

DKTE Society's
TEXTILE & ENGINEERING INSTITUTE

Rajwada , Ichalkaranji 416115

(An Autonomous Institute)

DEPARTMENT: GENERAL ENGINEERING

CURRICULUM

First Year B.Tech. Engineering Program

First Year

With Effect From

2020-21



Promoting Excellence in Teaching
Learning & Research

General Engineering Department
First Year UG Program in Computer Science and Engineering, Computer Science and Engineering
(Artificial Intelligence), Electronics and Telecommunication Engineering.

Class - F.Y. B.Tech.

Chemistry Group

Semester – I

Sr. No.	Course Code	Name of the Course	Group	Teaching Scheme				Credits
				Theory Hrs/Week	Tutorial Hrs/Week	Practical Hrs/Week	Total Hrs.	
1	GEL151	Engineering Chemistry	BSC	3	–	–	3	3
2	GEL152	Engineering Mathematics-I	BSC	3	–	–	3	3
3	GEL153	Engineering Mechanics	ESC	3	–	–	3	3
4	GEL154	Basics of Civil and Mechanical Engineering	ESC	4	–	–	4	4
5	GEP155	Engineering Chemistry Lab	BSC	–	–	2	2	1
6	GEP156	Engineering Mechanics Lab	BSC	–	–	2	2	1
7	GEP157	Professional Communication	HSMC	2	–	2	4	3
8	GEP158	Workshop Practice	ESC	–	–	2	2	1
Total				15	0	8	23	19

Abbreviations:

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

SE-I: Semester Examination-I

SE-II: Semester Examination-II

Group Details

BSC Basic Science

ESC Engineering Science

HSMC Humanities Social Science & Management

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PCC: Professional Courses & Professional Elective

OEC Open Elective Courses

PST: Project / Seminar / Ind. Training

MC Mandatory Courses

General Engineering Department
First Year UG Program in Computer Science and Engineering, Computer Science and Engineering
(Artificial Intelligence), Electronics and Telecommunication Engineering.

Class - F.Y. B.Tech.

Physics Group

Semester-II

Sr. No.	Course Code	Name of the Course	Group	Teaching Scheme				Credits
				Theory Hrs/ Week	Tutorial Hrs/ Week	Practical Hrs/ Week	Total Hrs	
1	GEL159	Engineering Physics	BSC	3	–	–	3	3
2	GEL160	Engineering Mathematics-II	BSC	4	–	–	4	4
3	GEL161	Basic Electrical Engineering	ESC	3	–	–	3	3
4	GEL162	Fundamentals of Programming Using 'C'	ESC	4	–	–	4	4
5	GEL163	Engineering Graphics	ESC	2	–	–	2	2
6	GEP164	Engineering Physics Lab	BSC	–	–	2	2	1
7	GEP165	Basic Electrical Engineering Lab	ESC	–	–	2	2	1
8	GEP166	Fundamentals of Programming Using 'C' Lab	ESC	–	–	2	2	1
9	GEP167	Engineering Graphics Lab	ESC	–	–	4	4	2
10	*GEI168	Democracy, Election and Good Governance	MC	–	–	–	–	Non Credit Mandatory Course
Total				16	0	10	26	21

***GEI168: Students have to pass this course on their own by securing minimum 20 marks out of 50. Passing of this course is compulsory**

General Engineering Department
First Year UG Program in Mechanical Engineering,
Civil Engineering and Electrical Engineering.

Class - F.Y. B.Tech.

Physics Group

Semester-I

Sr. No.	Course Code	Name of the Course	Group	Teaching Scheme				Credits
				Theory Hrs/Week	Tutorial Hrs/Week	Practical Hrs/Week	Total Hrs	
1	GEL159	Engineering Physics	BSC	3	–	–	3	3
2	GEL152	Engineering Mathematics-I	BSC	3	–	–	3	3
3	GEL161	Basic Electrical Engineering	ESC	3	–	–	3	3
4	GEL162	Fundamentals of Programming Using 'C'	ESC	4	-	-	4	4
5	GEL163	Engineering Graphics	ESC	2	–	–	2	2
6	GEP164	Engineering Physics Lab	BSC	–	–	2	2	1
7	GEP165	Basic Electrical Engineering Lab	ESC	–	–	2	2	1
8	GEP166	Fundamentals of Programming Using 'C' Lab	ESC	-	-	2	2	1
9	GEP167	Engineering Graphics Lab	ESC	–	–	4	4	2
10	*GEI168	Democracy, Election and Good Governance	MC	–	–	–	–	Non Credit Mandatory Course
Total				15	0	10	25	20

***GEI168:** Students have to pass this course on their own by securing minimum 20 marks out of 50. Passing of this course is compulsory

General Engineering Department
First Year UG Program in Mechanical Engineering,
Civil Engineering and Electrical Engineering.
Class - F.Y. B.Tech.

Chemistry Group

Semester –II

Sr. No.	Course Code	Name of the Course	Group	Teaching Scheme				Credits
				Theory Hrs/ Week	Tutorial Hrs/ Week	Practical Hrs/ Week	Total Hrs.	
1	GEL151	Engineering Chemistry	BSC	3	–	–	3	3
2	GEL160	Engineering Mathematics-II	BSC	4	–	–	4	4
3	GEL153	Engineering Mechanics	ESC	3	–	–	3	3
4	GEL154	Basics of Civil and Mechanical Engineering	ESC	4	–	-	4	4
5	GEP155	Engineering Chemistry Lab	BSC	–	–	2	2	1
6	GEP156	Engineering Mechanics Lab	ESC	–	–	2	2	1
7	GEP157	Professional Communication	HSMC	2	-	2	4	3
8	GEP158	Workshop Practice	ESC	–	–	2	2	1
Total				16	0	8	24	20

DKTES Textile and Engineering Institute , Ichalkaranji
First Year B. Tech.(Semester – I/II)
GEL151: Engineering Chemistry

Teaching Scheme: Lectures : 03 Hrs./Week	Credits 03	Evaluation Scheme: SE-I: 25 Marks SE-II: 25 Marks SEE: 50 Marks
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Course Objectives:

On completion of the course, student will be able to–

- To explain water quality parameters and water treatment methods.
- To describe properties and applications of different polymers and explain the principle & methodology involved in instrumental methods of chemical analysis
- To study the construction, working and applications of batteries and fuel cells
- To explain engineering materials used in industries, corrosion mechanism and methods of corrosion prevention.

Course Outcomes:

On completion of the course, student will be able to–

- Apply the knowledge of water quality parameters and water treatment methods to solve domestic and industrial problems.
- Select the proper polymer for engineering applications and select the proper instrumental methods for the analysis of materials.
- Utilize the knowledge of battery technology and select proper battery in automobile, electrical and electronic industry.
- Select proper engineering materials for industries and apply the knowledge of corrosion for prevention of corrosion.

Course Contents

Unit I	Water	07 Hours
Introduction, impurities in natural water, water quality parameters like acidity, alkalinity, chlorides, dissolved oxygen, total solids, BOD, COD and hardness of water (causes, types, and units of hardness). Ill effects of hard water in steam generation in boilers, Numerical problems on hardness, treatment of hard water by Zeolite process, Ion exchange process and Reverse osmosis process (R.O.).		
Unit II	Corrosion and its Prevention	06 Hours
Introduction, types of corrosion - atmospheric corrosion (oxidation corrosion), electrochemical corrosion - hydrogen evolution and oxygen absorption mechanism, factors affecting the rate of corrosion, Prevention of corrosion by proper selection of material and proper designing, cathodic protection – sacrificial anodic method and external current method, hot dipping- galvanizing and tinning, electroplating, metal spraying and metal cladding.		
Unit III	Polymers	07 Hours
Introduction, Classification, Polymerization: mechanism of polymerization taking ethylene as an example. Commercial polymers: phenol formaldehyde, urea formaldehyde, epoxy resins, Plexi glass, Polyurethane and polystyrene. Polymer composites: carbon fibre, Kevlar fibre, Conducting polymers, Biodegradable polymers. Composite materials: Introduction, constituents, types of composites, advantages, Composition, properties and uses of fibre reinforced plastic (FRP) and glass fibre reinforced plastic (GRP).		

