

# TS: Textile Science (See also TT)

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## **TS 015 — Textiles for Production Management Laboratory**

1.5 credits; 3 lab hours

For Production Management: Fashion and Related Industries students. Provides laboratory study in conjunction with the textile principles learned in TS 115. Physical, chemical, and optical procedures are used to evaluate the properties of a wide range of fabrics.

Co-requisite(s): TS 115.

## **TS 111 — Fundamentals of Textiles**

3 credits; 2 lecture and 2 lab hours

General study of textile materials with an emphasis on the factors that produce successful fabrics in the marketplace, including fibers, yarns, construction, color, and finish. Characteristics of a wide range of market fabrics are examined.

## **TS 115 — Textiles for Production Management**

3 credits; 3 lecture hours

For Production Management: Fashion and Related Industries students. Study of textile materials with emphasis on factors of concern to the manufacturer of apparel, including fiber types, construction, and finishes.

Co-requisite(s): TS 015.

## **TS 116 — Knit Design Principles and Technology**

2 credits; 1 lecture and 2 lab hours

In this introductory course, students learn to identify, analyze, design, and document weft-knitted fabrics. The class covers the relationships between knit fabric structures and the technology used to create them. Students create original designs on industrial machinery and on computer patterning workstations.

## **TS 122 — Textile Principles for Interior Design**

1.5 credits; 1 lecture and 1 lab hour

For Interior Design students. Study of textile materials with emphasis on fabrics used by interior designers. Fiber content, yarn type, construction, coloration, and finish are examined.

## **TS 131 — Textile Principles for the Fashion Designer**

3 credits; 2 lecture and 2 lab hours

For Fashion Design students. Study of textile materials with an emphasis on the factors that produce a successful apparel fabric. Fabric characteristics such as appearance, drapability, hand, and performance are studied. Fabrics used in Fashion Design are also studied.

## **TS 132 — Introduction to Textiles for Fashion Designers**

3 credits; 3 lecture hours

For Fashion Design students. An introduction to the concepts of sourcing textile materials and related products, both from the domestic and international perspectives. Emphasis is placed on identifying and evaluating the characteristics of textile materials, such as sewing yarns, fabrics, and interlinings designed for women's apparel. Comprehension of textile trade terminology is also stressed.

## **TS 171 — Hi-Tech Textiles for Apparel and Accessories**

3 credits; 2 lecture and 2 lab hours

This course takes an analytical approach to advanced textile design applications, focusing on specialized outerwear and high-performance apparel and accessories.

Prerequisite(s): TS 111 or TS 132 or equivalent, or approval of chairperson.

### **TS 215 — The History of Textile Trade and Technology**

2 credits; 2 lecture hours

This course surveys historical events and developments that have shaped today's textile industry. Aspects of the textile trade from the Bronze Age through the early 21st century are introduced and the evolution of industrial textile technologies addressed.

### **TS 236 — Strip Knitting Design Technology**

2 credits; 1 lecture and 2 lab hours

For Fashion Design students. Students learn the scope and limitations of the various types of industrial equipment required in the production of strip knit garments. Includes studies in fabric analysis and methods to graphically represent garments and fabric creations for translation by technicians into machine language.

Prerequisite(s): TS 132

Co-requisite(s): TS 237.

### **TS 237 — Designing Fabric Structures for Strip Knit Garments**

2 credits; 1 lecture and 2 lab hours

For Fashion Design students. Students learn the fundamentals of strip knitting structures and design. Emphasis is on developing the ability to express creativity through the medium of knitting machinery. Students develop and produce their own fabrics on industrial sampling strip knit machinery.

Prerequisite(s): TS 132

Co-requisite(s): TS 236.

### **TS 261 — Introduction to Weft Knitting Principles**

3 credits; 1 lecture and 4 lab hours

For Fashion Design (knitwear track) BFA students. An introduction to the technical principles of weft knit structures, covering the relationships between stitch formation, fabric construction, yarn selection, and knitting machinery. Emphasis is placed on the creative and practical application of weft-knitted structures.

Prerequisite(s): TS 132

Co-requisite(s): FF 352.

### **TS 301 — Advanced Textiles for Technical Design**

2.5 credits; 2 lecture and 1 lab hours

Through readings and lab work, students learn to recognize and differentiate textiles according to structure and style. Course emphasizes commercial methods and applications that enhance textile appearance and performance. Students study issues and requirements related to textile structural design, coloration, function, and expectations.

