




Office of the Provost and
Senior Vice President for Academic Affairs

Phone: (906) 487-2440
Fax: (906) 487-2935

TO: Richard Koubek, President

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

DATE: June 20, 2023

SUBJECT: Senate Proposal 18-23

Attached is an amended version of Senate proposal 18-23, "Proposal to Revise General Education Requirements (Essential Education) for Bachelor Degrees," which addresses the modifications suggested by the administration in the memo dated May 8, 2023. I have reviewed this amended proposal and recommend approving the modified proposal.

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

Richard Koubek, President

June 27, 2023

Date

The University Senate of Michigan Technological University

Proposal 18-23

(Voting Units: Academic)

Proposal to Revise General Education Requirements (Essential Education) for Bachelor Degrees

1. Basic Program Information

Version date: (Feb 7, 2023)

Primary Contact: Kelly Steelman (steelman@mtu.edu), Maria Bergstrom (mjbergst@mtu.edu)

Proposed by IDEAhub and the Essential Education Implementation Committee:

- Jared Anderson, Chair, Visual and Performing Arts
- Maria Bergstrom, Associate Dean for Undergraduate Education, CSA
- Jeannie DeClerck, Assessment Manager, CTL
- Laura Fiss, Assistant Director of the Honors Pathway Program
- Alexandria Guth, Dir. of Acad. Accreditation and Compliance, Provost's Office
- Brett Hamlin, Teaching Professor, Engineering Fundamentals
- David Hemmer, Dean, College of Sciences and Arts
- Don Lafreniere, Chair, Social Sciences
- Scott Marratto, Chair, Humanities
- Mary Raber, Chair, Engineering Fundamentals
- Marika Seigel, Associate Provost for Undergraduate Education and Dean of the Pavlis Honors College
- Kelly Steelman, Chair, Cognitive and Learning Sciences
- Travis Wakeham, Assistant Teaching Professor, Academic Advisor, Biology

Program type: General Education

Program Title: Essential Education

Planned Implementation: Fall 2025

Program modality: on-campus

Target student population: current enrollment shift

General description and characteristics of program

Essential Education is:

- An opportunity for Michigan Tech to further its mission to deliver action-based undergraduate education that contributes to creating solutions for society's challenges, and to ~~be to become~~ a national leader and innovator in educating and preparing students to lead ~~be~~ leaders in the fFourth iIndustrial rRevolution
- A forward-thinking curriculum that prepares students for a future where opportunities and careers might currently be unimagined
- A structure that further further enhances the curriculum to prepare graduates for the workforce, for graduate school, and to lead in the incorporation of the application of science to industry. ~~aligns our undergraduate curriculum with business workforce needs and enhances our students' career opportunities~~
- An integrated curriculum where students take ownership of their learning in and out of the classroom and are able to apply it to the complex challenges faced by a diverse and rapidly changing technological society

In the Essential Education program, all Michigan Tech students will:

- Build foundations of knowledge through a broad set of courses in both STEM and SHAPE¹ fields.
- Begin developing 21st century skills like communication, collaboration, and self-reflection in their very first year on campus as they develop a sense of belonging and map out their Michigan Tech journey.
- Think deeply and broadly about the big questions of our time through their pathway courses—applying the tools and insights of multiple disciplines to become agile, culturally-aware, and creative thinkers.
- Engage in the following high impact practices (HIPs) ~~high impact practices (HIPs), as defined by the American Association of Colleges and Universities; known to increase student learning, satisfaction, and retention~~: first year seminars, writing intensive courses, diversity/global learning, community-based learning, and ePortfolio.

Rationale / Description of the Proposed Changes

In fall 2018, at the behest of newly-appointed Michigan Tech President Richard Koubek, the Michigan Tech community gathered at several forums to discuss the Michigan Tech student and graduate of the future. These conversations centered around the skillsets students would need to succeed and ways the current curriculum and structure of undergraduate education would need to change to more effectively develop these skills. As a result of these forums and other discussions related to inclusivity, research, and wellness, nine Tech Forward initiatives were announced. One of these initiatives, Education for the 21st Century (originally led by Dr. Lorelle Meadows, followed by Dr. Mary Raber), addresses how best to develop students who can lead

¹ SHAPE = Social Sciences Humanities & the Arts for People and the Economy/Environment.
<https://www.thebritishacademy.ac.uk/this-is-shape/>

inclusively, communicate with a wide range of audiences, learn collaboratively, and use their technical skills with agility in addressing complex problems.

Michigan Technological University excels in providing the technological education that is needed for the future. But technical skills alone will not help our graduates reach their full potential. ~~In today's rapidly-changing world of employment,~~ In today's rapidly-changing world of employment, many 21st century learners will be working in positions that do not currently exist, using tools that have yet to be invented, and solving problems that are at the intersection of the human, digital, built, and natural worlds.

As educators, it is our responsibility to ensure that our students are prepared to enter and succeed in this changing world – to have the skills to become culturally-responsive leaders who are civically engaged. This line of thinking is at the heart of Essential Education, a core component of our Tech Forward vision. The new program name, “Essential Education,” signals that the skills, abilities, and mindsets facilitated by a broad education in the foundational disciplinary areas of the sciences, math, social sciences, arts, and humanities are essential to students’ educational and professional development.

