhoff's Voltage Law.
5.	Determination of Power factor in ac circuit.
6.	Determination of Resistance & Inductance of a coil.
7.	Study of Phasor Relationship in R-L-C series circuit.
8.	Verification of phase and line parameters in three phase system.
9.	Determination of Efficiency and Regulation of Single Phase Transformer.
10.	Study of different types of Earthing.
11.	Study of different types of Protective devices.
12.	Study of different types of lamps.

Submission – Completed Journal.

First Year B. Tech. Semester – I
TCP167: PROFESSIONAL COMMUNICATION LAB

Teaching Scheme		Evaluation Scheme	
Lectures	1 Hrs. / Week	CIE	50
Practical	2 Hrs. / Week	Total	50
Total Credits	2		

Course Objectives	
1.	To help students to understand basic concepts of communication and life skills.
2.	To help them communicate effectively and to present their ideas in a rational and logical manner.
3.	To apply effective writing skills widely practiced everywhere.
4.	To make them aware of professional skills along with grammar and vocabulary.

Course Outcomes	
At the end of the course students will be able to	
1.	Understand the importance of communication and life skills which is beneficial for them throughout life.
2.	To exhibit oratorical skills by giving oral presentations.
3.	Demonstrate writing skills through letters, emails and job applications.
4.	Make use of English language with grammatical accuracy and apply professional skills.

Unit	Course Contents	Hrs.
Unit 1.	Understanding Communication: Meaning of communication, Process of communication – idea or source, sender, encoding process, message, medium or channel, noise, receiver, decoding process, feedback,-Barriers to Communication – Physical barriers – mechanical barriers –socio-cultural - psychological barriers – linguistic and semantics barriers, Forms of Communication – Formal and informal communication-Oral and written communication upward, downward, horizontal, grapevine-Verbal Communication Non Verbal Communication – appearance – gestures – facial expressions- postures – kinesics – eye contact – silence – haptic – proxemics – paralinguistic	2
Unit 2.	Fundamentals of English: Tenses-vocabulary - Parts of speech – Basic sentences.	2
Unit 3.	Business Correspondence Simple application letter drafting- Application and resume writing. -Email writing.	2

Unit 4.	Oratorical Efficiency The phonemic alphabet in English: vowel sounds – short vowels – long vowels – diphthongs and triphthongs -Consonantal sounds Extempore - Elocution – Debate – -Presentation techniques.	3
Unit 5.	Life Skills: Developing Positive attitude -Decision Making Skills - Leadership Skills - Emotional Intelligence - Time Management - Team Work.	2
Unit 6.	Professional skills Group discussion: meaning –types- rules- judging criteria -Interview Techniques: types- rules- judging criteria.	2

Reference Books

1	Soft Skills for Managers by Dr. T. KalyanaChakravarthi, Dr. T. LathaChakravarthi, Biztantra.
2	Communication skills for engineers by Sunita Mishra.
3	Soft Skills for every one by Jeff Butterfield, Cengage
4	Body Language by Allen Pease
5	Speaking Accurately by K.C. Nambiar, Cambridge University Press New Delhi.
6	Speaking Effectively by Jeremy Comfort, Pamela Rogerson, and Cambridge

List of Experiments

1.	Understanding Self or About myself
2.	Grammatical activities
3.	Simple application letter
4.	Job application and resume writing
5.	Extempore
6.	Vocabulary building
7.	E mail writing
8.	Elocution
9.	Debate
10.	Power point presentation on given topic
11.	Group Discussion
12.	Mock interview

Submission –**Completed Tutorial and assignment books****SCHEME OF ASSESSMENT:**

TUTORIAL BOOK	30 MARKS (Attendance, writing, performance)
ASSIGNMENT BOOK	10 MARKS.
ORAL	10 MARKS.

