Michigan Tech

Office Memo

Office of the Provost and
Senior Vice President for Academic Affairs

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TO: Richard Koubek, President

FROM: Andrew Storer, Provost & Senior Vice President for Academic Affairs

DATE: November 18, 2025

SUBJECT: Senate Proposal 25-25

Attached is an amended version of Senate proposal 25-25, “Minor in Human-Centered Design,” which address the modifications suggested by the administration in their memo dated June 13, 2025. I have reviewed this amended proposal and recommend approving the amended proposal.

I concur X do not concur _____ with the provost’s recommendation as stated in this memo.

Richard Koubek, President

11/19/25

Date

University Senate

Michigan Tech

DATE:	November 13, 2025
TO:	Richard Koubek, President
FROM:	Robert Hutchinson, University Senate President
SUBJECT:	Proposal 25-25
COPIES:	Andrew Storer, Provost & Senior VP for Academic Affairs

At its meeting on April 10, 2025, the University Senate approved Proposal 25-25, "Minor in Human-Centered Design." The proposal has been amended based on the administrative response dated June 13, 2025. Feel free to contact me if you have any questions.

The University Senate of Michigan Technological University
Proposal 25-25

“Minor in Human-Centered Design”

Basic Program Information

Primary Contact: Kelly Steelman
Program/Degree type: Minor
Program Title: Minor in Human-Centered Design
Planned Implementation Date: Fall 2025
Program location/modality: on-campus
Target student population: current students
Restrictions: Not open to students who are Human Factors Majors

General description and characteristics of the program

The Department of Psychology and Human Factors is proposing a new minor program in **Human-Centered Design** for use in the Essential Education program. This minor is designed to equip students with the knowledge and skills to apply human-centered design principles (ISO 9241-2100:2019, ANSI/HFES 400-2021), emphasizing ethical, sustainable, and community-focused approaches. Students will learn to create innovative solutions that enhance user experience while considering environmental and societal impacts.

This minor is **19 credits**, is designed to meet the requirements of the Essential Education program, and is being submitted with approval from the Essential Ed Implementation Team.

This new minor will be administered by the Department of Psychology and Human Factors and advising support may be provided by advising staff in the department as needed Future changes to the minor requirements will be reviewed and approved by the Essential Education Steering Committee.

Rationale

The proposed Minor in Human-Centered Design, with an emphasis on ethical, sustainable, and community-focused approaches, addresses a critical need in today's interconnected world. This minor theme has been selected as a priority area by campus working groups and aligns seamlessly with Michigan Tech’s current initiatives to promote interdisciplinary learning and socially responsible innovation.

Michigan Tech is dedicated to preparing students who can navigate the complexities of modern society by integrating technical expertise with ethical and sustainable practices. The Human-Centered Design minor supports this mission by offering a curriculum that emphasizes not only

the creation of user-friendly systems but also the broader impact of design decisions on society and the environment.

In response to global challenges such as climate change, social inequality, and rapid technological advancement, industries are increasingly seeking professionals who can develop solutions that are not only innovative and usable but also ethically sound and environmentally sustainable. Employers value candidates who can approach problems holistically, considering the needs of diverse user groups and the long-term consequences of design choices.

Related programs: within MTU and at other institutions

Northern Michigan University - School of Art and Design - Industrial Design concentration
https://art.nmu.edu/department/design/index.html

Dartmouth- Engineering - Human-Centered Design Minor
https://engineering.dartmouth.edu/undergraduate/ab/minors/human-centered-design

UNC-Charlotte College of Computing and Informatics - Human-Centered Design Minor
https://catalog.charlotte.edu/preview_program.php?catoid=25&poid=6691

University of Minnesota - College of Design - User Experience Design Minor
https://design.umn.edu/academics/explore-all-minors/user-experience-ux-design-undergraduate-minor

Projected Enrollment

The program as designed can accommodate cohorts of 50 students per year.

Specialized Accreditation Requirements

None required.

