School of Engineering and Textiles

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From engineering to fashion and textile design to fashion industry management, Philadelphia University's School of Engineering and Textiles has been a national and international leader in educating professionals for a wide range of industries since our founding in 1884. Originally focused on the textile and apparel industry, the scope now includes a wide range of engineering disciplines. Our cutting-edge B.S. in Engineering program has specialty study opportunities in architectural, mechanical, industrial and textile engineering. Industrial and Systems Engineering provides the specific knowledge associated with modern industrial and systems engineering practice through exposure to principles, tools and methods utilized in manufacturing systems, operations research, engineering statistics, information systems, human factors and methods analysis. Mechanical Engineering is one of the largest, broadest and oldest engineering disciplines. Mechanical engineers use the principles of energy, materials and mechanics to design and manufacture machines and devices of all types. They create the processes and systems that drive technology and industry. Architectural Engineering applies principles to the construction, planning, and design of buildings and other structures. They often work with other engineers and with architects, who focus on function layout or aesthetics of building projects

Students who choose either Fashion Design or Textile Design study with world-class faculty in state-of-the-art studios and laboratories. Fashion Industry Management students prepare themselves to be leaders in the global apparel industry. The recently modified B.S. in Textile Engineering Technology provides an extensive education in all of the technology and management aspects of the global textile industry.

The School of Engineering and Textiles Bachelor of Science degree programs are:

- Architectural Engineering
- Industrial and Systems Engineering
- Mechanical Engineering
- Textile Engineering Technology
- Engineering**
- Fashion Design
- Fashion Industry Management
- Textile Design
- Joint B.S. Fashion Industry Management/M.S. Fashion Apparel Studies
  Joint B.S./M.S. Textile Design
- Joint B.S. Textile Engineering Technology/M.B.A.

*** With minor concentrations in either architectural, industrial, mechanical or textile engineering.*

Retention of Student Work
Projects completed by students in studio, laboratory or engineering courses may be selected to become part of the University's collection for purposes of exhibition review or accreditation. Student work not selected for that purpose will ordinarily be stored for only 30 days into the following semester.

Engineering

The mission of the B.S. in Engineering program is to develop in students the necessary knowledge and analytical skills for professional engineering practice or successful graduate studies. Our offerings include traditional discipline specific fields of study including architectural engineering, industrial and systems engineering and mechanical engineering. In addition a more general field of engineering study is offered. General engineering allows in depth minor field: mechanical engineering, architectural engineering, industrial and systems engineering or textile engineering. Students choose a minor engineering track in their sophomore year. This engineering major provides for flexibility to address the unknown technical challenges that will confront society.

Engineers apply the principles of mathematics and the laws of natural science to analyze, design, develop and devise improvements that benefit humanity. The engineering program consists of a course of study in mathematics, science, liberal arts, business and engineering during the four years of undergraduate study. Students will have the flexibility to choose their specific engineering program after their first year of study. The B.S. in Engineering program at Philadelphia University incorporates all of the contemporary thinking related to engineering education that has been studied in the National Academy of Engineering publication "The Engineer of 2020 – Visions of Engineering in the New Century."

All engineering programs at Philadelphia University have a common first two semesters enabling the student to make a choice of concentration in their sophomore year.

The Engineering check sheet can be found on page 105.

Architectural Engineering

Architectural engineers apply engineering principles to the construction, planning and design of buildings and other structures. They often work with other engineers and with architects who focus on functional layout or aesthetics of building projects. Architectural Engineering (AE) often encompasses elements of other engineering disciplines, including materials, mechanical, electrical, fire protection and others. Architectural engineers are responsible for the different systems within a building, structure or complex.

Architectural engineering students from Philadelphia University will be able to apply the principles of mathematics and the laws of natural science to analyze, design, develop and devise improvements that benefit humanity. The curriculum is designed to achieve a balance between science, engineering and the liberal arts to provide an understanding of the economic and social implications of engineering activity and to develop creative talents. Our program emphasizes the key components of structures and construction/construction management aspects of the field with an emphasis on the role of sustainable design throughout the program.

