Scheme of Teaching and Examination for
III Semester DIPLOMA in ELECTRONICS ENGINEERING BRANCH

THEORY

SL. No	SUBJECTS	SUBJECT CODE	Periods per Week	Periods in one Session	Hours of Exam.	Terminal Exam. (A) Marks	Final Exam. (B) Marks	Total Marks (A+B)	Pass Marks Final Exam.	Pass Marks in the Subject
1	Professional Mathematics	00301	6	60	3	20	80	100	26	36
2	Engineering Mechanics	00302	4	50	3	20	80	100	26	36
3	Computer Programming Through 'C '	00303	4	50	3	20	80	100	26	36
4	Electronics Drawing & Drafting	21304	9	120	4	20	80	100	26	36
5	Electronics Measurement-I	21305	5	50	3	20	80	100	26	36
	Total :-		28					500		

PRACTICAL

SL. No.	SUBJECTS	SUBJECT CODE	Periods per Week	Periods in one Session	Hours of Exam.	Marks Internal Exam. (A)	Marks External Exam. (B)	Total Marks (A+B)	Pass Marks Final Exam.	Pass Marks in the Subject
6	Engineering Mechanics Lab.	00306	4	50	3	10	40	50	16	21
7	Computer Programming Through 'C '	00307	6	60	3	10	40	50	16	21
8	Electronic Measurement and Instrumentation	21308	4	50	3	10	40	50	16	21
	Total :-		14					150		

SESSIONAL

SL. No.	SUBJECTS	SUBJECT CODE	Periods per Week	Periods in One Session	Marks of Internal Examiner (X)	Marks of External Examiner (Y)	Total Marks (X+Y)	Pass Marks in the Subject
9	Electronics Drawing and Drafting	21309	–	–	40	60	100	50
	Total :-		–				100	

Total Periods per Week	42		Total Marks	750

PROFESSIONAL MATHEMATICS

Subject Code	Theory			No of Period in one session : 60		
00301	No. of Periods Per Week			Full Marks	:	100
	L	T	P/S	Annual Exam.	:	80
	06	**00**	**00**	Internal Exam.	:	20

Rationale:

A technical diploma holder is engaged generally as first line supervisor. He forms a bridge between workers and management. He has to understand the language of the modern management and communicate with the workers in their language. This subject will help accomplishment of the task in stipulated time, develop attitude towards cost effectiveness, selection of most effective alternative methods. This course will also help the student to tackle different numerical methods and computational techniques for problem solving in research organization as a programmer.

Objective:

The course enables students to.
- Managerial skill based on mathematical footing
- The ability to find approximate solutions and/or answers to the problems where analytical methods become more complex.
- To choose correct numerical techniques for a given problem.

S.No.	Topics	Periods
01	GROUP –A (Numerical Methods)	**(20)**
02	GROUP-B (Statistical Techniques)	**(20)**
03	GROUP-C (Management Techniques)	**(20)**
	Total:	**(60)**

CONTENTS:

GROUP-A   (NUMERICAL METHODS)   **(20)**

01.01   Introduction to Numerical methods: Approximation and errors (Truncation & Round off).

01.02   Numerical solutions of non-linear and Transcendental equations: Iterative methods. Newton-Raphson's method. Bisection method and Regula-Falsi method.

01.03   Solution of Linear Simultaneous Equations: Gaussian Elimination method and Gauss-Jordan method.

01.04   Finite Difference: Backward and forward Differences. Finite Difference Interpolation Formula. Newton's Forward Difference formula and Newton's Backward Difference formula.

01.05   Numerical Differentiation & Integration: Newton's forward and backward differentiation formula. Trapezoidal Rule and Simpson's 1/3 rule for numerical integration.

01.06   Difference equations. simple problem Only

GROUP-B   (STATISTICAL TECHNIQUES)   **[20]**

02.01   Introduction to statistics: Measure of central tendencies: measures of dispersions: standard deviation and variance for discrete and grouped data: assumed mean and step deviation methods.