Unit IV	Engineering Materials	06 Hours
<p>A) Metallic materials: Introduction, Alloys - definition and classification, purposes of making an alloys. Ferrous alloys: Plain carbon steel (mild, medium and high), stainless steel. Non-ferrous alloys: Copper alloys – Brass & Bronze, Nickel alloy - Nichrome, Aluminium alloys - Duralumin and Alnico, Tin alloy - Solder metal.</p> <p>B) Ceramics Materials: Definition, classification. Properties of Ceramics, Manufacturing process and chemical composition of Portland Cement, Mechanism of setting and hardening.</p>		
Unit V	Instrumental methods of Chemical Analysis	06 Hours
<p>Introduction, advantages and disadvantages of instrumental methods.</p> <p>A) Potentiometry: Introduction, construction, working and Applications of Potentiometry.</p> <p>B) Spectrometry: Introduction, Laws of spectrometry (Lamberts and Beer-Lambert's law), Single beam spectrophotometer (schematic, working and applications).</p> <p>Chromatography: Introduction, types, gas-liquid chromatography (GLC), basic principle, instrumentation and applications.</p>		
Unit VI	Batteries and Battery Technology	07 Hours
<p>Introduction, Theoretical principles, Basic concepts of batteries, Battery characteristics, Classification of batteries-Primary batteries, Secondary batteries and Reserve batteries. Important applications of batteries, Classical Batteries, Modern Batteries, Lithium Cell Batteries, Solar Cells.</p> <p>Fuel cells: Introduction, classification, Alkaline fuel cell, Hydrogen – Oxygen fuel cell, Phosphoric acid fuel cell, and Molten Carbonate Fuel Cell, advantages, limitations and applications.</p>		
<p>Text Books:</p>		
<ol style="list-style-type: none"> 1 Engineering Chemistry” (15th Ed.) by P. C. Jain & Monica Jain, Dhanpat Rai & Co. 2 “A Textbook of Engineering Chemistry” by Dr. S. S. Dara & Dr. S. S. Umare S. Chand & Company Ltd. 3 “A Text Book of Engineering Chemistry” by Shashi Chawla Dhanpat Rai & Co. 		
<p>References Books:</p>		
<ol style="list-style-type: none"> 1 “Engineering Chemistry” (15th Ed.) by P. C. Jain & Monica Jain, Dhanpat Rai & Co. 2 “A Textbook of Engineering Chemistry” by Dr. S. S. Dara & Dr. S. S. Umare S. Chand & Company Ltd. 3 “A Text Book of Engineering Chemistry” by Shashi Chawla Dhanpat Rai & Co. 4 “Industrial Chemistry” by A. K. Sharma, Goel Publishing House 5 “Engineering Chemistry “by M. M. Uppal, Khanna Publishers. 6 “Engineering Chemistry” by B. S. Chauhan & Pahari, Wiley India. 7 “Instrumental Methods of Chemical Analysis” by Gurdeep R. Chatwal & Sham K. Anand Himalaya Pub House 8 “Instrumental Methods of Chemical Analysis” by Galen W. Ewing McGraw-Hill. 9 “Engineering Chemistry” by O.G.Palanna, Tata McGraw Hill Education Pvt. Ltd. 		
<p>Useful Links:</p>		
<ol style="list-style-type: none"> 1. https://www.freepdfconvert.com/pdf-to-word#d35661a93c7a69cb0bcd7bf1b9c4c19d 2. https://www.dkte.ac.in/admissions/international-students/admission-process 		

DKTES Textile and Engineering Institute , Ichalkaranji
First Year B. Tech.(Semester – I/II)
GEP 155 : Engineering Chemistry Lab

Lab Scheme: Practical's: 02 Hrs./Week	Credits 01	Evaluation Scheme: CIE: 50 Marks
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List of Experiments

(Students can perform any 12 experiments)

1	Determination of total hardness of water by EDTA method.
2	Determination of alkalinity of water.
3	Determination of chloride content of water by Mohr's method.
4	Determination of dissolved oxygen in given water sample.
5	Determination of suspended solids, dissolved solids and total solids in given water sample.
6	Determination of COD of water sample.
7	Determination of acidity of water sample.
8	Determination of rate of corrosion of aluminum in acidic and basic medium.
9	Determination of percentage of copper in brass.
10	Determination of percentage of copper in bronze.
11	Preparation of urea-formaldehyde resin.
12	Preparation of phenol-formaldehyde resin.
13	Separation and identification of cations by paper chromatography.
14	Demonstration of pH meter.
15	Demonstration of photo-colorimeter / UV spectrophotometer.
16	Determination of normality of given acid solution potentiometrically.

Submission

Completed Journal

DKTES Textile and Engineering Institute , Ichalkaranji
First Year B. Tech.(Semester – I/II)
GEL152 : Engineering Mathematics-I

Teaching Scheme: Lectures : 03 Hrs./Week	Credits 03	Evaluation Scheme: SE-I: 25 Marks SE-II: 25 Marks SEE: 50 Marks
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Course Objectives:

On completion of the course, student will be able to–

- To teach Mathematical methodologies and models
- To develop mathematical skills and enhance logical thinking power of students
- To prepare students in matrix theory to solve simultaneous linear equations & to prepare in numerical techniques to solve engineering problems
- To produce graduates with mathematical knowledge, computational skills and the ability to deploy these skills effectively in the solution of problems, principally in the area of engineering.

Course Outcomes:

On completion of the course, student will be able to–

- Use Linear algebra to solve physical and engineering problems.
- Apply finite differences method to solve wide range of engineering problems and learn the concept of curvature, radius of curvature, evolutes and involutes.
- Identify the functions of several variables and use the relevant concept of partial differentiation.
- Use the knowledge of Complex number in engineering problems.

Course Contents

Unit I	Linear Algebra-I	08 Hours
Rank of matrix: definition, normal form and rank by normal form, Echelon form and rank by echelon form, Consistency of linear system of equations, Homogeneous System of linear equations, Non- homogeneous System of linear equations. Gauss Elimination method, Gauss – Jordan method.		
Unit II	Linear Algebra-II	06 Hours
Definition of row & column vector, Linear dependence and Independence of vectors, Eigen values & Eigen vectors with their properties , Cayley- Hamilton’s theorem.		
Unit III	Finite Differences	05 Hours
Forward & Backward difference operator, Shift operator, Interpolation & Extrapolation Methods – Newton’s formulae (Equal intervals) & Lagrange’s formulae (Unequal intervals).		
Unit IV	Functions of Several Variables	08 Hours
Functions of two or more variables, Partial derivatives of first order, Partial derivatives of higher order, Partial derivatives of composite functions, Euler’s theorem on homogeneous function, Jacobian of two or three variables, Properties of Jacobian.		

