ADITYA ENGINEERING COLLEGE
An Autonomous Institution

B.TECH PROGRAMME CURRICULUM
(For the candidates admitted from 2017-18 onwards)

PETROLEUM TECHNOLOGY

I SEMESTER

Course Code	Name of the Course	Category	Periods/Week			Credits (C)
			Lecture (L)	Tutorial (T)	Practice (P)	
171HS1T01	English - I	HS	3	1	---	3
171BS1T01	Mathematics-I	BS	3	1	2	3
171HS1T02	Environmental Studies	HS	2	1	---	2
171BS1T03	Engineering Chemistry	BS	3	1	---	3
171ES1T02	Engineering Mechanics	ES	3	1	---	3
171ES1T01	Computer Programming	ES	3	1	---	3
171HS1L01	English Communication Skills Lab-I	HS	---	---	3	2
171BS1L01	Engineering Chemistry Lab	BS	---	---	3	2
171ES1L01	Computer Programming Lab	ES	---	---	3	2
		TOTAL	17	6	11	23

II SEMESTER

Course Code	Name of the Course	Category	Periods/Week			Credits (C)
			Lecture (L)	Tutorial (T)	Practice (P)	
171HS2T03	English - II	HS	3	1	---	3
171BS2T06	Mathematics- III	BS	3	1	2	3
171BS2T02	Mathematics- II	BS	3	1	---	3
171BS2T07	Engineering Physics	BS	3	1	---	3
171ES2T03	Engineering Drawing	ES	3	1	---	3
171ES2T07	Elements of Mechanical Engineering	ES	3	1	---	3
171HS2L02	English Communication Skills Lab-II	HS	---	---	3	2
171BS2L02	Engineering Physics Lab	BS	---	---	3	2
171ES2L02	Engineering Workshop & IT Workshop	ES	---	---	3	2
		TOTAL	18	6	11	24

ENGLISH – I
(171HS1T01)

I Semester

	L	T	P	C
	3	1	-	3

Introduction

In view of the growing importance of English as a tool for global communication and the consequent emphasis on training the students to acquire communicative competence, the syllabus has been designed to develop linguistic and communicative competence of the students of Engineering.

As far as the detailed Textbooks are concerned, the focus should be on the skills of listening, speaking, reading and writing. The non-detailed Textbooks are meant for extensive reading for pleasure and profit.

Thus the stress in the syllabus is primarily on the development of communicative skills and fostering of ideas.

Methodology

1. The class are to be learner-centred where the learners are to read the texts to get a comprehensive idea of those texts on their own with the help of the peer group and the teacher.

2. Integrated skill development methodology has to be adopted with focus on individual language skills as per the tasks/exercise.

3. The tasks/exercises at the end of each unit should be completed by the learners only and the teacher intervention is permitted as per the complexity of the task/exercise.

4. The teacher is expected to use supplementary material wherever necessary and also generate activities/tasks as per the requirement.

5. The teacher is permitted to use lecture method when a completely new concept is introduced in the class.

The following text books are recommended for study in I B.Tech I Semester (Common for all branches)

Detailed Text books

English Essentials, Published by Ravindra Publishing House

Non-Detailed Textbook:

Trail Blazers, Published By Orient Blackswan

The Course Content Along With The Study Material Is Divided Into Five Units.

1. In London: M.K.Gandhi

Objective: To Apprise The Learner How Gandhi Spent A Period Of Three Years In London As A Student.

Outcome: The Learner Will Understand How Gandhi Grew In Introspection And Maturity.

2. The Knowledge Society- Apj Abdul Kalam

Objective: To Make The Learners Rediscover India As A Land Of Knowledge.

Outcome: The Learners Will Achieve A Higher Quality Of Life, Strength And Sovereignty Of A Developed Nation.

3. The Scientific Point Of View- J.B.S. Haldane

Objective: This Essay Discusses How Scientific Point Of View Seeks To Arrive At The Truth Without Being Biased By Emotion.

Outcome: This Develops In The Student The Scientific Attitude To Solve Many Problems Which We Find Difficult To Tackle.

4. Man's Peril

Objective: To Inform The Learner That All Men Are In Peril.

Outcome: The Learner Will Understand That All Men Can Come Together And Avert The Peril.

5. Luck—Mark Twain

Objective:This is a short story about a man's public image and histrue nature. The theme of the story is that luck can be a factor of life, sothat even if one is incompetent but lucky, one can still succeed.

OUTCOME: The story is humourous in that it contains a lot of irony. Thus this develops in the learner understand humourous texts and use of words for irony.

Text Book : 'English Essentials' by Ravindra Publications

Non-Detailed Text

(From Modern Trailblazers of Orient Blackswan)

(Common single Text book for one semester)

(Five topics are chosen from the given text)

(Audio should be included)

1. G.D.Naidu

OBJECTIVE: To inspire the learners by G.D.Naidu's example of inventions and contributions.

OUTCOME: The learner will be in a position to emulate G.D.Naidu and take to practical applications.

2. G.R.Gopinath

OBJECTIVE: To inspire the learners by his example of inventions.

OUTCOME: Like G.R.Gopinath, the learners will be able to achieve much at a low cost and help the common man.

3. J.C. Bose

OBJECTIVE: To apprise of J.C.Bose's original contributions.

OUTCOME: The learner will be inspired by Bose's achievements so that he may start his own original work.

4. HomiJehangirBhaba

OBJECTIVE: To show Bhabha as the originator of nuclear experiments in India.

OUTCOME**:** The learner will be inspired by Bhabha's achievements soas to make his own experiments.

5. A Shadow- R.K.Narayan

OBJECTIVE: To expose the reader to the pleasure of the humorous Story

OUTCOME: The learner will be in a position to appreciate the art of writing a short story and try his hand at it.

Text Book

'Trail Blazers' by Orient Black Swan Pvt. Ltd. Publishers

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MATHEMATICS-I
(171BS1T01)

I Semester

L	T	P	C
3	1	2	3

UNIT I: Differential equations of first order and first degree:

Linear differential equations - Bernoulli differential equation - Exact differential equations-Equations reducible to exact.

Applications: Newton's Law of cooling-Law of natural growth and decay-Orthogonal trajectories.

UNIT II: Linear differential equations of higher order:

Linear differential equations of higher order with constant coefficients with RHS term of the type e^{ax}, sin ax, cos ax, polynomials in x, e^{ax} V(x), xV(x)-Method of Variation of parameters, Method of undetermined coefficients.

*(MATLAB Exercise: Introduction to MAT LAB commands and Solution of Initial Value Problems using the command 'dsolve')

Applications: Electric circuits, simple harmonic motion.

