What is the Study of Plastics & Composites Engineering?

Students enrolled in Western’s Plastics & Composites Engineering (PCE) program study the relationship between molecular structure, processing, and properties of polymers and composites. The PCE curriculum prepares graduates who understand and apply established scientific and engineering knowledge to support engineering activities in manufacturing environments. The technical curriculum is built upon a firm base of mathematics, physics, chemistry, and materials science. Practical experience in design, materials, processing, economics, testing, and analysis is a crucial part of the hands-on curriculum that is provided in the program’s extensive and well-equipped laboratory facilities.

What kind of job would a Plastics & Composites Engineer have?

A plastics and composites engineer can be involved in the development, design analysis, planning, supervision, or construction of the materials, methods, and equipment for the production of industrial or consumer goods in the plastics or composites industry. The PCE graduate will help to solve the complex problems associated with plastics or composites manufacturing operations. PCE graduates work in teams with engineers, scientists, and technicians to solve manufacturing-related problems.

Students can expect to complete the program in four years by carrying 15-16 credits per quarter in a prescribed sequence of courses (provided that students are ready to start with calculus upon arrival at Western).

Plastics & Composites Industry Sectors:

Manufacturing
- Companies that design, produce, and test end products, including industries like aerospace, truck, recreational, marine, machinery, computers, durable goods, etc.

Primary Materials
- Design, manufacture, and test polymers and reinforcements that supply materials to other companies

Tooling
- Companies that design and produce molds and fixtures needed for manufacturing

Service
- Companies that provide support for others, such as consulting firms, R & D firms, utilities, construction

Alumni Employment

Positions:
- Manufacturing Operations Analyst
- Composite Design Engineer
- Stress Engineer
- Material Scientist

Companies:
- Angeles Composites, Port Angeles, WA
- Boeing, Seattle, WA
- Cashmere Molding, Woodinville, WA
- Elite Plastics, Beaverton, OR
- Encore Composites, Brea, CA
- Hexcel, Burlington, WA
- Janicki, Sedro-Woolley, WA
- Mold-Rite, Woodinville, WA
- PACCAR Corp, Bellevue, WA
- Quatro Composites, Orange City, IA
- R & D Plastics, Hillsboro, OR
- SpaceX, Hawthorne, CA
- Vaupell Industrial Plastics, Seattle, WA
- Zodiac Aerospace, Various

Program/Degree Quick Facts:

- Bachelor of Science in Plastics & Composites Engineering
- 24 students per year
- 148 major credits to graduate
- Pursuing accreditation through the Accreditation Board for Engineering and Technology (ABET)
- Median salary: $85,150
- Average starting salary: $53,540

To learn more, visit our website: www.edu/engd/pce-advising

Resources: 1: www.careercornerstone.org/matscieng/matsciengind.htm 2: bls.gov/oh/architects-and-engineers/materials-engineers.htm; 3: based on data collected from survey of past five years of graduates from WWU’s Plastics Engineering Technology program
Plastics & Composites Engineering (PCE) Program Information

Degree Timeline:
The PCE program has a strong prerequisite course sequence. Students unable to successfully complete foundational math and science courses in their first four terms may find they are unable to complete the PCE degree in four years. Additionally, many junior- and senior-level PCE courses are only offered once or twice per year, so if a student gets off-sequence with the prescribed course of study, their time to degree completion may exceed four years.

Transfer Students:
Many of the courses in the first five terms of coursework for the PCE program are standard offerings at community colleges, although the introductory engineering sequence (ENGR 104, ENGR 170, ENGR 214) is not offered at all schools. While a student may choose to complete some or all of their General University Requirements (GURs) at another institution in order to reduce their course-load throughout the program, they should bear in mind that completing their PCE degree will likely take three years at WWU. If a student needs to take additional courses to be prepared to start the math and science sequences (e.g. MATH 124--Calculus I; PHYS 161--Physics w/ Calculus I), taking those preparatory courses at a community college may be appropriate; otherwise time to graduation may be extended.

Application Process:
Students must initially declare as a Pre-Major in Plastics & Composites Engineering. They may do this at any point before the Major Application time; however, they will be unable to enroll in any Engineering and Design Department (ENGR, PCE, MFGE) courses until they have declared as a Pre-Major. The general application period for the PCE program is in the middle of Winter Quarter. Students must have completed eight prerequisite courses (up to two may be in progress at the time of application):

CHEM 121, CHEM 122, MATH 124, MATH 125, PHYS 161, ENGR 104, ENGR 170, and ENGR 214

Although the minimum grade for all courses in the major is a C-, acceptance to the major is based primarily on academic performance in the prerequisite courses, so maintaining a high GPA in these courses is advantageous. Twenty-four students are typically accepted into the program each year, and the application process is competitive. For more information on the program admissions process, visit the Advising/Admissions link on the PCE webpage: www.edu/engd/pce-advising.