First Year B. Tech. Semester – I
TCP168: ORGANIC CHEMISTRY-I LAB

Teaching Scheme	
Practical	2 Hrs. / Week
Total Credits	1

Evaluation Scheme	
CIE	50
Total	50

	List of Experiments (any twelve)
	Purification Techniques
1)	To purify given organic compound by sublimation.
2)	To purify given organic compound by crystallization.
3)	To purify given organic compound by a simple distillation.
4)	To study the extraction of solvent soluble matter in cotton fabric using soxhlet
5)	To separate the given mixture of two immiscible liquids using separatory funnel.
6)	To separate the given mixture of two immiscible liquids using Dean-Stark apparatus.
	Physical Testing Methods
7)	To determine the melting point of organic compound by open capillary method.
8)	To determine the boiling point of organic compound by open capillary method.
9)	To determine the melting point of organic compound by instrumental method.
10)	To determine the boiling point of organic compound by instrumental method.
	Chemical Testing Methods
11)	Binary organic mixture separation and its type determination (solid + solid).
12)	Binary organic mixture separation and its type determination (solid + liquid).
13)	Binary organic mixture separation and its type determination (liquid + liquid).
	Spectroscopic Techniques
14)	Demonstration of IR instrument on its working principle.
15)	Demonstration of UV-visible spectrophotometer instrument on its working principle.
	Environment benign techniques in organic synthesis
16)	Demonstration of Ultrasound sonicator instrument and its working principle.
17)	Demonstration of microwave instrument and its working principle.

Submission – Completed Journal.

First Year B. Tech. Semester – I
TCP169: PHYSICAL CHEMISTRY LAB

Teaching Scheme	
Practical	2 Hrs. / Week
Total Credits	1

Evaluation Scheme	
CIE	50
Total	50

List of Experiments (Any Twelve)	
1.	Study of the Chemical Kinetics of Hydrogen Peroxide Decomposition.
2.	Study of the effect of change in temperature on the rate of reaction between sodium thiosulphate & hydrochloric acid.
3.	Determination of Rate Constant for the Hydrolysis of Ethyl Acetate (first order) in the presence of 0.5 N Hydrochloric Acid.
4.	Determination of energy of activation of a (first order) reaction of hydrolysis of Ethyl Acetate in the presence of 0.5 N Sulfuric Acid.
5.	Determination of Rate Constant of (second order) reaction between potassium persulphate and potassium iodide (Equal concentration).
6.	Determination of Rate Constant of (second order) reaction between potassium persulphate and potassium iodide (Unequal concentration).
7.	Determination of Viscosity of liquid samples by using Ostwald's viscometer.
8.	Determination of the percentage composition of the given unknown mixture using Ostwald's viscometer by graphical method.
9.	Determination of heat of neutralization.
10.	Determination of Heat of reaction between CuSO_4 and Zinc dust.
11.	Estimation of Na_2CO_3 and NaOH from the mixture
12.	Standardization of NaOH using primary standard.
13.	Determination of normality of given weak acid solution using weak base conductometrically.
14.	Determination of normality of given weak acid solution using strong base conductometrically.
15.	Determination of normality of given acid solution potentiometrically.
16.	Determination of Soap value of oil.
17.	Determination of pH of solutions.

Submission – Completed Journal.

First Year UG Program in Textile Chemistry
Semester-II

Sr. No.	Course Code	Name of the Course	Group	Teaching Scheme				Credits
				Theory Hrs/ Week	Tutorial/ Drawing Hrs/ Week	Practical Hrs/ Week	Total	
1	TCL171	Textile Mathematics - II	B	3			3	3
2	TCL172	Applied Physics	B	3			3	3
3	TCL173	Engineering Graphics	C	2			2	2
4	TCL174	Inorganic and Industrial Chemistry	B	3			3	3
5	TCL175	Organic Chemistry - II	D	3			3	3
6	TCP176	Engineering Graphics Lab	C			2	2	1
7	TCP177	Inorganic and Industrial Chemistry Lab	B			2	2	1
8	TCP178	Organic Chemistry - II Lab	D			2	2	1
9	TCP179	Fundamental of Computer and Programming Lab	C			2	2	1
10		Democracy, Election and Good Governance*	H					NP/NF
		Total		14	0	8	22	18

Group Details

- A: Humanities, Social Science & Management
 B: Basic Science
 C: Engineering Science
 D: Professional Core Courses
 E: Professional Electives
 F: Open Elective
 G: Project / Seminar / Internship
 H: Mandatory non-Credit Courses