UNIT III: Linear systems of equations:

Rank of a matrix - Echelon form-Normal form – Solution of linear systems – Gauss elimination method - Gauss Seidal method.

Applications: Finding the current in electrical circuits.

UNIT IV: Eigen values - Eigen vectors and Quadratic forms:

Eigen values - Eigen vectors– Properties of eigen values (with out proof) – Cayley-Hamilton theorem (with out proof) - Inverse and powers of a matrix by using Cayley-Hamilton theorem- Diagonalization- Quadratic forms-Reduction of quadratic form to canonical form using orthogonal transformation– Nature of the quadratic form.

*(MATLAB Exercise: All Basic Operations on matrices are to be implemented using MATLAB including computation of rank, computation of eigen values and eigen vectors)

UNIT V: Partial differentiation and Partial differential equations

Homogeneous function-Euler's theorem-Total derivative-Chain rule-Taylor's and Maclaurin's series expansion of functions of two variables– Functional dependence- Jacobian.
Formation of partial differential equations by elimination of arbitrary constants and arbitrary functions –solutions of first order linear (Lagrange) equation, nonlinear (standard types) equations.

Applications: Maxima and Minima of functions of two variables without constraints and Lagrange's method (with constraints).

*(MATLAB Exercise: To Plot graphs of various single and multivariable functions using MATLAB and analyze their maxima and minima graphically)

Text Books:

1. B.S.Grewal, Higher Engineering Mathematics, 43rd Edition, Khanna Publishers.
2. Dr.T.K.V. Iyengar, Engineering Mathematics, S. Chand publications

Reference Books:

1. Erwin Kreyszig, Advanced Engineering Mathematics, 10th Edition, Wiley-India

2.   D.G.Zill, MICHAIL R CULTER, Advanced Engineering Mathematics Third Edition Norosa Publications 2009.

3.   Dean G. Duffy, Advanced engineering mathematics with MATLAB, CRC Press

4.   Peter O'neil, Advanced Engineering Mathematics, Cengage Learning.

5.   Glyn James, Advanced modern engineering mathematics, Pearson education

6.   MATLAB by Rudra Pratap, Getting started with MATLAB, Oxford Publication.

* Not to be examined

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ENVIRONMENTAL STUDIES
(171HS1T02)

I Semester

	L	T	P	C
	2	1	0	2

UNIT –I : Ecosystems : Scope of environmental studies, Structure biotic and abiotic factors – Producers, consumers and decomposers,

Function – Food chain, Food web ,Tropic structure and Energy flow in the ecosystem Ecological pyramids, nutrient recycling, primary and secondary production, ecosystem   regulation. Ecological succession, Terrestrial ecosystem and aquatic ecosystem - Introduction, types, characteristic features.

UNIT – II : Natural Resources: Natural resources and associated problems

Forest resources – Use and over – exploitation, deforestation – Timber extraction – Mining, dams and other effects on forest and tribal people

Water resources – Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems

Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources

Food resources: World food problems, changes caused by non-agriculture activities-effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity

Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources Vs Oil and Natural Gas Extraction.

Land resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.

UNIT – III : **Biodiversity and its conservation:** Definition : Genetic, species and ecosystem diversity classification. Value of biodiversity: consumptive use, productive use, social. Biodiversity at national and local levels. India as a mega-diversity nation - Hot-spots of biodiversity - Threats to biodiversity: habitat loss, man-wildlife conflicts - Endangered and endemic species of India. Conservation of biodiversity and its methods.

UNIT – IV Environmental Pollution: Definition, Causes, effects and control measures of Air pollution, Water pollution, Soil pollution, Noise pollution, Nuclear hazards. Role of an individual in prevention and control of pollution. - Pollution case studies, Sustainable Life Style.

Solid Waste Management: Sources, Classification, effects and control measures of urban and industrial solid wastes. Consumerism and waste products, Biomedical, Hazardous and e – waste management.

UNIT – V : Social Issues and the Environment: Urban problems related to energy - Water conservation, rain water harvesting-Resettlement and Rehabilitation issues, its problems and concerns. Environmental Global challenges.

Environmental ethics: Issues and possible solutions. Environmental Protection Act - Air (Prevention and Control of Pollution) Act. –Water (Prevention and control of Pollution) Act -Wildlife Protection Act - Forest Conservation Act-Issues involved in enforcement of environmental legislation. - Public awareness and Environmental management.

Text Books

1. "Perspectives in Environment Studies" Anubha Kaushik, C P Kaushik, New Age International Publishers, 2014
2. Environmental Studies, K.V. S. G. Murali Krishna, VGS Publishers, Vijayawada
3. Environmental Studies, R. Rajagopalan, 2nd Edition, 2011, Oxford University Press.
4. Environmental Studies, P.N. Palanisamy, P. Manikandan, A. Geetha, and K. Manjula Rani;Pearson Education, Chennai

References Books

1. Text Book of Environmental Studies, Deeshita Dave & P. UdayaBhaskar, Cengage Learning.
2. A Textbook of Environmental Studies, Shaashi Chawla, TMH, New Delhi
3. Environmental Studies, Benny Joseph, Tata McGraw Hill Co, New Delhi

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ENGINEERING CHEMISTRY
(171BS1T03)

I Semester

	L	T	P	C
	3	1	-	3

UNIT I: HIGH POLYMERS AND PLASTICS

Polymerisation : Introduction- Mechanism of polymerization - Stereo regular polymers-Physical and mechanical properties – Plastics as engineering materials : advantages and limitations – Thermoplastics and Thermosetting plastics – Compounding and fabrication (compression moulding, injection moulding, extrusion moulding and transfer moulding techniques)- Preparation, properties and applications of polyethene, PVC, Bakelite and polycarbonates.

Elastomers – Natural rubber- compounding and vulcanization – Synthetic rubbers : Buna S, Buna N, Thiokol – Applications of elastomers. Biodegradable polymers.

UNIT II: FUEL TECHNOLOGY

Fuels:- Introduction – Classification – Calorific value - HCV and LCV – Dulong's formula – Coal –– Proximate and ultimate analysis – Significance of the analyses – Liquid fuels – Petroleum- Refining – Cracking – Synthetic petrol –Petrol knocking – Diesel knocking - Octane and Cetane ratings – Anti-knock agents – Power alcohol – Bio-diesel – Gaseous fuels – Natural gas. LPG and CNG – Combustion – Calculation of air for the combustion of a fuel – Flue gas analysis – Orsat apparatus.

UNIT III: ELECTROCHEMICAL CELLS AND CORROSION

Galvanic cells - Reversible and irreversible cells – Single electrode potential- Electro chemical series and uses of this series- Standard electrodes (Hydrogen and Calomel electrodes) - Concentration Cells – Batteries: Dry Cell - Li cells - Zinc – air cells.

