

**Scheme of Teaching and Examination for
III Semester DIPLOMA in TEXTILE ENGINEERING / TECHNOLOGY
THEORY**

SL. No	SUBJECTS	SUBJECT CODE	TEACHING SCHEME		EXAMINATION SCHEME					
			Periods per Week	Periods in one Session (Year)	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 Math	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	Yarn Manufacture-I	28304	4	50	3	20	80	100	26	36
5	Textile Testing	28305	4	50	3	20	80	100	26	36
Total :-			22					500		

PRACTICAL

SL. No.	SUBJECTS	SUBJECT CODE	TEACHING SCHEME		EXAMINATION SCHEME					
			Periods per Week	Periods in one Session (Year)	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	Yarn Manufacture Lab. - I	28308	6	60	3	10	40	50	16	21
9	Textile Testing Lab.- I	28309	4	50	3	10	40	50	16	21
Total :-			20					200		

SESSIONAL

SL. No.	SUBJECTS	SUBJECT CODE	TEACHING SCHEME		EXAMINATION SCHEME			
			Periods per Week	Periods in One Session (Year)	Marks of Internal Examiner (X)	Marks of External Examiner (Y)	Total Marks (X+Y)	Pass Marks in the Subject
10	Yarn Manufacture & Text Testing-I	28310			20	30	50	25
Total :-							50	

Total Periods per Week	42	Total Marks	750
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PROFESSIONAL MATHEMATICS

Subject Code 00301	Theory			No of Period in one session : 60		
	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.

<u>S.No.</u>	<u>Topics</u>	<u>Periods</u>
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 00302	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:

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 mechanics 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.

<u>S.No.</u>	<u>Topics</u>	<u>Periods</u>
<u>PART-A</u>		
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)
<u>PART-B</u>		
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)
		Total : (50)

CONTENTS:

PART-A

TOPIC: 01 – INTRODUCTION:

Idealisation of mechanics; Concept of rigid body; External forces (Body forces & surface forces) Law of Mechanics. [02]

TOPIC: 02 VECTOR METHODS:

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. [02]

TOPIC: 03 – INTRODUCTION 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 STRESSES & 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

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|-----|--|------------------|
| 6. | Teaching plans of Strength of Material | T.T.T.I. Madras |
| 7. | nzO; lkeF;Z | xq:pj.k flag |
| 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”.

<u>S.No.</u>	<u>Topics</u>	<u>Periods</u>
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:

<u>TOPIC: 01 – INTRODUCTION TO PROGRAMMING:</u>	[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.	
<u>TOPIC: 02 – ALGORITHM FOR PROBLEM SOLVING:</u>	[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,	
<u>TOPIC: 03 – INTRODUCTION TO ‘C’ LANGUAGE:</u>	[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	
<u>TOPIC: 04 – CONDITIONAL STATEMENTS AND LOOPS:</u>	[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	
<u>TOPIC: 05 – ARRAYS:</u>	[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:

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| 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 |

YARN MANUFACTURE –I

Subject Code 28304	Theory			No of Period in one session : 50		
	No. of Periods Per Week			Full Marks	:	100
	L	T	P/S	Annual Exam.	:	80
	02	00	00	Internal Exam.	:	20

Rationale:-

Yarn Manufacture in one main activates for a diploma holder technician in Textile Engineering. He is required to handle the yarn manufacture machineries, tools and requirements and also supervise the yarn manufacturing processes. He must be well versed with the subtract of yarn Manufacture.

The subject is being introduced to develop the understanding of yarn manufacturing processes. It will help in discharge of his duties in the world of work as he can understand a problem, analyses the same and take an appropriate decision as and when the job demand.

