



College of Engineering

2024-2025 Academic Year

School of Mechanical, Industrial and Manufacturing Engineering

HUMANITARIAN ENGINEERING, SCIENCE & TECHNOLOGY MINOR

The Humanitarian Engineering minor provides multidisciplinary academic coursework for students interested in the application of engineering, science, and technology-based solutions to global development challenges such as access to basic resources like clean water & energy, improved quality of life, and increased ability to earn a livelihood particularly in rural, resource-limited or low-to-middle income settings. A core of classes consisting of humanitarian engineering, science, and technology (HEST) is required. The core coursework and electives have an emphasis on context including social, cultural, economic, resource, political, and environmental.

Required	Credits
HEST Core*	12
Electives**	12-15
International or Service Learning Component***	0-3
	27

*HEST Core Electives can be substituted for core credits if core courses are not offered in an academic year.

**Any HEST-designated course, HEST core elective or Thematic Tracks in the rows below, or Additional Elective Options in List I or List II below may be taken to fulfill the elective requirement. Thematic electives must represent 13 credits beyond the 12-credit core. Additional courses may be approved as an elective based on relevance to HEST and the student's interests. Approval may be granted for courses in political science, public health, anthropology, engineering, economics, business, geography, agriculture or others.

***The service learning component can be completed in the U.S., including through the on-campus HEST 310 course or other volunteer or co-curricular activities such as: study abroad, internships, Engineers without Borders, and Grand Challenge Scholars Program.

Please, see a MIME Advisor for more information.



For more information visit

<https://catalog.oregonstate.edu/college-departments/engineering/school-mechanical-industrial-manufacturing-engineering/humanitarian-engineering-minor/>

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HEST MINOR COURSEWORK

HEST Core (12 credits):

Course	Course Name	Credits	Prerequisites	SU	F	W	SP
ANTH/HEST 201	Innovation for Social Impact	3	None			2025	2025 eCampus
HEST 412/512	Multidisciplinary Case Studies in Humanitarian Engineering, Science, and Technology	3	Department Approval Required: SAPR-Instructor's Signature				2023 eCampus
HEST 310	Introduction to Community Engagement and Community-Based Design	3			2025		
HEST 320	Engineering for the Global Health Solutions	3	None			2025 eCampus	
HEST 462/562	System Dynamics Modeling for Humanitarian Engineering	3	None	2026 eCampus?			

Elective Courses (12-15 credits):

Course	Course Name	Credits	Prerequisites	SU	F	W	SP
HEST Core Electives							
ANTH 482/582	*Anthropology of International Development	3	None				
HEST 241	Household Energy in Guatemala (Background)	1					
HEST 242	Household Energy in Guatemala (Field)	3					
Sustainability Track							
GEOG 300	*Sustainability for the Common Good	3	Students with a term class standing of Freshman or Sophomore may not enroll.	Ecampus			
GEOG 331	*Population, Consumption, and Environment	3	None				Ecampus
PPOL 447	Integrated Policy: Food, Energy, Water, and Climate	4	None	Ecampus			
Public Health Track							
ANTH 374	*Anthropology and Global Health	3	Department Approval Required: SAPR-Instructor's Signature	Ecampus	Ecampus		Ecampus
H 333	*Global Public Health	3	Department Approval Required: SAPR-Instructor's Signature – Fall Online only Section		Ecampus		Ecampus
HDFS 447	*Families and Poverty	4	Students with a term class standing of Freshman or Sophomore may not enroll.				
Project Management Track							
AEC 250	*Intro to Environmental Economics and Policy	3	None	Ecampus	Ecampus	Ecampus	
BA 354	Managing Ethics and Corporate Social Responsibility	4	COMM111, 111H, 114, 114H, 218 or 218H) and (WR 222, 323, 327, 327H or HC 199 with min grade of C-	Ecampus			
LEAD 342	*Team and Organizational Leadership	3	None	Ecampus			

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NMC 280	Global Media	3					Ecampus
NMC 311	Introduction to Nonprofit Management	3		Ecampus	Ecampus		

* Course may also be used to satisfy Bacc Core courses

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HEST MINOR COURSEWORK

International or Service Learning Component (0-3 credits):

Course	Course Name	Credits	Prerequisites	SU	F	W	SP
HEST 310	Intro. Community Engagement/Design/Bacc Core: Science, Technology & Society	3			2025		
HEST 444	Co-Design for Development: A Remote Collaborative Experience	2					
HEST 242	Summer Field Work – Guatemala	3					
INTL 299	Information & Global Society Justice: Italy	3					
BA 199/362/407	Social Entrepreneurship in Uganda	1-4					

Minor restrictions:

- 1) Class credits cannot be counted toward more than one category requirement.
- 2) All classes for the minor must be taken for a letter grade (A-F) with a minimum grade of C.
- 3) Recommended Organization: **Engineers Without Borders**- <http://groups.engr.oregonstate.edu/ewb/>
- 4) All credits, including MUS 108, can only be repeated once to count toward this minor
- 5) Any exception/substitutions for minor requirements must obtain advisor approval and/or approval from Dr. MacCarty and be communicated prior to the study abroad, EWB, or other service-learning activity or class.

Additional elective options that also satisfy back core requirements:

List I - These classes are particularly recommended because of the relevance of material and/or instructor affiliation with the program.	List II - Additional choices to fulfill thematic elective credits for the minor are listed below.
<p>Cultural Diversity: WGSS 280</p> <p>Literature & Arts: ENG 322</p> <p>Physical Science: WSE 210</p> <p>Social Processes & Institutions: H 225; WGSS 223</p> <p>Western Culture: PHL 205</p> <p>DPD: ENG 220; FW 340; GEO 309; MB 330; WGSS 223; WGSS 414</p> <p>Contemporary Global Issues: ANTH 374; ANTH 380; ANTH 466; FW 325; GEO 300; GEO 308; GEO 330; GEO 350; HDFS 447; PHL 443; PS 345; PS 458; SOC 480; SUS 350; WGSS 380; WGSS 480; Z 349</p> <p>Science, Tech, & Society: ANTH 330; ANTH 481; ATS 320;</p>	<p>Biological Science: BOT 101. SOIL 205 and SOIL 206; SUS 102.</p> <p>Cultural Diversity: ANTH 210; ANTH 311; ANTH 313; ANTH 314; ANTH 315; ANTH 316; ANTH 317; ANTH 318; ANTH 319; ES 101; ES 231; ES 241; GEO105; GEO 327; HST 351; HST 391; HST 392; JPN 331; MUS 108; NUTR 216; REL 160; PHL 315</p> <p>Literature & Arts: ENG 210; ENG 212; ENG 213; ENG 260; ENG 322; ES 334; ENG 210; ENG 212; ENG 213; ENG 260; ES 334</p> <p>Physical Science: GEO 221</p> <p>Social Processes and Institutions: AREC 250; ANTH 110; ECON 201; ECON 202; H 225; PS 205; SOC 204; SOC 205; WGSS 224</p>

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WSE 415; ENGR 350; ES 445; GEO 300; GEO 306; SOIL 335;
H 445; IE 380; NUTR 312; PH 313; SOC 481; WGSS 440

Western Culture: AEC 253; GEO 106; GEO 326