Corrosion:- Definition – Theories of Corrosion (electrochemical) – Formation of galvanic cells by different metals, by concentration cells, by differential aeration and waterline corrosion – Passivity of metals – Pitting corrosion - Galvanic series – Factors which influence the rate of corrosion - Protection from corrosion – Cathodic protection - Protective coatings: – Metallic (cathodic and anodic) coatings - Methods of application on metals (Galvanizing, Tinning, Electroplating, Electroless plating).

UNIT IV: CHEMISTRY OF ADVANCED MATERIALS

Nano materials:- Introduction – Sol-gel method - Carbon nano tubes and fullerenes: Types, preparation, properties and applications

Super conductors:-Type –I, Type II – Characteristics and application.

Semi conductors:- Preparation of semiconductors, working of diods and transistors.

Green synthesis:- Principles

Liquid crystals:- Introduction – Types – Applications.

Cement: - Constituents, manufacturing, hardening and setting, deterioration of cement

Fuel cells:- Introduction - cell representation, H_2-O_2 fuel cell: Design and working, advantages and Limitations. Types of fuel cells: methanol-oxygen fuel cells.

UNIT V: WATER TECHNOLOGY

Hard water:- Reasons for hardness – units of hardness - determination of hardness and alkalinity - Water for steam generation - Boiler troubles – Priming and Foaming, Scale formation, Boiler corrosion, Caustic embrittlement - Internal treatments - Softening of Hard water : Lime – Soda process, Zeolite process and numerical problems based on these processes and Ion Exchange process - Water for drinking purposes- Purification – Sterilization and disinfection : Chlorination, Break point chlorination and other methods – Reverse Osmosis and Electro Dialysis.

Outcome: The advantages and limitations of plastic materials and their use in design would be understood. Fuels which are used commonly and their economics, advantages and limitations are discussed. Reasons for corrosion and some methods of corrosion control would be understood. The students would be now aware of materials like nano materials and fullerenes and their uses. Similarly superconductors are understood. The importance of green synthesis is well understood and how they are different from conventional methods is also explained. The impurities present in raw water, problems associated with them and how to avoid them are understood. The advantages and limitations of plastic materials and their use in design would be understood. The commonly used industrial materials are introduced.

Text Books:
1. Engineering Chemistry by Jain and Jain; Dhanpat Rai Publicating Co.
2. A Text books of Engineering Chemistry by Dr.Bharathi kumara

Yalamananchali, VGS publications

3. Engineering Chemistry by Shikha Agarwal; Cambridge University Press, 2015 edition.

Reference Books:

1. Engineering Chemistry by Prasanth Rath, Cengage Learning, 2015 edition.

2. A text book of engineering Chemistry by S. S. Dara; S. Chand & Co Ltd., Latest Edition

3. Applied Chemistry by H.D. Gesser, Springer Publishers

4. Text book of Nano-science and nanotechnology by B.S. Murthy, P. Shankar and others, University Press, IIM

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ENGINEERING MECHANICS
(171ES1T02)

I Semester
           L **T** **P** **C**

                 3 **1** **-** **3**

UNIT I

Introduction to Engg. Mechanics – Basic Concepts.

Systems of Forces: Coplanar Concurrent Forces & Non Concurrent Forces – Components in Space – Resultant – Moment of Force and its Application – Couples and Resultant of Force Systems.

Friction: Introduction, limiting friction and impending motion, coulomb's laws of dry friction, coefficient of friction, cone of friction

UNIT II

Equilibrium of Systems of Forces: Free Body Diagrams, Equations of Equilibrium of Coplanar Systems, and Spatial Systems for concurrent forces. Lami's Theorem, Converse of the law of Triangle of forces, converse of the law of polygon of forces condition of equilibrium, analysis of plane trusses.

UNIT III

Centroid : Centroids of simple figures (from basic principles) – Centroids of Composite Figures

Centre of Gravity: Centre of gravity of simple body (from basic principles), centre of gravity of composite bodies, Pappus theorems.

UNIT IV

Area moments of Inertia: Definition – Polar Moment of Inertia, Transfer Theorem, Moments of Inertia of Composite Figures

Mass Moment of Inertia : Moment of Inertia of Masses, Transfer Formula for Mass Moments of Inertia, mass moment of inertia of composite bodies.

UNIT – V

Kinematics: Basics of linear motion

Kinetics: Analysis as a Particle and Analysis as a Rigid Body in Translation – Central Force Motion – Equations of Plane Motion – Fixed Axis Rotation

Work – Energy Method: Equations for Translation, Work-Energy Applications to Particle Motion, Connected System-Fixed Axis Rotation and Plane Motion. Impulse momentum method.

Text Books

1. Engg. Mechanics –A.K.Tayal, Umesh Publ.
2. Engineering Mechanics statics and dynamics , A Nelson , Mc Graw Hill publications

References Books

1. Engineering Mechanics statics and dynamics – R.C.Hibbeler, 11th Edn – Pearson Publ.
2. Engineering Mechanics, statics and dynamics – I.H.Shames, – Pearson Publ.
3. Mechanics For Engineers, statics - F.P.Beer&E.R.Johnston – 5th Edn Mc Graw Hill Publ.
4. Mechanics For Engineers, dynamics - F.P.Beer&E.R.Johnston –5th Edn Mc Graw Hill Publ.

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COMPUTER PROGRAMMING
(171ES1T01)

I Semester

	L	T	P	C
	3	1	-	3

UNIT-I

History OF C – Programming Languages – Machine Language, Assembly Language, Low- and High-Level Languages, Application and System Software, The Development of C Algorithms, Flowchart –advantages and disadvantages, The Software Development Process.

Introduction to C Programming & Programming Style:

Introduction- Identifiers, The main () Function, The printf () Function

Programming Style – Indentation, Comments, Keywords, Operators, Constants, Data Types, Variables and Declarations, Operator Precedence and Associativity, Assignment – Implicit Type Conversions, Explicit Type Conversions (Casts), Assignment Variations, Formatted Output.

UNIT –II:

Control Flow-Relational Expressions & Arrays – Selection: if-else Statement, nested if, examples, Multi-way selection: switch, else-if, examples. Repetition: Basic Loop Structures, The for Statement, Nested Loops, Counter-Controlled and Condition-Controlled Loops: The while Statement, The do-while Statement. Go to, Continue and Break.

