

Environmental Engineering

Department of Civil, Architectural and Environmental Engineering

As an environmental engineer you will be capable of filling rapidly growing workforce needs in the areas of water and wastewater treatment, air pollution control and treatment, solid waste management and hazardous waste site remediation. Your service to the world, its development and its improvement are fundamental aspects of an environmental engineering career. Environmental engineers are problem solvers applying the latest in high-tech equipment and sophisticated procedures to address challenges concerning our environment.

Why Environmental Engineering?

The demand for environmental engineers and related professionals has grown tremendously over the last 30 years. In 1970, fewer than 230,000 people were employed in the industry; by 1998 an estimated \$200 billion was spent annually supporting 2.5 million jobs created to meet the demand for environmental needs. The demand over the next 30 years for environmental engineers is expected to grow at a pace that rivals the 1970-2000 American growth spurts in the profession

As other fields such as chemical, civil, construction, transportation and geological engineering grow so will the need for environmental engineers specifically trained in environmental applications.

Environmental engineers are trained to understand complex problems that exist either in the environment or in an engineered system, and take a systematic approach to solve those problems to the best benefit of all involved.

Job opportunities exist in consulting (water/wastewater applications, air pollution treatment, hazardous waste mitigation) government agencies (state departments of natural resources, US EPA, city planners, municipal engineers) and industry (environmental engineer for industries such as manufacturing, mining, petroleum etc.). A degree in environmental engineering is also a great preparation for graduate school. Many problems that plague our environment are beyond the scope of an undergraduate degree and graduate training in environmental engineering is highly sought.

Missouri S&T's ABET-accredited program combines basic science and engineering principles with a strong emphasis in design and a solid technical knowledge. Students will have the tools necessary to solve environmental engineering problems critical to our society's well-being.

Student Activities

Environmental engineering students are involved in a number of activities sponsored by various regional and national environmental engineering organizations and firms, which allows students to meet and interact with potential future employers.

A large and active Engineers Without Borders chapter annually sends students to Central and South America to design and build projects.

Co-op and Internship Availability

Co-op and summer intern programs are available to students. These programs provide students with the opportunity to integrate their classroom studies with learning through productive work experiences in a field related to a student's academic or career goals. Work for a semester or during the summer and build your resume.

Scholarships

Freshman scholarships are awarded based on high school transcripts and ACT/SAT scores. Numerous named and departmental scholarships ranging from \$200 to \$1,500 are available to all levels of students and are awarded based on academic merit and extracurricular activities as well as financial need.

Technical Specialty Areas

Students may choose a technical specialty area as part of their environmental engineering degree. For more information, see care.mst.edu.

- Water and Wastewater Resources Engineering
- Geo-Environmental Engineering
- Air Pollution and Control
- Environmental Chemistry and Processes
- Environmental Microbiology and Processes

Departmental Contact Information:

Department Chair:
573-341-4461
care.mst.edu

Dr. William Schonberg
211 Butler-Carlton Hall
civil@mst.edu

Faculty

Professors:

Joel Burken¹, Ph.D., Iowa (Assoc. Chair)
 Genda Chen¹, Ph.D., SUNY-Buffalo
 William Schonberg¹, Ph.D., Northwestern (Chair)
 Richard Stephenson¹, Ph.D., Oklahoma State (Asst. Chair)
 Ronaldo Luna¹, Ph. D., Georgia Tech (Asst. Chair)
 Daniel Oerther, Ph.D., Illinois
 Kamal Khayat¹, Ph.D., California, Berkeley

Associate Professors:

Jerry Bayless¹, M.S., Missouri S&T
 Mark Fitch, Ph.D., Texas (Asst. Chair)
 Cesar Mendoza, Ph.D., Colorado State
 Glen Morrison, Ph.D., California, Berkeley
 John Myers¹, Ph.D., Texas
 Charles Morris¹, Ph.D., Illinois
 David Richardson¹, Ph.D., Missouri S&T
 Stuart Baur², Ph.D., Missouri S&T (Asst. Chair)
 Timothy Philpot¹, Ph.D., Purdue
 Jianmin Wang¹, Ph.D., Delaware

Assistant Professors:

Bate Bate, Ph.D., Georgia Tech
 Jeffrey Volz¹, Ph.D., Penn State
 Joon-Ho Choi, Ph.D., Carnegie-Mellon
 Leslie Sneed¹, Ph.D., Purdue
 Ian Prowell¹, Ph.D., California, San Diego

Associate Teaching Professor:

William Eric Showalter, Ph.D., Purdue

Assistant Teaching Professor:

Jeffery Thomas¹, Ph.D., Missouri S&T
 Chien-Chung Chen, Ph.D., Penn State

Lecturer

Dan Abbott, M.S., Missouri S&T

Emeritus Faculty:

Roger LaBoube¹ (Curators¹), Ph.D., Missouri S&T
 John Best¹, Ph.D., Vanderbilt
 Franklin Cheng¹ (Curators¹), Ph.D., Wisconsin
 Charles Dare¹, Ph.D., Iowa
 Ju_Change Huang¹, Ph.D., Wisconsin
 Rodney Lentz, Ph.D., Michigan State
 Paul Munger¹, Ph.D., Arkansas
 Thomas Petry¹, Ph.D., Oklahoma State
 Shamsher Prakash¹, Ph.D., Illinois
 Joseph Senne¹, Ph.D., Iowa State
 Jerome Westphal¹, Ph.D., Nevada
 J. Kent Roberts¹, Ph.D., Missouri S&T
 Bobby Wixson, Ph.D., Texas A&M
 Wei-Wen Yu (Curators¹), Ph.D., Cornell

Registered Professional Engineer
 Registered Professional Architect

Notes

Detailed information on course equivalencies, acceptable credits for elective coursework, grade requirements and prerequisites is available from S&T's Registrar's Office at registrar.mst.edu.

All environmental engineering students must take the Fundamentals of Engineering Examination prior to graduation. A passing grade is not required, however, this is the first step to becoming a registered professional engineer.

Bachelor of Science

Environmental Engineering.....128 credit hours

Entering freshmen desiring to study Environmental Engineering are admitted to the Freshman Engineering Program. They may, however, state an Environmental Engineering preference, which will be used as a consideration for available freshman departmental scholarships. The focus of the Freshmen Engineering program is on enhanced advising and career counseling, with the goal of providing to the student the information necessary to make an informed decision.

FIRST YEAR

	Credit
Chemistry 1310,1319-General Chemistry w/ Lab.....	5
English 1120-Exposition.....	3
FE 1100- Careers in Engineering	1
MechE 1720-Engineering Design	3
Math 1214-Calculus for Engineers I.....	4
Math 1215-Calculus for Engineers II.....	4
Physics 1135-Engineering Physics I.....	4
Elective/General Education	3
Elective/General Education	3
Elective/General Education	3
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SECOND YEAR

Bio Sc 1113-General Biology.....	3
ChemE 2100-Chem Engr Material & Energy Balances.....	3
Chem 1320 or Geo 3175-Geochemistry.....	3
Civile 2200-Engr Mech/Statics.....	3
Civile 2210,2211-Mechanics of Materials w/ Lab	4
MechE 2350-Engr Mech/Dynamics	2
Math 2222-Calculus III/Analytic Geometry	4
Physics 2135-Engineering Physics II	4
EnvE 2602-Biological Fundamentals	3
EnvE 2601-Intro to Env Engineering.....	3
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THIRD YEAR

Stat 3113-Engineering Statistics.....	3
GeoE 1150-Geology for Engineers.....	3
Civile 3330-Elementary Fluid Mechanics	3
Math 3304-Elementary Differential Equations.....	3
ChemE 2110-Thermodynamics	3
EnvE 3603-Env Engr Chem Fund.....	3
EnvE 3615-Water & Wastewater Engr	3
EnvE 5619-Sanitary Design.....	3
EnvE Elective/Technical.....	3
Elective/Communications.....	3
	30

FOURTH YEAR

History 2510-History of Technology	3
Civile 3334-Hydraulic Engr.....	4
Civile 4448-Contracts & Construction Engineering.....	3
EnvE 4010-Senior Seminar.....	1
EnvE 4609-Research in Env Engr.....	1
EnvE 4097-Design Project.....	3
EnvE Elective/Air Pollution.....	3
EnvE Elective/Depth	3
EnvE Elective/Depth	3
EnvE Elective/Depth	3
EnvE Elective/Technical.....	3
Elective/General Education	3
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