Prerequisite(s): TS 111 or TS 132 or similar course in Textile Fundamentals.

### **TS 331 — Introduction to Knitting Principles**

3 credits; 2 lecture and 2 lab hours

Students learn to identify, analyze, and design various weft-knitted fabrics. Provides an understanding of the relationship between fabric structure, yarn type, stitch formation, and machine type. Students design and produce original fabric on hand or power machines.

Prerequisite(s): TS 132.

### **TS 332 — Technical Design for Sweater Knits**

3 credits; 2 lecture and 2 lab hours

Students learn the technical principles of weft knitting and sweater knit construction. Emphasis is placed on knitted fabric structures, sweater construction and production procedures, and spec'ing and fitting of garments.

Prerequisite(s): TS 111 or TS 015/TS 115 or TS 122 or TS 132 or approval of chairperson.

### **TS 341 — Survey of Textile Printing Technology**

2.5 credits; 2 lecture and 1 lab hours

Survey of the rudiments of commercial textile printing to establish a basic common communications link between designer/stylist and production. Students use their own original design concepts for case study lessons in feasibility.

Prerequisite(s): TS 111.

### **TS 361 — Knit Fabrics and Machines**

4 credits; 2 lecture and 4 lab hours

For Production Management: Fashion and Related Industries students. The principles of weft and warp knit fabric structure and production are discussed. Topics include the relationship between fabric structure and machine capability, fabric analysis and development, costing, quality control, and production control. Students work on hand knitting machines to reinforce principles covered in lectures.

Prerequisite(s): TS 111 or approval of chairperson.

### **TS 366 — Experimentations with Weft Knitting Structures and Machinery**

2 credits; 4 lab hours

For Fashion Design (knitwear specialization) BFA students. This course summarizes the complex relationship between weft-knit structures and the machinery that produces them. Emphasis is placed on functional and aesthetic concerns in full-fashioned garment construction. Students are encouraged to experiment with creative combinations of advanced techniques, expanding their range of expertise.

Prerequisite(s): TS 431.

### **TS 367 — Knit Fabrics and Machinery**

3 credits; 2 lecture and 2 lab hours

For Production Management: Fashion and Related Industries students. Students analyze, identify, and document a range of knit fabric structures using industry-standard techniques and communication practices. Emphasis is placed on the relationships between fabric structures, machine capabilities, costing, sourcing, and quality control. Students knit basic weft structures on industrial hand machines and program fabrics on computer patterning workstations.

Prerequisite(s): TS 111 or TS 015/TS 115 or TS 122 or TS 132 or approval of chairperson.

### **TS 368 — Weft Knitting Principles**

2.5 credits; 1 lecture and 3 lab hours

This course presents students with the basic principles of weft knit structures; the relationships between stitch formation, fabric construction, yarn selection, and knitting machinery. Students learn techniques for knit fabric identification and analysis. Emphasis is placed on the application of these principles for the creative development of weft knitted fabrics.

Prerequisite(s): TS 111 or TS 132 or TS 131 or TS 015/TS 115 or TS 122 or approval of chair.

### **TS 431 — Advanced Concepts in Weft Knitting**

2.5 credits; 1 lecture and 3 lab hours

Students are presented with advanced concepts in weft knit structures and introduced to the principles of designing for computerized industrial power machinery. Students design and knit complex fabrics on industrial machinery for garments designed in FD 451. Students maintain a swatch book of all fabrics analyzed and designed in this course.

Prerequisite(s): TS 261.

### **TS 461 — Weft Knit Fabrication and Finishing Techniques**

2.5 credits; 1 lecture and 3 lab hours

This course presents Fashion Design BFA students (Knitwear track) with introductory concepts in weft knit fabrication and finishing techniques. In coordination with a supporting FD 356 course, students develop and knit fabrics utilizing a wide range of stitch constructions. They master a variety of methods for seaming and finishing garments.

Prerequisite(s): TS 111 or TS 132 or TS 131 or TS 015/TS 115 or TS 122 or approval of chair.

### **TS 491 — Senior Thesis Planning and Execution**

1.5 credits; 3 lab hours

Students continue to experiment with increasingly complex weft knit fabrics, and learn advanced techniques for creating specialized shapes and trims. Their skills are showcased in the garments designed, knit and finished in tandem with FD 489.

Prerequisite(s): TS 461

Corequisite(s): FD 489.