

Syllabus for the subject

of

WORKSHOP CALCULATION & SCIENCE

(For 3rd & 4th semester)

Under

CRAFTSMEN TRAINING SCHEME (CTS)

(For Textile Mechatronics)

Re-Designed

in

2015

By

Government of India

Ministry of Skill Development & Entrepreneurship

Directorate General of Training

CENTRAL STAFF TRAINING AND RESEARCH INSTITUTE

Block - EN - 81 SECTOR - V, SALT LAKE CITY, KOLKATA - 700 091

Syllabus of workshop calculation & Science for the trade of, Textile Mechatronics,

3rd semester -42 hrs. Duration

Calculation-21hrs.			Science-21 hrs		
Sl. No.	Description	Hrs.	Sl. No	Description	Hrs.
1	Fraction: Fraction, Decimal fraction, LCM, HCF, multiplication and division of fraction. Conversion of decimals into fraction and vice versa.	21	1	Elasticity: Stress, strain, Modulus of elasticity, elastic limit, Hooks law, young's modulus.	21
2	Calculation on volume & weights of solid & hollow bodies. C.G.S. & S.I. system of units of force, weight etc..		2	Material Science: Introduction, types and properties. Uses of Conducting, Semi-conducting and insulating materials.	
3	Pressure:- Pneumatic pressure, PSI, bar, atmospheric pressure, pressure gauge and absolute pressure, Heat treatment process.		3	Magnetism: Magnetic material, magnetic field, flux density, magnetic moment, m.m.f. Reluctance, permeability, susceptibility, electromagnet, solenoid and its practical applications.	
4	Units of volume. Calculation on volume, unit conversions. Calculations on relation between volume, mass and density.		4	Heat and temperature: Definition, difference between heat and temperature. Units of temperature. Conversion of temperature units.	

Syllabus of workshop calculation & Science for the trade of, Textile Mechatronics

4th Semester -42 hrs. Duration

1	Indices: Laws of indices & related problems. Quadratic Equation: Introduction, solution of simple Quadratic equation and related problems.	21hrs.		Friction: Law of friction, co-efficient of friction, angle of friction, advantage and disadvantage of friction.	21hrs.
2	Simple problems on profit and loss. Simple and compound interest.			Force: Resolution and Composition of forces. Representation of forces by vectors, simple problems on lifting tackles like Jib wall, crane solution of problems with the aid of vectors, General condition of equilibrium for series of forces on a body.	
3	Corrosion: What is corrosion. Difference between corrosion and rancidity. Precaution to avoid corrosion.			Gravity: Centre of Gravity, example on stable, unstable and neutral equilibrium.	
4	Defining work, power energy, torque. Laws of conservation of energy, Forms of energy, kinetic energy & potential energy			Estimation & Costing:- Simple estimation of the requirement of materials etc. as applicable to the trade. Problems on estimation and costing. Calculating on the cost of repairing/reconditioning of machine as applicable to the trade	