First Year B. Tech. Semester – II
TCL171: TEXTILE MATHEMATICS- II

Teaching Scheme	
Lectures	3Hrs. / Week
Total Credits	3

Evaluation Scheme	
SE-I	25
SE-II	25
SEE	50
Total	100

Course Objectives	
1.	Prepare students so that they can understand mathematical rules used in tracing cartesian and polar curves.
2.	Prepare students with the definition, methods related to reduction formulae, special functions, multiple integrals and its applications
3.	Prepare students with statistical methods so that they can understand analysis of bivariate data, correlation and regression.
4.	Prepare students to understand probability, random variable and probability distributions. Also, to solve textile engineering problems using probability distributions.

Course Outcomes	
At the end of the course students have understood	
1.	Rules of tracing cartesian and polar curves. Also, they are able for trace curves.
2.	the theory, definition and properties of reduction formulae, special functions, multiple integrals and its applications. Also, they are able to use them to solve the problems of area, mass of lamina and volume.
3.	the bivariate data, definition of correlation and properties of correlation coefficients, concept of regression, types and regression equations. Also, they are able to find coefficient of correlation, equations of regression with interpretation.
4.	the concept of random variable with type and probability distribution of random variable with types. Also, they are able to solve textile problems using Binomial, Poisson and Normal probability distributions

	Course Contents	Hrs.
Unit 1.	Curve Tracing: Rules & examples of curve tracing in Cartesian and Polar Equations only	5
Unit 2.	Integral Calculus: Reduction formulae of sine and cosine functions, Gamma function, Beta Function, Multiple integrals: Introduction, solution, change of order & Change of variables method.	8
Unit 3.	Applications of integration: Area, Mass of lamina using double integrals only. Volume using triple integral only	6

Unit 4.	Bivariate data: Correlation: Definition, types, coefficient of correlation, properties & interpretation. Rank correlation coefficient & computation and interpretation. Regression: Regression concept and types. Lines of regression X on Y & Y on X, regression coefficients with properties & computation.	7
Unit 5.	Probability distribution: Introduction of probability and its basic laws. Random variable: Definition, types. Introduction of probability distribution, types of probability distribution, pmf & pdf, expectation of random variable. MGF of random variable. Standard discrete probability distributions: Binomial probability distribution: Definition, properties, fitting & examples. Poisson probability distribution: Definition, properties, fitting & examples	7
Unit 6.	Standard continuous probability distributions: Normal probability distribution: Definition, properties, standard normal distribution & examples. Chi-square probability distribution (χ^2): Definition & properties only. t-probability distribution: Definition & properties only. F-probability distribution: Definition & properties only. Introduction of statistical table for Z, t, χ^2 , & F.	6

Reference Books

1	A textbook of applied mathematics Vol.-I & II by P.N. & J.N. Wartikar
2	Higher engineering mathematics by B.S. Grewal
3	A textbook of applied mathematics by Bali, Saxena & Iyengar.
4	Mathematical Statistics by J.E. Freund.
5	Probability & Statistics for engineers by Johnson.
6	Statistical methods by Kumbhojkar

First Year B. Tech. Semester – II
TCL172: APPLIED PHYSICS

Teaching Scheme	
Lectures	3 Hrs. / Week
Total Credits	03

Evaluation Scheme	
SE-I	25
SE-II	25
SEE	50
Total	100

Course Objectives	
1.	To understand significance of basic concepts of physics involved in textiles
2.	To discuss the different factors from physics affecting yarn and fabric properties
3.	To explain the different principles from physics involved in textiles.
4.	To explain the different methods of measurement and calculate the different quantities of physics involved in textiles.