02.02   Theory of Probability: Random events and their types. Probability of Events. Definitions. Laws of Probability (Addition and Multiplication Laws)

02.03   Probability Distribution: Introduction to Arithmetic Mean and Standard Deviation of a probability distribution. Important probability distribution – Binomial distribution. Poisson's distribution & Their means and variance.

GROUP-C   (MANAGEMENT TECHNIQUES)   **[20]**

03.01   Linear Models

03.01.01   Introduction to Operations Research (O.R) Steps of O.R.

03.01.02   Linear Programming Problems: Formulation of a LPP. Mathematical Modelling and Solution by graphical method.

03.01.03   Solution by Simplex Method: Basic Feasible Solution (Degenerator and Non-degenerator)

03.01.04   Transportation problem: Introduction and Solution Procedure-
   (i)   Finding the initial basic feasible solution by N-W Corner Rule, Least cost method and Vogel's Approximation Method.
   (ii)   Test of optimality by **u-v** method only.

03.01.05   Assignment Problem: Introduction and Solution Procedure–Fundamental theory underlying Hungarian Method.

03.02   Network Analysis. CPM & PERT: Introduction.

03.02.01   Basic concepts – Activities. Nodes. Edges. Networking of a project. Various times calculations. CPM to determine the optimal project schedule.

03.02.02   PERT- Definition, difference between CPM & PERT. Pessimistic times, optimistic times. Most likely times of various activities.

Books Recommended: Text Books

1.	Operations Research. Sultan Chand & Sons, New Delhi, 1990	-	Kanti Swaroop. P.K Gupta and Man Mohan
2.	Operations Research. Sultan Chand & Sons, New Delhi, 1990	-	Heera & Gupta
3.	Operations Research. Macmillan Publishing Co. New York, 1982	-	H.A.Taha
4.	Computer based numerical algorithm, East West Press, 1975	-	E.V Krishna Murthy & S.V. Sen
5.	Computer oriented numerical method, Prentice Hall India, 1980	-	V. Rajaraman

ENGINEERING MECHANICS

Subject Code	Theory			No of Period in one session : 50		
00302	**No. of Periods Per Week**			**Full Marks**	**:**	**100**
	L	T	P/S	**Annual Exam.**	**:**	**80**
	04	**00**	**00**	**Internal Exam.**	**:**	**20**

Rationale:

The subject forms an important part of Engineering curricula for developing the concepts required in the design of various structures. The subject deals with the basic concept of mechanic of body and the behaviour of material used in practice and in structures under varying load conditions. The first part of the subject deals with the applied mechanics science. Which describe the condition of body in rest or motion under the action of forces. In its preview come variety of general and specialized engineering disciplines concerned with analysis of structures and machines and the mechanism of their parts.

In the Second part, the principles of strength of materials is introduced in which the student will learn to distinguish between different types of stress and strain and also the qualitative assessment of stress and strains in material element under the action of internal forces.

Objective:

Knowledge Workers will be able to:

- Analyze and understand the physical behaviour of members of engineering structures.
- Acquire knowledge of various elements of structures.
- Utilise the basic principles.
- Develop skill to tackle field problem.
- Solve the problems by the application of basic principles.
- Judge the suitability of materials in design process.

S.No.	Topics	Periods
	PART-A	
01	Introduction	(02)
02	Vector Methods	(02)
03	Introduction to system of forces and equilibrium	(06)
04	Friction	(04)
05	Kinematics and kinetics of a particle	(03)
06	Kinematics and kinetics of rigid body	(02)
07	Impulse and Momentum	(02)
08	Work, Energy and Power	(04)
	Total :	**(25)**
	PART-B	
01	Simple stress and strains	(07)
02	Elastic constants	(03)
03	Center of Gravity (Centroid)	(02)
04	Moment of Inertia	(05)
05	Shearing force and bending moments	(08)
		(25)
	Total :	**(50)**

CONTENTS:
PART-A
TOPIC: 01 – INTRODUCTION: [02]
Idealisation of mechanics; Concept of rigid body; External forces (Body forces & surface forces) Law of Mechanics.
TOPIC: 02 VECTOR METHODS: [02]
Equality and equivalence of vectors; Free and Bound vector; Moment of a force about a point and a line; Couple and moment of a couple.

