

Humanitarian Engineering

Humanitarian engineering is engineering for the betterment of communities, but particularly for underserved communities, communities devastated by natural disasters, and refugee communities. The engineering profession has made world-changing contributions to these communities through infrastructure, water treatment, medical devices, computers and many other technological advancements that continually impact society. This CGE track, and the Cockrell School's Certificate in Humanitarian Engineering takes engineering for society to the next level, providing undergraduate students with a rewarding, multidisciplinary program that allows them to focus their learning around communities that need their help the most. Students who pursue this track have the opportunity to work on design projects for real customers (such as the International Federation of Red Cross) to address humanitarian needs.

Example projects

Biogas Heat Recapture System for Underserved Communities: Improve the performance of an existing biodigester for processing human waste while capturing and using the biogas that is a natural product of the anaerobic digestion process.

Improvements to Mesquite Flour Production Facility: Develop a new drying process to increase by tenfold the production of a mesquite flour plant in Mexico.

Solids Removal for Potable Water Filter System: Design a system for suspended solid removal in water treatment to reduce reliance on chemical sedimentation prior to filtration.

Faculty Mentors:

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Required Courses

None. Note that other courses are required to complete the certificate program.

ME Undergraduate Elective Courses

ME363M – Energy Technology and Policy

ME374T – Introduction to Renewable Energy Engineering and Sustainability

ME337F – Nuclear Environmental Protection

ME354 – Introduction to Biomechanical Engineering

ME354M – Biomechanics of Human Movement

ME374S – Solar Energy Systems Design

ME374T – Renewable Energy Technology

ME377K – Projects in Mechanical Engineering (with approved project)

ME379M – Design/Control of Robots for Rehabilitation

ME371D – Medical Device Design and Manufacture

ME379M – Nanotechnology for Sustainable Energy

ME379M – Development of a Solar-Powered Vehicle
For course descriptions visit the [University Catalog](#).

Humanitarian Design Courses

ES277L – Project Design with Underserved Communities/ES277L – Project Development with Underserved Communities*

ES277 – Humanitarian Product Design/Humanitarian Product Development*

*Note that these courses are not substitutes for ME266K/ME266P.

Other Elective courses (only one of the following can be accepted)

AFR372D/HIS350L – Medicine in African History

AFR 74E/HIS346L – Modern Latin America

ANS361.29/ANT324L/RS373M – Biomedicine, Ethics, & Culture

ANS372.26 – Global Markets and Local Cultures

ANT324L.24/AFR372G.3 – Archaeology of African Thought

ANT324L.37/AFR374E.2 – Politics of Race/Violence in Brazil

ANT324L.57/GRG356 – Archaeology of Climate Change

ANT324L.17 – Nature, Society & Adaptation

GOV328L – Intro to Latin American Government & Politics

GOV337M.8 - International Politics of Latin America

GRG344K – Global Food, Farming, and Hunger GC

GRG356T/HIS 363K – Mapping Latin America

GRG356T – Landuse/Landcover Change Practice

GRG356T – International Development in Africa

GRG357 – Medical Geography

SOC321G – Global Health Issues/Systems

PHL325C – Environmental Ethics

PHL325M – Medicine, Ethics, and Society

HIS363K/LAS366 – Politics of Food in Latin Amer

HIS363K.2/LAS366.28 – Argentina:Populism/Insurrection

HIS364G.6/AFR374C.6/WGS – Apartheid: South African History

HIS366N – Global History of Disease

ADV324 – Communicating Sustainability

CMS340K – Communication and Social Change

CTI323 – Might and Right among Nations

TC358 – Law & Ethics of Climate Change

SOC369K – Population and Society

Organizations and Societies

Humanitarian Engineering Society (not sure this is actual name of student org – getting confirmation)