Course Outcomes	
At the end of the course students will be able to	
1.	Understand significance of basic concepts of physics involved in textiles
2.	Discuss the different factors from physics affecting yarn and fabric properties
3.	Explain the different principles from physics involved in textiles.
4.	Explain the different methods of measurement and calculate the different quantities of physics involved in textiles

	Course Contents	Hrs.
Unit 1.	Elasticity: Stress, strain, Hooke's Law of elasticity, Breaking stress, Working stress, Factor of safety, Resilience. Some peculiar traits and Factors affecting elasticity. Young's modulus, bulk Modulus and Modulus of rigidity. Relation between Y , η and K . Poission's ratio, relation between K , η and Poission's ratio. Twisting couple on a cylinder (for wire). Torsional rigidity.	7
Unit 2.	Viscosity: Newton's Law of viscosity. Streamline & Turbulent flow, Critical velocity, Significance of Reynold's number. Stokes law. Terminal velocity and its expression. Poiseuille's equation for flow of a liquid through a horizontal capillary tube. Experimental determination of η for a liquid by Poiseuille's method, Ostawald viscometer Applications of viscosity.	6
Unit 3.	Friction and Surface Tension: Types of friction, Laws of friction, Angle of friction, acceleration down an inclined plane. Rope brake, Proof of $T_2/T_1 = e^{\mu\theta}$. Molecular theory of surface tension. Surface energy, Angle of contact,	6

	capillary rise. Excess pressure inside a liquid drop, Soap bubble and inside a curved membrane of any shape. Applications of surface tension.	
Unit 4.	Optics: Laws of refraction, refractive index, total internal reflection. Magnifying Power and Resolving power. Construction & working of electron microscope. Polarization of light, Double refraction, Nicol prism, Quarter wave and Half wave plate. Production and detection of circularly and Elliptically polarized light.	7
Unit 5.	Crystalline solids and characterization by X-rays Production of x-rays by modern Coolidge tube, Properties and Applications of X-rays. X-ray spectrum. Seven crystal systems, miller Indices. Bragg's law and Bragg's x-ray spectrometer.	7
Unit 6.	Laser and Photoelectric effect: Laser, Characteristics and Applications of Laser. Spontaneous, Stimulated emission and Ruby Laser. Photoelectric effect, Einstein's equation of photoelectric equation. Factors affecting the photoelectric effect. Study of various photocells. Use of photo sensors.	6

Reference Books	
1	Elements of Properties of Matter by D.S. Mathur
2	Engineering Physics by B.L. Theraja
3	Engineering Physics by R.K. Gour & Gupta
4	Physics for Engineers by M.R. Srinivasan
5	Text Book of Optics by Brijlal & Subramanyam
6	Optics by A.K. Ghatak

First Year B. Tech. Semester – II
TCL173: ENGINEERING GRAPHICS

Teaching Scheme	
Lectures	2 Hrs. /Week
Total Credits	2

Evaluation Scheme	
SE-I	25
SE-II	25
SEE	50
Total	100

Course Objectives	
1.	To understand procedure for converting a pictorial view into orthographic view.
2.	To understand procedure for converting an orthographic view in to isometric view.
3.	To understand procedure for drawing Development and anti-development of solids such as cone, cylinder, prism and pyramid.
4.	To study IS convections for various materials and mechanical elements, free hand sketches of various mechanisms used in textile machines. To know the use of Auto-CAD Commands.

Course Outcomes	
At the end of the course students will be able to	
1.	Draw orthographic views from a given pictorial view.
2.	Draw isometric view from given orthographic views.
3.	Draw Development and anti-development of solids such as cone, cylinder, prism and pyramid.
4.	Draw IS convections for various materials and mechanical elements, free hand sketches of various mechanisms used in textile machines. To write Commands for various entities in Auto-CAD.

	Course Contents	Hrs.
Unit 1.	Introduction & use of instruments: Line, Lettering, Conventions of section lines, I.S. conventions of machine parts like knurling, square end of shaft, bearing, springs, external & internal thread.	3
Unit 2.	Introduction to Projection of Points, Lines, Planes, Solids and Section of Solids	4
Unit 3.	Orthographic Projections and Sectional Orthographic views: General principles, First angle method, Third angle method, Dimensioning, Cutting plane, Types of sections, drawing sectional views of machine components.	5
Unit 4.	Isometric Projections: Principle, Isometric scale, Isometric views, Making Isometric drawings of simple objects from orthographic views.	7

