

**REGULATIONS AND SYLLABUS  
FOR  
SUPERVISORY CERTIFICATE COURSE  
IN**

**Mill Side Jute Production (Preparatory to  
Spinning & Twisting)**

**UNDER ISDS PROJECT**

**2014**

**Department of Jute and Fibre Technology  
Institute of Jute Technology**

**University of Calcutta**

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**DEPARTMENT OF JUTE AND FIBRE TECHNOLOGY  
INSTITUTE OF JUTE TECHNOLOGY  
UNIVERSITY OF CALCUTTA  
35, BALLYGUNGE CIRCULAR ROAD  
KOLKATA – 700 019**

**REGULATIONS AND SYLLABUS FOR ONE MONTH SUPERVISORY CERTIFICATE COURSE IN MILL SIDE JUTE PRODUCTION(Preparatory to Spinning & Twisting)HAVING TOTAL 150 CONTACT HOURS IN 1 MONTH SUPERVISORY COURSE TO BE CONDUCTED AT MILLS OR IJT.**

1. The Supervisory Certificate Course in Mill Side Jute Production (Preparatory to Spinning & Twisting) for Jute Mills Supervisors shall be conducted in the Jute Mills or at the Department of Jute and Fibre Technology, Institute of Jute Technology, University of Calcutta. The duration of the course is one month and shall be held once in every three months.
2. The total number of seats for the said course is ordinarily 30. The candidates sponsored by the Jute Mills and jute related organisations will be preferred.
3. The Examination for the Certificate Course in Mill Side Jute Production (Preparatory to Spinning & Twisting), for the Jute Mills Supervisors shall be held in Jute Mills or at the Department of Jute and Fibre Technology ,Institute of Jute Technology, University of Calcutta after completion of the one month's course at such date as decided by the course coordinator in consultation with HOD & Project Leader, ISDS project to be approved in the meeting of the Departmental committee of Department of Jute and Fibre Technology ,Institute of Jute Technology, University of Calcutta or by the Course Coordinating Committee of the Department of Jute and Fibre Technology ,Institute of Jute Technology, University of Calcutta.
4. Any candidate possessing minimum secondary level school certificate (X pass) eligible for admission to this Supervisory Certificate Course. Candidate possessing senior level school certificate (XII pass) or Graduation preferably in Science and is actively engaged in the industry for a period of at least one year shall be preferred for admission to this Certificate Course.
5. Selection of the candidates will be done through an admission test and / or interview. However sponsored candidates will be exempted from admission test and interview. S.C/S.T/ OBC candidates will be preferred.
6. The candidates completing one month Supervisory Certificate course will be evaluated by oral examination for theoretical paper (one paper in each module) and by checking/evaluating practical knowledge on practical job work for practical paper (one paper per module) for awarding certificate after completion of one month Supervisory training Course. There will be no Pass/ Fail system in these courses, however there will be an evaluation system awarding Grade –A and Grade –B, where Grade A means excellent performance having 70% and above competency for the particular job and Grade B means 50% and above competency level. Candidates below 50% competency level need repeat training of one week to earn the higher level of competency to evaluate again.
7. A candidate shall be eligible to sit for the Examination provided he prosecutes regular course of study and attends at least 75% of the theoretical and practical classes separately

held during the period of one month. It is essential that the practical and theoretical work should be combined in a progressive course of study that will lead the candidates naturally to their Examinations.

8. The candidate who will pass the examination of the Certificate Course shall be awarded a Certificate in the following format:

**DEPARTMENT OF JUTE AND FIBRE TECHNOLOGY  
INSTITUTE OF JUTE TECHNOLOGY  
UNIVERSITY OF CALCUTTA  
35, Ballygunge Circular Road, Kolkata: 700019**

**CERTIFICATE**

*This is to certify that Shri  
Smt \_\_\_\_\_ Daughter Son of  
\_\_\_\_\_ has completed the Supervisory  
Training on Mill Side Jute Production (Preparatory to Spinning &  
Twisting) Under ISDS Project in the year \_\_\_\_\_  
and obtained \_\_\_\_\_ Grade.*

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*Project Coordinators, ISDS Project*

