

(Textile Engineering Department)

Undergraduate

Course Title: **Fiber Science**

Prerequisite: Engineering Organic chemistry

Number of Credits: 2

Lecturer: Dr. Somaye Akbari

Course Topics:

• Polymer physics: Crystalline, amorphous- Thermal transition: Tg, Tm
• General definition of fiber in textile industries- Physical and chemical fiber characteristic
• Cellulose fibers : cotton
• Cellulose fibers: flax, ...
• Protein fiber: wool, Silk and hair fiber,
•) Man-made fiber manufacturing techniques (Melt Spinning, Dry Spinning, Wet Spinning, Dry-Wet Spinning, Electro-spinning)
• Polyester ,Nylon and Polypropylene fiber
• Acrylic fiber
• Regenerated fiber: Viscose
• Regenerated fiber: acetate
• Technical fiber
• Introduction, Fiber classification Methods, fibers consumption
• Introduction of fiber polymer, Polymer Nomenclature
• Polymer classes and sub-classes
• Intramolecular & intermolecular forces in fibers
• molecular weight calculation

Reading Resources:

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