

Michigan Technological University

Minor in Humanitarian Engineering

Program Code ECHM, Academic Year 2023-24

Department of Civil, Environmental, and Geospatial Engineering

Total Credits Required: 18

International and Community Development Engineering: 9 credits

Required Core Course: Choose one course for 3 credits

- CEE 4993 Engineering with Developing Communities (3) *Prereqs: BE3350 or CM3110 or CEE3200 or MEEM3201*
- HON 3300 Innovation through Human Centered Design (3) *Prereqs: none*

Required Engineering Capstone Design/Enterprise Experience: 3 credits

Complete 3 credits of capstone design experience, under the appropriate capstone course number for the student's degree program, that align with a prominent sector of international and community development work (e.g., health, environment, or economic development). The capstone experience must be approved by the minor advisory committee to ensure it involves collaboration with an underserved community, or at least extensive and documented consideration of the needs, resources, and constraints of such communities. Does not include CEE4915.

Elective Engineering Courses: Choose one course for 3 credits

- CEE 4915 International Engineering Field Experience (3) *Prereqs: none*
- CEE 4993 Engineering with Developing Communities (3) *Prereqs: Prereqs: BE3350 or CM3110 or CEE3200 or MEEM3201*
- GE 4150 Natural Hazards (3) *Prereqs: GE2000 or GE2100*
- HON 3300 Innovation through Human Centered Design (3) *Prereqs: none*
- MEEM 4630 Human Factors (3) *Prereqs: none*
- MSE/EE 4777 Distributed Additive Manufacturing Using Open-Source 3-D Printing (3) *Prereqs: none*

Intercultural Sensitivity and Community Engagement: 9 credits

Required Core Course: Choose one course for 3 credits

- SS 3961 Preparing for Cross-Cultural Immersion Experiences (3) *Prereqs: UN1015 and UN1025*
- SS 4120 Sustainable Development (3) *Prereqs: UN1015 and UN1025*
- SS 4700 Communities and Research (3) *Prereqs: UN1015 and UN1025*

Electives: Choose two courses for 6 credits

- GE 2100 Environmental Geology (3) *Prereqs: none*
- HU 2820 Communication & Culture (3) *Prereqs: none*
- HU 3261 Communicating Across Cultures (3) *Prereqs: UN1015 and UN1025*
- HU 3262 Topics Francophone Cultures (3) *Prereqs: UN1015 and UN1025*
- HU 3264 Topics Spanish-Speaking Cultures (3) *Prereqs: UN1015 and UN1025*
- HU 3265 Topics East Asian Cultures (3) *Prereqs: none*
- HU 3294 Topics in Hispanic Literatures and Cultures (3) *Prereqs: HU3293*
- HU 4625 Risk Communication (3) *Prereqs: UN1015 and UN1025*
- SS 2100 Intro to Cultural Anthropology (3) *Prereqs: none*
- SS 2300 Environment and Society (3) *Prereqs: none*
- SS 2400 Intro to Human Geography (3) *Prereqs: none*
- SS 2700 Introduction to Sociology (3) *Prereqs: none*
- SS 3105 Native American and Indigenous Communities (3) *Prereqs: UN1015 and UN1025*
- SS 3110 Food Systems and Sustainability (3) *Prereqs: UN1015 and UN1025*
- SS 3260 Latin American Cultural History (3) *Prereqs: UN1015 and UN1025*
- SS 3280 Anthropology of Energy (3) *Prereqs: UN1015 and UN1025*
- SS 3313 Sustainability Science (3) *Prereqs: UN1015 and UN1025*
- SS 3315 Population, Health, and Environment (3) *Prereqs: UN1015 and UN1025*
- SS 3961 Preparing for Cross-Cultural Immersion Experiences (3) *Prereqs: UN1015 and UN1025*
- SS 3750 Social Inequality (3) *Prereqs: UN1015 and UN1025*
- SS 3760 Human Dimensions of Natural Sciences (3) *Prereqs: UN1015 and UN1025*
- SS 3805 Environmental Justice (3) *Prereqs: UN1015 and UN1025*
- SS 3960 Cultural Immersion (3) *Prereqs: UN1015 and UN1025*
- SS 4120 Anthropology of International Development (3) *Prereqs: UN1015 and UN1025*
- SS 4200 Environmental Anthropology (3)SS 4700 Communities and Research (3) *Prereqs: SS2100 and UN1015 and UN1025*