

# HUMANITARIAN ENGINEERING | MS, Certificate



The Mines Humanitarian Engineering and Science (HES) graduate program educates technical professionals to promote sustainable community development. It stands out by drawing on a unique mixture of faculty expertise in engineering, applied sciences, and social sciences. HES students engage in direct research and outreach within and alongside the communities they seek to serve. Project experiences prepare graduates for careers in development, corporate responsibility, or further study.

## HUMANITARIAN ENGINEERING: ENVIRONMENTAL ENGINEERING

Broadly defined, Humanitarian Environmental Engineering focuses on applying the principles of environmental engineering to improve the lives of disadvantaged communities and the natural environments in which they live. Humanitarian Environmental Engineering spans a wide range of topics including

- Safe drinking water
- Water resource management
- Environmental remediation and monitoring
- Effective sanitation
- Air quality management
- Sustainability

Practitioners work to develop sustainable socio-technical solutions to these challenges in collaboration with local scientists, communities and government stakeholders.



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## DEGREE OPTIONS

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**Master of Science (thesis based):** 30 credit hours, comprised of 24 credit hours of coursework in both Humanitarian Engineering and Environmental Engineering, plus a minimum of 6 credit hours of Humanitarian Environmental Engineering thesis research.

**Master of Science (non-thesis):** 30 credit hours of coursework in both Humanitarian Engineering and Environmental Engineering.

**Graduate Certificate:** 12 credit hours of coursework focused exclusively on Humanitarian Engineering theoretical foundations and practical applications.

## CORE COURSES

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- Engineering and Sustainable Community Development
- Community-Based Research
- Risks in Humanitarian Engineering and Science
- Humanitarian Engineering and Science Capstone Practicum

## ENVIRONMENTAL ENGINEERING TRACK COURSES

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- Principles of Environmental Chemistry
- Humanitarian Geoscience
- Chemical Fate and Transport in the Environment
- Water treatment course
- Microbiology course

## APPLICATION INFORMATION

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- A BS degree in a science or engineering discipline is required. Pre-requisites include two semesters of college calculus, one semester of college physics, two semesters of college chemistry and one semester of college statistics.
- Statement of purpose, updated curriculum vitae or resume and transcripts for post-secondary degrees are required for all students.
- Three letters of recommendation are required for students pursuing the MS thesis option.
- Non-native English speakers must meet one of the following minimum requirements: TOEFL iBT score of 79; TOEFL paper-based test score of 550; TOEFL computer-based test score of 213; IELTS score of 6.5 or have received a prior degree from an English-speaking university.
- Mines undergraduate students may count up to six credits from their undergraduate program toward a combined BS/MS degree. External applicants may substitute approved electives with courses brought from elsewhere with written permission from the HES program director.

**DOMESTIC APPLICATION DEADLINE: July 1 (Fall)**

**TO LEARN MORE, VISIT:** [mines.edu/gradprograms/edns](https://mines.edu/gradprograms/edns) or contact [humanitarian@mines.edu](mailto:humanitarian@mines.edu)