Unit 5.	Development of Surfaces: Introduction to solids (Types of solids only), Development of lateral surfaces of cubes, prisms, pyramids, cylinders & cones.	7
Unit 6.	Free hand sketches & Introduction to Auto- CAD Making free hand sketches of various textile machine parts & mechanisms used in spinning, weaving, processing, garments. Commands for drawing lines, circles, polygons, ellipse etc.	3

Reference Books	
1	Engineering Drawing by N. D. Bhatt & V. M. Panchal.
2	Engineering Drawing by Venugopal.
3	Machine Drawing by N. D. Bhatt & V. M. Panchal.
4	Machine Drawing by K. L. Narayana, Kannaiah P., K. Venkata Reddy.
5	Principles of Weaving by Marks & Robinson.
6	Engineering Graphics by H. G. Phakatkar

First Year B. Tech. Semester – II
TCL174: INORGANIC AND INDUSTRIAL CHEMISTRY

Teaching Scheme	
Lectures	3 Hrs. / Week
Total Credits	3

Evaluation Scheme	
SE-I	25
SE-II	25
SEE	50
Total	100

Course Objectives	
1.	To explain water quality parameters, water treatment methods and chromatographic techniques.
2.	To explain theory of bonding and compounds used in textiles.
3.	To explain the metallic materials, corrosion and its prevention.
4.	To describe characteristics of fuels, fuel cells and determine calorific value of fuels.

Course Outcomes	
At the end of the course students will be able to	
1.	Explain water quality parameters, select water treatment methods and select chromatographic techniques for analysis.
2.	Explain the bonding in textiles compounds and use proper compounds in textile processing.
3.	Describe the metallic material and prevent corrosion in industries and society.
4.	Evaluate the quality of fuels and select the proper fuels, fuel cells and batteries.

	Course Contents	Hrs.
Unit 1.	Water Introduction, impurities in natural water, water quality parameters: pH, acidity, alkalinity, total solids, BOD, COD, hardness- definition, types, units and numerical problems, ill effects of hard water in textile industry, boiler feed water, causes & disadvantages of scale and sludge formation, priming, foaming and caustic embrittlement, treatment of water by zeolite process, ion exchange process, reverse osmosis.	07
Unit 2.	Theory of Bonding and Stoichiometry Introduction, chemical bond, types of bond: covalent bond, ionic bond, co-ordinate bond, primary and secondary bonds such as Van der Waals forces, hydrogen bonds, characteristics of ionic, covalent and co-ordinate compounds, polar and non-polar bonds, electronegativity and nature of bonds. Stoichiometry: Atomic weights, molecular weight, equivalent weight, problems based on weight – weight relationship, weight-volume relations and their applications in textiles.	06

Unit 3.	Inorganic compounds used in textiles Properties and textile applications of ammonium sulphate, ferrous sulphate, zinc oxide, sodium carbonate, sodium hydroxide, Glauber's salt, vacuum salt, sodium perborate, sodium hydrosulphite, hydrogen peroxide, peracetic acid, sodium silicate, potassium permanganate.	06
Unit 4.	Metallic Materials and Corrosion Introduction to metallic materials, alloys: definition, classification, purposes of making alloys, composition, properties and applications of ferrous alloys: plain carbon steels, stainless steel, nonferrous alloys: brass and bronze. Introduction to corrosion, definition, causes, classification, atmospheric corrosion, electrochemical corrosion and mechanisms, factors affecting the rate of corrosion, prevention of corrosion by cathodic protection, hot dipping- Galvanizing and Tinning.	07
Unit 5.	Chromatography Introduction, classification of chromatography, underlying principles of chromatographic techniques, paper chromatography, TLC, HPTLC: a brief introduction, ion exchange chromatography, high performance liquid chromatography, gas chromatography, applications in textiles.	06
Unit 6.	Fuels and Fuel Cells Introduction, classification, properties, characteristics of good fuel, comparison between solid, liquid and gaseous fuels, determination of calorific value by Bomb and Boy's calorimeter, numerical problems. Fuel cells: Definition, classification, advantages and disadvantages of fuel cells. Construction, working and applications of H ₂ -O ₂ cell.	07