Professional Licensure Requirements

None required.

Curriculum Details

Learning Goals

Minors should have at least one, but no more than 3, goals. Program goals should support/align with Essential Ed goals and/or specific Essential Abilities.

Aligned Essential Ed Goals	Program Learning Outcomes
Communicate, Adapt & Contribute/Transform	Demonstrate the ability to apply human-centered design principles, to develop interactive systems that effectively meet user needs, enhance overall safety and user experience.
	Integrate multidisciplinary perspectives to create design solutions that consider not only usability and accessibility but also the broader environmental and societal impacts.

Assessment Plan

This minor will be assessed through the ePortfolio submissions. Students will be specifically asked to reflect on the learning goal(s) for the minor.

Curriculum Design

Total Credits: 18-19

Course	Credits	Semesters offered	Pre-reqs
List 1 *Human-Centered Communication and Design* [Communication Intensive]: 3 cr			
HU 2830 - Public Speaking & Multimedia	3	Fall, Spring, Summer	None
HU3120 - Technical & Professional Communication	3	Spring and Fall and Summer	UN 1015 and (UN 1025)
HU 3130 - Rhetoric of Science and Technology	3	Fall	UN 1015
HU 3845 - Human-Machine Communication	3	Fall	UN 1015
HU 4625 - Risk Communication	3	On Demand	UN 1015, Not Freshman, Sophomore
List 2 *Designing for a Just and Inclusive Humanity* [Intercultural Competency]: 3 cr			
HU 3261 - Communicating Across Cultures	3	On Demand	UN 1015
HU 3401- Gender and Culture	3	On Demand	UN 1015
HU 3710 - Engineering Ethics	3	Spring	UN 1015
HU 3850 - Cultural Studies	3	On Demand	UN 1015
HU 3860 - Cultural Theory and Popular Culture	3	Spring	UN 1015
HU3830 - Creativity, Culture, & Change	3	On Demand	UN 1015
MGT 3000 - Organizational Behavior	3	Fall, Spring	Not Freshman
SS4211- Ethnographic Methods	3	Spring	UN 1015, Not Freshman, Sophomore
List 3.1 *Foundations of Human-Centered Design and Innovation* [SHAPE Courses]: 3 cr			
HF 2000 - Introduction to Engineering Psychology	3	Fall, Spring, Summer	None
HF2XXX - Introduction to	3	TBD	None

Course	Credits	Semesters offered	Pre-reqs
Human-Centered Design (to be proposed in F25 Binder)*			
List 3.2 *Human-Centered Leadership, Teaming, and Organizational Dynamics* [SHAPE Courses]: 3 cr			
ENG 2060 - Facilitating Group Learning	1	Fall/Spring	ENG 1102(C) or CH 1160
ENG 3060 - Developing Mentoring Skills	1	On Demand	Not Freshman
ENT 2961 - Teaming in the Enterprise	2	Fall	Not Freshman
ENT 2962 - Communication Contexts	1	Fall, Spring, Summer	Not Freshman
MGT 2000 - Team Dynamics and Decision Making	3	Fall, Spring	Not Freshman
MGT 3000 - Organizational Behavior	3	Fall, Spring, Summer	Not Freshman
MGT 3100 - Leadership Development	3	Fall, Spring, Summer	Not Freshman, Sophomore
PSY 3700 - Industrial Organizational Psychology	3	Fall, in odd years	PSY 2000
List 4 *Human-Centered Design Elective* [Unrestricted Courses]: 3 cr			
CS 3760 - Front End Development and Accessibility	3	Fall	CS 2321
CS1121- Introduction to Programming I	3	Fall, Spring, Summer	MA 1031(C) or MA 1032(C) or MA 1120(C)
CS1122 - Introduction to Programming II	3	Fall, Spring, Summer	CS 1121
CS 4760 - User Interface Design and Implementation	3	Spring	CS 3141
DATA1200	3	Spring	MA 1030(C) or MA 1031(C) or MA 1032(C) or MA 1160(C) or MA 1161(C)
ENG 1101- Engineering Analysis and Problem Solving	3	Fall, Spring, Summer	(MA 1031(C) or MA 1032(C) or MA 1120(C) or MA 1160(C) or MA 1161(C) or MA 1121(C) or MA 2160(C) or MA 3160(C)) and (Spatial Visualization Score >= 19 or ENG 1002(C))

