STATE COUNCIL FOR TECHNICAL EDUCATION AND VOCATIONAL TRAINING, ODISHA

TEACHING AND EVALUATION SCHEME FOR 5th Semester (Textile Tech./Engg)(wef 2020-21)

Subject Number	Subject Code	Subject	Periods/week			Evaluation Scheme			
			L	T	P	Internal Assessment/ Sessional	End Sem Exams	Exams (Hours)	Total
		Theory							
Th.1		Entrepreneurship and Management & Smart Technology	4		-	20	80	3	100
Th.2		Yarn manufacture -III	4		-	20	80	3	100
Th.3		Fabric Manufacture-III	4		-	20	80	3	100
Th.4		Textile Design-II	4			20	80	3	100
Th.5		Textile Testing-I	4			20	80	3	100
		Total	20			100	400	-	500
		Practical							
Pr.1		Yarn manufacture –III Lab	-	-	4	25	50		75
Pr.2		Fabric Manufacture-III Lab	-	-	4	25	50		75
Pr.3		Textile Testing-I Lab	-	-	4	25	25		50
Pr.4		Project Phase-I			4	50	-	-	50
		Student Centred Activities(SCA)		-	3	-	-	-	-
		Total	-	-	*19*	*125*	*125*	-	*250*
		Grand Total	**20**		**19**	**225**	**525**	**-**	**750**

Abbreviations: L-Lecturer, T-Tutorial, P-Practical . Each class is of minimum 55 minutes duration

Minimum Pass Mark in each Theory subject is 35% and in each Practical subject is 50% and in Aggregate is 40%

SCA shall comprise of Extension Lectures/ Personality Development/ Environmental issues /Quiz /Hobbies/ Field visits/ cultural activities/Library studies/Classes on MOOCS/SWAYAM etc. ,Seminar and SCA shall be conducted in a section.

There shall be 1 Internal Assessment done for each of the Theory Subject. Sessional Marks shall be total of the performance of individual different jobs/ experiments in a subject throughout the semester

Th1. ENTREPRENEURSHIP and MANAGEMENT & SMART TECHNOLOGY

(Common to All Branches)

Theory	**4 Periods per week**	**Internal Assessment**	**20 Marks**
Total Periods	**60 Periods**	**End Sem Exam**	**80 Marks**
Examination	**3hours**	**Total Marks**	**100Marks**

Topic Wise Distribution of Periods

Sl No.	Topic	Periods
1	Entrepreneurship	10
2	Market Survey and Opportunity Identification(Business Planning)	8
3	Project report Preparation	4
4	Management Principles	5
5	Functional Areas of Management	10
6	Leadership and Motivation	6
7	Work Culture, TQM & Safety	5
8	Legislation	6
9	Smart Technology	6
	TOTAL	60

RATIONALE

In the present day scenario, it has become imperative to impart entrepreneurship and management concepts to students, so that a significant percentage of them can be directed towards setting up and managing their own small enterprises. It may be further added that an entrepreneurial mind set with managerial skill helps the student in the job market. The students can also be introduced with Startup and Smart Technology concept, which shall radically change the working environment in the coming days in the face of Industry 4.0

In this subject, the Students shall be introduced/ exposed to different concepts and Terminologies in brief only, so that he/she can have broad idea about different concepts/items taught in this subject. Solving numerical problem on any topic/item is beyond the scope of this subject.

OBJECTIVES

After undergoing this course, the students will be able to :

- Know about Entrepreneurship, Types of Industries and Startups
- Know about various schemes of assistance by entrepreneurial support agencies
- Conduct market survey
- Prepare project report
- know the management Principles and functional areas of management
- Inculcate leadership qualities to motivate self and others.
- Maintain and be a part of healthy work culture in an organisation.
- Use modern concepts like TQM
- Know the General Safety Rules
- Know about IOT and its Application in SMART Environment.