Unit V	Curvature, Evolute and Involute	06 Hours
Definition of curvature, formulae's for cartesian equation (Explicit & Implicit functions), Parametric and Polar equation (pedal equation), Newton's method for finding Radius of curvature, Definition of Centre of curvature, Evolute and Involute.		
Unit VI	Complex Numbers	07 Hours
De- Moivre's theorem and its applications to find roots of complex number, Circular, Hyperbolic and Inverse hyperbolic functions, Separation into real & imaginary parts.		
Text Books:		
<ol style="list-style-type: none"> 1. P. N. Wartikar & J. N. Wartikar, "A text book of Applied Mathematics," Vol.I & II Pune Vidyarthi Griha Prakashan, Pune 2. Dr. B. S. Grewal, "Higher Engineering Mathematics" 42nd edition, Khanna Publishers, Delhi. June 2012 		
References Books:		
<ol style="list-style-type: none"> 1. "B. V. Ramana, "Higher Engineering Mathematics" Tata McGrawhill Pub Co. Ltd 1st Edition, 2007 2. Dr. U B Jungam, K P Patil & N Kumtekar, "Applied Mathematics-I" Nandu Publication 3. Erwin Kreyszig, "Advanced Engineering Mathematics" Wiley India Pvt. Ltd 4. H. K. Dass, "Advanced Engineering Mathematics" S. Chand, New Delhi 5. Peter V. O'Neil and Santosh K. Sengar, "A text book of Engineering Mathematics" <ol style="list-style-type: none"> a. Cengage Learning Volume-I 6. Kanti B. Datta, "Mathematical methods of Science and Engineering" Cengage Learning 7. Dr. B. S. Grewal, "Numerical methods" Khanna Publishers, Delhi 8. N. P. Bali, Iyengar, "A text book of Engineering Mathematics" Laxmi Publications <ol style="list-style-type: none"> a. (P) Ltd., New Delhi. 		
Useful Links:		
<ol style="list-style-type: none"> 3. https://www.freepdfconvert.com/pdf-to-word#d35661a93c7a69cb0bcd7bf1b9c4c19d 4. https://www.dkte.ac.in/admissions/international-students/admission-process 		

DKTES Textile and Engineering Institute , Ichalkaranji
First Year B. Tech.(Semester – I/II)
GEL 153 : Engineering Mechanics

Teaching Scheme: Lectures : 03 Hrs./Week	Credits 03	Evaluation Scheme: SE-I: 25 Marks SE-II: 25 Marks SEE: 50 Marks
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Course Objectives:

On completion of the course, student will be able to–

- To explain statics along with fundamentals theorems and laws governing it.
- To illustrate equilibrium and its application to find unknown forces and reactions acting on body by using Lami's theorem, method of virtual work.
- To locate the centroid and calculate moment of Inertia of plane composite figures
- To study kinetics of linear and circular motion by using Newton's laws of motion
- To discuss Impact its types, coefficient of restitution and collision of bodies

Course Outcomes:

On completion of the course, student will be able to–

- Do the resolution and composition of forces for concurrent and no concurrent force system and find unknown force acting on body and Draw free body diagram and analyze the body in static equilibrium
- Locate the position of Centroid of plane figures and calculate Moment of Inertia of different standard and composite figures
- Analyze the bodies in Dynamic equilibrium and Solve the kinetics problems
- Explain and evaluate the phenomenon of Impact and behavior after impact

Course Contents

Unit I	Fundamentals of Statics	07 Hours
Basic Concepts and Fundamental Laws, Force, Moment and Couple, System of Forces, Resultant, Resolution and Composition of Forces, Varignon's Theorem, Law of Moments		
Unit II	Equilibrium	07 Hours
Lami's Theorem, Free Body Diagram, Equilibrium of Forces, Equilibrium conditions, Surface friction for bodies on horizontal and inclined planes. Beams: Types of Loads, Types of supports, Analysis of Simple beams, Virtual work method for support reactions		
Unit III	Centroid and Moment of Inertia	07 Hours
Centroid and Center of Gravity, Moment of Inertia of Standard shapes from first principle, Parallel and perpendicular axis theorem, Moment of Inertia of plain and composite figures, Radius of Gyration.		

Unit IV	Kinetics of Linear Motion	08 Hours
Introduction to Kinematics of Linear motion (no numerical on kinematics), Kinetics of linear motion, Newton's Laws, D'Alembert's Principle, Work- Energy Principle, Impulse Momentum Principal		
Unit V	Kinetics of Circular Motion	08 Hours
Introduction to Kinematics of Circular motion (no numerical on kinematics), Rotation with constant and variable angular acceleration, centripetal and centrifugal force, condition of skidding and overturning.		
Unit VI	Impact and Collision	05 Hours
Impact, Types of Impact, Law of conservation of Momentum, Coefficient of Restitution, Numerical on Direct central Impact.		
Text Books:		
<ol style="list-style-type: none"> 1 Engineering Mechanics by S. S. Bhavikattis, New Age International Pvt. Ltd 2 Engineering Mechanics by R.S.Khurmi, S.Chand Publication 		
References Books:		
<ol style="list-style-type: none"> 1. Engineering Mechanics by S. S. Bhavikattis, New Age International Pvt. Ltd. 2. "Engineering Mechanics by Dayal M.D. Paperback Publication 2012 3. Engineering Mechanics by R. K. Bansal and Sanjay Bansal. 4. Mechanics for Engineering, Statics and Dynamics by Tayal A.K., Umesh Publication, N. Delhi, 5. Vector Mechanics for Engineers by F. P. Beer and E. R. Johnston, Tata Mc- Graw Hill Publication Vol.I and II 6. Engineering Mechanics by Manoj K Harbola, Cengage Learning 7. Engineering Mechanics by K. I. Kumar, Tata Mc-Graw Hill Publication 8. Engineering Mechanics by S. B. Junnerkar 9. Engineering Mechanics by Irving H. Shames, Prentice Hall of India, New Delhi 10. Applied Mechanics by S. N. Saluja, Satya Prakashan, New Delhi 11. Engineering Mechanics by Statics and Dynamics by Ferdinand Singer, Harper and Row i. Publications 12. Engineering Mechanics by R. S. Khurmi, S. Chand Publications 13. Fundamentals of Engineering Mechanics by S. Rajasekaran, G. Sankarasubramanian, Vikas Publishing House 		
Useful Links:		
<ol style="list-style-type: none"> 5. https://www.freepdfconvert.com/pdf-to-word#d35661a93c7a69cb0bcd7bf1b9c4c19d 6. https://www.dkte.ac.in/admissions/international-students/admission-process 		

DKTES Textile and Engineering Institute , Ichalkaranji
First Year B. Tech.(Semester – I/II)
GEP 156 : Engineering Mechanics Lab

Lab Scheme: Practical's: 02 Hrs./Week	Credits 01	Evaluation Scheme: CIE: 50 Marks
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List of Experiments

(Students can perform any 12 experiments)

1	To verify the equilibrium using universal force table
2	Law of polygon of forces
3	To verify Lami's theorem by using Jib crane
4	To find internal forces using jib crane
5	Bell crank lever
6	Support reaction of beam
7	Fletchers trolley
8	Centrifugal force
9	A drawing sheet on: - To find resultant of non-concurrent force system (2 problems)
10	A drawing sheet on: - To find support reaction of beam (2 problems)
11	A drawing sheet on: - To find forces in all members of perfect frame (2 problems)
12	A drawing sheet on: - To find displacement using v-t diagram (2 problems)

Submission

Completed Journal

DKTES Textile and Engineering Institute , Ichalkaranji
First Year B. Tech.(Semester – I/II)
GEL 154 : Basics of Civil and Mechanical Engineering

Teaching Scheme: Lectures : 04 Hrs./Week	Credits 04	Evaluation Scheme: SE-I: 25 Marks SE-II: 25 Marks SEE: 50 Marks
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Course Objectives:

On completion of the course, student will be able to–

- Acquire basic knowledge of mechanical engineering and impart knowledge of basic concepts of thermodynamics, internal combustion engines, refrigerators and air conditioning systems.
- Understand principle of energy conversion system and power plants.
- To state the Relevance of Civil Engineering and Concept of Building Planning.
- To describe typical Components of Building with its location, function and material used in it.