The Architectural Engineering check sheet can be found on page 107.

Industrial and Systems Engineering

Industrial and systems engineering (ISE) is about choices. Other engineering disciplines apply skills to very specific areas. ISE provides the opportunity to work in a variety of businesses. The most distinctive aspect of industrial and systems engineering is the flexibility that it offers.

As companies adopt management philosophies of continuous productivity and quality improvement to survive in the increasingly competitive world market, the need for industrial and systems engineers is growing. Industrial and systems engineers are the only engineering professionals trained as productivity and quality improvement specialists.

Industrial and systems engineers discover how to do things better. They engineer processes and systems that improve quality and productivity. They work to eliminate waste of time, money, materials, energy and other commodities.

Industrial and systems engineer" is synonymous with systems integrator—a big-picture thinker. It is a professional who takes what exists today and conceptualizes what should exist in the future. ISEs spend most of their time in the real operating environment, devising scientific approaches to real world problems and implementing solutions. .

"Industrial" does not refer to just manufacturing. Industrial engineers have the technical training to make improvements in a manufacturing setting. It is becoming increasingly recognized that these same techniques can be used to evaluate and improve productivity and quality in service, transportation and health care industries.

The Industrial and Systems Engineering check sheet can be found on page 109.

Mechanical Engineering (ME)

Mechanical engineering plays a dominant role in enhancing safety, economic vitality, enjoyment and overall quality of life throughout the world. Mechanical engineers are concerned with the principles of force, energy and motion. The men and women who work as mechanical engineers are professionals with expert knowledge of the design and manufacture of mechanical systems and thermal devices and processes. Some examples of products and processes developed by mechanical engineers include engines and control systems for automobiles and aircraft, electric power generation plants, life-saving medical devices and consumer products ranging from air conditioners to personal computers and athletic equipment. They also design the machines that mass-produce these products. Virtually every aspect of life is touched by mechanical engineering. If something moves or uses energy, a mechanical engineer was probably involved in its design.

The Mechanical Engineering (ME) check sheet can be found on page 111.

Fashion Design

The world of fashion is fast-paced, energetic, creative and exciting. Innovative designers who know the potential of the materials they use in the contemporary marketplace have a dynamic impact on the retail industry.

The Bachelor of Science in Fashion Design includes art and design foundation courses, specialized fashion courses and studies in merchandising management, giving students a strong foundation in both design and business.

Future designers begin at the University with traditional studies of line and form. Our proven curriculum in apparel management and production includes hands-on experience with the latest computerized design and production equipment. In addition, our unique understanding of textile materials makes this program one of the best in the country.

Fashion Design students have an opportunity to add an international dimension to their education by participating in the Study Abroad Program during their third year of study. Students studying overseas gain a cross-cultural experience while broadening their design skills, enabling them to strengthen their competitive edge in the global marketplace. Students can also choose to participate in the Internship Program designed to enrich their education while gaining work experience.

Fashion Design graduates may begin as fashion design assistants, working under the supervision of a designer; or work as a fashion adapter, altering trend-setting designs to fit the need of the average customer. Some designers start their own firms, working with production houses and retailers to produce and distribute under their own label.

The Fashion Design check sheet can be found on page 113.

Fashion Industry Management

The billion-dollar fashion and apparel industry needs bright, talented executives to guide the rapid pace of today's technological revolution. Skilled managers are required to deal with an increasingly complex variety of products and manufacturing techniques and tasks, such as planning product lines months before they will appear in the stores. Once developed, new products must be sourced globally and then delivered to the consumer within a very short period of time.

The Bachelor of Science in Fashion Industry Management is uniquely designed to educate this type of executive. The curriculum combines the fundamentals of business, including accounting, economics, marketing, finance and management, with textile and apparel courses. Students learn the process of apparel design and manufacture from fiber to final apparel product, and become familiar with the application of computers in information retrieval, integrated apparel manufacture and design. Graduates earn the respect of employers who are familiar with the University's expertise in fashion industry management. The program is one of a select few endorsed by the American Apparel and Footwear Association. Students have the opportunity to earn a B.S. and M.S. degree in five years.

