Education for the 21st Century

Presentation to University Senate
November 10, 2022

www.mtu.edu/ideahub
21st Century Task Force Charge

- to advance Michigan Tech’s core educational goals by developing transformative content and approaches that clearly address the needs of the 21st century workforce and incorporate key areas for student development.
## Key Accomplishments to Date

<table>
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<tr>
<th>Time</th>
<th>Focus Area</th>
<th>Activities</th>
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| **Spring - Summer 2019** | **21st Century Education Task Force Design Sessions** | ● Friday PM Design Sessions  
● Identified key areas of focus using design process  
● Developed proposal & budget for IDEAhub  
● Formed working groups |
| Fall 2019     | **Discovery & Define**              | ● Hosted IDEAhub Kick-off Meeting  
● Conducted 100’s of interviews  
● Researched MTU history & benchmark programs  
● Stakeholder Mapping  
● Training & Workshops |
| **Spring - Summer 2020** | **Ideation & Concept Development** | ● Campus IDEAtion & Learning Goal sessions  
● Training & Workshops  
● Call for IDEAs Proposals  
● COVID-19 Pivot - Faculty Learning Sessions |
| Spring 2021   | **Prototype Development**           | ● Developed frameworks for Essential Ed & First-year Experience  
● Prototype development of frameworks and concepts |
| Fall 2021     | **Prototype/Pilot Testing**         | ● Iterative prototype development  
● Sharing (testing) prototypes with stakeholder groups  
● Senate Proposal for Pilot Testing new GenEd concepts  
● Pilot Testing of Refined Frameworks and Concepts |
thank you!!

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Dayna Browning (Counseling Services)
Goals for Gen Ed Revision → Essential Ed

- Provide increased coherence and opportunities for connection both within the curriculum and between Essential Ed & major courses
- Provide increased flexibility so that students can pursue varied interests and experiences that fulfil the goals of Essential Ed (e.g. study abroad/away, minors, certificates)
- Student-centered experiential and reflective learning to foster development of 21st Century competencies
- Implement holistic assessment practices that are meaningful to faculty and students (e.g. portfolios) and a learning goal framework that is flexible and adaptable
- Identify and address procedures, policies and logistics in order to foster ongoing innovation
| 01 | Disciplinary Knowledge | Students demonstrate a depth of knowledge in one area/discipline, as well as a breadth of knowledge that (1) enables adaptability and flexibility as knowledge grows and changes, and (2) recognizes linkages/complementarity to other areas/disciplines. |
| 02 | Knowledge of the Physical and Natural World | Students demonstrate knowledge of the physical and natural world. This is accomplished by studying mathematics and the physical and natural sciences. |
| 03 | Global Literacy | Globally literate students analyze issues on multiple scales from diverse perspectives while acknowledging interconnectivity and complexity. |
| 04 | Critical & Creative Thinking | Students are able to think critically and creatively, as demonstrated by their broad, adaptable and versatile use of reasoning, logic, and evidence to access and evaluate information and solve complex problems. |
| 05 | Communication | Students are able to communicate effectively orally, in writing, and in new media to a wide variety of audiences. |
| 06 | Information Literacy | Students are able to analyze the need for, strategically access, critically evaluate, and use information effectively, ethically, and legally. |
| 07 | Technology | Students demonstrate knowledge of technology and its implications in society and are able to design and/or use technology for creative activities or innovative solutions to problems. |
| 08 | Social Responsibility and Ethical Reasoning | Students are able to identify and address conflicting ethical values and develop a sense of responsibility for the broad impacts of individual actions, social institutions and public policy. |
Proposed Undergraduate Student Learning Goals:

**GOAL**
We prepare students to **ACT**: Michigan Tech students will be able to develop innovative and ethical solutions to challenges faced by a diverse and rapidly changing technological society.

**ACT POWER SKILLS**
- **Analyze** complex issues as a foundation for lifelong learning.
- **Connect** across disciplines and communities.
- **Transform** the world by creating value for others.
- **Question**
- **Adapt**
- **Collaborate**
- **Empathize**
- **Innovate**
- **Lead Ethically**

**ESSENTIAL ABILITIES**
- Think Critically
- Research Strategically
- Reflect
- Navigate Ambiguity
- Communicate Broadly
- Foster Collaboration
- Explore Perspectives
- Consider Implications
- Integrate Knowledge
- Take Risks
- Implement Solutions
- Take Civic Action

10/21/21 Draft
# Current General Education Program

*42 credits (includes 3 units of co-curricular)*

<table>
<thead>
<tr>
<th>CORE</th>
<th>HASS</th>
<th>STEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composition (3)</td>
<td>Communication &amp; Composition (3)</td>
<td>Mathematics list (4)</td>
</tr>
<tr>
<td>Global Issues (3)</td>
<td>Critical &amp; Creative Thinking list (3)</td>
<td>Social/Behavioral Science (3)</td>
</tr>
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<td></td>
<td>Social Responsibility &amp; Ethical Reasoning list (3)</td>
<td>Science list - 2 different disciplines, one with lab (7)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEM elective (4)</td>
</tr>
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3 semester units of co-curriculars required
- Units are not included in GPA calculation nor do they count toward overall credits required for degree.
- Includes PE courses, Army/Air Force ROTC, band, and music lessons.
Prototype Essential Education Model  
draft Spring 2021