Course Outcomes:

On completion of the course, student will be able to–

- Understand and describe Fundamental concepts of mechanical engineering and describe different energy sources and conversion of one form of energy to another
- Understand and explain working of internal combustion engines, refrigerators and air conditioning system
- Apply the concepts of Civil Engineering and its relation to other branches of Engineering for basic building planning
- Apply the different types of linear, angular, area measurement by using chain, compass, dumpy level, planimeter etc

Course Contents

Unit I	Energy Sources and Power Plants	08 Hours
	Renewable and nonrenewable energy, Solar-flat plate collector, concentric collector–Parabolic and cylindrical, Photovoltaic cell, applications of solar energy, Wind, Geothermal, Tidal, Hydropower plant, Steam Power plant, Bio-gas, Bio-Diesel (Descriptive Treatment only).	
Unit II	Thermodynamics	09 Hours
	Thermodynamic State, Process, Cycle, Thermodynamic System, Heat, work, Internal Energy, First Law of Thermodynamics, Application of First Law to steady Flow and Non-Flow processes, Limitations of First Law (Numerical Treatment) Statements of Second Law of Thermodynamics..	
Unit III	Introduction to Internal Combustion Engines and Refrigeration	09 Hours
	IC engine introduction, Construction and Working of C.I. and S.I., Two stroke, Four Stroke engines, Applications of engines. Refrigerant types and properties, Vapor compression and vapor absorption refrigeration system, working of Air Conditioning system, Applications of refrigeration and AC systems.	

Unit IV	Relevance of Civil Engineering and Building Planning	08 Hours
<p>Introduction, branches of civil engineering, application of civil engineering in other allied fields. Principles of planning, introduction to Bye-Laws regarding building line, height of building, open space Requirements, F.S.I., setbacks, ventilation, sanitation as per municipal corporation area requirement.</p>		
Unit V	Linear and Angular Measurements	09 Hours
<p>Principles of surveying, Classification of surveys, Chain Surveying, Introduction to metric chain and tapes, error in chaining, nominal scale and R.F., ranging, chaining and offsetting, index plan, location sketch and recording of field book, Chain and compass survey, Meridian, bearing and its types, system of bearing, Types of compass: prismatic and surveyor's compass. Calculation of included angles, correction for local attraction.</p>		
Unit VI	Levelling	09 Hours
<p>Terms used in levelling, use of Dumpy level and Auto Level, temporary adjustments, methods of reduction of levels, types of levelling, Contours, characteristics of contours, use of contour maps. Introduction and use of EDM's with special reference to Total Station. Measurement of area by planimeter – mechanical and digital.</p>		
<p>Text Books:</p>		
<ol style="list-style-type: none"> 1. G.D. Rai, “Non-Conventional Sources of Energy” Khanna Publication 2. R.K. Rajput, “Thermal Engineering” Laxmi Publication, Delhi <ol style="list-style-type: none"> a. G.K. Hiraskar, “Basic Civil Engineering” Dhanapat Rai Publication 3. B.C. Punmia, “Surveying” Vol-1, Laxmi Publication 		
<p>References Books:</p>		
<ol style="list-style-type: none"> 1 Dr. S.P. Sukathame, “Solar Energy” Tata Mc-Graw Hill Publication 2 Achultan, “Engineering Thermodynamics” Prentice Hall of India 3 Elements of Heat Engine Vol.I,II,III by Patel and Karamchandani, Acharya Book Depot 4 Refrigeration and Air Conditioning - Arora Domkundwar 5 Internal Combustion Engines – V. Ganesan, Tata McGraw Hill Publi 6 Anurag A. Kandya, “Elements of Civil Engineering” Charotar Publishing House Pvt.Ltd– 2nd Edition,2011 7 S. S. Bhavikatti, “Basic Civil Engineering” New Age International Publications 8 Civil Engineering Materials - Technical Teacher's Training Institute, Chandigarh 9 Bindra and Arora, “Building Design” 		
<p>Useful Links:</p>		
<ol style="list-style-type: none"> 7. https://www.freepdfconvert.com/pdf-to-word#d35661a93c7a69cb0bcd7bf1b9c4c19d 8. https://www.dkte.ac.in/admissions/international-students/admission-process 		

DKTES Textile and Engineering Institute , Ichalkaranji
First Year B. Tech.(Semester – I/II)
GEP157: Professional Communication

Teaching Scheme: Lectures : 02 Hrs./Week Practical's: 02 Hrs./Week	Credits 03	Evaluation Scheme: CIE: 50 Marks
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Course Objectives:

On completion of the course, student will be able to–

- To help students to understand basic concepts of communication.
- To help them communicate effectively and to present their ideas in a rational and logical manner.
- To make them aware about effective writing skills along with grammar and vocabulary, widely practiced everywhere.
- To acquaint the students with English phonology and make them practice correct pronunciation.

Course Outcomes:

On completion of the course, student will be able to–

- Understand the importance of communication and life skill which is beneficial for them throughout life.
- To exhibit oratorical skills by giving oral presentations.
- Demonstrate writing skills through letters, emails and job applications with vocabulary and grammatical accuracy.
- Comprehend English Sounds, stress pattern and intonation.

Course Contents

Unit I	Understanding Communication	03 Hours
<p>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 –paralinguistics.</p>		
Unit II	Fundamentals of English	03 Hours
<p>Tenses-vocabulary -Basic sentences- Parts of speech, articles, punctuation marks.</p>		
Unit III	Business Correspondence	04 Hours
<p>Simple application letter drafting-Application and resume writing. - Email writing. Principles, structure (elements) - Layout (complete block, modified block, semi-block)</p>		
Unit IV	Oratorical Efficiency	03 Hours
<p>Introduction to Phonetics- The phonemic alphabet in English: vowel sounds - short vowels - long vowels - diphthongs and triphthongs -Consonantal sounds Transcription-stress and intonation.</p>		

Unit V	Life Skills	06 Hours
Developing Positive attitude -Decision Making Skill - Leadership Skill – Emotional Intelligence - Time Management – Team Work- stress management-Healthy living.		
Unit VI	Enhancing LSRW Skills	04 Hours
<p>Effective listening Process and advantages of listening, poor listening habits, types of listening, strategies for effective listening, listening barriers</p> <p>Effective speaking Group discussion: meaning - types- rules- judging criteria -Interview Techniques : types- rules- judging criteria - Extempore - Elocution - Debate --Presentation techniques.</p> <p>Effective reading: Importance of reading, types, strategies.</p> <p>Effective writing: Importance of writing, paragraph writing techniques, diary writing, creative writing.</p>		
Text Books:		
<ol style="list-style-type: none"> 1 S.V. Pathak, “Communication skills” Nirali Prakashan. 2 Jeff Butterfield, „Soft skills for Everyone Cengage 3 Dr.T.Kalyanchakravarti,Soft skills for Managers.Biztantra. 		
References Books:		
<ol style="list-style-type: none"> 1 David A. McMurrey, Joanne Buckley, “Handbook for Technical Writing” Cengage 2 Jane Summers, Brette Smith, “Communication Skills Handbook: How to succeed in written and oral communication” Wiley India Pvt.Ltd. 3 Dr. Abha Singh, “Behavioural Science” Wiley India Pvt.Ltd. 4 Bikram K. Das, Kalyani Samantray, “An Introduction to Professional English and Soft Skills” Cambridge University Press New Delhi. 5 Wren & Martin, ‘Highschool English Grammar & Composition” S. Chand Publication. 6 Allen Pease, “Body Language”. 7 Lavis Norman, “Word Power made Easy” S. Chand Publication 8 J.D. O’Connor, Better English Pronunciation, CUP, 1980. 		
Useful Links:		
<ol style="list-style-type: none"> 9. https://www.freepdfconvert.com/pdf-to-word#d35661a93c7a69cb0bcd7bf1b9c4c19d 10. https://www.dkte.ac.in/admissions/international-students/admission-process 		