TOPIC: 03 – INDTRODUCTION TO SYSTEM OF FORCES AND EQUILIBRIUM: [06]

Statically equivalent force system; simplest equivalent of a system of forces; force analysis, free body diagram, equation of equilibrium.

TOPIC: 04 – FRICTION: [04]

Basic Concept of different Friction (Static, Dynamic, Sliding, Rolling, Fluid).

TOPIC: 05 – KINEMATICS AND KINETICS OF A PARTICLE: [03]

Rectilinear and curvilinear translations; normal and tangential component of acceleration.

TOPIC:06 – KINEMATICS AND KINETICS OF RIGID BODY: [02]

Simple concept of Angular Velocity and angular acceleration. Effective forces on a rigid body. D' Alembert's principle.

TOPIC:07 – IMPULSE AND MOMENTUM: [02]

Linear impulse and linear momentum, angular impulse and angular momentum, definitions only;

TOPIC: 08 – WORK, ENERGY AND POWER: [04]

Work done by forces and couples, potential and kinetic energy, work-energy; conservation of energy; concept of power and efficiency.

PART-B

TOPIC: 01 – SIMPLE STREES & STRAIN: [07]

01.01   Definition of various terms and their units (S.I. Units)
01.02   Stress and strain due to axial load and transverse load relation between stress and strain. Hook's law. Studies of stress strain curve. Factor of safety & working stress. Concepts of isotropic materials.
01.03   Stress & strain in simple section & composite bar. Stress & strain due to temperature variation.
01.04   Shrinking on hoop's stresses.

TOPIC: 02 – ELASTIC STRESS & STRAIN: [03]

02.01   Linear strain and lateral strain, poisson's ratio, volumetric strain
02.02   Change in volume due to axial, biaxial & triaxial loading. Bulk modulus.
02.03   Shear stress and strain, modulus of rigidity.
02.04   Simple shear. Complementary shear stress.
02.05   Various Relations among modulus of elasticity, modulus of rigidity & bulk modulus.

TOPIC: 03 – CENTER OF GRAVITY (CENTROID): [02]

03.01   Definition of center of gravity & centroid.
03.02   Determination of C.G of various sections symmetrical and unsymmetrical sections.
03.03   Determination of C.G. of perforated sections.

TOPIC: 04 – MOMENT OF INERTIA: [05]

04.01   Definition of M.I.; radius of gyration, second moment of area.
04.02   Parallel axis theorem & perpendicular axis theorem.
04.03   Derivation of M.I. of regular area-rectangular, triangular circular about centroidal axis.
04.04   M.I. of built up section, symmetrical and unsymmetrical about centroidal axis, modulus of sections.

TOPIC: 05 – SHEARING FORCE & BENDING MOMENT: [08]

05.01   Types of beams and types of supports, types of loading.
05.02   Concept and definitions of shear force and bending moment, sign convention.
05.03   Shear force and bending moment diagrams for cantilever, simply supported beam, over hanging beam for various types of loading & couples, point of contraflexure.
05.04   Relation between B.M, S.F. and rate of loading.

Books Recommended:

Text Books

1.	Strength of Materials	-	R.S. Khurmi
2.	Mechanics of Structure	-	S.B. Junarkar
3.	Strength of Materials	-	Ramamrutham
4.	Theory of Structure	-	Vazirini & Ratwani
5.	Strength of Materials & Mechanics of Structure.	-	Punamia
6.	Teaching plans of Strength of Material	-	T.T.T.I. Madras
7.	द्रव्य सामर्थ्य	-	गुरूचरण सिंह
8.	Engineering Mechanics	-	I.H. Shames
9.	Engineering Mechanics	-	Beer & Johnson
10.	Strength of material	-	S.K. Singh

COMPUTER PROGRAMMING THROUGH C

Subject Code **00303**	Theory			No of Period in one session : 50		
	No. of Periods Per Week			Full Marks	:	100
	L	T	P/S	Annual Exam.	:	80
	04	00	00	Internal Exam.	:	20

Rationale:

      Computers play a vital role in present day life, more so, in the professional life of technician engineers. In order to enable the students use the computers effectively in problem solving, this course offers the modern programming language C along with exposition to various engineering applications of computers.