DETAILED CONTENTS

1. **Entrepreneurship**
   - Concept /Meaning of Entrepreneurship
   - Need of Entrepreneurship
   - Characteristics, Qualities and Types of entrepreneur, Functions
   - Barriers in entrepreneurship
   - Entrepreneurs vrs. Manager
   - Forms of Business Ownership: Sole proprietorship, partnership forms and others
   - Types of Industries, Concept of Start-ups
   - Entrepreneurial support agencies at National, State, District Level(Sources): DIC, NSIC,OSIC, SIDBI, NABARD, Commercial Banks, KVIC etc.
   - Technology Business Incubators (TBI) and Science and Technology Entrepreneur Parks

2. **Market Survey and Opportunity Identification (Business Planning)**

- Business Planning
- SSI, Ancillary Units, Tiny Units, Service sector Units
- Time schedule Plan, Agencies to be contacted for Project Implementation
- Assessment of Demand and supply and Potential areas of Growth
- Identifying Business Opportunity
- Final Product selection

3. **Project report Preparation**

- Preliminary project report
- Detailed project report, Techno economic Feasibility
- Project Viability

4. **Management Principles**
- Definitions of management
- Principles of management
- Functions of management (planning, organising, staffing, directing and controlling etc.)
- Level of Management in an Organisation

5. **Functional Areas of Management**

a) Production management
- Functions, Activities
- Productivity
- Quality control
- Production Planning and control

b) Inventory Management
- Need for Inventory management
- Models/Techniques of Inventory management

c) Financial Management
- Functions of Financial management
- Management of Working capital
- Costing (only concept)
- Break even Analysis
- Brief idea about Accounting Terminologies: Book Keeping, Journal entry, Petty Cash book, P&L Accounts, Balance Sheets(only Concepts)

d) Marketing Management
- Concept of Marketing and Marketing Management
- Marketing Techniques (only concepts)
- Concept of 4P s (Price, Place, Product, Promotion)

e) Human Resource Management
- Functions of Personnel Management
- Manpower Planning, Recruitment, Sources of manpower, Selection process, Method of Testing, Methods of Training & Development, Payment of Wages

6. **Leadership and Motivation**

a) Leadership
- Definition and Need/Importance
- Qualities and functions of a leader
- Manager Vs Leader
- Style of Leadership (Autocratic, Democratic, Participative)

b) Motivation
- Definition and characteristics
- Importance of motivation
- Factors affecting motivation
- Theories of motivation (Maslow)
- Methods of Improving Motivation
- Importance of Communication in Business
- Types and Barriers of Communication

7. **Work Culture, TQM & Safety**
   - Human relationship and Performance in Organization
   - Relations with Peers, Superiors and Subordinates
   - TQM concepts: Quality Policy, Quality Management, Quality system
   - Accidents and Safety, Cause, preventive measures, General Safety Rules , Personal Protection Equipment(PPE)

8. **Legislation**
   a) Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights
   b) Features of Factories Act 1948 with Amendment (only salient points)
   c) Features of Payment of Wages Act 1936 (only salient points)

9. **Smart Technology**
   - Concept of IOT, How IOT works
   - Components of IOT, Characteristics of IOT, Categories of IOT
   - Applications of IOT- Smart Cities, Smart Transportation, Smart Home, Smart Healthcare, Smart Industry, Smart Agriculture, Smart Energy Management etc.

Syllabus to be covered before IA: Chapter 1,2,3,4

RECOMMENDED BOOKS

1. Entrepreneurship Development and Management by R.K Singhal, Katson Books., New Delhi
2. Entrepreneurship Development and Management by U Saroj and V Mahendiratta, Abhishek Publications, Chandigarh
3. Entrepreneurship Development and Management by Vasant Desai, Himalaya Pub.House
4. Industrial Engineering and Management by O.P Khanna ,Dhanpat Rai and Sons
5. Industrial Engineering and Management by Banga and Sharma, Khanna Publications
6. Internet of Things by Jeeva Jose, Khanna Publications, New Delhi
7. Online Resource on Startups and other concepts
8. https://www.fundable.com/learn/resources/guides/startup

