AMTE-12 TECHNOLOGY OF WOVEN FABRIC MANUFACTURE

UNIT-1 INTRODUCTION TO WEAVING

1.1 Yarns quality requirements for high speed automatic shuttle looms and shuttle less loom;
1.2 Warp and weft preparation for high speed looms;
1.3 Principle of weaving with hand and power looms,
1.4 Passage of material, motions in loom
1.5 Primary, secondary and auxiliary motions,
1.6 Plain power loom driving, timing of motions.

UNIT-2 HEDDING MOTIONS

2.1 Shed geometry and shedding requirement.
2.2 Types of shed.
2.3 Shedding mechanisms- positive and negative.
2.4 Principles of tappet,
2.5 Dobby and jacquard shedding mechanisms,
2.6 Reversing mechanisms-.
2.7 limitations of various shedding mechanisms;
2.8 Conventional and modern dobby and jacquard mechanism.

UNIT-3 WEFT INSERTION AND BEAT UP

3.1 Shuttle picking and checking mechanisms, shuttle flight and timing;
3.2 Weft feeder- types,
3.3 Principles of weft insertions in shuttle less looms;
3.4 Mechanism of weft insertion by projectile, rapier loom and jet – air and water.
3.5 Multi-Phase weaving systems;
3.6 Kinematics of sley, sley eccentricity; beat up mechanism in modern looms;

UNIT-4 SECONDARY AND AUXILARY MOTIONS LOOMS

4.1 Take up and let - off motions used in plain power looms;
4.2 Cloth formation, weaving condition
4.3 Factors and control; warp protector and warp and weft stop motion;
4.4 Plain power loom accessories.
4.5 Automatic weft replenishment in shuttle looms
4.6 Pirn changing and shuttle changing looms;
4.7 Mechanisms involved in automatic pirn changing- feelers, cutters,
4.8 Design of shuttle, three try motions; multi shuttle looms- box changing principle,
4.9 Automatic pirn changing in multi shuttle loom.
4.10 Weft arrival control and automation in shuttle less looms;
4.11 Selvedges in shuttle less looms; quick style change;

UNIT-5 PROCESS CONTROL & SPECIAL WEAVING PROCESS

5.1 Techno economics of shuttle less loom weft insertion systems;
5.2 Loom monitoring and control Loom stoppages and efficiency;
5.3 Fabric defects and value loss;
5.4 Fabric shrinkage in the loom - causes and control; fabric engineering.
5.5 Filament weaving- Silk & Texturised yarns.
5.6 Principles and mechanisms in weaving Pile fabrics, tapes and triaxial fabrics

References Book:

1. Talukdar M.K., Sriramulu P.K. and Ajgaonkar D.B., "Weaving: Machines, Mechanisms Management", Mahajan Publishers, Ahmedabad, 1998.
2. "Weaving: The knowledge in Technology", Papers Presented at the Textile Institute Weaving Conference, Textile Institute, 1998.
3. Booth J.E., "Textile Mathematics Volume 3", The Textile Institute, Manchester, 1977.