



# GENEVA COLLEGE

## *Department of Engineering*

### MISSION

The mission of the engineering department is to glorify God by educating and ministering to a diverse community of students for the purpose of developing engineering professionals who will see their careers as a calling from God. We desire our students to glorify Him and love their neighbors in their calling, providing excellent engineering services in an environment of technological change.

### DISTINCTIVES

- Four-year degree program accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET)
- Small class sizes
- Bachelors of science in engineering (BSE) with concentrations in chemical, civil, computer, electrical, environmental, mechanical and interdisciplinary engineering
- 100 percent job placement in last 10 years for graduates
- Christian worldview emphasis
- Liberal arts core classes to broaden the educational experience

### PROJECTS

#### SOLAR SPLASH

The solar/electric boating world championships is an international intercollegiate competition. This provides practical educational experience as students design, build and race boats. The competition includes a sprint and maneuverability qualifier and a "solar slalom." Geneva students have experienced much success at this competition.

#### BAJA SAE COMPETITION

Students design and build an all-terrain sporting vehicle and participate in a national competition. Demanding events test the vehicle's acceleration, hill-climbing ability, maneuverability and endurance. Geneva teams competed for the first time in 2010 and again in 2011 and have performed well.

#### STEEL BRIDGE BUILDING

Sponsored by the American Society of Civil Engineers (ASCE) and the American Institute of Steel Construction (AISC), this event is traditionally for civil engineering students. This competition provides practical experience in structural design, fabrication processes, construction planning, organization and teamwork. Competitors are judged upon safe construction methods, stiffness (low deflection under loading), construction speed, aesthetics, efficiency and economy.

### SENIOR PROJECTS

Geneva engineers often work with industrial and governmental clients through Geneva's Center for Technology Development. Students participate in the research, development and design of projects including enhancing the reliability of an artificial heart pump, design of a virtual reality system and seismic retrofit of an existing bridge.

### CONCENTRATIONS

**CHEMICAL ENGINEERS** utilize their specialized chemistry knowledge to discover and manufacture better plastics, paints, fuels, fibers, medicines, fertilizers, semiconductors, paper and other kinds of chemicals by carrying out chemical reactions and purifications. Inventing cleaner technology and recycling also contribute to the role of chemical engineer. Chemical engineers find careers in environmental, materials, petroleum and biochemical engineering. Geneva's chemical engineering degree is administered by the chemistry department in cooperation with the engineering department.

**CIVIL ENGINEERING** is a broad engineering field that plans, designs, constructs and operates physical works and facilities used by the public. Studying civil engineering also involves city and regional planning, layout and construction of highways and pipelines. Civil engineers find careers in geotechnical, structural, public works, transportation and water resources engineering. Civil engineers also can gain employment as construction managers or in research.

**COMPUTER ENGINEERING** involves the design, construction, implementation and maintenance of computers and computer controlled equipment for the benefit of humankind. Computer engineers find careers in consumer electronics, computer systems, information technology, or as plant, power, controls and information systems engineers. Additional employment is available in sales and research.

**ELECTRICAL ENGINEERING** involves the application of the laws of physics governing electricity, magnetism and light to develop products and services for the benefit of humankind. Electrical engineers find careers in many of the same places as computer engineers. See the above section for details.

**ENVIRONMENTAL ENGINEERS** design a variety of pollution control technologies focused on water and wastewater treatment, air pollution control, municipal solid waste disposal, and hazardous waste disposal. They also design environmental monitoring systems to detect the impact of human activities on the environment and threats to human health, and they participate in the design of "green" products that are friendlier to the environment.

MECHANICAL ENGINEERS are concerned with the design, manufacturing and operation of components, devices and systems. Mechanical engineers work with a broad range of engineering fields as they work to achieve optimum performance for systems and mechanisms. Mechanical engineers work on the design, fabrication and testing of many commercial products including vehicles, office equipment, toys, farm equipment, appliances and many other products.

## OUTCOMES

- Geneva engineers have experienced 100 percent job placement in addition to strong internships for students.
- Geneva engineers have gone on to graduate school at schools such as Princeton, University of Pittsburgh, The Ohio State University, North Carolina State University and Virginia Polytechnic Institute.
- Employers of Geneva engineers include IBM, U.S. Navy, General Electric, Westinghouse and Pratt & Whitney Aircraft.

## OUR FACULTY

The Department of Engineering boasts of a well-credentialed and experienced faculty, which contributes to our ongoing ABET accreditation. With educational backgrounds in electrical, civil and mechanical engineering, the faculty continues to learn through continued educational seminars and active membership in engineering societies. Maintaining an active connection to the discipline of engineering is critical to keeping a program that is current for students.

In addition to the academic experience, our faculty remains in constant contact with industry through ongoing design projects. Students benefit from these practical experiences throughout their education and mostly during their senior design experience. Overall, Geneva's faculty brings a balance of industry and academic experience to the Department of Engineering.

WILLIAM BARLOW (2010), Associate Professor of Electrical and Computer Engineering; B.S.E.E., The Pennsylvania State University; M.S.E.E., University of Pittsburgh

DAVID CHE (2008), Associate Professor of Mechanical Engineering; B.S., Harbin Institute of Technology (China); M.S., The Ohio State University; Ph.D., University of Michigan

ANTHONY C. COMER (2011), Associate Professor of Chemical Engineering; B.S.Ch.E., Purdue University; M.S., Ph.D., University of Kentucky

JAMES S. GIDLEY (1990), Professor of Civil Engineering and Chair, Department of Engineering; B.S., University of Rhode Island; SM, Harvard University; Ph.D., Harvard University; P.E.

ROBERT E. LILJESTRAND (1983), Associate Professor of Civil Engineering; B.S.C.E., M.S.C.E., Purdue University, P.E.

MARIO A. OYANADER (2011), Associate Professor of Environmental Engineering; B.S.Ch.E., Universidad Católica Del Norte (Chile); M.S., Hawaii Pacific University; Ph.D., Florida State University

DAVID W. SHAW (1990), Professor of Mechanical Engineering; B.S.M.E., Geneva College; M.S., Ph.D., The Ohio State University

MURAT TANYEL (2003), Professor of Engineering; B.S., Bogazici University of Istanbul; M.S., Bucknell University; Ph.D., Drexel University



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