DEVELOPMENT AND FABRICATION CAPABILITY

Biomedical structures and scaffolds
Specialty woven, knitted, braided and flocked technical textiles
Materials Characterization by microscopy, physical and chemical analysis

MICROSCOPY AND ANALYTICAL EQUIPMENT
TA Instrument DSC Q1000 and TGA Q500
High Speed CCD Imaging System Capable of 100 ns - 1 ms exposure
Digilab FTS-3000MX Excalibur FTIR
Leitz Polarized Light Microscope
Leitz/Wild Photomacro scope
Olympus Hand-Held Video Microscope
Image Processor
JOEL JSM 5510 Scanning Electron Microscope
Microtome Cross-Sectioning Devices
Hirox Digital Microscope and Software (7000X)

FIBER PROCESSING EQUIPMENT
Shirley Miniature Spinning Plant – carding fibers into webs and spinning into yarns from short fibers
Hunter Fiber Flocker – for making needle punch fiber webs

KNITTING MACHINES
Lamb Model 102SH, 14", 7 Cut, V-Bed Machine
Lamb Model 2NBA-4A Four Needle Braider
Karl Mayer Warp Knitting Machine, RML-6
PASSAP Electronic 6000 V-Bed Machine
4” Weft Circular Knitting Machine

TEXTILE CHEMISTRY, DYEING AND FINISHING EQUIPMENT
Fiber Optic-Based Spectrophotometer
Computer-Interfaced Ocean Optics Miniature Spectrophotometer
Macbeth Color Eye Computer Matching System
Ahiba Polymat High Pressure Laboratory Dye Machine
ENCAD NovaJet 750 Digital Textile Printer
Brookfield Viscometer DV-II+
Thermolyne Model 1500 Furnace
A.A.T.C.C. Crockmeter
Blue M Forced Air Oven
Spectroline Blacklight
Atlas Launderometer
L & W 12 inch Padding/Squeeze Roll Apparatus
L & W 18 inch Single Pattern Laboratory Roller Printer
Development and fabrication capability - materials and textiles

**PHYSICAL TESTING EQUIPMENT**

- Lawson Hemple CTT with yarn eveness, friction, surface and other attachments
- Instron Model 5569 Testing Machine
- Lawson-Hemphill FST 3000 Yarn Shrinkage Tester
- Fiber Array Sorters for cotton, man-made and wool fibers
- Micronaire – Air flow tester for fiber fineness
- Emerson Sample Conditioning Oven
- Brabender Conditioning Oven
- Pressley Cotton Fiber Break Testers
- Instron CRE Testers, floor and table models, 0 to 10,000 lbs cap. various grips
- Hand Cards for aligning fibers
- Scott Tester for skein breaks, model J, 0 to 300 pounds
- Scott Tester for break and burst tests, model J, 0 - 300 pounds
- Scott Tester for high elongation materials, 0 - 300 pounds
- Elmendorf Tear Tester, 0 - 5 pounds
- Uster Evenness Tester with Quadratic Integrator, Imperfection Counter, Spectrograph and Recorders
- Taber Abrader, Single Head
- CSI Stoll Inflated Diaphram, Stoll Flex and Abrasion, and Soil Testers
- Random Tumble Pill Tester
- Wysenbeek abrasion tester for pile fabrics

**EQUIPMENT List in Composites, Biomedical Structure and Electrofiber Spraying**

1. Electro fiber spraying (flocking) equipment
   a. Hand-held DC flocking unit
   b. Electro pneumatic DC fiber sprayer
   c. DC electrofiber sprayer
   d. DC dual polarity high voltage supply (+/- 10-100 kV)
   e. Fiber chargeability tester
   f. Pile fiber pull-out tester
   g. Chisel type abrasion tester for adhesive film, pile (flock fabric).
   h. Mahlo Flock conductivity meter (up to 9 x 10^12 ohm)

2. Composite material development.
   a. Carver 12” x 12” 10 ton heated/cooled platen press.
   b. 18” x24” Plate-Match mold press
   c. Mclean- Anderson computer controlled filament winder with roving dispenser
   d. Vacuum Assisted Resin infusion system (up to 3000 square feet)
   e. Convection ovens

3. Electro spinning system
   a. High voltage power supply - +/- 100 kV
   b. Multielectrode electrospinning system.(up to 12 inch wide electrospun web)

4. Biomedical structures
Development and fabrication capability - materials and textiles

a. Lamb $1/8'' - 1/2''$ diameter tubular weft knitter
b. Lamb $6$ mm diameter – 2-guide bar circular warp knitter
c. Jakob Mueller computer controlled warp knitter
d. Jakob Mueller computer controlled narrow weaving machine

5. Fiber Extrusion
   a. Brabender Plastic-Corder Extruder
   b. Land Castle continuous filament processing line