Arrays: One-Dimensional Arrays, Array Initialization, Arrays as Function Arguments, Two-Dimensional Arrays, Multi Dimensional Arrays- Matrices

UNIT-III

Modular Programming: Function and Parameter Declarations, Categories of functions , Returning a Value, Functions with Empty Parameter Lists, Variable Scope, Storage Classes, Passing parameters to functions, Storing Addresses.

Case Study: Swapping Values, Recursion – Mathematical Recursion, Recursion versus Iteration.

Strings: String Fundamentals, String Input and Output, String Processing, Library

Functions and without handling functions

UNIT-IV

Pointers: Concept of a Pointer, Declaring ,Initialization and using of pointer variables, pointers as function arguments, passing by address, Dangling memory, address arithmetic, pointers to pointers, Dynamic memory management functions, command line arguments.

UNIT-V

Structures: Derived types, Structures declaration, Initialization of structures, accessing structures, nested structures, arrays of structures, self referential structures, unions, type-def, e-num, bit-fields.
Data Files: Declaring, Opening, and Closing File Streams, Reading from and Writing to Text Files, Random File Access

Text Books

1. Computer Programming, Reema Thareja, OXFORD.
2. Programming in C A - Practial Approach by Ajay Mittal

Reference Books

1. C Programming-A Problem Solving Approach, Forouzan, Gilberg, Cengage.
2. The C programming Language, Dennis Richie and Brian Kernighan, Pearson Education.
3. ANSI C Programming, Gary J. Bronson, Cengage Learning.
4. Programming in C, Ashok Kamthane.

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ENGLISH COMMUNICATION SKILLS LAB – 1
(171HS1L01)

I Semester

L	T	P	C
-	-	3	2

PRESCRIBED LAB MANUAL FOR SEMESTER 1:

Strengthen your Communication Skills Published by Maruthi Publications

Exercise - 1

A. Greeting, Introducing and taking leave
B. Pure Vowels

Exercise- 2

A. Giving Information and Asking for Information
B. Diphthongs

Exercise- 3

A. Inviting, Accepting and Declining Invitations

B. Consonants

Exercise- 4

A. Commands, Instructions and Requests
B. Accent and Rhythm

Exercise- 5

A. Suggestions and Opinions
B. Intonation

Reference Books

1. English for Professionals by Prof Eliah, B.S Publications, Hyderabad.
2. A Handbook of English for Professionals by Prof Eliah, B.S Publications.
3. Effective Technical Communication by M. Ashraf Rizvi, TatatMcraw – Hill Publishing
   Company
4. Word power made handy, Drshaliniverma, Schand Company
5. Let us hear them speak, Jayashree Mohanraj, Sage texts
6. Strengthen your Communication Skills published by Maruthi Publications

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ENGINEERING CHEMISTRY LAB
(171BS1L01)

I Semester

	L	T	P	C
	-	-	3	2

Exercise 1:

Introduction to Chemistry laboratory – Molarity, Normality, Primary, secondary standard solutions, Volumetric titrations, Quantitative analysis, Qualitative analysis, etc.

Exercise 2 :

Trial experiment - Determination of HCl using standard Na_2CO_3 solution.

Exercise 3 :

Preparation of Phenol - Formaldehyde resin (Bakelite).

Exercise 4

Determination of $KMnO_4$ using standard Oxalic acid solution.

Exercise 5

Determination of ferrous iron using standard $K_2Cr_2O_7$ solution.

Exercise 6

Preparation of Bio-Diesel.

Exercise 7

Determination of temporary and permanent hardness of water using standard EDTA solution.

Exercise 8

Determination of Copper using standard EDTA solution.

Exercise 9

Determination of Iron by a Colorimetric method using thiocynate as reagent..

Exercise 10

Determination of pH of the given sample solution using pH meter.

Exercise 11

Conduct metric titration between strong acid and strong base.

Exercise 12

Conduct metric titration between strong acid and weak base.

Exercise 13

Potentiometric titration between strong acid and strong base.

Exercise 14

Potentiometric titration between strong acid and weak base.

Exercise 15

Determination of Zinc using standard EDTA solution.

Exercise 16

Determination of Vitamin – C.

Reference Books

1. A Textbook of Quantitative Analysis, Arthur J. Vogel.
2. Dr. Jyotsna Cherukuris (2012) Laboratory Manual of engineering chemistry-II, VGS Techno Series
3. Chemistry Practical Manual, Lorven Publications K. Mukkanti (2009) Practical Engineering Chemistry, B.S. Publication

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COMPUTER PROGRAMMING LAB
(171ES1L01)

I Semester

		L	T	P	C
		-	-	3	2

Exercise - 1 Introduction to C Programming

1.1) Introduction about Editors –Turbo, vi, Emacs

1.2) C Program to Perform Adding, Subtraction, Multiplication and Division of two numbers From Command line

1.3) Write a C Program to compute Area of a Traingle using Heron's formula.

Exercise - 2 Basic Math

2.1) Write a C Program to Find Whether the Given Year is a Leap Year or not.

2.2) Write a C Program to convert Celsius to Fahrenheit and vice versa.

2.3) Write a C Program to find largest of three numbers using ternary operator.

Exercise - 3 Control Flow - I

3.1) Write a C program to find the roots of a Quadratic Equation.

3.2) Write a C Program to make a simple Calculator to Add, Subtract, Multiply or Divide Using   switch…case.

3.3) **Scenario - 1 ATM PIN GENERATION:**

Aditya purchased a credit card. He has to generate a PIN number to access the ATM and Net banking for which OTP was sent to his registered mobile number. Using this OTP number he has to generate ATM PIN number. After generating PIN number, he can use it for further transaction. Maximum login you can make is 3 times.

Sample Input:

OTP: 6732

If valid

Enter PIN: 8858

Confirm your PIN: 8858

Sample output:

valid/Invalid

PIN generated successfully.

Note: OTP is hard coded.

3.4) Scenario - 2 RESET PASSWORDS:

Sindhuja was using Syndicate Bank's Online Account. She wanted to pay her bills through Online. But she forget her password. Now she has to reset the password. For resetting the password, she has to select reset option from the Menu.

NOTE: using switch case.

Sample input:

1. Fast withdrawal

2. Mini Statement.

3. Balance Enquiry

4. Reset Password

Enter your choice: 4

Sample Output: Reset password: New password: ***** Confirm password: *****

Exercise – 4 Control Flow - II

4.1)   Write a C Program to Find Whether the Given Number is

i)   Prime Number

ii)   Armstrong Number

4.2)   Write a C program to print Floyd Triangle

4.3)   Write a C Program to print Pascal Triangle

Exercise – 5 Control Flow – III

5.1)   Write a C program to find the sum of individual digits of a positive integer.

5.2)   Write a C program to check whether given number is palindrome or not.