**Integrated Signature Experience**

**Exploration/Breadth Courses (includes co-curriculars)**

- Themed Pathway (Health & Wellness, H-STEM)
- Themed Pathway (Sustainability)
- Themed Pathway (Digital World)
- Themed Pathway (TBD)
- Themed Pathway

**First-Year Core Experience**

- Signature project experience (undergrad research, enterprise, global/community engagement, leadership, EML…)
- Experiential + Reflective learning, co-ops, co-curriculars, study away...
- Themed-based pathways through general education (Humanities, Social Sciences, VPA, Core STEM)
- Aligned with TF Initiatives
- Certificate & Badging options
- Competency development focused
- Portfolio-based Assessment
- HIP Learning opportunities
- Interdisciplinary team-based design project, exploring majors, EML, health & wellness, ethics, DEI, cultural awareness, composition
## Proposed Essential Education Program

<table>
<thead>
<tr>
<th>Year</th>
<th>Courses</th>
</tr>
</thead>
</table>
| **1st Year** | **ANALYZE** | TRANSFORMATIVE TEXTS - COMPOSITION (3)  
Communication, critical thinking, information literacy, empathy - modeled on Purdue’s Cornerstone Program  
Math (3)  
Science + Lab (3)  
ANALYZE | Seminar I (1)  
Intro to reflection, success strategies, pathway & disciplinary explorations, portfolio  
**CONNECT** | Seminar II (1)  
Reflection, career strategies, connections, signature explorations, portfolio  
**TRANSFORM** | Seminar III (1)  
Reflection, Life Design, Creating Value, portfolio  
**CO-CURR** | foster connection, networking, and social interactions  
**Explore (18)** | HASS (6 HUFA, 6 SBS) STEM (3) Elective (3) OR pre-approved Essential Ed minors/pathway certificates  
**SIGNATURE EXPERIENCE (3)** | Application of skills/knowledge to a real-world experience (global/community, UGR, co-op, study away, Enterprise, etc., including reflective component)  
**Connect * Apply * Restore * Extend (3)** | application of skills and creativity  
wellness and self-care  
leadership, honing of skills

### tags
Diversity, Equity, Inclusion; Writing/Communication; Quantitative/Computational
## Coverage of Essential Abilities in Core Courses

<table>
<thead>
<tr>
<th>Essential Ed Core</th>
<th>Think Critically</th>
<th>Research Strategically</th>
<th>Reflect</th>
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<th>Implement Solutions</th>
<th>Take Civic Action</th>
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<tbody>
<tr>
<td>Composition or Transformative Texts</td>
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Stages of Implementation - Essential Ed

- **STAGE 1: Spring 2022** - Senate proposals: Essential Ed framework & learning goal framework, undergraduate certificates. Resources needed will be part of the proposal.

- **STAGE 2: Fall 2022** - Pilot sections of Transformative Texts, Signature Experience, ACT seminars, develop pathway certificates

Project Connect
an Academy of dedicated people Fostering holistic student success

SENSE OF BELONGING

Resilience & Growth Mindset

Competency-Based
Life-long learning
Reflection
Well-Being

Academics
Community
Personal Development
Professional Experience
Health & Wellness

Student
First-Year Experience
- connect to self, community, and learning

Community & Self
- Extended Orientation Programming
- Career & Life Design
- Self-Authorship

Math / Science / Engineering / Computing Courses
- Integrated coursework around common themes
- Learning modules
- Half-semester courses

Core Courses
- Transformative Text core
- ACT Seminar I (Analyze)
- Possibly themed across courses examining topics from different disciplinary perspectives
- Competency based assessment (rather than grades)
- Reflection, critical thinking
- Reduced LMS noise

Coordinated Support System
- Advising
- Peer Mentoring
- Learning Support
- Wellness

First-year Experiences
- Community/Global Engagement Experiences
- Mini-semester enhancement courses (J-terms, May-mesters)
- Learning Bootcamps

Overt connections for covert learning
Project Connect - First Year Experience

Pilot Initiatives...

- **Mobile Learning Centers** - Pilots active and highly successful w/ Chem, Math, Eng, HU
- **Modular Badging and Credentialing** - active discussion, engagement for CoB.
- **Wellness** - Under development with EF/Chem and Student Wellness
- **Noise Reduction in LMS** - Collecting data from J-CTL, identifying co-conspirators
- **Summer Reading Integration** - active discussion and text review underway
- **Husky points** - In pilot phase, needs broader engagement
- **Pop-up advising** - Pilot actively running
- **Coordinated Advising** - Building discussion groups
- **Extended Orientation** - pilot actively running, need funding for a fall 2022
- **Cohort Reprogramming** - URGENT, need updated application to alleviate scheduling conflicts and reduce workload on registrar's office
- **First Year Academy** - Developing prototype and definitions of success
- **Leveraged Student / Office Hours** - pilot underway, moderately successful, needs review
- **Math Integration** - Key players identified, initiating discussion
- **J-May Terms** - How might we better utilize our calendar to support different learning options for students
- **Gradeless First Year** - How might we better support student outcomes for those who get a "rough" start.
Questions?

Share your Feedback & Get Involved!
- Essential Ed Feedback
- First Year Experience Engagement

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