The Fashion Industry Management check sheet can be found on page 115.

Textile Design

With expanding international markets, the billion-dollar textile industry cuts across a multiplicity of products and commerce--fashion, home furnishings, medical, performance, retail, technical. This provides a world of opportunity for talented textile designers. Our program puts you on the fast track to an exciting career in this field. Textile majors range from those that are design and trend oriented, to those focused on textile science, engineering, and product development; enabling specialization in the area most suited to individual interests and strengths.

- Each year, our students win awards in prestigious, international design competitions sponsored by textile associations and industry corporations.
- Textile designers begin their education in the studio to develop a sense of color, light, shape, texture and form. Next, they explore properties of fibers, yarns and dyes, and study the ways that fabrics are constructed. Advanced courses allow students to concentrate in a breadth of fabrication technology, including woven, knit, and printed textiles.

The University invites designers, artists, industry leaders, and experts onto campus. These weekly presentations create an opportunity for students to interact with and explore the range of career possibilities in the textile design field. Additionally, frequent field trips provide exposure to design studios, textile manufacturing facilities and product development firms.

The Textile Design check sheet can be found on page 117.

Textile Engineering Technology

The Bachelor of Science in Textile Engineering Technology prepares students to work in a global industry that includes fiber-engineered products for medical, geotextiles, architectural, fiber-reinforced composites and traditional apparel and home-furnishing applications. Problem solving using the understanding of textile product and process and an understanding of the global textile/apparel business (including sourcing) are the foundation of this program. Career paths for graduates will be enhanced by selecting a concentration option from the following:

- Product Development – national /international
- Quality Assurance and Assessment
- Textile Manufacturing Management
- (Pre) Masters in Business Administration

Another dimension of the program will be to educate and graduate fully integrated individuals who possess the technical and social competence and confidence to succeed in professional practice and advanced education, be lifelong learners and exercise responsible citizenship.

The Textile Engineering Technology check sheet can be found on page 119.

Joint B.S. Textile Engineering Technology/M.B.A.

This joint B.S./M.B.A. five-year program has been developed to prepare graduates for senior managerial positions in the textile and related industries.

The Textile Engineering Technology baccalaureate program includes a core of textile courses along with business-related courses. The M.B.A. program continues the advanced study of business and management core courses and electives, which can be taken at the graduate level in business or textiles.

Official application to the program may be made only after completion of the sophomore year and no later than the start of the senior year. Application should be made through the Office of Graduate Admissions. Transfer students may also apply. Currently enrolled students will be considered for admission if they have maintained a 3.0 G.P.A. The GMAT is required for full acceptance to the program and must be taken before the end of the senior year.

Full scheduling details for the first to fourth years are found in the B.S. Textile Engineering Technology section.

The Joint B.S. Textile Engineering Technology/M.B.A. check sheet can be found on page 121.

Joint B.S./M.S. Textile Design

The School of Engineering and Textiles offers a five-year Bachelor of Science/Master of Science (B.S./M.S.) program to qualifying students majoring in textile design. Students follow the B.S. Textile Design program for the first three years. Graduate courses taken in the fourth year of undergraduate study are applied toward both the B.S. and M.S. degrees. The fifth year includes a summer session in addition to the fall and spring semesters.

The five-year program offers an opportunity for students wishing to further their design education through a year of graduate-level work. They are given the opportunity to work on design development on a more concentrated basis, and therefore extend their design skills and portfolio work (within their chosen undergraduate specialization) to a level not attainable through the undergraduate program.

Application should be made through the Graduate Admissions Office during the junior year. Currently enrolled students will be considered for admission if they have maintained a 3.0 GPA. The GRE is required for full acceptance to the program and must be taken before the end of the senior year.

The Joint B.S./M.S. Textile Design check sheet can be found on page 123.