Objectives:-

After completion of the courses student will be able to

- Define the terminologies related with textile machineries and processes.
- Explain the principle and working of the machine
- Sketch the machine parts and label them
- Understand the process of production and their related problem

<u>Sr.No</u>	<u>Topic</u>	<u>periods</u>
01	Ginning and Boling	04
02	Mining, opining and cleaning	21
03	Carding	09
04	Draw frame	09
05	Combing	<u>07</u>
		50

Contents:-

Topic: 01 Ginning and Baling

- 01.01 objects of Ginning
- 01.02 Description and working of different types of gins-McCarthy Roller gin, Saw gin, Knife Roller gin
- 01.03 Defects in ginning.
- 01.04 Objects of baling
- 01.05 Baling process
- 01.06 Standard bale sizes and weights of boles from important cotton prowing contain.
- 01.07 Bale densities, Different impurities or trash present in the cotton bales.
- 01.08 Grading of cotton

Topic: 02 Mining, opining and cleaning

- 02.01 Objects and methods of mining opening and cleaning.
- 02.02 Difference between mining and blending
- 02.03 Detailed Study of blow room machineries for different verities of cotton.
- 02.03.01 Hopper Bale Breaker and Hopper fades.
- 02.03.02 Types of conventional openers- Porcupine openers, vertical openers, Two and three bladed beater, kirsch run beater
- 02.03.03 Imported openers – step or ultra clears, SRRL openers, Air jet clears, shierly openers
- 02.04 Detailed Study of conventional scuteher
- 02.05 Lap forming, Delivery cages, fitters and dust trunk, grid bars, leaf Bars, minor and minor clearing points.
- 02.06 Cotton conceding – Lattice and prismatic candyng

- 02.07 Types of modern blenders- Fibra miter, Diesel blenders, auto miner, karasousel
- 02.08 Advantages of single process blow room line,
- 02.09 leaning efficiency of blow room and idea of lop regularity and lop refection
- 02.10 Speeds, and production calculations
- 02.11 Modern developments in blow room machinery
- 02.12 Evaluation of blow room performance
- 02.13 Opining lines required for processing of various blends with appropriate speeds and sittings.

Topic: 03 Carding

- 03.01 Objects of carding
- 03.02 Construction of revolving flat carding machineries,
- 03.03 Detailed study and its working, speeds and productions for various types of cotton.
- 03.04 Setting of different parts and effects of changing the sitting on sliver quality.
- 03.05 Methods of stripping and grinding ,
- 03.06 Card clothing – flexible Clothing, Metallic clothing
- 03.07 Comparison of flexible wire and metallic wire card clothing
- 03.08 Clearing efficiency, nap contains
- 03.09 Features and requirements of high speed Cards,
- 03.10 Modern developments in high speed cards
- 03.11 Speeds settings and production calculations of various types of cotton.

Topic: 04 Draw frame

- 04.01 Objects of Draw frames
- 04.02 Principles of roller drafting
- 04.03 Detailed study of draw frame mechanism
- 04.04 Drafting system and their calculation, speed, setting production calculations
- 04.05 Roller slip and its remedies
- 04.06 Roller weighting, Roller sittings
- 04.07 Modern drafting on high speed draw frames
- 04.08 Features of high speed draw frames, Break drafts,
- 04.09 Condensation and its effect on sliver quality
- 04.10 Speeds, sitting and production Calculations pertaining to high speed draw frames

Topic: 05 Combing

- 05.01 Objects of combing process
- 05.02 Need for preparatory process for comber
- 05.03 Construction and working of preparatory machines to combing – sliver lap machine , Ribbon lap machine, super lop machine
- 05.04 Recent development in preparatory machines to coming
- 05.05 Salient features of modern lop preparatory system.

Books Recommended

1. Manual of cotton spinning – vol I to IV Ed AFW coulson, Textile Institute, Manchester
2. The Institute of Textile Technology USA series on textile processing , S. ZALOSLI
3. Technology of short- staple spinning – Vol I to IV , wklein, Textile institute pub, Manchester
4. Spun yarn Technology , osteby, Butter worths Londen
5. Hand Book of Cotton spinning – willeam Taggart, universal pub, corp,
6. Essential facts of practical cotton spinning – T.K. Pattra & Liram, soumya pub. Bombay.
7. Cotton spinning calculations – Do-
8. Cotton opening & cleaning, Cotton carding, Cotton drawing of roring , Cotton combing – G.R. Merrill .