Objective:

      The objectives of this course are to make the students able to:

- Develop efficient algorithms for solving a problem.
- Use the various constructs of a programming language viz. conditional, iteration and recursion.
- Implement the algorithms in "C" language.
- Use simple data structures like arrays, stacks and linked list solving problems.
- Handling File in "C".

S.No.	Topics	Periods
01	Introduction to Programming	(03)
02	Algorithm for Problem Solving	(08)
03	Introduction to 'C' Language	(08)
04	Condition and Loops	(07)
05	Arrays	(07)
06	Functions	(07)
07	Structures and Unions	(04)
08	Pointers	(06)
	Total :	**(50)**

CONTENTS:

TOPIC: 01 – INTRODUCTION TO PROGRAMMING: **[03]**

The Basic Model of Computation, Algorithms, Flow-charts, Programming Languages, Compilation, Linking and Loading, Testing and Debugging, Documentation. Programming Style-Names, Documentation & Format, Refinement & Modularity.

TOPIC: 02 – ALGORITHM FOR PROBLEM SOLVING: **[08]**

Exchanging values of two variables, summation of a set of numbers. Reversing digits of an integer, GCD (Greatest Common Division) of two numbers. Test whether a number is prime. Organize numbers in ascending order. Find square root of a number, factorial computation, Fibonacci sequence. Compute sine Series. Check whether a given number is Palindrome or not. Find Square root of a quadratic equation. multiplication of two matrices,

TOPIC: 03 – INTRODUCTION TO 'C' LANGUAGE: **[08]**

03.01	Character set, Variable and Identifiers, Built-in Data Types, Variable Definition, Declaration, C Key Words-Rules & Guidelines for Naming Variables.
03.02	Arithmetic operators and Expressions, Constants and Literals, Precedence & Order of Evaluation.
03.03	Simple assignment statement. Basic input/output statement.
03.04	Simple 'C' programs of the given algorithms

TOPIC: 04 – CONDITIONAL STATEMENTS AND LOOPS: **[07]**

04.01	Decision making within a program
04.02	Conditions, Relational Operators, Logical Perator.
04.03	If statement, it-else statement.
04.04	Loop statements
04.05	Break, Continue, Switch

TOPIC: 05 – ARRAYS: **[07]**

What is an Array?, Declaring an Array, Initializing an Array.

One dimensional arrays: Array manipulation: Searching, Insertion, Deletion of an element from an array; Finding the largest/smallest element in array; Two dimensional arrays, Addition/Multiplication of two matrices.

TOPIC: 06 – FUNCTIONS: [07]

Top-down approach of problem solving. Modular programming and functions, Definition of Functions Recursion, Standard Library of C functions, Prototype of a function: Formal parameter list, Return Type, Function call, Passing arguments to a Function: call by reference; call by value.

TOPIC: 07 – STRUCTURES AND UNIONS: [04]

Basic of Structures, Structures variables, initialization, structure assignment, Structures and arrays: arrays of structures,

TOPIC: 08 – POINTERS: [06]

Concept of Pointers, Address operators, pointer type declaration, pointer assignment, pointer initialization pointer arithmetic.

Book Recommended:

1.	Programming with C. Second Edition. Tata McGraw-Hill, 2000	-	Byron Gottfried
2.	How to solve by Computer, Seventh Edition, 2001, Prentice hall of India.	-	R.G. Dromey
3.	Programming with ANSI-C, First Edition, 1996, Tata McGraw hill.	-	E. Balaguruswami
4.	Programming with ANSI & Turbo C. First Edition, Pearson Education.	-	A. Kamthane
5.	Programming with C. First Edition, 1997, Tara McGraw hill.	-	Venugopla and Prasad
6.	The C Programming Language, Second Edition, 2001, Prentice Hall of India.	-	B. W. Kernighan & D.M. Ritchie
7.	Programming in C, Vikash Publishing House Pvt. Ltd., Jungpura, New Delhi.	-	R. Subburaj
8.	Programming with C Language, Tara McGraw Hill, New Delhi.	-	C. Balagurswami
9.	Elements of C, Khanna Publishers, Delhi.	-	M. H. Lewin
10.	Programming in C.	-	Stephen G. Kochan
11.	Programming in C, khanna Publishers, Delhi.	-	B. P. Mahapatra
12.	Let us C, BPB Publication, New Delhi.	-	Yashwant kanetkar
13.	Programming in C, Galgotia Publications Pvt. Ltd. Dariyaganj, New Delhi.	-	Kris A. Jamsa
14.	The Art of C Programming, Narosa Publishing House, New Delhi.	-	Jones, Robin & Stewart
15.	Problem Solving and Programming. Prentice Hall International.	-	A.C. Kenneth
16.	C made easy, McGraw Hill Book Company, 1987.	-	H. Schildt
17.	Software Engineering, McGraw Hill, 1992.	-	R.S. Pressman
18.	Pointers in C, BPB publication, New Delhi.	-	Yashwant Kanetkar

ELECTRONICS DRAWING AND DRAFTING

Subject Code 21304	Theory			No of Period in one session : 120		
	No. of Periods Per Week			Full Marks	:	100
	L	T	P/S	Annual Exam.	:	80
	09			Internal Exam.	:	20

Rationale

The drawing part is important in all fields of Engineering and Electronics and Communications Engineering is not an exception.

Objectives

Learn and practice to distinguish and draw the various types of components, their symbols, block diagrams, circuit diagrams, Line diagrams, Logic diagrams, sketch and pictorial views, PCBs drawing and drafting neatly and properly.

The broad main topics to be covered are:

CURRICULUM

SL	Topics	Periods
1.	Symbols	07
2.	Construction views of commonly used component and devices	12
3.	Block Diagrams	16
4.	Circuit Diagrams	20
5.	Logic Diagrams	15
6.	Outline Drawing	10
7.	Sketch and Pictorial views	05
8.	Exploded views	06
9.	Wiring Diagram	12
10.	PCB Drawing	12
	Total	**120**

CONTENTS

Topics	Content	Periods
01	Symbols.	07
01.01	Symbols and references of Common types of active and passive devices. (min. 2 sheets)	
02	Construction view of commonly used components and devices - showing all mechanical and electrical parts with labeling.	12
02.01	Relays.	
02.02	Microphones (min. 3 sheets).	
02.03	Speakers.	
02.04	Loceds Speakers.	
02.05	Trimmers.	
02.06	Garg Condenser.	
03	Block Diagrams	16
03.01	Block Diagrams.	
03.02	System Diagrams (min. 3 sheets).	
03.03	Sub system diagram.	
03.04	General layout (A. M. Transmitter, A. M. Receiver, F. M. Transmitter, F. M. Receiver, T. V. Transmitter, Computer, Calculator etc.)	
04	Circuit Diagrams	20
04.01	Simple circuits showing interconnections.	
04.02	Amplifiers.	
04.03	Coupled Amplifiers.	
04.04	Large Signal Amplifier. (3 sheets)	
04.05	Multivibrators (3 sheets)	
04.06	Multimeters	
04.07	Radio Receiver.	
04.08	TV Receiver.	
05	Logic Diagrams	15
05.01	Elements of Logic Diagram.	
05.02	Symbols.	
05.03	General Layout (2 Sheets)	
05.04	Truth Tables.	
05.05	Line Work and Labeling (Gates, Shift Registers, Counters, Calculators, A/D and D/A Convertor, Multiplexer, de-Multiplexer, Adder, Substractor).	
06	Outline Drawing	10
06.01	Outlining and Pin Configuration of ICs.	
06.02	Semiconductor Devices.	
06.03	Electron Toys.	
06.04	Speakers (1 Sheet).	
06.05	Parts of Electric Machine and winding of Stator and Rotor.	

ELECTRONIC MEASUREMENT - I

Subject Code 21305	Theory			No of Period in one session : 50		
	No. of Periods Per Week			Full Marks	:	100
	L	T	P/S	Annual Exam.	:	80
	05	00	00	Internal Exam.	:	20

Rationale

Measurements are essential in every sphere. The subjects of Electronics and Tele-Communication Engineering are inseparably linked. Studies of Electrical and Electronic measuring instruments are incorporated in two papers, Paper-I and Paper-II.