Reference Books	
1	Engineering Chemistry by Jain and Jain.
2	A Text Book of Engineering Chemistry by S. S. Dara
3	Fundamental Inorganic Chemistry by P.L. Soni.
4	Fundamental concepts of Inorganic Chemistry by E.S. Gilreath.
5	A text book of Quantitative Inorganic Chemistry by A.I. Vogel.
6	A New Concise Inorganic Chemistry by J.D. Lee.
7	Analytical Chemistry by Gary Christian
8	Instrumental methods of chemical analysis by Chatwal and Anand

First Year B. Tech. Semester – II
TCL175: ORGANIC CHEMISTRY- II

Teaching Scheme		Evaluation Scheme	
Lectures	3 Hrs. / Week	SE-I	25
Total Credits	3	SE-II	25
		SEE	50
		Total	100

Course Objectives

1.	To get the knowledge of organic compounds, functional group interconversion, able to predict the products and invent new synthetic pathways via substitution reactions.
2.	To explain the chemistry of aromatic nitro, amino compounds and aryl diazonium salts.
3.	To explain the chemistry of aromatic carboxylic and sulphonic acids.
4.	To describe chemistry of polynuclear hydrocarbons and dye intermediates.

Course Outcomes

At the end of the course students will be able to,

1.	Explain chemistry of organic compounds, functional group interconversion, able to predict the products and invent new synthetic pathways via substitution reactions.
2.	Illustrate the chemistry of aromatic nitro, amino compounds and aryl diazonium salts.
3.	Explain chemistry of aromatic carboxylic and sulphonic acids.
4.	Describe chemistry of polynuclear hydrocarbons and dye intermediates.

Course Contents		Hrs.
Unit 1.	Aromatic Compounds Aromaticity, Huckel's (4n+2) rule, functional group interconversion, nucleophilic substitution reaction via benzyne intermediate, electrophilic substitution reaction of monosubstituted benzene, activation and deactivation effect, orientation effect of substituents. Active methylene compounds.	06
Unit 2.	Nitrogen Containing Aromatic Compounds Introduction, preparation, properties and applications of aromatic nitro, amino compounds and aryl diazonium salts. Introduction to amino acids and proteins. Properties and applications of amino acids and proteins.	08
Unit 3.	Aromatic Carboxylic and Sulphonic Acids Introduction, nomenclature, preparation, properties, applications of carboxylic acids. Nomenclature, preparation, properties, applications of benzenesulphonic acid, acidity of sulphonic acids, isolation of aromatic sulphonic acid from mother liquor.	06

Unit 4.	Naphe and its derivatives Introduction, preparation, properties and applications of naphthalene. Introduction, preparation, properties and applications of naphthols. Introduction, preparation, properties and applications of naphthyl amine.	07
Unit 5.	Anthracene and its derivatives Introduction, preparation, properties and applications of anthracene. Introduction, preparation, properties and applications of anthraquinone.	06
Unit 6.	Dye Intermediates Introduction to dye intermediates, preparation of H-acid, J-acid, G-acid, Naphthionic acid, Gamma acid, Schaffer's acid, N-W acid and Cleve acid.	06

Reference Books	
1.	Organic Chemistry by R. T. Morrison and R. N. Boyd.
2.	Organic Chemistry by J. Clayden, N. Greeves and Stuart Warren.
3.	A text book of Organic Chemistry by P.L. Soni.
4.	A text book of Organic Chemistry by B.S. Bahl and A. Bahl.
5.	Synthetic Organic Chemistry by G. R. Chatwal.
6.	Systematic Lab Experiments in Organic Chemistry by A. Sethi
7.	Principles of dye chemistry by P. Vittum
8.	A text-book of practical organic chemistry by A. I. Vogel.

