Wadsworth Department of Civil and Environmental Engineering, M.S.C.E., Ph.D.

Degrees Offered

- Master of Science, Civil Engineering (M.S.C.E.)
- Doctor of Philosophy, Civil Engineering (Ph.D.)

The Wadsworth Department of Civil and Environmental Engineering offers the degree of master's of science in civil engineering (M.S.C.E.). In conjunction with the Benjamin M. Statler College of Engineering and Mineral Resources, the master's of science in engineering (M.S.E.) and the doctor of philosophy degrees are available with emphases in civil engineering.

Areas of Research

There are five major areas of interest of the faculty and graduate studies:

- Construction engineering and management, which includes construction project planning and cost control; construction operations; construction safety and health; sensing, analytics, simulation, and visualization for construction and infrastructure practices; integrated and automated construction; building information modeling; infrastructure planning; construction profitability; asset management and risk control
- Environmental and water resources, which includes wetland and natural stream restoration; water, waste water, and industrial waste treatment; site remediation; groundwater hydraulics, hydrology, sediment transport, fluid mechanics, water and health, and satellite remote sensing of hydrological processes
- Geotechnical engineering, which includes soil mechanics, foundations engineering, soil-structure interaction, geomechanics, geoenvironmental, groundwater and seepage, geosynthetics, contaminant transport, earthwork design, and waste by-product utilization
- Transportation engineering, which includes planning, design, construction, operations, and maintenance of transportation facilities/systems (roadways, railroads, airports, and public transportation) as well as related areas of infrastructure management and expert systems
- Structural engineering, which includes advanced structural mechanics, structural dynamics, bridge engineering, building design for static and dynamic loads, advanced materials for civil infrastructure, and nondestructive testing and evaluation

Faculty members in the Wadsworth Department of Civil and Environmental Engineering are active in teaching, research, and professional commitments. Many of the faculty members are licensed professional engineers registered in one or more states and are involved in state, regional, and national professional organizations, serving on numerous technical committees. They are successful researchers and have published extensively in technical journals. The Civil and Environmental Engineering faculty produces graduates who can assume the problem solving, decision-making, and technical leadership roles of a professional engineer and who have the sound educational background for the continuing professional development the field requires.

Students tailor their program of study to pursue individual topics of interests with guidance from a faculty advisor. Opportunities abound within the master’s and doctoral tracks for a research experience in which the student tackles an engineering problem individually with guidance from a faculty advisor. The graduate program in civil engineering was established with the aim of developing its students’ abilities to use today’s contemporary methods of engineering analysis and design to solve tomorrow’s engineering problems.

FACULTY

CHAIR

- Lian-Shin Lin - Ph.D., P.E. (Purdue University)
  Physiochemical and Biological Treatment, Innovative Wastewater Technologies, Emerging Contaminants, Sustainable Development, Watershed Pollution

PROFESSORS

- Omar I. Abdul-Aziz - Ph.D. (University of Minnesota, Twin Cities)
  Ecological-Water Resources Engineering; Scaling of Hydro-Ecological and Biochemical Variables; Modeling of Stream Water Quality and Ecosystem Carbon; Fluid Mechanics; Hydrology
- Hung-Liang (Roger) Chen - Ph.D. (Northwestern University)
  Structural Dynamics, Structural Experimentation, Dynamic Soil-Structure Interaction, Damage in Reinforced Concrete Structures, Nondestructive Evaluation, Concrete
- Fei Dai - Ph.D. (Hong Kong Polytechnic University)
  Construction Engineering, Construction Management, Construction Information Technologies

- Hota GangaRao - Ph.D., P.E. (North Carolina State University)
  Maurice A. and Jo Ann Wadsworth Distinguished Professor, Director of the Constructed Facilities Center, Director of the NSF Center for Integration of Composites into Infrastructure, Mathematical Modeling of Engineering Systems, Bridge Engineering, Composite Material Characterization and Implementation
- David R. Martinelli - Ph.D. (University of Maryland)
  Transportation Engineering, Traffic Operations, Systems Analysis, Infrastructure Management
- John D. Quaranta - Ph.D., P.E. (West Virginia University)
  Geotechnical/Geo-Environmental Engineering, Soil Testing and Characterization, Soil and Mine Waste Dewatering, Geo-Synthetics, Soil and Groundwater Remediation

