

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

**Syllabus for Vocational Workers' 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: XIII , Workshop Practises and General Maintenance

Total Contact Hours 150 (One month Training)

Theoretical Syllabus (50 Hrs.)

A) Knowledge of various types of belt, pulley and gear drives viz:

- a) Flat belt, V-belt, toothed /power grip belt, round belt etc.,
- b) Flat pulley, guide pulley, V- pulley, toothed /power grip pulley, pulley for round belt etc.
- c) Flat stepped pulley, V- stepped pulley etc.
- d) Spur gear and pinion drive, bevel gear and pinion drive, worm and pinion drive, helical gear and pinion drive, rack and pinion drive.
- e) To be conversant with metrology, that is, measuring tools viz., wire and plate gauge, Micrometre, Venire, Screw gauge, Feeler gauge, Height /depth gauge etc.
- f) To have basic idea of Lubrication and Lubricants, their effective utilisation for machines Installed. Knowledge of cutting fluid and its use.

B) Machine Shop:

Principles of working and operation of machines viz., Lathe machines, drilling machines, Shaping Machines, Planning machines, Slotting machines, Boring machine, Key seating machines, Gear cutting machine – Hobbing machine, Milling machine, Universal milling machine, Gear shaper, Honing machine, Broaching machine, Grinding machine etc. and type of machining done and products produced. Maintenance and grinding of various tools and cutters

C) Carpentry Shop:

Classification of wood, common varieties of timber including defects and their use in the mills for different purposes. Different tools used for carpentry work. Different marking and measuring tools used in carpentry. Basic idea of pattern making.

D) Welding Shop:

Different types of welding viz., electric welding, gas welding and different equipment used for the same.

E) Black Smithy Shop:

Furnace and its fuel, blower, use of lighter hammer for heavier jobs and their configuration.

F) Tin Smithy Shop:

Furnace for igniting the solder torch for melting solder stick at relevant temperature. Use of hard solder and soft solder for relevant engineering jobs and solder specifications.

G) Foundry Shop:

Cupola – purpose and its operation, materials used in the cupola (pig iron ingots, cost iron scrap – their proportion and other standard materials), specification of replacement, defects of casting and the methodology to be adopted for their elimination.

General Shop:

Maintenance of river side pump, hydrant water operating pump, boiler feed water pump, Sprinkler pump, centrifugal pump for pumping water for heat exchanger of generator house and their periodic maintenance.

PRACTICAL (100 Hrs.)

A) The concerned workmen should have basic idea of various types of belt, pulley and gear drives and be conversant with their assembly, sub-assembly, replacement and renewal when needed in reality. To be able to use all sorts of measuring tools alone when needed. To be conversant with frequency of Lubrication, type of Lubricant etc. for relevant machines, various pumps and motors.

- i) a) To operate relevant machine tools personally and produce relevant job piece accurately as per drawing or requirement or sample.
b) To be personally conversant with maintenance of relevant tools and cutters and grinding of Standard ones.
- ii) The carpenters should be conversant with defects of timber, properties of relevant timbers, pattern making usage of marking and measuring tools and their maintenance.
- iii) The welder should be totally conversant with the relevant welding procedure in fusion state and plastic state type of electrode to be used and different equipment needed for the same without failure in the strength of welding.
- iv) The black smithy shop workmen should be conversant to forge and produce any replica of the sample in the plastic state and type of hammer to be used.
- v) The tin smith shop workman should know the method of joining the non –ferrous material with an appropriate strength at the standard melting point of the solder.
- vi) The moulder should know how to make moulds for any relevant pattern and what measures should be taken to avert defects of casting as far as practically feasible.
- vii) The general shop workmen should be conversant with the working maintenance, assembly, sub – assembly etc. of various types of pumps in general and centrifugal pumps in particular.