TH-2.Yarn Manufacture- III

Name of the Course: Diploma in Textile Technology /Engineering			
Course Code:	**TH-2**	**Semester:**	**5th**
Total Period:	**60**	**Examination:**	**3hours**
Theory Periods:	**4P/Week**	**Internal Assessment:**	**20**
Maximum Marks:	**100**	**End Semester Examination**	**80**

A. Rationale :

The student of textile technology after completion his diploma has to work in Textile Industries. Fibres has to be converted to yarn form to be used as raw materials for formation of fabrics for different end uses. Hence, a Textile student should know the manufacturing process of yarn. In this subject students will be taught about the process i.e Ring Frame, Doubling and Modern spinning system for preparation of yarn.

B. Objective : After completion of this subject the students will able to

1. elaborates on the detail mechanism of yarn preparation.

2. develop ideas about modern spinning systems.

4. develop concepts and principles in:

(a) Ring Spinning system.

(b) Production, Maintenance in ring spinning machine.

(c) Doubling, twisting.

(d) Modern spinning system.

C. Topic wise distribution of periods		
Sl. No	**Topics**	**Period**
01	Ring Spinning	20
02	Doubling	06
03	Modern Spinning System	20
04	Woollen Spinning System	14
	Total:	**60**

D. Course Contents:

1.Ring Spinning

1.1 State the purpose and principles of Ring Spinning Machine, & State the passage of Material and function of various parts of the machine.

1.2 Explain Modern drafting systems on Ring Spinning machine, Top roller weighting system, top covering & mounting, roller setting and spinning triangle , cots & aprons, Describe Rings and Travellers, State Function of rings & travellers, types of rings, ring size and flange number, running in of rings, types of traveller, traveller number, selection of traveller.

1.3 Explain Twisting & Winding,

1.4 Describe Build of bobbin, building motion & drives of Ring spinning machine.

1.5 Explain balloon control ring, State causes & end breakages, yarn defects & remedies.

1.6 Describe information in ring spinning needs and possibilities.

1.7 Explain End break Aspirators ,Monitoring ,Piecing devices ,Ring data, Automatic doffing, Describe special attachment such as Automatic doffing and pneumatic waste extraction.

1.8 Explain Gearing Diagram, Calculation of speed , production and efficiency in Ring spinning machine, State lubrication and maintenance of High speed Ring spinning machine.

1.9 Brief idea on Compact spinning.

2. Doubling.

2.1 Principles and objects of doubling.

2.2 wet and dry doubling, different methods of threading, detailed study of creels, building motions, rings, travellers and spindles on doublers.

2.3 Concept of balanced twist in doubled yarn, direction of twist in doubled yarn and its relation to

single yarn.

2.4 TFO- Principle, technique , Fancy doublers, different systems of fancy yarn production.

3. Modern Spinning System

3.1 State & explain Modern Spinning System.

3.2 Rotor spinning.

3.3 Friction spinning

3.4 Air-jet Spinning

3.5 Twist-less Spinning, Self twisted spinning & Siro Spinning.

4. Woollen Spinning System

4.1 Define Raw wool, Rag pulling and garneting (Shoddy).

4.2 State and Explain wool blends for woollen yarns and oiling of wool carding mechanism and Settings.

4.3 Describe woollen spinning concept of carpet yarn manufacture.

4.4 Outline introductory concept of Bradford and continental system.

4.5 Describe Top preparation –worsted carding ,Semi worsted card (concept only).

4.6 Explain about Intermediate Gill box combing, Top finishing of wool.

4.7 Describe Tow of top conversion of filament for multi-length staple fibres for blending with wool Top.

4.8 Explain Blending technique, type of product blend, Explain Concept of process sequence, Worsted drawing roving frame, rubbing finisher & ring spinning mechanism.

