Humanitarian Engineering Certificate

The undergraduate Humanitarian Engineering Certificate provides students with the opportunity to develop expertise in designing and/or implementing projects or products for traditionally underserved populations, e.g., the physically or mentally challenged, low-income or rural communities, or communities experiencing humanitarian crises. The participants will develop not only technical knowledge but also awareness of social, political, and/or economic circumstances that may be important to the development of engineering solutions for underserved populations.

Total Hours Required: 18

Requirements

Requirements are listed in the table below. Additional requirements may follow the table, so be sure to read the entire page. Some required courses listed below may also satisfy General Education requirements, including Core Curriculum. Students should also review the University's Undergraduate Minor and Certificate Requirements and Policies.

Code	Title	Hours
Hours chosen from:		3
UGS 302	First-Year Signature Course	
UGS 303	First-Year Signature Course	
ANT 302	Cultural Anthropology	
CTI 302	Classics of Social and Political Thought	
GRG 305	This Human World: An Introduction to Geography	
PHY 303L	Engineering Physics II	3
PHY 105N	Laboratory For Physics 302L, 303L, and 317L	1
Choose a sequence below:		4
Sequence 1:		
E S 277K	Project Development with Underserved Communities	
E S 277L	Project Design with Underserved Communities	
Sequence 2:		
E S 225C	Humanitarian Product Design	
E S 225D	Humanitarian Product Prototyping	
Approved project design course such as M E 466E (approval for these options must be obtained in advance from the Committee for the Humanitarian Engineering Certificate)		
Approved independent study research project (approval for these options must be obtained in advance from the Committee for the Humanitarian Engineering Certificate)		
M E 120C	Humanitarian Engineering Seminar	1
Hours chosen from:		3
GRG 344K	Global Food, Farming, and Hunger	
SOC 369K	Population and Society	
GRG 336	Contemporary Cultural Geography	
GRG 350K	Geographies of Globalization	
GRG 357	Medical Geography	
SOC 321G	Global Health Issues and Health Systems	
CTI 323	Might and Right among Nations	
PHL 325D	Environmental Ethics and Philosophy	
PHL 325M	Medicine, Ethics, and Society	
ANT 324L.49	Global Markets and Local Cultures	
HIS 366N.18	Global History of Disease (Topic 18: Global History of Disease)	
ADV 324	Communicating Sustainability	
CMS 340K	Communication and Social Change	
Hours chosen from: (additional courses may be substituted for those listed upon approval by the advisor for Humanitarian Engineering):		3
ARE 323K	Project Management and Economics	
ARE 346N	Building Environmental Systems	
BME 339	Biochemical Engineering	
BME 342	Biomechanics of Human Movement	
BME 344	Biomechanics	
BME 352	Engineering Biomaterials	
BME 358	Medical Decision Making	
C E 341	Introduction to Environmental Engineering	
C E 342	Water and Wastewater Treatment Engineering	
C E 364	Design of Wastewater and Water Treatment Facilities	
C E 369R	Indoor Air Quality	
C E 374K	Hydrology	
CHE 339	Introduction to Biochemical Engineering	
CHE 339T	Cell and Tissue Engineering	
CHE 341	Design for Environment	
CHE 342	Chemical Engineering Economics and Business Analysis	
CHE 357	Technology and Its Impact on the Environment	
ECE 339S	Solar Energy Conversion Devices	
ECE 362R	Renewable Energy and Power Systems	
ECE 362S	Development of a Solar-Powered Vehicle	
ECE 374K	Biomedical Electronic Instrument Design	
ECE 374L	Applications of Biomedical Engineering	
M E 337F	Nuclear Environmental Protection	
M E 350D	Design and Control of Robots for Rehabilitation	
M E 354M	Biomechanics of Human Movement	
M E 374S	Solar Energy Systems Design	
M E 362S	Development of a Solar-Powered Vehicle	
M E 363M	Energy Technology and Policy	
M E 374T	Renewable Energy Technology	
M E 371D	Medical Device Design and Manufacturing	
M E 378E	Nanotechnology for Sustainable Energy	
E S 321G	GLUE Undergraduate Research	
M E 379M.7	Technology Needs of Refugee Communities	
Total Hours		**18**

Additional Requirements and Policy

- Students must receive a grade of at least a *C-* in each course applied toward the certificate and have a cumulative grade point average of at least 3.0 in the courses presented to fulfill the certificate.
- The certificate program will be managed by the Committee for the Humanitarian Engineering Certificate in the J. Mike Walker Department of Mechanical Engineering.
- Students may apply for participation in the program at any time during their enrollment at The University of Texas at Austin, but it is recommended that they apply prior to starting the requirements.
- Students must contact the Committee for the Humanitarian Engineering Certificate in the J. Mike Walker Department of

Mechanical Engineering to apply for the certificate in the semester in which they are completing the requirements and graduating.