5.3)   Write a C program to read two numbers, x and n, and then compute the sum of the geometric progression $1+x+x2 +x3 +………….+xn$

5.4)   **Scenario - 3** Student Attendance report Generation:
Some of the school staff had failed to maintain the attendance of the students, causing lack of essential records related to students attendance that should be

submitted in a parents meet. The school management has decided to automate the process in order to maintain the attendance of every student effectively. You are asked to write a program to the above scenario and display whether the student is allowed to write the Exam or not.

percentage<=60	detained
>60 and <=75	should pay condonation to appear for Exams
>75	allowed for Exams

Sample Input:

Enter no of students: 5

Enter Students Details:

Rno:1	Name: Kalyan	attendance(%):67	Should pay condonation to appear for Exams
Rno:2	Name: laxman	attendance(%):56	
Rno:3	Name: Yamini	attendance(%):79	
Rno:4	Name: Aryan	attendance(%):60	
Rno:5	Name: Raghav	attendance(%):88	

Sample Output:

R NO	NAME	ATTENDENCE (%)	REMARKS
1	Kalyan	67	Should pay condonation to appear for Exams
2	Laxman	56	detained
3	Yamini	79	allowed for Exams
4	Aryan	60	detained
5	Raghav	88	allowed for Exams

Exercise – 6 Arrays

Demonstration of arrays

6.1) Search - Linear.

6.2) Sorting-Bubble.

6.3) Operations on Matrix.

6.4) Scenario – 4 Celebrity of the Week:

Red FM has launched a program called Celebrity of the week in their channel. Listeners are given a toll free number where they can listen to list of celebrities. Listeners can choose their favourite celebrity from the list and vote for him/her. The votes are validated from Monday to Saturday. The one with highest votes is called as "Celebrity of the Week" and his/her songs are played in the program, which is aired on sundays. Now write a program to find the celebrity of the week.

Sample Input:

1. Nagachaithanya
2. Nithin
3. Prabhas
4. Ram
5. Thamanna
6. Samantha
7. Regina
8. Sruthihasan
Enter no of listeners: 10
Enter your favourite: 3
Enter your favourite: 8
Enter your favourite: 4
Enter your favourite: 3
Enter your favourite: 4
Enter your favourite: 2
Enter your favourite: 7
Enter your favourite: 3
Enter your favourite: 1
Enter your favourite: 5
Sample Output:

"Celebrity of the Week" is PRABHAS

Exercise – 7 Functions

7.1) Write a C Program demonstrating of parameter passing in Functions and returning values.

7.2) Write a C Program illustrating Fibonacci, Factorial with Recursion without Recursion

7.3) Scenario – 5 SELF DRIVE RENTAL

Sadiq and his friends are going to Banglore. But they don't have a vehicle in Banglore. For that they go to rental cars to take car for rent. You have find out what is total amount of car's rent. The car's rentals and rules are as follows.

i) Minimum booking is 4.

ii) There are 3 types of cars

A) SWIFT

B) SCORPIO

C) INNOVA

iii) There are 3 categories in cars rental

A) LTTE

B) CLASS

C) XL

FOR SWIFT

- In ltte,5kms are free per one hour and rs.70 per one hour, if they exceed 5km/ph, then rs.12 per km.

- In class,10kms are free per one hour and rs.90 per one hour, if they exceed 10km/ph, then rs.12 per km.

- In xl,15kms are free per one hour and rs.110 per one hour, if they exceed 15km/ph, then rs.12 per km.

FOR SCORPIO

- In ltte,5kms are free per one hour and rs.90 per one hour, if they exceed 5km/ph, then rs.15 per km.

- In class,10kms are free per one hour and rs.110 per one hour, if they exceed 10km/ph, then rs.15 per km.
- In xl,15kms are free per one hour and rs.130 per one hour, if they exceed 15km/ph, then rs.15 per km.

FOR INNOVA

- In ltte,5kms are free per one hour and rs.110 per one hour, if they exceed 5km/ph, then rs.18 per km.

- In class,10kms are free per one hour and rs.130 per one hour, if they exceed 10km/ph, then rs.18 per km.

- In xl,15kms are free per one hour and rs.150 per one hour, if they exceed 15km/ph, then rs.18 per km.

SAMPLE INPUT

ENTER NO.OF DAYS AND HOURS FOR CAR: 01 02 (I.E 1 DAY 2 HOURS = 26 HOURS)

1. SWIFT
2. SCORPIO
3. INNOVA
SELECT A CAR:2
1. LTTE
2. CLASS
3. XL
SELECT RENTEL TYPE:2
TOTAL KMS COVERED:300

SAMPLE OUTPUT

TOTAL HOURS:	26
CAR NAME:	SCORPIO
RENTAL TYPE:	CLASS
AMOUNT:	3380
EXCEED AMOUNT (40KM *18):	720
GRAND TOTAL:	4100

Exercise – 8 Strings

8.1) Implementation of string manipulation operations with library function.

i)   copy

ii)   concatenate

iii)   length

iv)   compare

8.2) Implementation of string manipulation operations without library function.

i)   copy

ii)   concatenate

iii)   length

iv)   compare

8.3) Verify whether the given string is a palindrome or not

8.4) Scenario – 6 Word with Obesity:

Jeeth is a fun loving and active boy. He likes to play with words and numbers. One day Jeeth and his friends attended a seminar, which was conducted in his school. The Seminar was about "Causes of obesity in children and its effects". Jeeth and his friend Ram are not interested in listening to the seminar, so he thought of giving a puzzle to Ram. Jeeth gave some words to Ram and wanted him to find the word with Obesity. Ram was confused and asking your help. Write a program to find the weights of the words and display the word with highest weight (word with obesity).

Sample Input:

Enter no of words: 3
Enter 3 words: apple banana carrot

Sample Output:

a) Word with Obesity is carrot

Exercise – 9 Arrays and Pointers

9.1) Write a C Program to Access Elements of an Array Using Pointer

9.2) Write a C Program to find the sum of numbers with arrays and pointers.

Exercise – 10 Dynamic Memory Allocations

10.1) Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using malloc () function.

10.2) Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using calloc () function. Understand the difference between the above two programs

Exercises - 11 Structures

11.1) Write a C Program to Store Information of a book Using Structure

11.2) Write a C Program to Store Information Using Structures with Dynamically Memory Allocation

11.3) Write a C Program to Add Two Complex Numbers by Passing Structure to a Function

11.4) Scenario – 7 Library Management

Shilpa student of PGEC got the Library Card. She want to Lend the books from the Library. The college gave two cards to each and every students. The students can Lend only two books at a time and it has to be returned back after 15 days. If the books are not returned Late fee will be collected for no. of days the books were returned after the due date. Late fee per day is Rs.50/-

Sample Input.

