

Engineering

Western Illinois University–Quad Cities, College of Business & Technology



Program of Study

The Engineering degree program prepares graduates to thrive in the technology-driven global workplace. The program focuses on the practice of engineering with a broad curriculum that emphasizes the basic engineering fundamentals companies in this region require. The program allows students to select electives from a number of areas to increase depth and expertise, including Mechanical, Civil, Quality/Manufacturing, Engineering Management, Electrical/Robotics Engineering, and Materials Engineering. Practical Engineering is the major thrust of the program, with multidisciplinary design and teamwork incorporated throughout the curriculum. Students are encouraged to innovate and try new concepts as they develop their problem-solving skills.

Western Illinois University–Quad Cities provides junior and senior Engineering courses at the Quad Cities campus, and the program articulates with Pre-Engineering transfer programs at community colleges in Illinois, Iowa, and Missouri. WIU-QC offers a dual enrollment program through which students simultaneously enroll at a partner community college and the Engineering program. Students in the dual enrollment program who maintain full-time status can take advantage of the Western tuition cost guarantee.

State-of-the-Art Engineering Program

Western is the only public institution in the Quad Cities to offer Engineering. The School is housed in the new, ultramodern Riverfront Campus. Like the campus, equipment, tooling, and computer resources are the latest and best available.

Industry Partnership

The program is unique because of our strategic partnerships with industry in the region. There are ample opportunities for practical, hands-on, educational engineering experiences through our links to businesses, manufacturers, industry, and the Midwest Intellectual Property Institute (IPI). Students can start paid internships as early as their sophomore year if enrolled in our Linkages Program (dual enrollment) and have the opportunity to “earn while they learn” and, at the same time, gain invaluable practical experience. Our senior capstone design projects typically are completed with industry, often at their facility, and many times result in an offer of employment before graduation.

Applied Research and Entrepreneurial Technology Development

The WIU-QC Engineering program is proud of its partnership with both the Midwest IPI and the Quad Cities Manufacturing Laboratory (QCML) located at the Rock Island Arsenal. These partnerships allow the Engineering program to offer students’ hands-on experiences working with government entities and international corporations on leading-edge projects and technology development.

Scholarships and Honors in Engineering

Scholarship information can be found at wiu.edu/qc/scholarships or by calling (309) 762-9481.

Curriculum and Admission Requirements

Students seeking admission to the Engineering program must satisfy general University admissions requirements. Contact the School of Engineering for more details. Students seeking transfer credit for required Engineering core courses must have earned a grade of “C” or better in any Math, Science, or Engineering course listed below.

Bachelor of Science – Engineering: 121 SH

University General Education* 33 SH
 Communication Skills (9 SH) Humanities (9 SH) Human Well-Being (3 SH)
 Social Sciences (9 SH) Multicultural Studies (3 SH)

*The math and natural science requirement is satisfied by the following Math & Science requirements:

Math..... 15 SH
 Calculus & Analytic Geometry I, II, III (12 SH) Ordinary Differential Equations (3 SH)

Physics & Chemistry..... 15 SH
 University Physics I (4 SH) (Mechanics) Inorganic Chemistry I (4 SH)
 University Physics III (4 SH) (Electro-Magnetism) Take a 2nd Chemistry or 3rd Physics course to complete 15 SH.

Core Courses..... 49 SH
 ENGR 105 – Engineering Graphics (3 SH) ENGR 331 – Engineering Project Management (3 SH)
 ENGR 220 – Computational Methods for Engineers (3 SH) ENGR 340 – Manufacturing Engineering (3 SH)
 PHYS 312 – Engineering Mechanics (Statics and Dynamics) (4 SH) or equivalent(s) ENGR 351 – Engineering Material Science (3 SH)
 ENGR 251 – Strength of Materials (3 SH) ENGR 360 – Structural Design (3 SH)
 ENGR 271 – Engineering Electrical Circuits (3 SH) ENGR 370 – Micro-Electronics I, Circuit Analysis and Design (3 SH)
 ENGR 300 – Engineering Thermodynamics (3 SH) ENGR 470 – Mechatronics I (3 SH)
 ENGR 310 – Fluid Dynamics (3 SH) ENGR 490 – Engineering Senior Design (4 SH)
 ENGR 320 – Mechanical Design (3 SH) ENGR 491 – Engineering Internship (2 SH)

Electives 9 SH

* **Note:** Course available FY2014

** **Note:** Any electives can be taken as long as the prerequisites are satisfied. Electives below are shown in logical groupings for those wishing to take coherent sequences of courses leading to greater depth and specialization. The availability of course offerings will be determined on class interest.

Track A – Mechanical

ENGR 410 – Intermediate Thermo-Fluid Dynamics (3 SH) ENGR 481 – Finite Element Analysis (3 SH)
 ENGR 411 – Heat Transfer (3 SH) ENGR 482 – Parametric Modeling (3 SH)

Track B – Civil Engineering

ENGR 453 – Geotechnical Design (3 SH) ENGR 461 – Concrete Design (3 SH)
 ENGR 460 – Steel Design (3 SH)

Track C – Quality/Manufacturing

ENGR 345 – Quality Engineering (3 SH) MET 400-level courses
 OM455 – Total Quality Management (3 SH)

Track D – Engineering Management

ENGR 330 – Engineering Economics (3 SH) OM 352 – Operations Management (3 SH)
 ENGR 345 – Quality Engineering (3 SH) Other Operations Management (OM) or Management (MGT) 400-level courses

Track E – Electrical/Computer Engineering

CS 350 – Data Structures I (3 SH) (**Note:** other 300- to 400-level CSIS courses with approval) ENGR 472 – Mechatronics II (3 SH)
 ENGR 471 – Microelectronic Circuits II (3 SH) ENGR 473 – Industrial Controls (3 SH)

Track F – Materials Engineering*

ENGR 450 – Metallurgy (3 SH)* ENGR 421 – Advanced Composites Design (3 SH)*
 ENGR 451 – Introduction to Composites Materials (3 SH)*

wiu.edu/qc/engineering

School of Engineering

Dr. William Pratt, Director
 School of Engineering, Western Illinois University–Quad Cities
 3300 River Drive • Moline, IL 61265
 (309) 762-9481
 WF-Pratt@wiu.edu



WESTERN ILLINOIS UNIVERSITY
 Quad Cities