Course	Credits	Semesters offered	Pre-reqs
ENG 1102 - Engineering Modeling and Design	3	Fall, Spring, Summer	(MA 1031 or MA 1032 or MA 1120 or MA 1160(C) or MA 1161(C) or MA 1121(C) or MA 2160(C) or MA 3160(C)) and (ENG 1101 or (ENG 1001 and ENG 1100)) and (Spatial Visualization Score >= 19 or ENG 1002)
ENG 4300 - Project Management	3	Fall, Spring, Summer	BUS 2100 or CEE 3710 or MA 2720 or MA 3710 or EE 3180 or BE 2110 or MA 2710 or PSY 2720
ENG 4515 - Introduction to Sustainability and Resilience	3	Fall	May not be enrolled in one of the following Class(es): Freshman, Sophomore
ENT 3953 - Ignite: Ideate, Innovate, Create!	1	Fall, Spring	None
ENT 3958 - Ethics in Engineering Design and Implementation	1	Fall, Spring	ENG 1101
ENT 3963 - Deliver: Explore, Develop, Execute!	1	Spring	Must be: Sophomore, Junior, Senior
ENT 3964 - Fundamentals of Project Management	1	Spring	Must be: Junior, Senior
HF 3850 - Human Factors	3	Fall	Not freshmen, (PSY 2000 or HF 2000) and UN 1015
HF 4880 - Usability Assessment	3	On demand	None
HON 3300 - Innovation through Human-Centered Design	3	Fall, Spring	Not Freshman, Sophomore
HU 2645 - Graphic and Information Design	3	Fall, Spring	None
HU 3701 - Philosophy of Technology	3	Fall	UN 1015
HU 4632 - Special Topics in Usability and User Experience	3	On Demand	UN 1015 - Not Freshman
KIP 4250 - Ergonomics	3	Spring	Must be : Junior, Senior
MGT 3800 - Innovation & Entrepreneurship	3	Fall, Spring	Not Freshman

Course	Credits	Semesters offered	Pre-reqs
MGT 4200 - Entrepreneurial Management	3	On Demand	MGT 3800
MIS 3000 - Business Process Management & Automation	3	Spring	MIS 2000
MIS 3200 - Systems Analysis and Design	3	Spring	MIS 2000(C) or MIS 2100(C) or CS 1122 or CS 1131
MIS 4100 - Information Systems Projects	3	Spring	(MIS 2100 and MIS 3100 and MIS 3200) or (CS 2321 and CS 3141 and CS 3425) or (MIS 2100 and MIS 3100 and MA 3720)
MKT 3000 - Principles of Marketing	3	Fall, Spring, Summer	None
MKT 3200 - Consumer Behavior & Culture	3	Fall	MKT 3000
PSY 2000 - Introduction to Psychology	3	Fall, Spring, Summer	None
PSY 2300 - Developmental Psychology	3	Spring	PSY 2000
PSY 2800 - Critical Thinking for Social and Behavioral Sciences	3	Spring	PSY 2000(C)
PSY 3200 - Motivation and Emotion	3	On Demand	Not Freshman; PSY 2000
PSY 3600- Cognitive Psychology	3	Fall	Not Freshman; PSY 2000 or HF 2000
PSY 3800 - Environmental Psychology	3	Spring, in even years	Not Freshman; (PSY 2000 or HF 2000) and UN 1015
SAT 1700 - Cyber Ethics	3	Fall	None
SS 2100 - Introduction to Cultural Anthropology	3	Fall	None
SS 2210 - Community Development and Planning	3	Spring in odd years	None
SS 2300 - Environment and Society	3	Fall, Spring	None

