

CIVIL ENGINEERING



Civil Engineering at Drexel

Civil engineers are active in the planning, design, construction, research and development, operation, maintenance, and rehabilitation of large engineering systems. A particular focus is the reconstruction of the nation's infrastructure through solutions that minimize the disruption of social and natural environments.

Drexel's Bachelor of Science in Civil Engineering is a broad, flexible program covering the entire range of civil practice — from environmental to structural design and project management to engineering geology.

Drexel Co-op for Civil Engineering

A key part of the major is Drexel's prestigious co-operative education program, in which students alternate periods of classroom study with periods of professional work experience. Civil Engineering students can choose from the following:

- Three Co-op option (Five Years): includes three six-month periods of full-time employment
- One Co-op option (Four Years): includes one six-month period of full-time employment

A Few Drexel Co-op Position Titles

- Resident Engineer
- Structural Intern
- Geotechnical Engineer
- Site Engineer

Employers

Here are some of the companies that have hired Drexel students as co-op or full-time employees:

- Pennoni Associates, Inc.
- Philadelphia Streets Department
- U.S. Army Corps of Engineers
- Urban Engineers

Potential Careers

Civil Engineer. Designs and supervises the construction of large-scale projects, including buildings, roads, bridges, tunnels, airports, dams, and water supply systems. Considers many factors, from a project's construction costs and expected lifetime to government regulations and environmental hazards such as earthquakes.

Urban and Regional Planner. Develops long- and short-term plans to use land for the growth and revitalization of urban, suburban, and rural communities while helping local officials make decisions about social, economic, and environmental problems. Addresses issues such as traffic congestion, air pollution, and the effects of growth and change on a community.

Courses You'll Really Enjoy

Fundamentals of Fluid Flow. Covers fundamentals of fluid flow, Bernoulli's Equation, pipe flow, hydraulic machinery, fundamentals of open channel flow, hydrostatic forces, conservation of mass, and buoyancy/stability of floating bodies. Includes model studies and wet lab experiments.

Introduction to Environmental Engineering. Overview of environmental engineering practice: water resources, water and waste control, solid waste, air pollution, risk management, and environmental health. Population and resource demand forecasting, chemistry, and microbiology necessary to solve basic problems are included.

Theory of Structures. Covers analysis of statically determinate structures: equilibrium, compatibility, boundary conditions, complementary and virtual work, energy theorems, reactions, member forces and deflection of trusses, beams and frames, and influence lines.

Structural Material Behavior. Studies deformation, fracture, and fatigue of structural materials used in infrastructure. Includes basic failure modes, yielding and plasticity, and fracture mechanics. Emphasis on analytical and predictive methods that designers use to avoid failure. Metals, ceramic, and composites are considered, as is time-dependent behavior.

Hydraulics. Covers kinematics of fluids, conservation of momentum, similitude and dimensional analysis, fluid machinery, pipe networks, hydraulic structures, and lift and drag. Uses several commercial grade software programs, including CAD interfaces for pipe networks.

Learn More: University Catalog

A list of required courses for the Civil Engineering major is available online at www.drexel.edu/catalog.

Accelerated Degree Options

Accelerated degree programs, such as the BS/MD, BS/PhD in Engineering, BS/JD, and BS/MBA, enable academically qualified students to earn both a bachelor's and an advanced degree, graduating sooner than they would in traditional programs. Eligible students can be admitted to an accelerated degree program in one of two ways: apply as an incoming freshman through Undergraduate Admissions or apply to the Graduate Studies Office after completing a minimum of 90 credits. To learn more about accelerated degree options, visit www.drexel.edu/em/ug/accelerated.

For More Information

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