TEXTILE TESTING

Subject Code 28305	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

<u>S.No.</u>	<u>Topics</u>	<u>Periods</u>
01.	Introduction	(01)
02.	The Selection of Samples	(06)
03.	Moisture Relations and Testing	(11)
04.	Fibre Testing	(17)
05.	Yarn Testing	(05)
06.	The Elements of Statistics	(10)
	Total:	(50)

CONTENTS:

TOPIC : 01- INTRODUCTION: [01]

- 01.01 The objectives of testing
- 01.02 Importance of testing quality control

TOPIC : 02- THE SELECTION OF SAMPLES: [06]

- 02.01 The selection of samples for testing
- 02.01.01 The Random Sample
- 02.01.02 The Biased Sample
- 02.02 Methods of sampling for testing
- 02.02.01 Sampling by ISI Method
- 02.02.02 Sampling by B.S.I. Method
- 02.03 Determination of Fiber length
- 02.03.01 Halo Method
- 02.03.02 Butterfly Method
- 02.04 Determination of Fiber-Length (Silver form)
- 02.04.01 Squaring Technique
- 02.04.02 Cut Squaring Technique
- 02.05 Yarn Sampling Methods
- 02.05.01 The use of Random Numbers
- 02.05.02 Examples of Sampling Methods for Yarns (Yarn Count, Twist in yarn, Lea Strength, Single thread strength test)
- 02.06 Fabric Sampling Methods

TOPIC: 03- MOISTURE RELATIONS AND TESTING: [11]

- 03.01 Introduction
- 03.02 Humidity and its importance to textile materials
- 03.03 Moisture Regain and Moisture Content
- 03.04 Absolute humidity and Relative humidity
- 03.05 Standard atmosphere and testing atmosphere
- 03.06 Standard condition for testing of textile material
- 03.07 Determination of the humidity
- 03.07.01 Wet-and-dry bulb hygrometer
- 03.07.02 Hair hygrometer
- 03.08 Regain –Humidity Relations of textiles.

- 03.09 Factors affecting the regain of textile material : (Relative humidity, time, temperature, previous history of sample)
- 03.10 Effects of regain of fibre properties
- 03.11 Oven dry weight and correct in voice weight.
- 03.12 Determination of moisture
 - 03.12.01 Conditioning oven
 - 03.12.02 Shirley moisture meter
- 03.13 Standard regain percentage of textile material (cotton, silk, wool, jute, nylon, acetate, polyester etc.)

TOPIC: 04- FIBRE TESTING:

[17]

- 04.01 Fibre grade
 - 04.01.01 Determination of colour, trash by trash analyser
- 04.02 Fibre length
 - 04.02.02 Methods of Measuring fibre length
 - 04.02.02.01 Comb sorter
 - 04.02.02.02 Digital Fibrograph
- 04.03 Fibre Fineness
 - 04.03.01 The importance of fibre fineness and definition of fineness
 - 04.03.02 Methods of measuring fineness
 - 04.03.02.01 Comb sorter
 - 04.03.02.02 Digital Fibro graph
 - 04.03.02.03 Uster Staple Apparatus
- 04.03 Fibre Fineness
 - 04.03.01 The importance of fibre fineness and definition of fineness
 - 04.03.02 Methods of measuring fineness
 - 04.03.02.01 Gravimetric Method
 - 04.03.02.02 Optical Method
 - 04.03.02.03 Air- flow Method- W.I.R.A Fineness Meter.
- 04.04 Fibre maturity
 - 04.04.01 Introduction and importance of maturity
 - 04.04.02 Maturity ratio, Maturity count
 - 04.04.03 Determination of maturity
 - 04.04.03.01 Alkaline Swelling Method
 - 04.04.03.02 Polarised light method
 - 04.04.03.03 Differential dyeing method
- 04.05 Fibre strength
 - 04.05.01 Principle of CRL, CRE, CRT, type tensile testing machine
 - 04.05.02 Methods of measuring the strength of fibres
 - 04.05.02.01 Single fibre strength testing
 - 04.05.02.02 Bundle (group) fibre strength testing
 - 04.05.02.02.01 Pressley Strength tester
 - 04.05.02.02.02 Stelometer
 - 04.05.03 Terminology and Definitions:

Load, Breaking Load, Stress, Mass Stress or Specific Stress, Tenacity or Specific Strength, Breaking Length, Strain, Extension, Breaking extension, The Load-Elongation Curve, Stress, Strain Curve, Initial Young's Modulus, Yield Point, Work of Rupture, Work Factor, Elastic Recovery, Fime and elastic properties, Factors influencing strength test results.

