

**REGULATIONS AND SYLLABUS**  
**FOR**  
**SUPERVISORY CERTIFICATE COURSE**  
**IN**  
**Fine Yarn and Blended Jute Yarn Manufacture**

**UNDER ISDS PROJECT**

**2014**

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

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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 FINE YARN AND BLENDED JUTE YARN MANUFACTURE, HAVING TOTAL 150 CONTACT HOURS IN 1 MONTH SUPERVISORY COURSE TO BE CONDUCTED AT MILLS OR IJT.**

1. The Supervisory Certificate Course in Fine Yarn and Blended Jute Yarn Manufacture, 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 Fine Yarn and Blended Jute Yarn Manufacture 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 Fine Yarn and Blended Jute Yarn  
Manufacture Under ISDS Project in the year \_\_\_\_\_ and  
obtained \_\_\_\_\_ Grade.*

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*Project Coordinators, ISDS Project Head of the Department*

The schedule of papers and distribution of marks in these one month duration Supervisory Certificate training courses on Fine Yarn and Blended Jute Yarn will be as follows:-

<b>Subject</b>	<b>Weightage</b>
<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-3: Fine Yarn and Blended Jute Yarn Manufacture**

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

**Theoretical Paper Contact Hours: 75**

**Raw Jute Grading and Selection Batching**

Specific and varieties of commercial jute fibre. Factors in grading according to B.I.S. Standards. Types of Bangladeshi and imported Jute. Baling and marketing. Moisture in Jute. Selection of raw jute. Claims put up on raw jute on arrival in mills – quality, short weight and moisture claims. Faults in raw jute. Batch preparation: Factors. Batch cost outlines. Description, purpose and study of operational details of Softener and Spreader. Emulsion preparation, properties and application methods. Emulsion additives. Piling Faults, causes and remedies. Root cutting, standard batches and batch costs. Generation and control of different wastes. Duties and responsibilities of selection – batching supervisor. Production Calculations.

**Carding & Drawing**

Carding – Principles and objects, operational details of different cards – breaker, inter and finisher. Pins and pinning. Dollop Principle, drafts, draft constant, speeds, speed ratios, sliver weights, production, efficiency. Card drawing heads. Roll former – function and mechanism. Faults in rolls – causes and remedies. Use of Grist Monitor in Cards. Card wastes and control. Duties and responsibilities of Carding Supervisor.

Drawing - Terminology, theoretical considerations – Principles and objects – desirable features – constructional and operational details of different drawing frames. General ideas about working principle of Rotary Gill and Intersecting gill drawing Calculation of sliver weights, drafts, leads, production, Blending of Jute with other fibre, efficiency, Sliver faults – causes and remedies. Concept of Auto leveler. Generation and control of wastes. Duties and responsibilities of Drawing Supervisor.

**Spinning and Twisting**

Spinning – Objects – Types of spinning frames – Principal parts and operational details of jute spinning machine; draft, twists and twist factors; yarn quality change; doffing time and control. Production and spinning efficiency calculations. Faults in Yarn, causes and remedies. Wastes, causes and control measures. Generation and control of wastes. Duties and responsibilities of Spinning Supervisor. Balancing of machinery in production – weight and length basis.

Study of ring spinning system. Study of modern conventional spinning machines.

Twisting of yarn and ply yarn. Study of flyer twisting and Ring – twisting machines. Working principle, bobbin adjustment.

**Winding**

Winding - Factors in winding, advantages and disadvantages of different types of packages. Methods of unwinding and their effect on twist. Roll (Spool) and cone winding machines operation in details.

Construction of packages Operational details of packages and action of typical winding machines, main working parts and their adjustments for length and diameter. Defects in packages – causes and remedies.

Precession winding machines operation in details. Construction of packages Operational details of packages and action of typical Precessionwinding machines, main working parts and their adjustments for length and diameter. Defects in packages – causes and remedies.

### **Product Manufacture, Process Control and Mill Practice**

Importance of Jute blended yarn, Export yarn, Technical Textile, Geo Textile etc.

Process control: Different process parameters at each stage. Control of moisture at different stages of processing of jute. Testing carried out for raw jute and slivers of at different stages of processing of jute. Problem arises during processing and its remedies in spinning preparatory and usual mill practice. Labour complement in different departments. Source of Wastage, control of wastage and proper utilization of wastage generated in Selection and Batching department and standard wastage percentage of other departments in jute mills, Input output ratio, batch costing. Machine balancing, production planning and improvement of productivity. Method of stock taking and process stock control. Export inspection. Duties and responsibility of supervisors. Palletizing, packing and export marking.

## **PRACTICAL(Contact Hours: 75)**

### **Softener / Spreader Carding & Drawing Practical**

- a. Softener / Spreader – Practical study of softener / spreader machine in details. Production calculation. Emulsion Preparation and application of emulsion on jute. Moisture in jute.
- b. Practical study of Breaker Card and Finisher Card; Sectional view, gearing details. Calculations involving clock length, speeds of rollers, draft, leads, speed ratios etc. Production calculation. Determination of sliver weight. Moisture in sliver. Safety device.
- c. Practical **study** of Drawing frames –Screw gill. Calculation of various machine parameters. Faller tracks. Carriage opening, bar removal and refitting of bars. Productions and efficiency. Stop motions and safety devices. Practical **study** of Rotary Gill and Intersecting Gill Drawing frames. Calculation of various machine parameters. Faller tracks. Bar removal and refitting of bars. Productions and efficiency. Stop motions and safety devices.

### **Spinning, Twisting & Winding Practical**

- a. Practical study of slip draft and Apron draft jute spinning frames and actual spinning of yarn. Calculations involving draft and twist, operation of doffing. Count and quality change procedures. Production and efficiency calculations. Correction of bobbin building defects. Draft and twist gear changes – changes in machine speeds. Sliver feeding and drawing - in procedure.
- b. Practical study of Ring spinning frames and actual spinning of yarn. Calculations involving draft and twist, operation of doffing. Count and quality change procedures. Production and efficiency calculations. Correction of bobbin building defects. Draft and twist gear changes – changes in machine speeds. Sliver feeding and drawing - in procedure.
- c. Study of twisting machine and relevant practical.
- d. Practical studies of jute spool winding and precession winding machines. Running and settings of spool and precession winding machines to produce spools and packages of different sizes.