

(Textile Engineering Department)

Undergraduate

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Course Title: **Fibers Chemistry**

Prerequisite: Polymer Chemistry

Number of Credits: 2

Lecturer:

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**Course Topics:**

- important reaction of carbohydrates (effect of Alkali, Acid, crosslinking cellulose)
  - cellulose crosslinking
  - Monosaccharides ,disaccharides , polysaccharides, chemical properties and chemical construct
  - chemical properties of pectin , Lignin ,Hemicellulose Cellulose solvents organic and mineral
  - Production of cellulose ester and cellulose ether as... phosphate, acetate, .....
  - Baste fibers (flax ,jute..... the other of cellulosic fiber chitin chitosan alginate regenerated cellulose
  - protein fiber and fabric thiol group in protein fiber and its reactions Identification of Amino acids different kind of Amino acid (Chemical and physical identification)
  - Regenerated protein fiber casein , soy, corn fiber
  - Treatment chemistry that can be applied on fibers and on the surface of the fibers, such as grafting antibacterial anti-burning and ...
  - Oxidation and reduction of cellulosic fiber (optical and chemical)
  - General properties of protein fibers classification ionization of proteins
  - different kind of protein reactions Amin group reaction Carboxyl group reaction
  - solid state synthesis peptides and peptides synthesis Masking and Blocking of some groups in synthesis
  - Description of different structure in protein Helix pleated,.... description of sequence in protein structure Identification of them
  - Global and fibrous protein wool and silk construction different reaction of them
  - Synthetic polymer chemistry used in the manufacture of man-made fibers and chemical manufacturing of related materials
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**Reading Resources:**

- B.D. Hames, Biochemistry,Bios,2000 B.D. Hames, Biochemistry,Bios,2000
- A. Timar, Chemical principles of Textile Conservation,Wiely,1998 B.D. Hames, Biochemistry,Bios,2000
- 3-T.P. Nevell., Cellulose Chemistry and its Application,Wielly,1987 B.D. Hames, Biochemistry,Bios,2000

- 4-John, Amino Acid and Peptides, Worshipful,1998 B.D. Hames, Biochemistry,Bios,2000
- Stick., Carbohydrates, WIELLY., 2001 B.D. Hames, Biochemistry,Bios,2000
- 1.E.Graffine, Cellulose and Cellulose Derivative, Interscience,1985 B.D. Hames, Biochemistry,Bios,2000