4.9 State Concepts of yarn twisting & yarn quality.

Learning Resources:

Sl No	Title of the Book	Name of Authors	Name of Publisher
01	Manual of Cortton Spinning (Vol-IV)	Klein W	The Textile Institute, Manchester
02	Manual of Cotton Spinning (Vol-V)	Klein W	The Textile Institute, Manchester
03	Spun Yarn Technology	Oxtoby E	Butter worth's, London, New Edition 2002
04	Cotton Spinning	W.S. Taggard	Universal Book Corporation,Bombay
05	Woolen yarn manufacture	RTD Richards & A.B. Skys	The Textile Institute, Manchester

Th-3.Fabric Manufacture-III

Name of the Course: Diploma in Textile Technology /Engineering			
Course Code:	**TH-3**	**Semester:**	**5th**
Total Period:	**60**	**Examination:**	**3hours**
Theory Periods:	**4P/Week**	**Internal Assessment:**	**20**
Maximum Marks:	**100**	**End Semester Examination**	**80**

A. Rationale :

A knowledge about the different processes of fabric manufacture like Knitting & Non-woven which are essential for the students to understand. Hence they must be taught to the students to enhance their knowledge and skill in the field of modern warp- weft knitting machines, Non woven machineries etc.

B. Objective : After completion of this subject the students will able to

1. develop a brief idea about the fast emerging field of fabric production knitting & Non- woven .
2. develop an overall idea about the warp & weft knitting and different techniques of non woven fabric formation technology .
4.acquire concepts and principles in different aspects of knitting & Non- woven machines & fabric structural design and end uses.

C. Topic wise distribution of periods

Sl. No	Topics	Period
01	Introduction of Knitting	06
02	Weft Knitting	25
03	Warp Knitting	15
04	Knitting Calculation	07
05	Non- Woven	07
	Total:	**60**

D. Course Contents:

1. Introduction to Knitting

1.1 Define knitting, Courses & Wales, Explain types of Knitting.
1.2 Compare between Weaving and Knitting.
1.3 Compare between warp and weft knitting.

2. Weft Knitting

2.1 State the types of basic weft knitted structures.
2.2 State the representation of basic knitted structures in the form of loop diagrams and in the form of stitch notations.
2.3 Characteristics basic knitted structures and end uses.
2.4 Define float and luck stitches, Explain effects of luck and float stitches.
2.5 State the passage of material through circular weft knitting machine.
2.6 State the function of the machinery parts: Creels, stop motions, positive feeders, yarn guides, take-up and winding mechanism.
2.7 Explain the arrangement of knitting elements, State the knitting action of stitch forming elements in single jersey and double jersey knitting machines (rib, inter lock and purl machines)

3. Warp Knitting

3.1 Define Warp Knitting loop structures.
3.2 Differentiate warp knitting machines –Tricot & Rasset.

4. Knitting Calculation

4.1 Define machine gauge , tightness factor and yarn number.
4.2 Calculate weft knitting machine production, Calculate loop length, fabric widths, weigh per square

yard

5. Non-Woven

5.1 Introduction to non-woven technology.

5.2 Types of fibres used and end uses of nonwovens.

5.3 Methods of web preparation & Orientation of fibres in the web.

5.4 Methods of bonding of web, Brief idea on non-woven fabrics by needle punching, stitch bonding, spun bonding, thermal bonding, Adhesive bonding techniques etc.

Learning Resources:			
Sl No	**Title of the Book**	**Name of Authors**	**Name of Publisher**
01	*Knitting Technology*	Spencer D J	2nd Ed., Pergamon Press (1989)
02	*Knitting Technology*	Ajgaonkar D B	Universal Publishing Corporation (1998).
03	*Circular Knitting*	Iyer C, Mammel B and Schach W	Meisenbach Bamberg
04	*Textile Mathematics*", Vol. 3	Booth J E	Textile Institute, Manchester
05	Knitting Technology	NCUTE.	NCUTE., IIT Delhi
06	*Non-woven Bonded Fabric*	Textile Association of India,Ahmedabad	Textile Association of India,Ahmedabad
07	Weaving Conversion of Yarn to Fabric	Lunenschloss J and Albrecht W	Ellis and Horwood Ltd, U.K. (1985).