List of Experiments

1	SWOT Analysis. Ice breaking Introducing self and others. Adjectives, phrases and clauses to describe oneself and others. Introducing oneself and others-practice.
2	Common errors in English. Using proper tenses, correct use of articles, conjunctions and prepositions • Types of sentences and conversion, active and passive voice, spotting errors in sentences with justification.
3	Simple application letter (seeking permission regarding absence).
4	Phonetics related activities Transcription of words, Stress, tone and intonation, pronunciation practice with audio-video samples
5	Job application and Resume writing and E mail writing.
6	Mock Interview. Situational Conversation, Role plays , telephonic conversation.
7	Extempore.
8	Vocabulary building activities. Vocabulary building games, practicing affixation, confusable, homonyms, using idioms.
9	Group discussion.
10	Elocution.
11	Debate.
12	Power point presentation on given topic.

Submission

Completed Journal

DKTES Textile and Engineering Institute , Ichalkaranji
First Year B. Tech.(Semester – I/II)
GEP158: Workshop Practice

Teaching Scheme: Practical's: 02 Hrs./Week	Credits 01	Evaluation Scheme: CIE: 50 Marks
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Course Objectives:

On completion of the course, student will be able to–

- Possess knowledge of safety, instruments and machines used in workshop
- Learn to use the techniques, skills, and modern engineering tools necessary for fitting operations
- Have an ability to use the techniques, skills, and modern engineering tools necessary in carpentry and apply them practically
- Understand concepts of welding, equipment's and an ability to use the techniques, skills, and modern engineering tools necessary for welding operation operations.

Course Outcomes:

On completion of the course, student will be able to–

- Understand basic operations and machines used in manufacturing.
- Understand basic safety features, dos and don'ts to be followed in the lab.
- Do basic operations and operate different tools for manufacturing.
- Operate different machines for producing simple parts.

List of Experiments

1	Demonstration of instruments, machines used and dos and don'ts in workshop lab.
2	Demonstration of Welding Process.
3	One job using Arc welding process.
4	Fitting one job male, fitting operation such as marking, cutting and filling
5	Fitting one job female, fitting operation such as marking, cutting and filling
6	Fitting one job male, fitting operation such as drilling, tapping, filling
7	Fitting one job female, fitting operation such as drilling, tapping, filling
8	Fitting of job Male and female parts and ensuring the required tolerance
9	Sheet metal Work demonstration on job
10	Demonstration of Carpentry job
11	Preparation of Carpentry Job.
12	Preparation of Carpentry Job.

Submission

Field Diary

References Books:

- 1 Elements of Workshop Technology by Hajara Choudhari- Media Promoters Vol.I & II
- 2 A Course in Workshop Technology, Vol – I by B. S. Raghuvanshi, Dhanapat Rai
- 3 Workshop Technology, Vol–I by Gupta and Kaushik, New Heights.
- 4 Workshop Technology, Vol-I by Chapman, The English Language Book Society.
- 5 Workshop technology, Vol.-I by H.S. Bawa, TMH Publications, New Delhi

Useful Links:

11. <https://www.freepdfconvert.com/pdf-to-word#d35661a93c7a69cb0bcd7bf1b9c4c19d>
12. <https://www.dkte.ac.in/admissions/international-students/admission-process>

DKTES Textile and Engineering Institute , Ichalkaranji
First Year B. Tech.(Semester – I/II)
GEL159: Engineering Physics

Teaching Scheme: Lectures : 03 Hrs./Week	Credits 03	Evaluation Scheme: SE-I: 25 Marks SE-II: 25 Marks SEE: 50 Marks
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Course Objectives:

On completion of the course, student will be able to–

- To provide the knowledge of fundamental concepts of physics useful in all Engineering disciplines.
- To make understand the use of Diffraction, Polarization, Acoustics, Ultrasonic, Nuclear fission, fusion etc. in various engineering applications
- To get acquainted with Laser, Fiber optics, crystallography, semiconductors and their applications in Engineering.
- To compute the values of different physical quantities required for engineering applications from the available data.

Course Outcomes:

On completion of the course, student will be able to–

- Use the knowledge of basic concepts like Diffraction, Polarization Double refraction etc. in Engineering.
- Calculate angle of acceptance Numerical aperture, Divergence of laser and amount of energy liberated and power generated from nuclear reactor.
- Apply the concepts like Acoustics, Ultrasonic and Reverberation in engineering applications.
- Describe the structure of solid and use of semiconductor devices in Engineering.

Course Contents

Unit I	Diffraction and Polarization	07 Hours
<p>Diffraction: Fraunhofer diffraction at a single slit; condition of maxima and minima (Only Introduction), Plane Diffraction grating (Diffraction at multiple slits) and Resolving power of Grating</p> <p>Polarization: Polarized light, Types of polarized light, Polarization by double refraction, Elliptical and Circular polarization, quarter and half wave plates., Optical activity, Specific rotation, Fresnel's theory of Optical Rotation</p>		
Unit II	Acoustics and Ultrasonic	06 Hours
<p>Acoustics: Introduction, Acoustics of buildings, Sabine's formula for reverberation, sound absorbing materials, factors affecting acoustics of building and their Remedies.</p> <p>Ultrasonic: Introduction, Generation of ultrasonic waves by Magnetostriction and Piezoelectric method, Detection of ultrasonic waves, Properties of ultrasonic waves, Acoustical grating, Applications and SONAR.</p>		
Unit III	Nuclear Physics	06 Hours
<p>Nuclear fission reaction, Q-value of nuclear reaction, Nuclear fission in natural Uranium, Chain reaction, Nuclear fission reactor, Nuclear fusion, proton-proton cycle, carbon-nitrogen cycle, conditions for fusion reaction, Nuclear fusion reactor.</p>		

Unit IV	Fiber Optics and Laser	07 Hours
<p>Fiber Optics: Principle & structure of optical fiber, Acceptance angle, Acceptance cone & Numerical Aperture, Advantages of optical fiber, Optical Fiber Communication system, Engineering applications of optical fiber.</p> <p>LASER: Spontaneous and stimulated emission of radiation, Population inversion, Pumping, Laser Beam Characteristics, Ruby laser, He-Ne Laser, Engineering applications of Laser.</p>		
Unit V	Structure of Solids and its Characterization	07 Hours
<p>Crystalline state, lattice, basis and crystal structure, unit cell and primitive cell, lattice parameters, crystal systems in brief, Axis of Symmetries, Plane of symmetries, Miller indices, inter planer distance of lattice planes. X-ray diffraction: Bragg's law of x-ray diffraction, Bragg's x-ray spectrometer, analysis of XRD spectra for cubic system.</p>		
Unit VI	Semiconductor Physics	06 Hours
<p>Introduction, Classification of solids on the basis of band theory, Fermi energy, Intrinsic semiconductor & Extrinsic semiconductor, Fermi level, effect of temperature on Fermi level (P-type & N- type), Hall effect, P-N junction diode, Rectifiers, Transistor characteristics and Amplifier..</p>		
<p>Text Books:</p>		
<ol style="list-style-type: none"> 1 Engineering Physics – R K Gour and S L Gupta: Dhanpat Rai Publication private limited, New-Delhi. 2 A text book of Engineering physics by Avadhanulu and Kshirsagar, S.Chand Publisher 		
<p>References Books:</p>		
<ol style="list-style-type: none"> 1 A Text Book of Optics – N. Subramanyam & Brijlal; (Vikas Publishing House Pvt.Ltd). 2 A text book of Engineering physics by Avadhanulu and Kshirsagar, S.Chand Publisher. 3 Engineering Physics – R K Gour and S L Gupta: Dhanpat Rai Publication private limited, New-Delhi. 4 Engineering Physics: B. K. Pandey and S. Chaturvedi – Cengage Publications 5 Introduction to Solid State Physics, Charles Kittel, Wiley. 6 E Engineering Physics: Hitendra K. Malik, A. K. Singh - Tata Mc. Graw Hills Education Private Ltd. 		
<p>Useful Links:</p>		
<p>13. https://www.freepdfconvert.com/pdf-to-word#d35661a93c7a69cb0bcd7bf1b9c4c19d</p>		
<p>14. https://www.dkte.ac.in/admissions/international-students/admission-process</p>		