First Year B. Tech. Semester – II
TCP176: ENGINEERING GRAPHICS LAB

Teaching Scheme	
Practical	2 Hrs. /Week
Total Credits	1

Evaluation Scheme	
CIE	50
Total	50

List of Experiments	
1.	Lines, Letterings & Dimensioning.
2.	Conventions of section lines & I.S. conventions of machine parts.
3.	Projection of Points and Lines, Auxiliary Plane Method
4.	Projection of Planes, Auxiliary Plane Method
5.	Projection of Solids, Auxiliary Plane Method
6.	Projection of Section of Solids, Auxiliary Plane Method
7.	Conversion of pictorial view into orthographic views.
8.	Conversion of pictorial view into sectional orthographic views.
9.	Free hand sketches of textile machine parts & mechanisms.
10.	Isometric Projections.
11.	Development of Surfaces
12.	Autocad Commands

Submission – Completed Journal.

First Year B. Tech. Semester – II
TCP177: INORGANIC AND INDUSTRIAL CHEMISTRY LAB

Teaching Scheme	
Practical	2 Hrs. / Week
Total Credits	1

Evaluation Scheme	
CIE	50
Total	50

List of Experiments (Any Twelve)	
1.	Determination of total hardness of water by EDTA method.
2.	Determination of total alkalinity of water.
3.	Determination of chloride content of water by Mohr's method
4.	Determination of dissolved oxygen of water.
5.	Determination of COD of water.
6.	Determination of total solids & suspended solids of water.
7.	Preparation hexamine nickel (II) chloride.
8.	Preparation of chloropenta-amine cobalt (III) chloride.
9.	Determination of Percentage Purity of Hydroses Powder.
10.	Determination of Percentage Purity of NaOCl
11.	Determination of Strength of Hydrogen Peroxide.
12.	Determination of rate of corrosion of metal.
13.	Estimation of copper in bronze.
14.	Estimation of copper in brass.
15.	Gravimetric Estimation of Barium as Barium Sulphate.
16.	Gravimetric Estimation of Chloride as Silver Chloride.
17.	Separation and detection of cations by using Paper Chromatography.
18.	Proximate analysis of solid fuel.

Submission – Completed Journal.

First Year B. Tech. Semester – II
TCP178: ORGANIC CHEMISTRY-II LAB

Teaching Scheme	
Practical	2 Hrs. / Week
Total Credits	1

Evaluation Scheme	
CIE	50
Total	50

	List of Experiments (any twelve)
	Organic Qualitative Analysis
1)	Determination of organic (benzoic acid) compound by organic qualitative analysis.
2)	Determination of organic (phthalic acid) compound by organic qualitative analysis.
3)	Determination of organic (aniline) compound by organic qualitative analysis.
4)	Determination of organic (alpha-naphthol) compound by organic qualitative analysis.
5)	Determination of organic (beta-naphthol) compound by organic qualitative analysis.
6)	Determination of organic (nitrobenzene) compound by organic qualitative analysis.
7)	Determination of organic (naphthalene) compound by organic qualitative analysis.
8)	Determination of organic (anthracene) compound by organic qualitative analysis.
9)	Determination of organic (ortho-nitro aniline) compound by organic qualitative analysis.
10)	Determination of organic (meta-nitro aniline) compound by organic qualitative analysis.
11)	Determination of organic (para-nitro aniline) compound by organic qualitative analysis.
12)	Identify protein present in given sample by qualitative analysis.
	Preparation of organic compounds
13)	Preparation of p-nitroacetanilide from acetanilide.
14)	Preparation of benzene azo-β-naphthol from aniline and β-naphthol.
15)	Preparation of phthalic anhydride from phthalic acid.
16)	Preparation phthalimide from phthalic anhydride.
17)	Preparation of acetanilide from aniline.
18)	Preparation of benzene sulphonic acid from benzene.

Submission – Completed Journal.

First Year B. Tech. Semester – II
TCP179: FUNDAMENTALS OF COMPUTER AND PROGRAMMING LAB

Teaching Scheme		Evaluation Scheme	
Practical	2 Hrs. / Week	CIE	50
Total Credits	1	Total	50

Course Objectives	
1.	To describe basic Computer architecture and Generation of computers.
2.	To explain operating system concept with its structure and features
3.	To illustrate scripting language and programming
4.	To explain basic structure of 'C' programming and formation, implementation, discuss about online platform

Course Outcomes	
At the end of the course students will be able to	
1.	Understand basic of computer architecture and generation of computer.
2.	Understand basic of operating system and programming language
3.	Design and implement web pages using scripting language.
4.	Understand programming concept and develop simple application programs in 'C' Language. Understand of online platform