Course	Credits	Semesters offered	Pre-reqs
SS 3510 - History of American Technology	3	Spring, in even years	Not Freshman; UN 1015
SS 3513 - History of Making Things: Craft and Industry in America	3	Fall in even years	Not Freshman, UN 1015
SS 3801 - Science, Technology & Society	3	Fall, Summer	Not Freshman; UN 1015
SS 4313 - Sustainability Science	3	Fall	Not Freshman; UN 1015
List 5 a) [Essential Education Experience]: 3 cr			
SS 4551 - Industrial Communities	3	Fall even years	Not freshmen or sophomores
HU 3810 - Technology and Culture	3	Fall	UN 1015
SS 4700 - Communities and Research	3	Fall	May not be enrolled in one of the following Class(es): Freshman, Sophomore; UN 1015 and (UN 1025 or Modern Language - 3000 level or higher)
OR List 5 b) [ePortfolio 1cr AND Methods of Human-Centered Design [Upper Level SHAPE] 4 cr			
UN3023 Advanced Portfolio for Essential Ed	1 cr	all	Not Freshman
AND one course below			
HF 3850 - Human Factors	3	Fall	Not freshmen, (PSY 2000 or HF 2000) and UN 1015
HF 4015 - Cognitive Task Analysis	3	Fall in even years	Not freshmen, (PSY 2000 or HF 2000) and UN 1015
HU 4628 - Usability Evaluation and Testing	3	Spring	HU 2600 or HU 3120
HU 4635 - Principles of UX Design	3	On Demand	UN 1015 and HU 2645
MGT 4300 - Developing Entrepreneurial Ventures	3	Spring	Not freshmen
MGT 4600 - Management of	3	Fall, Spring,	Not freshmen

Course	Credits	Semesters offered	Pre-reqs
Technology and Innovation		Summer	
MGT 4650 - Commercialization of Advanced Technologies	3	Spring	MGT 4600
MIS 4000 - AI and Emerging Technologies for Business	3	Fall	MIS 2100 or CS 1122 or CS 1131
SS 4009 - Introduction to Survey Methodology	3	Spring, in even years	May not be enrolled in one of the following Class(es): Freshman, Sophomore
SS 4120 - Sustainable Development and Communities	3	Fall	UN 1015 and (UN 1025 or Modern Language - 3000 level or higher)
SS 4211 - Ethnographic Methods	3	Spring	May not be enrolled in one of the following Class(es): Freshman, Sophomore & UN 1015

New Course Descriptions

No new courses are required to launch this minor.

Model Schedule

The model schedule below shows an idealized sequence where the minor courses are completed in years 2 and 3, which is a recommended practice.

Semester	Year 1	Year 2	Year 3	Year 4
Fall		**List 3.1 *Foundations of Human-Centered Design and Innovation*:** HF 2000 - Introduction to Engineering Psychology	**List 2 *Designing for a Just and Inclusive Humanity*:** HU 3810 - Technology and Culture	
		List 1 *Human-Centered Communication and Design*: HU3120 - Technical & Professional Communication	**List 4 *Human-Centered Design Elective*:** HF 3850 - Human Factors	

Semester	Year 1	Year 2	Year 3	Year 4
Spring		**List 3.2 *Human-Centered Leadership, Teaming, and Organizational Dynamics*:** MGT 2000 - Team Dynamics and Decision Making	**List 5 *Methods for Human-Centered Systems Design*:** HU 4628 - Usability Evaluation and Testing	
Totals		9 credits	9 credits	

Faculty Qualifications

Courses will be taught by faculty determined to be qualified by their respective home units. Faculty qualifications will be available upon request.

Resources Needed

Library and other learning resources needed

No new library resources are needed to support this minor.

Suitability of existing space, facilities, and equipment

Current spaces and facilities are sufficient.

Program Costs

No additional costs are expected.