

**Semester:VII****Course no:615.1****Textile Chemistry I (Theory)****Credit Hours:2+1****Total Periods=60****1 Period= 45min**

S.No	Topics	Main Points	References	Periods
1	Polymerization	<ul style="list-style-type: none"><li>• Types of Polymerization</li><li>a) Addition Polymerization</li><li>b) Condensation Polymerization</li><li>• Polymerization and Fibers</li><li>a) Branched chain</li><li>b) Cross linked</li><li>c) Linear Form</li></ul>	1,2,3	4
2	Fibers Properties	<ul style="list-style-type: none"><li>• Introduction</li><li>a) -Fibers Primary Properties</li><li>b) -Fibers Secondary Properties</li><li>c) -Tensile Strength Calculation</li><li>d) -Fiber Identification by: (Burning, Microscopic, Solubility, Shirlastain , Fiber Blends identification)</li></ul>	1,2,3	6
3	Concentration of Reagents	<ul style="list-style-type: none"><li>• Methods of preparing reagents-</li><li>a) Volume / Volume</li><li>b) Weight/ Volume</li><li>c) Weight/ Weight</li></ul>	_____	2
4	Chemistry of Cellulose	<ul style="list-style-type: none"><li>• Polymerization of cellulose</li><li>• Formation of cellulose in plants</li><li>• Physical and chemical behavior.</li></ul>	1,2,3	4
5	Chemistry of Protein fibers ( wool & Silk)	<ul style="list-style-type: none"><li>• Amino Acid, general formula, types of amino acids.</li><li>• Polymerization of Protein fiber</li><li>• Morphology</li><li>• Physical and chemical behavior.</li></ul>	1,2,3,4	5
6	Man Made Fibers	<ul style="list-style-type: none"><li>• Chemistry of Man made fibers.</li><li>• General methods of manufacturing man made fiber</li><li>• Types of man-made fibers</li><li>a) Regenerated fibers (viscose &amp; Acetate Rayon)</li><li>b) 2)Synthetic fibers ( Polynosic, Polyamides, polyester, Acrylic and Mod Acrylic)</li><li>• Chemical and mechanical Manufacturing,</li></ul>	1,2,3	2  4 4

		Physical & Chemical behavior and uses of all types of man made fiber		
--	--	--	--	--

**BOOKS RECOMMENDED**

1. Introductory Textile Science by Marjory L. Joseph
2. Textiles By Norma Hollen & Jane Saddler
3. Textiles by Corbman
4. A dictionary of silk in India by Armug (New ordered book)

**Semester:VII****Course no:615.1****Textile Chemistry I (Practical)****Credit Hours:2+1****Total Periods=8****1 Period= 45min**

<b>S.No</b>	<b>Practical</b>		<b>Objectives</b>	<b>No of Classes</b>
1	Determining the strength of reagents required for solubility test of textile fibers.	1 2 3 4 5 6 7	-To prepare the 60% H <sub>2</sub> SO <sub>4</sub> w/w -To prepare the 65% H <sub>2</sub> SO <sub>4</sub> w/w -To prepare the 70% H <sub>2</sub> SO <sub>4</sub> w/w -To prepare the 80% Acetone v/v -To prepare the 85% Formic Acid v/v -To prepare the 5% NaOH v/v -To prepare the 5% NaOCl v/v	4
2	Burning Identification of Textile fibers.	1 2 3	-Identification of Cellulose group -Identification of Protein group -Identification of Acetate group -Identification of Synthetic group	1
3	Chemical analysis of textile fibers.	1 2 3 4	-Identification of Acetate group (secondary & tri acetate) -Identification of Synthetic group (Nylon, Acrylic, Polyester) -Identification of Protein group (Wool & Silk) -Identification of Cellulose group (Cotton & Viscose Rayon) -Identification of Acrylic fiber.	2
4	Shirlastain test of textile fibers	1 2 3 4	-Identification of fibers by Shir-A -Identification of fibers by Shir-D -Identification of fibers by Shir-E -Identification of fibers by Shir-F	1

### **Expenditure Details for Textile Chemistry I Practical work:**

<b>Sn</b>	<b>Material</b>	<b>Quantity</b>	<b>Amount</b>
1	Fabrics for fiber identification (Natural and Man-made) Grey fabric for wet processing	½ meter 1 meter	150 200
2	Practical Journal	1	50
		<b>Total:</b>	400

### **Marking Scheme: Textile Chemistry I :**

<b>Mid Term (32)</b>	<b>Internal (8)</b>	<b>Final (42)</b>	<b>External (12)</b>	<b>Total 100</b>
Objective= 70% Subjective=30%	Question1 = 4 marks Question2 = 4 marks	Objective= 60% Subjective=40%	Q1, Q2 = 6 Viva = 3 Attendance = 1 Journal= 2	Internal= 40 External= 60