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*Head of the Department*

The schedule of papers and distribution of marks in these one month duration Supervisory Certificate training courses on Mill Side Jute Production (Preparatory to Spinning & Twisting), will be as follows;—

Subject	Weightage
<b><u>Theoretical Papers</u></b>	
Paper - 1 Theoretical paper for each module as detailed in the syllabus	50%
Paper – 2 Practical paper for each module as detailed in the syllabus	50%

**Department of Jute and Fibre Technology, Institute of Jute Technology,  
University of Calcutta**

**Syllabus for Vocational Supervisors' Training for Jute Sector to be Conducted  
by Department of Jute and Fibre Technology, Institute of Jute Technology,  
University of Calcutta, Under Integrated Skill Development Scheme Project  
(ISDS) Sponsored by Ministry of Textiles, Government of India**

**Module: S- 1: Mill Side Jute Production (Preparatory to Spinning & Twisting),**

**Total Contact Hours 150 (One month Training)**

**Theoretical Paper**

**Contact Hours: 75**

**Selection & Batching (Duration – 05 days):** Classification of textile fibre, Terms and definition, Types of Jute and allied fibres, Some aspects of Jute cultivation (climate condition Land, Soil PH, Land preparation, Choice of variety, Seed rate, Basic Application of Manure and Fertilizer schedules, Intercultural operation, Harvesting and Retting)

Fibre extraction, Wastage and Drying of raw jute, making of bojhas, Primary and Secondary Market of Raw Jute, Bale making in Bale Centre Area use classification of jute, Different jute producing areas and characteristic, physical properties (Fibre Dimensions – fineness, Length strength and extensibility, Elastic- plastic Nature, Flexural & Torsion Rigidities, Frictional properties, Moisture Absorption, Thermal properties Electrical properties, optical properties), Chemical composition, Chemical properties- (Effect of alkalis, acids, bleaches)

Grading of raw jute (Fineness length, strength, root-percentage, Bulk density, moisture, colour, luster etc.)

Jute arrival in Mill, Inspection (Quality, moisture, weight), claim settlement if any

Jute selection operation (Very good moderate, poor on the basis of fineness length, colour, luster, bulk density, moisture, Major and minor defects), Making of morahs, Hackling, root cutting purpose of root cutting at selection stage, Importance of maintaining standard morah weight at selection stage, Concept of Bale Batch Necessary of Jute softening, Emulsion and its purpose, Introduction of softener and Jute spreader Machine, Important point during application of emulsion Function, of oil and water on Jute, Basic Maintenance of spreader and softener Machine, Pilling-its purpose and duration, Building of pile and concept of Sand witch pile, Method of pile opening Function, objective of Rope opener and Dust shaker.

Function, objective of Rope opener and Dust shaker.

**Carding (Duration – 05 days)** : Principle and objective of Carding, Classification of Jute Cards Feeding of Breaker, Teaser, Hard Waste Teaser and Hopper Feeder Teaser Card operational details of different Cards-breaker Teaser, Hard Waste Teaser, Inter and Fin Card. Dollop principle clock upon how to find out the Draft Constant, Draft, Surface speed ratio of different rolls, Sliver weight/ 100 yds, Production efficiency standard Batches of of different qualities and determination of batch costs, What is doubling? Role of doubling on Carding Machines. Roll former-function and mechanism, Causes of making defective rolls and their remedies, generation of carding waste and its control. Duties and responsibilities of carding supervisors, Picking of rollers on carding machine, gauging of different roles.

**Drawing (Duration – 05 days)**: What are the objectives of Drawing frames? Process sequence of different quality in drawing department. Types of drawing frames, Construction and operational details of different drawing frames of different make. Calculation of sliver weights, draft constant draft, surface speed of different rolls. faller surface speed, Lead%, Causes of sliver faults and remedies, Stop motions and drawing pressing roller, Crimp box, Crimp weight, Importance of drawing plate Auto Front conductors on 1<sup>st</sup> Drg. and 2<sup>nd</sup> Drawing M/c, Generation and control of waste. Duties and responsibilities of Drawing Supervisors. Basic care and maintenance of different jute Drawing frames, Fibre floating and its control, Can packing arrangement, Importance of picking at proper interval, Types of can used in drawing department, importance of identification marks of sliver cards.