TOPIC 05:-YARN TESTING:

[05]

- 05.01 Yarn Counts
- 05.02 Measurement of Length of yarn
 - 05.02.01 Method of Length measuring
 - 05.02.01.01 Hand wrap reel
 - 05.02.01.02 Motorised warp reel
- 05.03 Skein Gauge
- 05.04 Yarn in short length (or piece of cloth)
- 05.05 Instruments used for count determination
 - 05.05.01 Analytical Balance
 - 05.05.02 Knowles Balance
 - 05.05.03 Quadrant Balance
 - 05.05.04 Beesley's Balance
 - 05.05.05 Lauth Sensitive Yarn Balance

TOPIC:06-THE ELEMENTS OIF STATISTICS:

[10]

- 06.01 Definition
- 06.02 Importance in testing
- 06.03 Definition of terms used in statistics such as sample, sampling, sample size, population, histogram, frequency polygon, frequency polygon, frequency, curve, and frequency distribution.
- 06.04 Average and other methods of location
 - 06.04.01 Arithmetic Mean
 - 06.04.02 Median
 - 06.04.03 Mode
 - 06.04.04 The relationship between method of location.
- 06.05 The Measurement of Dispersion or scatter-Range, mean range, percentage mean range, inter-quartile range, mean deviation, percentage mean deviation, standard deviation, co-efficient of variation, variation, variance and standard deviation.
- 06.06 Probability
- 06.07 Problems

Book Recommended:

- | | |
|---|------------------|
| 01. Principle of Textile Testing | -J.E. Booth |
| 02. Hand Books of Methods of Testing | -C.T.R.L. |
| 03. Hand Books of Textile Testing & Quality Control | -Grover |
| 04. ISI Hand Books of Textile Testing | -I.S.I. |
| 05 Textile Testing | -Skinkle |
| 06. Textile Testing | -Angappan |
| 07. Textile Testing and Analysis | -Vaishnav. Joshi |

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	00	00	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 00307	Practical			No of Period in one session : 60		
	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 |

YARN MANUFACTURE LAB. - I

Subject Code 28308	Practical			No of Period in one session : 60		
	No. of Periods Per Week			Full Marks	:	50
	L	T	P/S	Annual Exam.	:	40
	00	00	03	Internal Exam.	:	10

Rational:-

Diploma holder technician in textile engineering is very frequently required to set the machines for their efficient running.

The course is introduced to develop the skills to measure the diameter of pulley, set the machine, sketch the machine parts for better understanding of the subject.

Objectives:-

Able to develop skill to

- measure diameter of pulley
- Set machines for optimum operation and prochativity
- Sketch gear and gearing
- Sketch different machine parts
- Dismantle, resetting the machine parts for better understanding of their functioning.

<u>Sr. No</u>	<u>Topic</u>	<u>periods</u>
1	Blow room	30
2	Carding	12
3	Draw frame	09
4	Combing	<u>09</u>
		60

Contents

Topic: 01 Blow room

- 01.01 Detailed Study of the working of opining and cleaning machinery in relation to setting and speeds.
- 01.02 Sketching the line and gearing diagrams of blow room machinery
- 01.03 Mayor and minor cleaning points.
- 01.04 Piano feed regulating motion, Knock- off motion
- 01.05 Show passage of material through each machine of blow room
- 01.06 Calculation of speed, Production, Hank of lap