TH-4. Textile Design-II

Name of the Course: Diploma in Textile Technology /Engineering			
Course Code:	**TH-4**	**Semester:**	**5th**
Total Period:	**60**	**Examination:**	**3hours**
Theory Periods:	**4P/Week**	**Internal Assessment:**	**20**
Maximum Marks:	**100**	**End Semester Examination**	**80**

A. Rationale :

Fabrics are made from different types of fibres/Yarn and their blends are put into specific uses such as summer wear, winter wear, industrial wear etc., depending on their particular properties. Different complex and compound Textile Designs, construction and it's end uses are very important for a student to know. This paper is mainly highlighting different complex and compound Textile designs and it's constructional process in a loom

B.Objective : After completion of this subject the students will able to

1. enlighten students about different complex ornamental designs and their construction producers.

2. handle computer simulation with Textile design and develop concepts and principles in :
   (a) Different types of compound fabrics
   (b) Their construction procedure
   (c) Jacquard & computer design.

C. Topic wise distribution of periods

Sl. No	Topics	Period
01	Theory of colour	07
02	Pile Fabrics	20
03	Backed and Double cloth	20
04	Principles of cross Weaving	06
05	Jacquard Design &Computer Aided woven Design	07
	Total:	**60**

D. Course Contents:

1. Theory of colour

1.1 Explain light and Pigment theory of colour.
1.2 Describe colour and weave combination.
1.3 State the methods of generating different effects like continuous line, hairline, birds eye ,step pattern ,Hounds tooth pattern and all over effects.

2. Pile Fabrics

2.1 Concept of pile.
2.2 Brief idea on Swing reed & Cloth fell displacement principal of terry pile fabric manufacturing.
2.3 Terry pile like-Single sided & double sided terry pile.
2.4 Three pick, Four pick & five pick terry pile structure.
2.5 Velvet structure (face to face principal of weaving)
2.6 Construct the design of Weft pile : Velveteen , Plain based ,twill based velveteen ,Corduroys, fast pile.

3. Backed and Double cloth

3.1 State principle of construction of Back and double cloth.
3.2 Classify Back & double cloth.
3.3 State Selection of design and construction of Back cloth – Warp & Weft reversible & Irreversible back cloth design, Wadding effect .
3.4 State Selection of design and construction of double cloth- self stitched double cloth ,centre stitch ,waded double cloth..

3.5 ply cloths, Treble cloth , tubular cloth ,double width cloth etc.

4. Principles of cross Weaving

4.1 Construct the design of Gauge and leno weaves and their representation in design paper,
4.2 Explain Leno and use of doup healds .
4.3 Difference between Gauge & Leno structure.
4.4 Construct the design of cellular leno & twill leno.

5. Jacquard Design &Computer Aided woven Design

5.1 State different factors affecting Jacquard design, construct jacquard design.
5.2 State features of Damask & Brocade
5.3 Brief idea on software for Textile woven design with windows platform , State the advantages of CAD in this field.

Learning Resources:			
Sl No	**Title of the Book**	**Name of Authors**	**Name of Publisher**
01	Textile Design and Colour	Z.J Grosicki	Universal Publishing Corporation, Bombay
02	Watson'sAdvance Textile Design	Z.J Grosicki	Universal Publishing Corporation, Bombay
03	Fabric Structure & Design	N.Gokarneshan	New Age International(P) Ltd
04	Grammar of Textile Design	Nishbet	D B Taraporevala sons & co pvt Ltd. Bombay

TH.5.Textile Testing-I

Name of the Course: Diploma in Textile Technology /Engineering			
Course Code:	**TH-5**	**Semester:**	**5th**
Total Period:	**60**	**Examination:**	**3hours**
Theory Periods:	**4P/Week**	**Internal Assessment:**	**20**
Maximum Marks:	**100**	**End Semester Examination**	**80**

A. Rationale : The main intention for Textile testing is to minimize risk & protect the interests of brands, retailers, suppliers & consumers. The comprehensive **testing** services enable you to assure quality and safety with precision. In this subject student will know about the basic of fibre testing and its parameters.