	Course Contents	Hrs.
Unit 1. Introduction to Computers	Introduction: Characteristics of Computers, Block diagram of computer. Types of computers and features, Mini Computers, Micro Computers, Mainframe Computers, Super Computers. Types of Programming Languages (Machine Languages, Assembly Languages, High Level Languages). Data Organization, Drives, Files, Directories. Types of Memory (Primary and Secondary) RAM, ROM, PROM, and EPROM. Secondary Storage Devices (FD, CD, HD, Pen drive), I/O Devices (Scanners, Plotters, LCD, Plasma Display), Number Systems Introduction to Binary, Octal, Hexadecimal number system Conversion, Simple Addition, Subtraction, Multiplication using number system.	6
Unit 2. Computer Software	Operating System: Types of operating system, Functions, Unix/Linux, Windows 7/Windows 8-structures & features, Unix/Linux commands: Listing, changing, copying and moving files & directories (LS, CD, CAT, MKDIR, RMDIR, and other commands), any editor in Linux. Application Software's: Word processor, spreadsheets, presentation, application, DBMS, etc.	6
Unit 3. Dynamic Web Page	HTML: use of commenting, headers, text styling, images, formatting text with , special characters, horizontal rules, line breaks, table, forms, image maps, <META> tags, <FRAMESET> tags, file	4

Design	formats including image formats. Introduction to VB script, basics of VB scripting, Java script.	
Unit 4. Programming with 'C' Language	Introduction to 'C' Programming: Algorithm & flowchart, keywords, statements, Loops, Array representation, one dimensional array, structure, define structure variable, accessing structure member, pointer, pointer arithmetic, pointer & array.	6
Unit 5. Online Platform	Online Meeting, online Presentation, online exam, online webinars, online study platforms.	4

Reference Books	
1	Fundamentals of Computers by V. Rajaram, PHI Publications.
2	Introduction to Information Technology, ITL Education Solutions LTD. Pearson Education
3	Let us C by Y.P. Kanetkar, BPB Publication
4	Beginning Java Script ,4Ed by Jeremy Mcpeak Paul Wilton

List of Experiments	
1.	Study of basic parts of Computer System
2.	Study of Linux Commands
3.	Create spreadsheet application to manipulate numbers, formula and graphs in Linux/MS Office
4.	Create a Power Point presentation application using Text, Image, Animation using Linux/MS Office
5.	Create a simple personal web page using HTML
6.	Create a simple web page using VB Script
7.	Program for Addition, subtraction, Multiplication, Division of two numbers using C Language in Linux Platform
8.	Program for different types of loops using C Language in Linux Platform
9.	Program for one-dimensional array using C Language in Linux Platform
10.	Program for two-dimensional array using C Language in Linux Platform
11.	Study of Online Platform-I
12.	Study of Online Platform-II

Submission – Completed Journal.

First Year B. Tech. Semester – II
DEMOCRACY, ELECTIONS AND GOOD GOVERNANCE

Evaluation Scheme*	
CIE	50
Total	50

Course Objectives

1.	By studying on their own, students will try to understand importance of democracy, election to local self-government bodies and good governance.
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Course Outcomes

At the end of the course students will be able to

1.	Answer questions related to democracy, election to local self-government bodies and good governance.
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	Course Contents*
Unit 1.	Democracy in India <ul style="list-style-type: none"> • Dimensions of Democracy: Social, Economic and Political • Decentralisation: Grassroots Level Democracy • Challenges before Democracy: women and marginalised sections of the society
Unit 2.	Election to Local Self Government Bodies <ul style="list-style-type: none"> • 73rd and 74th Constitutional Amendment Acts: Institutions at the local level and Role of State Election commission • Local Body Elections: Urban & Rural • Duties of an Individual towards electoral process
Unit 3.	Good Governance <ul style="list-style-type: none"> • Meaning and concept • Government and Governance • Good Governance initiatives in India

*** Students have to pass this subject by studying on their own & by securing minimum 20 marks out of 50, passing of this course is compulsory.**