

Humanitarian Engineering and Computing Minor

The Humanitarian Engineering and Computing Minor at Miami University is designed to graduate engineers and computer scientists who are globally-aware, culturally-sensitive, and socially conscious. Students and graduates use their expertise to design solutions that enhance the lives of, and opportunities for, people on a local, national, or international level. Students select coursework from four broad categories of interest, engage in service/humanitarian-focused activity or research, and complete a humanitarian-focused capstone project in CPB, CSE, ECE or MME.

This minor is only open to students with a major in the College of Engineering and Computing.

Program Requirements

(18 credit hours minimum)

Code	Title	Credit Hours
Service or Humanitarian Focused Activity or Research		
Select one of the following course options for a minimum of two credit hours:		2
Service Learning designated course from an elective list or use the Service Learning Extra Credit Option ¹		
Miami Study Abroad course with a service component		
Independent Study course with a project approved by the HE&C Steering Committee, such as: a project with the Miami University Center for Assistive Technology, Engineers without Borders, Kode2Learn, or Girls Who Code; a social entrepreneurship or K-12 outreach project; or a research project with faculty. ²		
Related Coursework		
Select one of the following:		3
ATH 175	Global Cultural Diversity ³	
ATH 185	Cultural Diversity in the U.S. ³	
ATH/ITS 301	Intercultural Relations ³	
CEC 222	Socio-Environmental Responsibility in Engineering and Computing ³	
Select nine hours from the courses below. There is no minimum required hours per category. ^{4,5}		9
Diversity, Social Responsibility and Cultural Awareness courses:		
AMS 205	Introduction to American Cultures	
ATH 175	Global Cultural Diversity ³	
ATH 185	Cultural Diversity in the U.S. ³	
ATH/ITS 301	Intercultural Relations ³	
BUS 371		
CEC 222	Socio-Environmental Responsibility in Engineering and Computing ³	
CRE 151	Introduction to Critical Race and Ethnic Studies	
GEO 101	Global Forces, Local Diversity	

GEO 201	Geography of Urban Diversity
GEO 211	Global Sustainable Futures
IDS 159	Strength Through Cultural Diversity
ITS 201	Introduction to International Studies
ITS 302	Issues in the Global South
SJS/SOC 165	Social Justice Perspectives
SJS/SOC 323	Social Justice and Change
SOC 153	Sociology in a Global Context
SOC 201	Social Problems
SOC/EDP/DST 272	
Energy, Environment and Sustainability courses:	
ARC 413	Environmental Systems I
BUS/IES 494	Sustainability Perspectives in Resources and Business
CPB 244	Introduction to Environmental Engineering
ECE 291	Energy Systems and Sustainability
ECO 406	Environmental Economics
IES 211	Energy and Policy
IES 274	Introduction to Environment and Sustainability
IES 275	Principles of Environmental Science
IES/ENG/JRN 429	Environmental Communication
IES 450	Environmental Law
IES 474	Sustainability in Practice
MME 451	Sustainability Considerations in Design and Development
SJS/IES 419	Environment, Society & Justice
Economic, Political and Global Issues courses:	
ARC 107	Global Design
ARC 188	Ideas in Architecture
ATH 358	Travelers, Migrants, and Refugees: Transnational Migration and Diasporic Communities
ECO 347	Economic Development
ECO 356	Poverty and Income Distribution
ESP 331	Social Entrepreneurship
GEO 475	Global Periphery's Urbanization
GEO 476	Global Poverty
ITS 333	Global Development and Inequality
POL 271	World Politics
POL 381	Global Governance
Health-related courses:	
ATH 348	
ATH 378	Doctors, Clinics, and Epidemics
ATH 448	Developing Solutions in Global Health
CPB 421	Bioethics
CRE/HST/LAS 385	Race, Science, and Disease in the Americas
GHS 101	Gateway to Global Health
GTU/SOC 357	Medical Sociology

HST 236	Medicine and Disease in Modern Society
KNH 321	National and Global Health Policy
KNH/IES 441	Environmental Public Health
PHL 375	Medical Ethics

Capstone project in CEC

Complete a capstone sequence in CEC (CPB 471 & CPB 472 or CSE 448 and CSE 449 or ECE 448 and ECE 449 or MME 448 and MME 449) with a humanitarian engineering and computing focus. APPROVAL OF HUMANITARIAN ENGINEERING & COMPUTING ADVISOR IS REQUIRED PRIOR TO ENROLLING IN THE CAPSTONE.

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Total Credit Hours**18**

¹ Cannot count toward Related Coursework.

² Credit earned for CEC 277 or similar.

³ Course will only count once toward Related Coursework.

⁴ Only one course can be from the College of Engineering and Computing (CPB, ECE, or MME course).

⁵ Students may also petition (with justification) to the H E&C Steering Committee to allow other courses to meet this requirement.