ASSOCIATE PROFESSOR

- Karl Barth - Ph.D. (Purdue University)
  Steel Structures, Bridge Design and Rehabilitation, Connections, Stability Analysis, Experimental Mechanics
- Leslie Clark Hopkinson - Ph.D. (Virginia Polytechnic Institute and State University)
  Surface Hydrology, Environmental Hydraulics, Ecological Engineering, River Mechanics
- Yoojung Yoon - Ph.D. (Purdue University)
  Infrastructure Asset Management, Risk Management in Construction, Project Management and Control, Construction Equipment Management

ASSISTANT PROFESSORS

- Onur Avci - Ph.D., P.E. (Virginia Tech)
  Structural Dynamics, Structural Health Monitoring, Data-driven Applications in Civil-Structural Engineering, Structural Condition Assessment, Multi-functional Materials.
- James Bryce - Ph.D. (Virginia Tech)
  Pavement Design and Management, Civil Engineering Materials, Transportation Asset Management, Sustainable Transportation Infrastructure
- Emily Garner - Ph.D. (Virginia Polytechnic Institute and State University)
  Environmental Engineering and Microbiology, Wastewater reuse and sustainable water treatment, Microbial ecology, Application of molecular tools and next generation sequencing technologies, Drinking water
- Kevin Orner - Ph.D. (University of South Florida)
  Environmental Engineering, Wastewater Treatment, Resource Recovery, Water Quality, Engineering Education, Sustainable Development Engineering
- Dimitra Pyrialakou - Ph.D. (Purdue University)
  Transportation Engineering, Transportation Planning and Evaluation, Public and Rail Transportation, Airport Operations, Transportation Econometrics

RESEARCH ASSISTANT PROFESSORS

- Ruifeng (Ray) Liang - Ph.D. (Institute of Chemistry, Chinese Academy of Sciences)

PROFESSORS EMERITUS

- Ronald W. Eck - Ph.D. (Clemson University)
- W. Joseph Head - Ph.D. (Purdue University)
- Larry D. Luttrell - Ph.D. (Cornell University)
- William A. Sack - Ph.D. (Michigan State University)
- Hema J. Siriwardane - Ph.D., P.E. (Virginia Polytechnic Institute and State University)
- John P. Zaniewski - Ph.D. (University of Texas)

ASSOCIATE PROFESSORS EMERITUS

- Robert N. Eli - Ph.D. (University of Iowa)
- Darrell R. Dean, Jr. - Ph.D. (Purdue University)

Admissions for 2027-2028

MASTER ADMISSIONS

To be eligible for admission into the Master of Science in Civil Engineering degree program, a candidate must fulfill the following requirements:

- Hold or expect to receive a B.S. in Civil Engineering from either an accredited ABET curriculum or an internationally recognized program.
- Have a minimum GPA of 3.0/4.0.
- A statement of purpose.
- Three letters of recommendation.

- Applicants who do not have an ABET-accredited B.S. degree are required to submit GRE scores. All applicants are encouraged to submit GRE scores for fellowship and funding options.
- International applicants must meet the WVU requirement of English language proficiency (https://graduateadmissions.wvu.edu/information-for/international-students/).

Candidates with a baccalaureate degree in another field of engineering, mathematics, or science are also eligible for admission into the M.S.E. degree (http://catalog.wvu.edu/graduate/collegeofengineeringandmineralresources/collegewidedegrees/). Candidates are normally required to attain a baccalaureate level of proficiency in areas of emphasis of the department. An engineering technology (non-calculus based) degree is not sufficient qualification for admission into any of the graduate programs offered by the department.

DOCTORAL ADMISSIONS

To be eligible for admission into the doctoral program, a candidate must fulfill the following requirements:

- A B.S. and/or M.S. degree in engineering from an institution which has an ABET accredited program in that discipline, or has an internationally recognized program in engineering, mathematics, or sciences (as specified by individual programs).
- Grade point average of 3.0 or better (out of a possible 4.0) in all previous college work and must meet all other requirements below.
- A statement of purpose.
- Three reference letters; at least two of the three references should be from the institution the applicant last attended.
- Applicants who do not have an ABET-accredited B.S. degree or M.S. degree are required to submit GRE scores. All applicants are encouraged to submit GRE scores for fellowship and funding options.
- International applicants must meet the WVU requirement of English language proficiency (https://graduateadmissions.wvu.edu/information-for/international-students/).

MSCE Major Code: 3015
PhD Major Code: 3016

For specific information on the following programs, please see the links to the right:

- Civil Engineering, M.S.C.E.

For specific information on the following programs, please see the links to the right:

- Civil Engineering, Ph.D.