**Spinning (Duration – 05 days)**: What is meant by spin? What is Jute Spinning? Purpose of spinning and Twisting frames, Different types of Jute Spinning and Twisting frames of different make and their working mechanism, Doffing system of different spinning and Twisting frames, Types of gauging and their importance, Importance of checking the condition of retaining roller, idler, mid draft roller, Drawing and Drawing Pressing Roller, Dead weight of builder rail, Path of the sliver in spinning frame, Position of Felt bob for different count, Type of lubricant used for Dead spindle, Idea of sliver weight per, spindle for different count, Importance of Bobbin sizes and weights-wooden and synthetic. Basic concept of Draft constant, Draft, Twist constant, Twist per inch and yarn count, Importance of Draft change pinion, Twist change pinion, Traverse change pinion, Sliver stop motion-both on slip Draft and Apron Draft spinning frame, Calculation of surface speed of different rollers, Draft constant, Draft, Twist constant, Twist per inch, production, efficiency, Safety devices, Measures to reduce wastage and to active higher production and efficiency, Safety devices, Measures to reduce wastage and to active higher production and efficiency, Reasons for End breakages,

**Duties and responsibilities of a spinning supervisor.**

**PRACTICAL**

**Contact Hours: 75 Hrs**

Supervision of supervisor regarding quality-wise Bale Batch Selection, up gradation and down gradation from each Bale Batch, morah sizes within acceptable weight and arranging of morahs on the barrow without making habbi-jabbi as per quality. Practical study of functioning softener,

Spreader M/c in details. Calculation of surface speed of different rollers, Draft & Draft Constant (for spreader), production and efficiency. Supervision regarding proper feeding of morahs on softener, Spreader and to supervise the use of Leader Rolls are used). Supervision regarding composition of Emulsion as per quality and preparation of emulsion, Proper application of emulsion on raw jute (cut or uncut), how to find out the M.R% and oil% after application of emulsion on jute.

### **CARDING PRACTICAL-**

Supervision of Carding M/c regarding cleaning of the M/c, proper gauging of different rolls, Condition of pins, all rolls, Condition of pins, all rolls, selvedge plate, conductor, shrouding plate etc, Lead% between Delivery & Drawing roller and Roll-former & Delivery roller, Supervision of proper functioning of Roll-former. Supervision of regular picking on carding M/cs.

Proper feeding of Breaker/ Inter Card Rolls on Finisher Card as per Card composition (quality-wise). Gearing Details

Calculation of Clock length, Draft constant, Draft, Lead%, Surface speed ratio of different rollers, Carding ratio, Carding power, Production and Efficiency.

### **Drawing Practical**

Practical study of Drawing frames, Identification of different parts/components of Drawing Machine Supervision of handling of Drawing Cans and arranging it at the back of the Drawing Machine property, use of graded sliver Cans (Sliver containing Fill, 3/4<sup>th</sup> Half) Supervision of the supervisor to avoid missing of different quality sliver. Floating of sliver, missing bar, missing pin, blunt pin, faller tracks, Crimping weight, Condition of Feeler, Stop motion, carding opening, bar Removal, refitting of bars Proper Joining (Piecing) of Sliver, Supervision/Study of Drawing Frames (Push bar, screw Gill, interacting Gill) including proper function of can tramping, Can coiler movement, Calculation of various machine parameters (surface speed of different rolls, Draft contact, Draft, fallen speed, fallen drafts per minute), production efficiency. Stop motion and safety devices.

### **Yarn Manufacture and Twisting Practical**

Supervision of the supervisors regarding placement of graded sliver cans at the back of spinning. Supervise whether defective sliver cans are used or not at the back of spinning frame. Identification of bobbins regarding sizes, Weight and defects, practical study of spinning Frames and Twisting Frames of different types, Study of different gauges (i.e. Draft gauge, Rod gauge and dial gauge), Sketch the gearing of spinning Frames and Twisting Frames of, different types and calculation, of various machine parameters (Surface speed of different roller, Draft constant, Draft. Twist constant, T.P.I Production & efficiency).

**Evaluation – 2 days**