Objectives

This paper mainly deals with the measurement of Current, Voltage, Power, Frequency and Phase beside the measurement of passive elements. The students are expected to be familiar with the principle, construction and uses of instruments utilized for these purposes.

CURRICULUM

SL	Topics	Periods
1.	Characteristics of Instruments and possible errors.	02
2.	Galvanometers	04
3.	Ammeters, Voltmeters and Ohm Meters	13
4.	Instruments Transformers	04
5.	Power Measurement	04
6.	Phase and Frequency Measurement	05
7.	Resistance Measurement	05
8.	Potentiometers	04
9.	DC and AC Bridges	04
10.	Cathode Ray Oscilloscope	05
	Total	**50**

CONTENTS

Topics	Content	Periods
01	Characteristics of Instruments and possible errors: Introduction to value, accuracy, precision, sensitivity, resolution, noise, repeatability, instrument efficiency, scale range, linearity, dynamic systems, dynamic response, and loading. Types of errors.	02
02	Galvanometers: D'Arranvol galvanometer, Torque equation, Dynamic behaviour, under damped, over damped and critically damped motion of galvanometer. sensitivity, choice of galvanometer, Flux meter.	04
03	Ammeters, Voltmeters and Ohm meters: Types of instruments.	13
03.01	Permanent Magnet Moving Cell Instruments: Torque equation, Multi-range Ammeter, Voltmeters, Sensitivity, Loading effects, Advantages and Disadvantages.	
03.02	Ohm Meters: Series and Shunt type Multimeter, Ratio meter, Megger,	
03.04	Moving Iron Instruments: Operating Principle, Torque equation, Electro-dynamometer, ammeter and voltmeters. Errors. Use an AC and DC. Use of these at high frequency.	
03.04	Introduction to Electrostatics. Induction type and Rectifier type Instruments.	
04	Instrument Transformer: Introduction to Instrument Transformer, Current Transformer and Potential Transformer in light of instrumentation.	04
05	Power Measurement: Power Measurement using instrument transformer. Watt Meters of different types. 3-phase Watt Meters. Summation metering. Energy meters for DC and AC circuits.04	
06	Phase and Frequency Measurement: Moving iron, Rotating field, Alternating field, Power Factor Meters. Types of Frequency Meters.	05
07	Resistance Measurement: Classification of Resistance, Measurement of medium resistance using ammeter, voltmeter, substitution and bridges. Construction of low resistance, Methods for measurement of low resistance using ammeter and voltmeter, Kelvin double bridge Measurement of high resistances: Difficulties and measurement, guard circuits, Direct deflection, loss of charge and mega ohm bridges methods of measurement.05	
08	Potentiometers: Classification, basic potentiometer, multi-range potentiometer, , Application of potentiometers.	04
09	DC and AC Bridges: Basic principle of bridges. Wheatstone Kelvin Bridge, Maxwell bridges, Hay's bridges, Anderson's bridge. Measurement of inductance and capacitance using bridges. Wien's bridge, Universal bridge, Bridge circuits for measurement of mutual inductance.	04
10	Cathode Ray Oscilloscope: CRT, Deflection Systems, Synchronization, Time base circuits, Measurement of voltage, current, phase angle, frequency Clissjaous patterns, etc.	05

Recommended Books

SL	Title/Publisher	Author
1.	Electronic Instrument and Measurement Techniques	Cooper
2.	Course in Electrical and Electronic Measurement and Instrumentation	A. K. Sawhny
3.	Electric and Electronics Measurement	Golding

ENGINEERING MECHANICS Lab.

Subject Code 00306	Practical			No of Period in one session :50		
	No. of Periods Per Week			Full Marks	:	50
	L	T	P/S	Annual Exam.	:	40
	04			Internal Exam.	:	10

Rationale & Objectives:

The Engineering Mechanics Laboratory is a subject which will help technician to understand the application of theory that he has studied in practice by performing experiments and verifying results.