Enter the name of student, Roll No. Branch, Section, Year, DoL,DOR,

Sample output

No. of days returned after the due date = 5

Late fee per day = Rs. 50

Fine paid by the student is 5 * 50 =250.

Exercise -12 Files

12.1) Write a C programming code to open a file and to print it contents on screen.

12.2) Write a C program to copy files

12.3) Write a C program merges two files and stores their contents in another file.

12.4) Scenario – 8 Student Information System Using Files:

Lakshya International school was recently established and having large no of admissions. The school management wanted the Student information to be computerized and wanted to maintain in a simple and in effective manner. You are asked to develop Student Information System using Files to perform the following tasks

1. Add New Student
2. Update Existing Student
3. Delete Existing Student
4. Retrieve A Particular/All Students

Sample Input

Choose the task you want to perform:

1. Add
2. Update
3. Delete
4. Retrieve
Your choice: 1

Enter student details

Name: Akhil
Age: 5
Class: 1

Sample Output

Student details added

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II Semester	L	T	P	C
	3	1	-	3

Introduction:

In view of the growing importance of English as a tool for global communication and the consequent emphasis on training the students to acquire communicative competence, the syllabus has been designed to develop linguistic and communicative competence of the students of Engineering.

As far as the detailed Textbooks are concerned, the focus should be on the skills of listening, speaking, reading and writing. The non-detailed Textbooks are meant for extensive reading for pleasure and profit.

Thus the stress in the syllabus is primarily on the development of communicative skills and fostering of ideas.

Methodology:

1. The class are to be learner - centred\ where the learners are to read the texts to get a comprehensive idea of those texts on their own with the help of the peer group and the teacher.

2. Integrated skill development methodology has to be adopted with focus on individual language skills as per the tasks / exercise.

3. The tasks/exercises at the end of each unit should be completed by the learners only and the teacher intervention is permitted as per the complexity of the task/exercise.

4. The teacher is expected to use supplementary material wherever necessary and also generate activities/tasks as per the requirement.

5. The teacher is permitted to use lecture method when a completely new concept is introduced in the class.

Detailed Text

SURE OUTCOMES: English for Engineers and Technologists (Orient Black Swan)

Recommended Topics

1. Technology with a Human Face

OBJECTIVE: To make the learner understand how modern life has been shaped by technology.

OUTCOME: The proposed technology is people's technology. It serves the human person instead of making him the servant of machines.

2. Climate Change and Human Strategy

OBJECTIVE: To make the learner understand how the unequal heating of earth's surface by the Sun, an atmospheric circulation pattern is developed and maintained.

OUTCOME: The learner's understand that climate must be preserved.

3. Emerging Technologies

OBJECTIVE: To introduce the technologies of the 20th century and 21st centuries to the learners.

OUTCOME: The learner will adopt the applications of modern technologies such as nanotechnology.

4. The Secret of Work

OBJECTIVE: In this lesson, Swami Vivekananda highlights the importance of work for any development.

OUTCOME: The students will learn to work hard with devotion and dedication.

5. Work Brings Solace

OBJECTIVE: In this lesson Abdul Kalam highlights the advantage of work.

OUTCOME: The students will understand the advantages of work. They will overcome their personal problems and address themselves to national and other problems.

Text Book: 'Sure Outcomes' by Orient Black Swan Pvt. Ltd. Publishers

Non-Detailed Text

PANORAMA- A course on Reading by Oxford University Press Pvt. Ltd. Publishers

1. An Ideal Family

OBJECTIVE: To develop extensive reading skill and comprehension for pleasure and profit.
OUTCOME: Acquisition of writing skills

2. War

OBJECTIVE: To develop extensive reading skill and comprehension for pleasure and profit.

OUTCOME: Acquisition of writing skills

3. The Verger

OBJECTIVE: To develop extensive reading skill and comprehension for pleasure and profit.
OUTCOME: Acquisition of writing skills

4. The Scarecrow

OBJECTIVE: To develop extensive reading skill and comprehension for pleasure and profit.
OUTCOME: Acquisition of writing skills

5. A Village Lost To the Nation

OBJECTIVE: To develop extensive reading skill and comprehension for pleasure and profit.
OUTCOME: Acquisition of writing skills

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MATHEMATICS-III
(171BS2T06)

II Semester

L	T	P	C
3	1	2	3

UNIT I: Laplace transforms:

Laplace transforms of standard functions-First Shifting theorem, Change of scale, Multiplication with t, Division by t - Transforms of derivatives and integrals – Unit step function –Dirac's delta function, Periodic functions.

UNIT II: Inverse Laplace transforms :

Inverse Laplace transforms – Convolution theorem (with out proof), Second shifting theorem.

*(MATLAB Exercise: Computing Laplace transform of f(t) using symbolic toolbox, Solving initial value problems using 'dsolve')

Applications: Evaluating improper integrals, solving initial value problems using Laplace transforms.

UNIT III: Multiple integrals and Beta, Gamma functions:

Multiple integrals: Double and triple integrals – Change of variables – Change of order of integration, Beta and Gamma functions- Properties - Relation between Beta and Gamma functions-
Applications: Finding Areas and Volumes.

UNIT IV: Vector Differentiation:

Gradient - Directional Derivatives - Divergence- Curl - Laplacian
operator -Vector identities.
 Applications: Equation of continuity, potential surfaces

UNIT V: Vector Integration:

Line integral – Work done - Surface and volume integrals, Green's Theorem, Stokes Theorem and Gauss Divergence theorem (without proof) and related problems.

Text Books:

1. B.S.Grewal, Higher Engineering Mathematics, 43rd Edition, Khanna Publishers.
2. Dr.T K V Iyengar, Engineering Mathematics, S.Chand Publications.

Reference Books:

1.George B.Thomas, D, Weir and J.Hass.Thomas Calculus, 12th edition, 2010 Pearson Education
2.Greenberg, Advanced Engineering Mathematics, 2nd edition, Pearson edn
3.Erwin Kreyszig, Advanced Engineering Mathematics, 10th Edition, Wiley-India
4.W. Jordan and T.Smith, Mathematical Techniques, Oxford University Press.
* Not to be examined

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MATHEMATICS-II
(171BS2T02)

II Semester

	L	T	P	C
	3	1	-	3

UNIT I: Solution of Algebraic and Transcendental Equations and Interpolation :

Introduction- Bisection method – Method of false position – Iteration method – Newton-Raphson method.