DKTES Textile and Engineering Institute , Ichalkaranji
First Year B. Tech.(Semester – I/II)
GEP 164 : Engineering Physics Lab

Lab Scheme: Practical's: 02 Hrs./Week	Credits 01	Evaluation Scheme: CIE: 50 Marks
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List of Experiments

(Students can perform any 10 experiments)

1	To study Transistor characteristics in common emitter mode
2	Fresnel's Biprism experiment to measure the wavelength of light
3	To measure the width of cylindrical obstacle by Diffraction principle
4	To measure the divergence of LASER beam
5	To measure the energy gap of semiconductor by four point probe method.
6	Diffraction grating to measure the wavelength of different colors
7	To measure the specific rotation of Sugar by Polarimeter.
8	To verify the inverse square law of Intensity of light.
9	To calculate the resolving power of Grating.
10	To Identify different crystal structure and study different symmetry elements.
11	To calculate miller indices and lattice parameter of cubic crystal by using x-ray diffraction pattern.
12	To Determine the e/m of electron by J J Thomson's method.
13	To study optical Fiber.
14	To measure the Velocity of sound by Ultrasonic Interferometer

Submission

Completed Journal

DKTES Textile and Engineering Institute , Ichalkaranji
First Year B. Tech.(Semester – I/II)
GEL 160 : Engineering Mathematics -II

Teaching Scheme: Lectures : 04 Hrs./Week	Credits 04	Evaluation Scheme: SE-I: 25 Marks SE-II: 25 Marks SEE: 50 Marks
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Course Objectives:

On completion of the course, student will be able to–

- To teach Mathematical methodologies and models
- To develop mathematical skills and enhance logical thinking power of students
- To provide students with skills in integral calculus, differential equations & numerical techniques which would enable them to devise engineering solutions for given situations they may encounter in their profession
- To produce graduates with mathematical knowledge, computational skills and the ability to deploy these skills effectively in the solution of problems, principally in the area of engineering.

Course Outcomes:

On completion of the course, student will be able to–

- Apply rules of curve tracing to trace all types of curves and to find their lengths by rectification method.
- Identify vector quantities and be able to recognize solenoidal and irrotational vector field.
- Understand and learn methods of multiple integral with their applications
- Apply differential equation technique to engineering concepts and use numerical techniques to solve first order differential equations.

Course Contents

Unit I	Curve Tracing & Rectification	10 Hours
<p>Tracing of curves in Cartesian form : Semi cubical parabola, Cissoid of Diocles, Strophoid, Astroid, Witch of Agnesi, Common Catenary, Folium of Descartes. Tracing of curves in polar form : Cardioid, Pascal’s Limacon, Lemniscate of Bernoulli, Parabola, Hyperbola, Rose curves. Rectification of plane curves (Cartesian and Polar form).</p>		
Unit II	Vector calculus	08 Hours
<p>Differentiation of vectors, Gradient of scalar point function, Directional derivatives, Divergence of vector point function, Curl of a vectorpoint function. Irrotational and solenoidal vector field.</p>		
Unit III	Integral Calculus	08 Hours
<p>Double Integrals, triple integrals and evaluation, Change of order of integration, Double Integrals in Polar Coordinates, Change into Polar.</p>		

Unit IV	Applications of Integral Calculus & Numerical Method	08 Hours
Area of Plane Lamina, Mass of plane lamina, Volume of surface revolution, Numerical integration by – Simpson’s $3/8^{\text{th}}$ rule, Weddle’s rule.		
Unit V	Ordinary differential equation of First order First degree and Applications	10 Hours
Definition of first order & first degree differential equation, Exact & Non-exact Differential equation, Linear differential equations, Reducible to Linear differential Equations, Bernoulli’s non-linear differential equation, Applications to geometry to find Orthogonal Trajectories for cartesian and polar curves, application to Simple Electric Circuits		
Unit VI	Numerical Solution of Ordinary Differential Equations of First Order and First Degree	08 Hours
Picard’s method, Taylor’s series method, Euler’s method, Modified Euler's Method, Runge-Kutta method of fourth order		
Text Books:		
<ol style="list-style-type: none"> 1 P. N. Wartikar & J. N. Wartikar, “A text book of Applied Mathematics” Vol.- I & II Pune Vidyarthi Griha Prakashan, Pune 2 Dr. B. S. Grewal, “Higher Engineering Mathematics” Khanna Publishers, Delhi 		
References Books:		
<ol style="list-style-type: none"> 1. “Dennis G Zill, Michael R Cullen, “Advanced Engineering Mathematics” Narosa Publication, 3rd Edition. 2. Michael Greenberg, “Advanced Engineering Mathematics” Pearson Publication 2nd Edition 3. B.V.Ramana, “Higher Engineering Mathematics” Tata McGraw-Hill Publications, New Delhi 4. Erwin Kreyszig, “Advanced Engineering Mathematics” Wiley India Pvt. Ltd 5. H. K. Dass “Advanced Engineering Mathematics” 6. Kanti B. Datta, “Mathematical methods of Science and Engineering” Cengage Learning 7. Peter V. O’Neil and Santosh K. Sengar, “A textbook of Engineering Mathematics” Volume I, Cengage Learning. 8. N. P. Bali, Iyengar, “A textbook of Engineering Mathematics” Laxmi Publications (P) Ltd., New Delhi. 		
Useful Links:		
<ol style="list-style-type: none"> 15. https://www.freepdfconvert.com/pdf-to-word#d35661a93c7a69cb0bcd7bf1b9c4c19d 16. https://www.dkte.ac.in/admissions/international-students/admission-process 		

DKTES Textile and Engineering Institute , Ichalkaranji
First Year B. Tech.(Semester – I/II)
GEL161: Basic Electrical Engineering

Teaching Scheme: Lectures : 03 Hrs./Week	Credits 03	Evaluation Scheme: SE-I: 25 Marks SE-II: 25 Marks SEE: 50 Marks
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Course Objectives:

On completion of the course, student will be able to–

- To understand basic concepts involved in electrical & magnetic circuits.
- To understand concepts of elements & parameters in single phase and three phase AC circuits
- To understand working and importance of electrical transformer
- To study different types of electrical accessories, electric earthing & Lamps.

Course Outcomes:

On completion of the course, student will be able to–

- Apply the fundamental laws and principles to solve the electrical & magnetic circuits.
- Analyze the behavior of any element with respect to AC supply.
- Analyze the characteristics behavior of electrical transformer.
- Apply the knowledge of switchgear and lamps in electrical installation.