B.Objective : After completion of this subject the students will able to

1. conceive different quality parameters of a fiber, yarn or fabric processes.
2. know the analysis of fibre to yarn in respect to quality parameters.
3. develop attitude towards statistical analysis, those are generally carried out in Industries as a regular practice.
4. develop understanding and uses of
   (a) Importance of Fibre & Yarn testing.
   (b) Different Instruments used to test the samples.

C. Topic wise distribution of periods

Sl. No	Topics	Period
01	Sampling	15
02	Moisture Effect	05
03	Fibre Dimension	20
04	Strength of Fibre	15
05	Yarn Number system	05
	Total:	**60**

D. Course Contents:

1. Sampling

1.1 Explain Sampling and methods of Sampling.
1.2 Describe selection procedure of sample for fibre, yarn and Fabric testing
1.3 Describe the process of determination of trash context of cotton fibre.
1.4 Classify and Explain tabulation of data, State Measures of dispersion –mean deviation ,standard deviation , C.V.% .

2. Moisture effect

2.1 Explain Humidity and its Relation to Textile materials, processes & machines .
2.2 Absolute and relative humidity ,Standard atmospheric condition.
2.3 Describe Moisture content and Moisture regain and their measurement.
2.4 Explain the moisture hysteresis curve analysis.

3. Fibre Dimension

3.1 Describe purpose of Measurement, uses and classification of different fiber dimensions.
3.2 Explain different types of Length of fibers.
3.3 State measurement of fiber length by Baer Shorter, Fibrograph etc.
3.4 Fibre fineness and maturity, State measurement of fibre fineness and maturity by Caustic Soda method and air flow method.
3.5 Brief ideas on HVI (High Volume Instrument) & AFIS (Advance fibre Instruments System)

4. Strength of Fibre

4.1 Define the term, stress ,strain ,tenacity ,breaking length ,elastic limit ,creep, crimp ,initial modulus as applied to textile material.

4.2 State methods of measurement of strength of single fibre & Bundle fibre.

4.3 Explain the working of Stelometer .

5. Yarn Number system

5.1 Define yarn count & various yarn numbering system.

5.2 Determination yarn count by different tools.

Learning Resources:			
Sl No	**Title of the Book**	**Name of Authors**	**Name of Publisher**
01	Principles of Textile Testing	J.E.Booth	Butter worth & W. london
02	Handbook of Textile Testing & Quality control	Elliot and Hamby	Wiley easfern-New delhi
03	Textile Testing	James Lomax	Long mars-London
04	Statistical method	S P Gupta.	S. Chand & Company Ltd- New Delhi
05	Textile Testing	P.Angappan & R. Gopalakrishnan	SSM ITT staff & students' Co-op. Stores Ltd, Tamilnadu

Pr-1. Yarn Manufacture – III (Lab.)

Name of the Course: Diploma in Textile Technology /Engineering			
Course Code:	**Pr-1**	**Semester:**	**5th**
Total Period:	**60**	**Examination:**	**3hours**
Lab. Periods:	**4P/Week**	**Sessional:**	**25**
Maximum Marks:	**75**	**End Semester Examination**	**50**

A. Rationale :

The student of Textile Technology after completion his diploma has to work in Textile industries. In this subject students will get practical knowledge about the process i.e Ring Frame, Comber and Rotor for preparation of staple fibres required for formation of yarn

B. Objective : After completion of this subject the students will able to

1. handle & process the fibres to yield a good yarn and ultimately a value added consumer product i.e. fabric.

2. directly work with Ring Frame, Comber & Rotor and study different setting, maintenance procedure etc.