Errors in polynomial interpolation – Finite differences- Forward differences- Backward differences –Central differences – Relation between operators - Differences of a polynomial-Newton's formulae for interpolation – Interpolation with unequal intervals - Lagrange's interpolation formula.

UNIT II: Numerical Integration and solution of Ordinary Differential equations:

Trapezoidal rule- Simpson's $1/3^{rd}$ and $3/8^{th}$ rule-Solution of ordinary differential equations by Taylor's series-Picard's method of successive approximations-Euler's method, Modified Euler's method - Runge-Kutta method (fourth order).

UNIT III: Fourier Series:

Fourier series of periodic function - Dirichlet's conditions for fourier expansion - Functions having points of discontinuities–Change of interval – Even and odd functions – Half-range series.

UNIT IV: Fourier Transforms:

Fourier integral theorem (without proof) – Fourier sine and cosine integrals - sine and cosine transforms – properties – inverse transforms – Finite Fourier transforms.

UNIT V: Applications of PDE:

Classification of Higher order P.D.E - Method of separation of Variables- Solution of One dimensional Wave equation, Heat equation and two-dimensional Laplace equation.

Text Books:

1.   **B.S.Grewal,** Higher Engineering Mathematics, 43rd Edition, Khanna Publishers.
2.   **V.Ravindranath and P.Vijayalakshmi,** Mathematical Methods, Himalaya Publishing House

Reference Books:

1.   **Dean G. Duffy,** Advanced engineering mathematics with MATLAB, CRC Press
2.   **Erwin Kreyszig,** Advanced Engineering Mathematics, 10th Edition, Wiley-India
3.   **Dass H.K., Rajnish Verma. Er.,** Higher Engineering Mathematics, S. Chand Co. Pvt. Ltd, Delhi.
4.   Higher engineering mathematics by **John Bird**, 5th edition Elsevier Limited, 2006.
5.   Advance engineering mathematics by **SRK Iyengar,** Alpha Sciences International Publication

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ENGINEERING PHYSICS
(171BS2T07)

II Semester

	L	T	P	C
	3	1	-	3

UNIT-I

INTERFERENCE: Principle of Superposition – Coherence – Interference in thin films (reflection geometry)-– Newton's rings – construction and basic principle of Interferometer.

UNIT-II

DIFFRACTION: : Fraunhofer diffraction at single slit - Cases of double slit, N-slits,& circular aperture, Grating equation – Rayleigh criterion of resolving power-Resolving power of a grating, Telescope and Microscopes.

UNIT-III

POLARIZATION: Types of Polarization-production - Nicol Prism -Quarter wave plate and Half Wave plate-working principle of polarimeter (Sacharimeter)

LASERS: Characteristics– Stimulated emission – Einstein's Transition Probabilities- Pumping schemes - Ruby laser – Helium Neon laser-CO_2 Laser-Applications

UNIT-IV

ACOUSTICS: Reverberation time - Sabine's formula – Acoustics of concert-hall.

ULTRASONICS: Production - Ultrasonic transducers- Non-Destructive Testing-Applications.

CRYSTALLOGRAPHY & X-RAY DIFFRACTION: Basis and lattice – Bravais systems- Symmetry elements- Unit cell- packing fraction – coordination number- Miller indices – Separation between successive (h k l) planes – Bragg's law-Bragg's x-ray spectrometer.

UNIT-V

MAGNETISM: Classification based on Field, Temperature and order/disorder –

atomic origin – Ferromagnetism- Hysteresis- applications of magnetic materials (Para &Ferro).

 DIELECTRICS: Electric Polarization – Dielectric in DC fields – Internal field – Clausius Mossoti Equation –Dielectric loss- Ferroelectric Hysteresis and applications.

Text Books:

1. Engineering Physics – by M.N.Avadhanulu and T.V.S. Arun Murthy, S.Chand & Company Ltd.,
2. Physics for Engineers by M.R.Srinasan, New Age international publishers (2009)
3. Engineering Physics by D.K.Bhattacharya and Poonam Tandon , Oxford press (2015)

Refference books:

1. Applied Physics by P.K.Palanisamy , Scitech publications (2014)
2. 'Solid State Physics' by A.J.Dekker, Mc Millan Publishers (2011)

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ENGINEERING DRAWING
(171ES2T03)

II Semester

	L	T	P	C
	3	1	-	3

UNIT-I

INTRODUCTION TO ENGINEERING DRAWING: Lettering, Dimensioning, Types of lines.

GEOMETRICAL CONSTRUCTIONS: Construction of regular polygons by general method and Inscribing circle method. Special Methods for pentagon and hexagon .

CONIC SECTIONS: Ellipse, Parabola and Hyperbola by general method (eccentricity method) and special methods.

SCALES: Plain scale, Diagonal scale and Vernier scales.

UNIT-II

ORTHOGRAPHIC PROJECTIONS: Introduction to Orthographic projections, Projections of points, projections of lines.

UNIT-III

PROJECTIONS OF PLANES: Regular planes perpendicular/parallel to one reference plane and inclined to other reference plane; inclined to both the reference planes.

UNIT-IV

PROJECTIONS OF SOLIDS : Prisms, pyramids, cones and cylinders with the axis parallel to both the reference planes and axis inclined to one of the reference planes.

UNIT-V

ISOMETRIC PROJECTIONS : Isometric scale , Isometric projections
Conversion of Isometric projections into Ortho graphic projections.

Text Books

1. Engineering Drawing by N.D.Bhatt, Charotar Publishers.
2. Engineering drawing by K.L.Narayana and P. Khannaiah. SCITECH Publishers.

Reference Books

1. Engineering Drawing by K.Venugopal, NEW AGE Publications.
2. Engineering Drawing by M.B. Shah & B.C. Rana., Pearson's Publishers.
3. Engineering Drawing by Agarwal & Agarwal, Tata McGraw Hill Publishers.

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ELEMENTS OF MECHANICAL ENGINEERING
(171ES2T07)

II Semester

	L	T	P	C
	3	1	-	3

UNIT –I:

Stresses and strains: kinds of – stress-strains, elasticity and plasticity, Hooks law, stress- strain diagrams, modules of elasticity, Poisson's ratio, linear and volumetric strain, relation between E,N, and K, bars of uniform strength and temperature stresses.

UNIT– II:

Types of supports – loads – Shear force and bending moment for cantilever and simply supported beams without overhanging for point load and uniform distributed load. Theory of simple bending, simple bending formula, Applications.

UNIT-III:

Thin cylindrical shells: Hoop stress, longitudinal stress, Volumetric strain

Thick Cylinders: Lame's equation- Simple Examples

Transmission systems: Belts –conditions for maximum torque, effect of centrifugal tension simple problems, Comparison of belt drives with gear drives.