Besides the above the objective of the curriculum with effective skill will be developed in them to observe experimental data, and to analyses the results.

These topics of this curriculum will certainly build their confidence in performing the utilization of principle of mechanics in Civil Engineering works.

CONTENTS:

Eight experiments to be performed in the laboratory:

1. Determination of elongation of wire under external load.
2. Tensile Test on mild steel specimen.
3. Tensile Test on high tensile specimen.
4. Compression Test on metal.
5. Compression Test on bricks.
6. Determination of Young's Modulus of Elasticity of wire.
7. Determination of reaction at the support of beam.
8. Determination of bending moment of a simply supported beam.
9. Determination of reaction at the support of roof truss.
10. Determination of deflection of beams.
11. Determination of moment of inertia of fly wheel.
12. Determination of bending moment of a over hanging beam.
13. Verification of Polygon Law of forces.
14. Verification of Triangle Law of forces.
15. To find moment of inertia of fly wheel.
16. Compression Test on metal.
17. Tensile Test on M.S.specimen.
18. Determination of co-efficient of friction on inclined plane.

Books Recommended:

Text Books

1. अभियांत्रिक यांत्रिकी   . जे०के० कपूर
2. Strength of Materials   - Bininder Singh
3. Mechanics of Structure, Vol. 1   - S.B. Junarkar
4. Strength of Materials   - R.S. Khurmi
5. Engineering Mechanics and Strength of Materials   - I.B. Prasad
6. Teaching plans of Strength of Material   - T.T.T.I. Madras

COMPUTER PROGRAMMING THROUGH 'C'

Subject Code	Practical			No of Period in one session : 60		
00307	No. of Periods Per Week			Full Marks	:	50
	L	T	P/S	Annual Exam.	:	40
	06	00	03	Internal Exam.	:	10

CONTENTS:

List of Practicals:

1.   Programming exercise on executing a C program.

2.   Programming exercise on editing C program.

3.   Programming exercise on defining variables and assigning values to variable.

4.   Programming exercise on arithmetic and relational operations.

5.   Programming exercise on arithmetic expressions and their evaluation

6.   Programming on infix, postfix, transformation using stack.

7.   Programs on array implementation.

Books Recommended:

1.   How to solve it by Computer, Prentice Hall of India, 1992.   - R.G. Dromey.

2.   The C Programming Language, Prentice Hall of India, 1989.   -B.W. Kernighan & D.M. Ritchie.

3.   The Spirit of C Programming, Jaico Publishing House, New Delhi, 1987.   - Cooper, Mullish

4.   Application Programming in C. Macmillain International editions, 1990.   - Richa'd Johnson-Baugh & Martin Kalin

5.   The Art of C Programming, Narosa Publishing House, New Delhi.   - Jones, Robin & Stewart

6.   Problem Solving and Programming. Prentice Hall International.   - A.C. Kenneth.

7.   C made easy, McGraw Hill Book Company, 1987.   - H. Schildt

8.   Software Engineering, McGraw Hill, 1992.   - R.S. Pressman

9.   Programming in C, Vikas Publishing House Pvt. Ltd., Jungpura, New Delhi   - R. Subburaj

10.   Programming with C language, Tata McGraw Hill, New Delhi.   - C. Balaguruswami

11.   Elements of C, Khanna Publishers. Delhi   - M. H. Lewin

12.   Programming in C   - Stephan G. Kochan.

13.   Programming in C, Khanna Publishers. New Delhi   - B.P. Mahapatra

14.   Let us C, BPB Publication. New Delhi   - Yashwant Kanetkar

15.   Programming in C, Galgotia Publications Pvt. Ltd. Dariyaganj, New Delhi.   - Kris A. Jamsa

ELECTRONIC MEASUREMENT AND INSTRUMENTATION

Subject Code 21308	Practical			No of Period in one session : 50		
	No. of Periods Per Week			Full Marks	:	50
	L	T	P/S	Annual Exam.	:	40
	04			Internal Exam.	:	10

Rationale

The study of this subject will help a student to gain the knowledge of working principles and operation of different electronic instruments (analog and digital). The practical work done in this subject will help to acquire skills in operation and testing of instruments as per their specifications.