Course Contents

Unit I	D.C.Circuits	08 Hours
Basic electrical quantities, Concept of EMF, Potential Difference, Current, Resistance, Ohm's Law, Kirchhoff's laws, mesh and node analysis, Energy Bill calculation. Numericals.		
Unit II	Magnetic Circuits	06 Hours
Flux, flux density, Reluctance, field intensity, permeability, MMF, comparison of Electric and Magnetic circuit, leakage and fringing, B- H curve, series magnetic circuits. Numericals.		
Unit III	Single Phase A.C.Circuits	08 Hours
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		
Unit IV	Three Phase A.C.Circuits	06 Hours
Introduction to three phase supply and its advantages, Generation of three phase A.C. voltage, balanced system, relation between line and phase quantities in star and delta. Numericals		
Unit V	Single Phase Transformer	08 Hours
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		
Unit VI	Electrical Switchgear and Lamps	06 Hours
Necessity of Earthing, Earthing methods, Fuse (rewireble and HRC), MCB, Fluorescent tube, CFL,		

mercury vapour lamp, LED lamp, single line diagram of electrical system.

Text Books:

- 1 U.A. Bakshi, “Basic Electrical Engineering” Technical Publications, Pune.
- 2 U.A. Bakshi, “Electrical Technology” Technical Publications, Pune “

References Books:

- 1 V.K. Mehta, “Principles of Electrical Engineering” S.Chand & Co. Ltd, India
- 2 Vincent Del Toro, “Electrical Engineering” Prentice Hall, Inc. Englewood Cliffs, New Jersey.
- 3 A.E. Fitzgerald and Arvin Grabel, “Basic Electrical engineering” MC-Graw-Hill.
- 4 Bharati Dwivedi and Anurag Tripathi, “Fundamentals of Electrical Engineering” Wiley PRECISE Text Book.
- 5 P.V. Prasad and S. Shivanaraju, “Electrical Engineering Concepts and Applications” CENGAGE Learning
- 6 P.Huelsman, Prentice Hall, “Basic Electrical Engineering” Lawrence Inc. Englewood Cliffs. New Jersey.
- 7 Nagrath I.J. and D. P. Kothari, “Basic Electrical Engineering” Tata McGraw Hill
- 8 Ashfaq Husain, “Fundamentals of Electrical Engineering” Dhanpat Rai & Co.
- 9 B.L Theraja, “Electrical Technology” Vol II, S. Chand & Co. Ltd, India

Useful Links:

17. <https://www.freepdfconvert.com/pdf-to-word#d35661a93c7a69cb0bcd7bf1b9c4c19d>
18. <https://www.dkte.ac.in/admissions/international-students/admission-process>

DKTES Textile and Engineering Institute , Ichalkaranji
First Year B. Tech.(Semester – I/II)
GEP 165 : Basic Electrical Engineering Lab

Lab Scheme: Practical's: 02 Hrs./Week	Credits 01	Evaluation Scheme: CIE: 50 Marks
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List of Experiments

(Students can perform any 12 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

DKTES Textile and Engineering Institute , Ichalkaranji
First Year B. Tech.(Semester – I/II)
GEL162 : Fundamentals of Programming Using ‘C’

Teaching Scheme: Lectures : 04 Hrs./Week	Credits 04	Evaluation Scheme: SE-I: 25 Marks SE-II: 25 Marks SEE: 50 Marks
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Course Objectives:

- On completion of the course, student will be able to–
- To develop problem analysis and solution design skill.
 - To introduce concept in C Programming language.
 - To develop program applying concept in C Language.

Course Outcomes:

- On completion of the course, student will be able to–
- Explain terminology in C Language.
 - Design algorithm to solve the problem.
 - Build a program for developed algorithm in C Language.
 - Analyze a C program.

Course Contents

Unit I	Introduction to Computer System	07 Hours
Basic computer Organization, Number Systems, Processor and Memory, Secondary Storage devices – Magnetic Disk, Computer Software, Planning the Computer Program, Flow Chart, Computer Languages – Machine, Assembly, and Higher Level Languages.		
Unit II	Introduction to C Language	09 Hours
History of C, The C character set, Constants, Types of C Constants, Variables, Types of C Variables, Rules for variable names, Keywords, The first C Program, Input and Output Statements. C Instructions – Type declaration instructions, Arithmetic Instructions, Integer and float conversion, Type conversion in assignment, Hierarchy of operations, Associativity of operators, Data types.		
Unit III	Decision & Loop Control Instructions	09 Hours
The if-else statement, Multiple Statements within if-else, Nested if- else, Use of logical Operators, The else-if clause, The ! Operator, Hierarchy(Precedence) of Operators, The conditional operator. Loops, The While loop, The for loop – nesting of loops, multiple initializations. break and continue statements, The do-while loop		
Unit IV	Arrays & Functions	09 Hours
Array Declaration, accessing array elements, array initialization, Bound checking. Two-dimensional array – Declaration, accessing array elements, initialization, Memory map. Function declaration, definition, calling function, passing values between functions, order of passing arguments, argument mismatch, return type of function, Library functions, Recursion. Arguments to “main” function.		
Unit V	Pointers	09 Hours
An introduction to pointers, Pointer notations, call by value and call by pointer, accessing array elements by pointers, Passing array to function, dynamic memory allocation. Pointers to 2D arrays, passing 2D array to a function.		

Unit VI	Strings and Structures	09 Hours
<p>String definition, String termination, string input and output, Standard string library functions, array of strings. Passing string to function Structure: - Need of structure, Structure declaration, structure variable and memory allocation, accessing structure elements, Nested structures, Structure pointer, array of structure. Passing structure to function.</p>		
<p>Text Books:</p>		
<ol style="list-style-type: none"> 1 Computer Fundamentals, 4th Edition, P K Sinha, BPB Publications. 2 Let Us C, 16th Edition, Yashavant Kanetkar, BPB Publication. 		
<p>References Books:</p>		
<ol style="list-style-type: none"> 1 The C Programming Language, 2nd Edition, Brian W. Kernighan, Dennis Ritchie, Pearson Education India. 2 C How to Program 7th Edition, Deitel, Pearson Education India 		
<p>Useful Links:</p>		
<ol style="list-style-type: none"> 19. https://www.freepdfconvert.com/pdf-to-word#d35661a93c7a69cb0bcd7bf1b9c4c19d 20. https://www.dkte.ac.in/admissions/international-students/admission-process 		

DKTES Textile and Engineering Institute , Ichalkaranji
First Year B. Tech.(Semester – I/II)
GEP 166 : Fundamentals of Programming Using ‘C’ Lab

Lab Scheme: Practical's: 02 Hrs./Week	Credits 01	Evaluation Scheme: CIE: 50 Marks
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List of Experiments

(Students can perform any 12 experiments)

1	Write a C Program to calculate area of circle and rectangle
2	A person is traveling from city A to city B. The distance between the two cities is a variable because she would like to use the equation to use for other cities. he knows that 50% of the time he will be traveling “x” miles an hour and the remaining 50% she will be traveling “y” miles per hour. Write an equation that will calculate the time it will take to travel from one city to the next. Implement the equation in c.
3	Write a program to calculate profit earned in an intraday share trading with following charges on transaction: Brokerage: The current maximum intra-day brokerage offered is 0.03% for buying and 0.03% for selling. 1. Taxes: The service tax is of 10.36% only on brokerage. 2. The STT (Security Transaction Tax) is of 0.025% only selling amount. 3. The stamp duty on total turnover for a day which is 0.002%. Finally you have to pay Regulatory charges on total turnover for a day which is 0.004%
4	Write a program to calculate the water bill given the cubic feet of water used for Eureka 1. Water Company, which charges the homeowner one of the following: A flat rate of Rs 155.00 for usage up to and including 1000 cubic feet. 2. Rs 0.175 per cubic foot for usage over 1000 cubic feet and up to and including 2000 cubic feet. 3. Rs 0.200 per cubic foot for usage over 2000 cubic feet and up to and including 3000 cubic feet. A flat rate of Rs 700.00 for usage over 3000 cubic feet.
5	Write a program to find minimum number of cookies required to distribute m cookies among n guests equally
6	Write a program to print Fibonacci numbers
7	Using Taylor series sin(x) is written as: $\sum_{n=0}^{\infty} \frac{(-1)^n}{(2n+1)!} x^{2n+1}$ Write a program to evaluate above series to calculate sin(x).
8	Write a program to calculate average of N numbers stored in an array
9	Write a program to store marks scored for first test of subject 'Data Structures and Algorithms' for N students. Compute The average score of class Highest score and lowest score of class
10	Write a C Program to calculate area of circle and rectangle

11	Write C program for storing matrix. Write functions for a) Compute transpose of a matrix Add, subtract and multiply two matrices
12	Write a C program to swap two columns in a matrix.
13	Write a C function to calculate volume of sphere.
14	Write a C function to check whether the given age is within 0 and 125. If the age is within limit, then return 1 else return 0.
15	Write a function to calculate factorial of number using recursive function.
16	Write a program to carry out following operations on string: a) Find the length of a given string. b) Replace a specified character from a string with another alphabet Remove spaces from the sentence.