Experiment No	Topics	Topic wise distribution of periods in hours
01	To study of different parts of Ring Frame	05
02	To study the Drafting System of ring frame	05
03	To study the gearing diagram and to calculate draft constant, twist constant and production constant and also to find speed of tin roller, spindle , drafting rollers, etc of Ring Frame.	10
04	To assemble and set the drafting roller and top arm by using slide calipers as per the fibre length.	05
05	To do the spindle and lappet gauging of Ring Frame.	05
06	To study the building mechanism and setting of ring Frame	05
07	To study the different parts of doubling frame and its building mechanism.	05
08	To study about the gearing diagram and calculate the twist constant and speed of various moving part of Doubling Frame.	10
09	To study the different parts of Reeling Machine	05
10	To study the flow of material and different parts of Rotor spinning Machine.	05
11	To study the gearing and to calculate the draft constant ,twist constant and production etc. Of Rotor Spinning Machine.	05
12	To learn about different change points and setting of Rotor Spinning Machine	05
13	Study of Comber	05
	TOTAL	75

Pr-2. Fabric Manufacture-III (Lab.)

Name of the Course: Diploma in Textile Technology /Engineering			
Course Code:	**Pr-2**	**Semester:**	**5th**
Total Period:	**60**	**Examination:**	**3hours**
Lab. Periods:	**4P/Week**	**Sessional:**	**25**
Maximum Marks:	**75**	**End Semester Examination**	**50**

A. Rationale :

The students to enhance their practical knowledge and skill in the setting and operation of the Knitting machines, to perform necessary Knitting calculations and also fundamental concept of mechanism for formation of fabric.

B. Objective : After completion of this subject the students will able to

1. handle knitting process & machinery as well as fabric analysis.

2. work with different Knitting M/cs.

3. analyse different woven fabric structures.

Experiment No	Topics	Topic wise distribution of periods in hours
01	Study of different parts in a circular weft knitting machine.	10
02	Operation of the weft knitting machine.	5
03	Calculation of production of a circular weft knitting machine	5
04	Study of lubrication of different parts of knitting M/C	5
05	Study of different warp & weft knitted structures	10
06	Analysis any six types of cloth(plain & it's derivatives, Twill & it's derivatives, Sateen/Satin, Honey comb, Mock-leno,Huck-A-Back, Bedford cord, welt, Back, Double, Treble, Extra warp & weft, leno, check- stripe etc with their design ,drafting and lifting plan) and transfer of a design on point paper.	40
TOTAL		75

Pr-3. Textile Testing-I (Lab.)

Name of the Course: Diploma in Textile Technology /Engineering			
Course Code:	**Pr-3**	**Semester:**	**5th**
Total Period:	**60**	**Examination:**	**3hours**
Lab. Periods:	**4P/Week**	**Sessional:**	**25**
Maximum Marks:	**50**	**End Semester Examination**	**25**

A. Rationale :

The students to enhance their practical knowledge and skill in the setting and operation of different Testing Machineries /equipments, to perform necessary basic calculations related to fibre parameters.

B. Objective : After completion of this subject the students will able to

1. acquire knowledge on Textile Testing & it related equipments.

2. directly work with different Textile testing M/cs and study different fibre parameters.

Experiment No	Topics	Topic wise distribution of periods in hours
01	Determination of Mean length , effective length , percentage of short fibres and percentage of dispersion by using Baer sorter	10
02	Determination of moisture content and moisture regain of the given fibre sample by using hot air oven	5
03	Determination of fibre fineness and maturity percentage of the given cotton sample by using ATIRA Fineness tester	5
04	Determination of Maturity percentage , maturity ratio and maturity co-efficient of the given cotton sample by Caustarian Method	15
05	Determination of Fiber , Tenacity in gm/tex and elongation percentage at break of the cotton sample by using Stelometer	20
06	Determination of trash content of the given cotton sample by using Trash Analyser	10
07	Determination of count/hank of the given yarn/silver /roving by using Wrap Reel/block and physical balance	10
	TOTAL	75

Pr 4. PROJECT WORK (Phase-I)

Name of the Course: Diploma in Textile Tech/Engg.			
Course code:		Semester	5th
Total Period:	60	Examination :	-
Theory periods:	4P / week	Sessional Marks	50
EXAMS	-	TOTAL Marks	50

RATIONALE

Students' Project Work aims at developing innovative skills in the students whereby they apply the knowledge and skills gained through the course covered in many subjects and Labs, by undertaking a project. The prime emphasis of the project work is to understand and apply the basic knowledge of the principles of Modern Office Management and practices in real life situations, so as to participate and manage a large organization and projects, in future.