LIST OF PRACTICALS

SL   Experiments
1. Conversion of Galvanometer into Ammeter and Voltmeter.
2. Calibration of Ammeter, Voltmeter and Wattmeter.
3. Determination of Inductance, Capacitance using AC bridges.
4. Use of AC potentiometer, chokes, resistance model.
5. To observe the loading effect of a multi-meter while measuring voltage across a low resistance and high resistance.
6. Measurement of voltage, frequency, time period and phase angle using Cathode Ray Oscilloscope (CRO).
7. Measurement of time period, frequency,
8. Measurement of rise, fall and delay times using a Cathode Ray Oscilloscope.
9. Measurement of R, L and C using a LCR bridge/Universal bridge.

ELECTRONICS DRAWING AND DRAFTING

Subject Code 21309	Sessional			No of Period in one session :		
	No. of Periods Per Week			Full Marks	:	100
	L	T	P/S	Annual Exam.	:	60
				Internal Exam.	:	40

Rationale

The drawing part is important in all fields of Engineering and Electronics and Communications Engineering is not an exception.

Objectives

Learn and practice to distinguish and draw the various types of components, their symbols, block diagrams, circuit diagrams, Line diagrams, Logic diagrams, sketch and pictorial views, PCBs drawing and drafting neatly and properly.

The broad main topics to be covered are:

CURRICULUM

SL	Topics	Periods
1.	Symbols	07
2.	Construction views of commonly used component and devices	12
3.	Block Diagrams	16
4.	Circuit Diagrams	20
5.	Logic Diagrams	15
6.	Outline Drawing	10
7.	Sketch and Pictorial views	05
8.	Exploded views	06
9.	Wiring Diagram	12
10.	PCB Drawing	12
11.	Nomography	05
	Total	**120**

CONTENTS

Topics	Content	Periods
01	Symbols.	10
01.01	Symbols and references of Common types of active and passive devices. (min. 2 sheets)	
02	Construction view of commonly used components and devices - showing all mechanical and electrical parts with labeling.	14
02.01	Relays.	
02.02	Microphones (min. 3 sheets).	
02.03	Speakers.	
02.04	Loceds Speakers.	
02.05	Trimmers.	
02.06	Garg Condenser.	
03	Block Diagrams	20
03.01	Block Diagrams.	
03.02	System Diagrams (min. 3 sheets).	
03.03	Sub system diagram.	
03.04	General layout (A. M. Transmitter, A. M. Receiver, F. M. Transmitter, F. M. Receiver, T. V. Transmitter, Computer, Calculator etc.)	
04	Circuit Diagrams	20
04.01	Simple circuits showing interconnections.	
04.02	Amplifiers.	
04.03	Coupled Amplifiers.	
04.04	Large Signal Amplifier. (3 sheets)	
04.05	Multivibrators (3 sheets)	
04.06	Multimeters	
04.07	Radio Receiver.	
04.08	TV Receiver.	
05	Logic Diagrams	15
05.01	Elements of Logic Diagram.	
05.02	Symbols.	
05.03	Truth Tables.	
05.04	Gates, Shift Registers, Counters, Calculators, A/D and D/A Convertor, Multiplexer, de-Multiplexer, Adder, Substractor.	

06	Outline Drawing	10
06.01	Outlining and Pin Configuration of ICs.	
06.02	Semiconductor Devices.	
06.04	Speakers (1 Sheet).	

07	Sketch and Pictorial Views	07
07.01	Sketches and pictorial views of common devices and mechanical parts. (1 sheet)	

08	Wiring Diagram	12
08.01	Wiring Diagram.	
08.02	Preparation of Layouts.	
08.03	Wire Folds.	
08.04	Representation of Joints in different ways. - (1 Sheet)	

9	PCB Drawing	12
9.01	Drawing documents for PCB.	
9.02	Schematic Diagram.	
9.03	Art Work.	
9.04	Stencil Drawing.	
9.05	Marking Assembly Drawing (Pictorial and Part List).	

Total Sheets: 20