Topic: 02 Carding

- 02.01 Detailed study of the card and show passage of the material through carding machine
- 02.02 Functions of the Card in relation to various parts of the machine
- 02.03 Practicing, stripping , Grinding, setting, oiling, cleaning,
- 02.04 Sketching the line and searing diagrams of carding machine
- 02.05 Practicing card clothing and mounting of fillet on cylinder, differ and flats
- 02.06 Calculation of speeds and production of the machines

Topic 03 Draw frame

- 03.01 Sketching the line and gearing diagrams of draw frame
- 03.02 Demonstration of the working of draw frames.
- 03.03 Dismantling refitting and resetting of the draw frames for different cottons and hanks.
- 03.04 Calculations of speeds , drafts and production pertaining to the above machines

Topic 04 Combing

- 04.01 Sketching the line and gearing diagrams of preparatory machine to the comber
- 04.02 Demonstration of the working of the preparatory machines to the comber
- 04.03 Dismantling, refitting and resting of the machines for different cottons and counts.

TEXTILE TESTING Lab.-I

Subject Code 28309	Practical			No of Period in one session : 50		
	No. of Periods Per Week			Full Marks	:	50
	L	T	P/S	Annual Exam.	:	40
	04	0	00	Internal Exam.	:	10

<u>S.No.</u> <u>Topics</u>	<u>Periods</u>
01. Sampling	(06)
02. Fibre Testing	(24)
03. Moisture Relation Testing	(06)
04. Identification and Estimation of Fibres in Textile Materials	(15)
05. Yarn Testing	(09)
Total:	(60)
CONTENTS:	
TOPIC: 01- SAMPLING:	[06]
01.01 Sampling of raw cotton by ISI Method and estimate ginning percentage and lint index.	03
01.02 Sampling of cotton by B.S.I. method and estimate ginning percentage and lint index.	03
TOPIC: 02 –FIBRE TESTING:	[24]
02.01 Fibre length	
02.01.01 Determination of fibre length by Halo and Butterfly Method.	
02.01.02 Determination of fibre length by Baer Sorter Method.	
02.01.03 Determination of fibre length by Balls Sorter Method.	
02.01.04 Determination of fibre length parameters using Uster Stapler.	
02.02 Fibre Fineness	
02.02.01 Determination of fibre fineness by Gravimetric method.	
02.02.02 Determination of fibre fineness by Air-flow method. (WIRA Fineness Meter)	
02.03 Fibre Maturity	
02.03.01 Determination of percentage maturity of cotton by polarized light (Microscope) Method.	
02.03.02 Determination of Maturity Co-efficient by Alkaline method.	
02.04 Fibre Strength.	
02.04.01 Determination of single fibre strength by the instruments available in laboratory.	
02.04.02 Determination of Bundle fibre strength by Stelometer.	
TOPIC: 03 - MOISTURE RELATIONS TESTING:	[06]
03.01 Determination of moisture regains moisture content and legal weights by using conditioning oven.	06
TOPIC : 04 - IDENTIFICATION AND ESTIMATION OF FIBRES IN TEXTILE MATERIALS	[15]
04.01 Identification of textile fibres.	
04.01.01 Identification of fibres by longitudinal view using optical microscope also determine the mean width of fibres.	
04.01.02 Identification of fibres by cross-sectional view using microscope.	
04.01.03 Identification of Textile material by chemical analysis and also burning test of fibres.	
04.01.04 Quantitative Analysis and Estimation of Mixture of fibres in textile materials.	
TOPIC: 05 -YARN TESTING:	[09]
05.01 Determination of Yarn Count by:	
05.01.01 Beesley's Balance	03
05.01.02 Quadrant Balance	03
05.01.03 Torsion Balance & Analytical Balance	03

YARN MANUFACTURE & TEXT TESTING -I

Subject Code 28310	Sessional			No of Period in one session :		
	No. of Periods Per Week			Full Marks	:	50
	L	T	P/S	Annual Exam.	:	30
				Internal Exam.	:	20

Rationale & Objectives:

Same as that of Yarn Manufacture & Text Testing Subject Code – 28308 & 28309

CONTENTS:

Same as that of Yarn Manufacture & Text Testing Subject Code – 28308 & 28309