Entire Project shall spread over 5th and 6th Semester. Part of the Project covered in 5th Semester shall be named as *Project Phase-I* and balance portion to be covered in 6th Semester shall be named as *Project Phase-II*.

OBJECTIVES

After undergoing the Project Work, the student will be able to:

- Implement the theoretical and practical knowledge and skills gained through various subjects/courses into an application suitable for a real practical working environment
- Identify and contrast gap between the technological knowledge acquired through curriculum and the actual industrial need and to compensate it by acquiring additional knowledge as required.
- Carry out cooperative learning through synchronous guided discussions within the class in key areas, asynchronous document sharing and discussions, as well as prepare collaborative edition of the final project report.
- To achieve real life experience of working in a work place.
- To develop the skill of writing Project Report

General Guidelines

The individual students have different aptitudes and strengths and also areas of interest. Project work, therefore, should match the strengths and interest of the students. For this purpose, students should be asked to identify the type of project work, they would like to execute. The activity of problem identification should begin well in advance (right from beginning of 5th semester). Students should be allotted a problem of interest to him/her as a project work. It is also essential that the faculty of the respective department may have a brainstorming session to identify suitable project assignments for their students. The project assignment can be individual assignment or a group assignment. Preferably there should not be more than 5 students, if the project work is given to a group. The project work identified in collaboration with industry/organisation should be preferred.

A suggestive criterion for assessing student performance by the external (preferably person from industry) and internal (teacher) examiner is given in table below:

Sl. No.	**Performance Criteria**
1.	Selection of project assignment
2.	Planning and execution of considerations
3.	Quality of performance
4.	Providing solution of the problems or

	production of final product
5.	Sense of responsibility
6.	Self expression/ communication/ Presentation skills
7.	Interpersonal skills/human relations
8.	Report writing skills
9	Viva voce

The teachers are free to evolve other criteria of assessment, depending upon the type of project work.

It is proposed that the institute may organize an annual exhibition of the project work done by the students and invite leading Industrial organisations of area of subject to such an exhibition.

Project Phase-I and Phase-II

The Project work duration shall cover 2 semesters(5^{th} and 6^{th} sem). The Grouping of students, selection of Project, assignment of Project Guide to the Group shall be done in the beginning of 5^{th} sem under Project Phase-I. The students may be allowed to study literature, any existing system and then define the Problem/objective of the Project. Requirements specification and Preliminary work of the system have to be complete in Phase-I. Project Milestones are to be set so that progress can be tracked . In Phase-II Detailed work, Documentation have to be complete. *Project Report have to be prepared and complete in Phase-II.* All Project reports should be organized uniformly in proper order, irrespective of group. Teacher Guides can make suitable alteration in the components of Task and schedule.

At the end of Project Phase-I in 5^{th} semester there shall be one presentation by each group to mark to progress and also to judge whether the Project is moving in right direction as per the objective of the Project.

List of Machineries /Equipments for Textile Tech/Engg

Fifth Semester

Sl No	Name of Machineries /Equipments	Required No
01	Lab Model Ring Frame (10 spindles)	01unit
02	Lab Model Rotor Spinning M/c	01no
03	Ring Doubler(4 spindles)	01no
04	T F O (4 spindles)	01no
05	Circular Knitting M/c	02nos
06	Flat Bed Knitting M/c	02nos
07	Beeseley Balance	01 no
08	Baer Shorter	01no
09	Hot air Oven	01no
10	ATIRA Fineness Tester	01 no
11	Stelometer	01no
12	Trash Analyser	01no
13	Wrap Reel	01no
14	Knowle's Balance	01no
15	Wrap Block	01no