UNIT-IV:

Steam boilers Classification of boilers- Bobcock and Wilcox, Cochran Boilers, types of boilers, study of boilers, boiler mountings and accessories.

Reciprocating air compressors: uses of compressed air, work done in single stage compression, inter cooling and simple problems.

UNIT V:

Internal combustion engines: classification of IC engines, basic engine components and nomenclature, working principle of engines, Four strokes and two stroke petrol and diesel engines, Comparision of CI and SI engines and comparision of 2 stroke and 4 stroke engines, simple problems such as indicated power, brake power, friction power

Text Books:

1. Elements of Mechanical Engineering, A.R.Asrani,S.M.Bhatt and P.K.Shah,B.S.Publs.
2. Elements of Mechanical Engineering, M.L.Mathur,F.S.Metha&R.P.Tiwari Jain brothers Publs., 2009**.**

Reference Book:

1. Theory of Machines, S.S. Rattan, Tata McGraw Hil., 2004 & 2009.
2. Thermal Engineering, Ballaney,P.L., Khanna Publishers, 2003.
3. Thermodynamics , P.K.Nag, Tata McGraw Hil.,
4. Strength of Materials , S.Ramamrutham, Dhanpatrai publications.

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ENGLISH COMMUNICATION SKILLS LAB – II
(171HS2L02)

II Semester

	L	T	P	C
	-	-	3	2

PRESCRIBED LAB MANUAL:

Strengthen your Communication Skills Published by Maruthi Publications

Exercise- 1

Body Language

Exercise -2

Dialogues

Exercise- 3

Presentation Skills

Exercise- 4

Group Discussion

Exercise- 5

Interviews and Telephonic Interviews

Exercise- 6

Debates

Reference Books

1. English for Professionals by Prof Eliah, B.S Publications, Hyderabad.
2. A Handbook of English for Professionals by Prof Eliah, B.S Publications.
3. Effective Technical Communication by M. Ashraf Rizvi, Tata Mcraw – Hill Publishing Company
4. Cornerstone, Developing soft skills, Pearson Education

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ENGINEERING PHYSICS LAB
(171BS2L02)

II Semester

	L	T	P	C
	-	-	3	2

LIST OF EXPERIMENTS:
(Any 10 of the following listed experiments)

1. Determination of wavelength of a source-Diffraction Grating-Normal incidence.
2. Newton's rings – Radius of Curvature of Plano - Convex Lens.
3. Determination of thickness of a spacer using wedge film and parallel interference fringes.
4. Determination of Rigidity modulus of a material- Torsional Pendulum.
5. Determination of Acceleration due to Gravity and Radius of Gyration- Compound Pendulum.
6. Melde's experiment – Transverse and Longitudinal modes.
7. Verification of laws of vibrations in stretched strings – Sonometer.
8. Determination of velocity of sound – Volume Resonator.
9. L- C- R Series Resonance Circuit.
10. Study of I/V Characteristics of Semiconductor diode.
11. I/V characteristics of Zener diode.
12. Characteristics of Thermistor – Temperature Coefficients.
13. Magnetic field along the axis of a current carrying coil – Stewart and Gee's apparatus.
14. Energy Band gap of a Semiconductor p - n junction.
15. Hall Effect in semiconductors.
16. Time constant of CR circuit.
17. Determination of wavelength of laser source using diffraction grating.
18. Determination of Young's modulus by method of single cantilever oscillations.
19. Determination of lattice constant – lattice dimensions kit.
20. Determination of Planck's constant using photocell.
21. Determination of surface tension of liquid by capillary rise method.
22. Polarimeter – Determination of specific rotation of sugar solution
23. Single Slit – Determination of Slit width using laser or Determination of Wavelength of laser

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ENGINEERING WORKSHOP & IT WORKSHOP
(171ES2L02)

II Semester   **L   T   P   C**

                                                    -      -   3   2

ENGINEERING WORKSHOP

Carpentry :

   1. T-Lap Joint
   2. Cross Lap Joint
   3. Dovetail Joint
   4. Mortise and Tenon Joint

Fitting :

   1. Vee Fit
   2. Square Fit
   3. Half Round Fit
   4. Dovetail Fit

Black Smithy :

   1. Round rod to Square
   2. S-Hook
   3. Round Rod to Flat Ring
   4. Round Rod to Square headed bolt

House Wiring :

   1. Parallel / Series Connection of three bulbs
   2. Stair Case wiring
   3. Florescent Lamp Fitting
   4. Measurement of Earth Resistance

Tin Smithy :

   1. Taper Tray
   2. Square Box without lid
   3. Open Scoop
   4. Funnel

Note: At least two exercises to be done from each trade.

IT WORKSHOP

Exercise- 1:

System Assembling, Disassembling and identification of Parts / Peripherals

Exercise- 2:

Operating System Installation-Install Operating Systems like Windows, Linuxalongwith necessary Device Drivers.

Exercise- 3:

MS-Office / Open Office

a.   Word - Formatting, Page Borders, Reviewing, Equations, symbols.

b.   Spread Sheet - organize data, usage of formula, graphs, charts.

c.   Power point - features of power point, guidelines for preparing an effective Presentation.

d.   Access- creation of database, validate data.

Exercise- 4:

Network Configuration & Software Installation-Configuring TCP/IP, proxy and firewall settings. installing application software, system software & tools.

Exercise- 5:

Internet and World Wide Web-Search Engines, Types of search engines, netiquette, cyber Hygiene.

Exercise- 6:

Trouble Shooting-Hardware trouble shooting, Software trouble shooting.

Exercise- 7:

LATEX - basic formatting, handling equations and images.

Reference Books

1. Computer Hardware, Installation, Interfacing, Troubleshooting and Maintenance, K.L. James, Eastern Economy Edition.
2. Microsoft Office 2007: Introductory Concepts and Techniques, Windows XP Edition
   By Gary B. Shelly, Misty E. Vermaat and Thomas J. Cashman (2007, Paperback).
3. LATEX- User's Guide and Reference manual, Leslie Lamport, Pearson, LPE, 2/e.
4. Getting Started with MATLAB: A Quick Introduction for Scientists and Engineers,
   Rudraprathap, Oxford University Press, 2002.
5. Scott Mueller's Upgrading and Repairing PCs, 18/e, Scott. Mueller, QUE, Pearson, 2008
6. The Complete Computer upgrade and repair book, 3/e, Cheryl A Schmidt, Dreamtech.
7. Comdex Information Technology course tool kit Vikas Gupta, WILEY Dreamtech.
8. Introduction to Information Technology, ITL Education Solutions limited, Pearson Education.

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