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<http://engineering.cua.edu/civil>

The CUA Experience

Founded more than a century ago as the national university of the Catholic Church in the United States, CUA is noted for its rich Christian tradition that emphasizes high ideals, a balanced life and intellectual development. Students are the highest priority at this research-oriented university located in the nation's capital. The university offers more than 100 campus organizations ranging from sports teams to pre-professional groups. Students from all religious backgrounds are welcome.

The CE Faculty at CUA

Poul V. Lade, Ph.D., Professor and Chairman
Specialty: Geotechnical Engineering

William Kelly, Ph.D., P.E., Professor
Specialty: Environmental Engineering, Sustainable Development

Gunnar Lucko, Ph.D., Assistant Professor
Specialty: Construction Engineering and Management

Hsien Ping (Frank) Pao, Ph.D., Professor
Specialty: Fluid Mechanics, Environmental Engineering

Lu Sun, Ph.D., Assistant Professor
Specialty: Transportation Engineering, System Engineering, Applied Mechanics and Mathematics

Panos Tsopelas, Ph.D., Associate Professor
Specialty: Structural Engineering, Earthquake Engineering

The CUA Advantage

CUA is located in Washington, D.C., one of the largest and most dynamic technology centers in the United States. The department's strong research focus and our proximity to this high technology corridor and its large number of government agencies provides incomparable advantages such as:

- Dedicated, full-time energetic faculty members who are on the cutting edge of research, complemented by adjunct faculty who are leaders in professional practice.
- Close research collaboration with Washington, D.C., area industries and government facilities.

CUA is one of only four Catholic institutions in the nation granting doctoral degrees in engineering.



Prof. Poul Lade, Ph.D., Chair

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Civil Engineering

Do it all.

Experience excellence. Discover success.

Civil Engineering

Graduate Program



School of Engineering

THE CATHOLIC UNIVERSITY OF AMERICA



Graduate Programs in Civil Engineering

The Department of Civil Engineering offers graduate programs leading to the Master of Civil Engineering, the Master of Science in Engineering, the Doctor of Philosophy and the Doctor of Engineering in the following areas.



Construction Engineering and Management

Catholic University's construction engineering and management program was developed over the past two decades with the help and collaboration of representatives from the construction industry and the academic community. It is designed to provide the middle and upper echelons of construction managers with the academic tools necessary to holistically manage the various dimensions of their projects, adapt to changing responsibilities, take full advantage of new technology, and understand the management aspects, techniques and perspectives of the consultant, contractor, owner, designer and project administrator.

Structural Engineering

Modern structural engineering relies on applied mechanics and the computer, an emphasis reflected in the graduate program offered at The Catholic University of America. The present areas of research emphasis in the department are in structural dynamics and computer-aided engineering. Work in structural dynamics proceeds along several fronts, including the use of passive and active structural control systems in earthquake engineering applications. Research in computer-aided engineering includes application of predicate logic to automated structural design, constraint-based design, geometric modeling and engineering databases. The success of such research has the potential to bring "intelligence" into CAD systems. The department is also interested in educational reform in structural engineering using information technology methodology.

Geotechnical Engineering

Geotechnical engineering deals with foundations for civil engineering structures and with the interaction between soil and structures. Characterization of soil behavior is a major determinant of soil-structure interaction under static, cyclic and dynamic loading conditions. The aims are therefore to determine the behavior of soils and other geological materials under various three-dimensional static and dynamic loading conditions using appropriate experimental techniques; to develop accurate constitutive models for this behavior; and to employ these constitutive models with numerical methods to predict soil-structure interaction and behavior of prototype geotechnical structures. Model experiments may be performed to study deformation and failure modes of geotechnical structures as well as soil-structure interaction. Instrumentation and investigation of select full-scale geotechnical structures provide prototype behavior against which the model and numerical predictions are compared.

Transportation Engineering

Transportation engineering covers the full spectrum of activities pertaining to the analysis, planning, design, construction, operation and management of integrated transportation systems. The program combines a long tradition of innovation in highway and traffic engineering with cutting-edge research and academic effort in the rapidly evolving transportation-systems engineering profession.

Systems Engineering

Systems engineering deals with the design and operation of large-scale complex systems. Within the civil engineering context, it usually deals with environmental systems, water resources systems, transportation systems, construction and urban planning. It uses methodologies derived from engineering design and the mathematics of operations research, stochastic and processes automatic control. There is heavy emphasis on the environmental, social, and economic aspects of large-scale engineering development. The basic building blocks of systems engineering are therefore highly interdisciplinary.

Environmental Engineering and Management

Environmental engineering and management is a unique graduate program designed for environmental professionals in the modern workplace. The program's objective is to provide advanced education in the scientific and regulatory background, state-of-the-art engineering practice, and social and policy implications of environmental management.

Program Requirements

Master's Degree Program

Candidates for graduate studies plan their program in consultation with an adviser and may elect to pursue a broad M.C.E. degree program (academic track with thesis option) majoring in one of the following areas: general civil engineering, construction engineering and management, systems engineering, structural engineering, geotechnical engineering, environmental engineering and management, and transportation engineering.

In addition, an M.S.E. degree program (professional track without thesis option) is offered in construction engineering and management.

The minimum requirement for master's programs in civil engineering is the successful completion of 30 semester credit hours.

Doctoral Degree Program

Students in the Ph.D. and D. Engr. programs in civil engineering plan their program in consultation with an adviser. The requirements for a doctoral degree are as follows: a minimum of 53 semester credit hours of graduate work; successful passing of a comprehensive exam; approval of a dissertation presenting the research work; and defense of the dissertation.

Fields of specialization at the doctoral level are construction engineering and management, structural mechanics and earthquake engineering, geotechnical engineering, fluid and solid mechanics, transportation engineering, systems engineering, and environmental engineering.

Available courses include laboratory studies, applied mathematics, engineering analysis, engineering design, and a variety of introductory and advanced level courses in applied science and construction management.