Submission

Completed Journal

DKTES Textile and Engineering Institute , Ichalkaranji
First Year B. Tech.(Semester – I/II)
GEL163 : Engineering Graphics

Teaching Scheme: Lectures : 02 Hrs./Week	Credits 02	Evaluation Scheme: SE-I: 25 Marks SE-II: 25 Marks SEE: 50 Marks
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Course Objectives:

On completion of the course, student will be able to–

- Introduce students to the conventions, concepts and basic principles of engineering graphics.
- Demonstrate graphics skill for communication of concepts, ideas and design of engineering products
- Student should use the techniques, skills, and modern engineering tools such as CAD necessary for engineering practice

Course Outcomes:

On completion of the course, student will be able to–

- Implement knowledge of fundamentals of engineering graphics and draw various engineering curves, lines and objects.
- Develop orthographic views of an object to convert a pictorial into two- dimensional view.
- Prepare isometric drawings of regular planes and solids.
- Draw engineering curves, lines, orthographic projection and isometric projection etc. using CAD software.

Course Contents

Unit I	Fundamentals of Engineering Graphics and Engineering Curves	04 Hours
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A) Fundamentals of Engineering Graphics:

Introduction to Drawing instruments and their uses. Layout of drawing sheets, Lettering, Different types of lines used in drawing practice, Dimensioning system as per BIS conventions (Theoretical treatment only)

B) Engineering Curves:

Construction of regular polygons (up to hexagon). Construction of Ellipse, Parabola, Hyperbola (Directrix- Focus Method only), Involutives, Archimedean spiral, Cycloid.

Unit II	Orthographic Projections	04 Hours
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Orthographic views: Lines used, Selection of views, spacing of views, dimensioning and sections. Required views from given pictorial views (Conversion of pictorial view into orthographic view) including sectional orthographic view..

Unit III	Isometric Projections	04 Hours
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Introduction to isometric, Isometric scale, Isometric projections and Isometric views / drawings. Circles in isometric view. Isometric views of simple solids and objects.).

Unit IV	Introduction to Computer Aided Drafting and Basic Commands	04 Hours
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Computer aided drafting (CAD), Basic command to draw 2- D objects like line, point, circle, arc, ellipse, polygon, polyline, spline etc.

Unit V	CAD Edit /Modify Commands	04 Hours
Erase, Trim, Extend, Scale, Break, Fillet, Chamfer, Offset, Copy, Move, Mirror, Array, Hatch etc.		
Unit VI	CAD Viewing Commands	07 Hours
Zoom, Pan, Rotate etc., Other Commands: Line type, Text, Text style, Dimensioning, Dimension style, Leader, Layers etc.		
Text Books:		
<ol style="list-style-type: none"> 1 N. D. Bhatt, “Engineering Drawing” Charotor Publication House, Bombay 2 K. Venugopal, “Engineering drawing and Graphics+ AutoCAD”, New Age International Publishers 3 W. J. Luzadder, “Fundamentals of Engineering Drawing” Prentice Hall of India. 		
References Books:		
<ol style="list-style-type: none"> 1 N. H. Dubey, “Engineering Drawing” Vol I & II, Nandu Publishers & Printers. 2 Jon M. Duff, William A. Ross, “Engineering Design and Visualization” CENGAGE Learning. 3 N. D. Bhatt, “Machine Drawing” Charotor Publication House, Bombay. 4 French and Vierck, “Graphic Science” Mc-Graw Hill International 5 R. K. Dhawan, “A text book of Engineering Drawing” S. Chand and Co. 6 K. L. Narayana, “Machine Drawing” New Age Publication. 7 N. B. Shaha and B. C. Rana, “Engineering Drawing” Pearson Education 8 T. Jeyapooan, “Engineering Drawing and Graphics Using AutoCAD” Vikas Publication. 		
Useful Links:		
<ol style="list-style-type: none"> 21. https://www.freepdfconvert.com/pdf-to-word#d35661a93c7a69cb0bcd7bf1b9c4c19d 22. https://www.dkte.ac.in/admissions/international-students/admission-process 		

DKTES Textile and Engineering Institute , Ichalkaranji
First Year B. Tech.(Semester – I/II)
GEP 167 : Engineering Graphics Lab

Lab Scheme: Practical's: 04 Hrs./Week	Credits 02	Evaluation Scheme: CIE: 50 Marks
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List of Experiments

(Students can perform any 12 experiments)

1	Lines, Lettering and Dimensioning.
2	Engineering curves I - Ellipse, parabola, and hyperbola
3	Engineering curves II -Involute, cycloid and spiral.
4	Orthographic projections.
5	Orthographic sectional view.
6	Isometric view.
7	Isometric projection.
8	Using CAD software/ package draw line, arc, rectangle, circle etc.
9	Using CAD software/ package draw curve, polygon etc.
10	Using CAD software/ package draw Orthographic projection.
11	Using CAD software/ package draw Orthographic sectional view.
12	Using CAD software/ package draw Isometric view/ projection.

Submission

Completed Journal

DKTES Textile and Engineering Institute , Ichalkaranji
First Year B. Tech.(Semester – I/II)
GEI :168 Democracy, Elections and Good Governance

Teaching Scheme:	Credits Non- Credit	Evaluation Scheme:
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Rationale:

The rationale of the study is to make the pupils aware of the importance of democracy. What constitute democracy, what is its importance from the point of view of the role of individual and what exactly can an individual get if he performs his role well in the society. This module also aims to make the individual understand the different aspects of democracy and its implications in the overall development of the state. The syllabus is introduced from the point of view that all students upon entering into the college, enroll themselves as voters and encourage and enthuse other members of the society to participate not only in election process but also electoral and political process in general.

Course Contents

Unit I	Democracy in India	
Dimensions of Democracy: Social, Economic and Political Decentralization: Grassroots Level Democracy Challenges before Democracy: women and marginalized sections of the Society		
Unit II	Election to Local Self-government Bodies	
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 III	Good Governance	
Meaning and concept. Government and Governance. Good Governance initiatives in India		

Note:

1. 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.
2. This is non-credit mandatory course.
3. E learning material is available on university website.
(www.unishivaji.ac.in/syllabusnew/)
4. MCQ type of Questions will be set.
5. There are 25 questions in question paper, each question carries two marks i.e.50 Marks.
6. Passing is must otherwise graduation certificate will not be issued.

Useful Links:

23. <https://www.freepdfconvert.com/pdf-to-word#d35661a93c7a69cb0bcd7bf1b9c4c19d>
24. <https://www.dkte.ac.in/admissions/international-students/admission-process>