The proposed Essential Education program supports Michigan Tech’s strategic initiatives by:

- building 21st century skills sets that are critical for our students to become leaders who can drive, and respond to ~~the~~ increasingly frequent technological changes impacting our economy and society.
- ensuring that all students engage in high impact practices that support retention and student success.
- proposing new learning goals that support more meaningful and streamlined assessment of general education and that set the stage for changes in the university's overall assessment structures to make them more efficient while producing meaningful and actionable data that can be used to improve programs and student learning.
- working to reduce credit burdens for our students by reducing the number of credits in the general education component and increasing double counting opportunities with major requirements.
- opening new recruitingmarketing_ opportunities (through the Essential Education minors and the Essential Education Experiences) that are aligned with Michigan Tech’s brand and help us tell our story to a new generation of Huskies.

Essential Education complements and builds upon our established strengths as a flagship technological university and allows students to maximize the return on their investment in a Michigan Tech education.

Related Programs

The proposed Essential Education program has been designed to work with the Michigan Transfer Agreement (MTA) and fit Michigan Tech’s unique context and needs. During the

course of its development, however, programs at various institutions have served as inspiration for its various components:

Essential Education Experience:

- Worcester Polytechnic Institute's integrative, [project-based undergraduate curriculum](#)~~project-based undergraduate curriculum~~;
- Rensselaer Polytechnic University's [The Arch International Opportunities Program](#)~~The Arch International Opportunities Program~~.

An interdisciplinary approach to general education:

- Pavlis Honors College's [Honors Pathways Program](#);
- The Colorado College [Block Plan](#)~~Block Plan~~;
- [Purdue's Cornerstone Program](#)~~Purdue's Cornerstone Program~~;
- Clark University's [Liberal Education and Effective Practice \(LEEP\) Program](#)~~Liberal Education and Effective Practice (LEEP) Program~~;
- James Madison University's [X-labs program](#)~~X-labs program~~.

Learning Goals and ePortfolios, informed by team participation in the AAC&U Institute for General Education and Assessment (2021) and AAC&U Institute on ePortfolios (2022):

- Jefferson University's [Hallmarks Program](#)~~Hallmarks Program~~;
- Stanford University's [Integrative Learning Portfolio Lab](#)~~Integrative Learning Portfolio Lab~~

Although many of the high impact practices we have included in Essential Education have been piloted at smaller, private institutions, more recent general education revisions at public 4-year institutions like [The Ohio State University](#)~~The Ohio State University~~ demonstrate that these practices are possible on a larger scale. Adopting the Essential Education program gives Michigan Tech the opportunity to be leaders in curricular change to promote student success, retention, and satisfaction.

Projected Enrollment

Students currently enrolled may complete the general education program as described on their audit year. All baccalaureate degree-seeking students enrolling Fall 2025 or later will take part in this new Essential Education program.

Specialized Accreditation / Licensure Requirements

No specialized accreditation or licensure is needed for general education. The proposed program meets minimum requirements set by the Higher Learning Commission.

2. Curriculum Details

Learning Goal Framework

Michigan Tech students will be able to develop innovative and ethical solutions to challenges faced by a diverse and rapidly changing technological society.

This vision and its component goals and performance criteria (Table 1) were derived from multiple, campus-wide brainstorming sessions about what our students need to succeed and represent the main traits we would like graduates of Michigan Tech to embody.

~~“Measure what you value; don't value what you can easily measure.”—Andy Hargreaves²~~

The aim of the learning goal framework is to help with the integration of student learning across the Essential Education program and undergraduate learning in general. The proposed set of undergraduate student learning goals (USLGs) focus on foundational and cross-cutting skillsets and mindsets. They are similar in both number and scope to those at our peer institutions.

The proposed learning goal framework reduces the number of undergraduate student learning goals from eight to four and the number of performance criteria from 41 to 12.

Reducing the number of goals and performance criteria ensures coverage across the Essential Education curriculum while reducing the number of criteria assessed in each class and providing faculty with more flexibility in which criteria are assessed in their courses. A smaller set of performance criteria allows us to target our assessment and continuous improvement efforts on a set of the most important student outcomes.

The proposed learning goals do not include disciplinary knowledge, in contrast to Michigan Tech's current set of USLGs. This exclusion is deliberate, as undergraduate student learning goals are meant to be the purview of general education upon which disciplinary programs can build. Moving away from the discipline-specific learning goals sets the stage for providing clearer differentiation between assessment of the general education program and assessment of disciplinary programs that already have their own set of learning goals and assessment protocols, in many cases set forth by an external accrediting agency. ~~For more information on the intended relationship between these goals and degree program assessment, please refer to the appendix³ (see Vision Document pg 20-21).~~

Table 1: Breakdown showing the proposed Goals and Performance Criteria ~~(see Vision Document pg 6)~~

Goal	Essential Abilities: Performance Criteria
Think Critically	Question Assumptions
	Evaluate Information
	Analyze Ethical Implications
Communicate	Communicate Quantitatively

² ~~Andy Hargreaves: <https://www.andyhargreaves.com/press-news.html>~~

³ ~~The appendices are not part of the senate proposal. They are provided as background information to aid in its evaluation.~~

	Communicate Contextually
	Foster Collaboration
Adapt	Reflect
	Welcome Challenge
	Explore Diverse Perspectives
Contribute/Transform	Engage in Civic Life
	Innovate Solutions
	Create

Assessment Plan

The proposed assessment plan for the Essential Education program will use instructor assessment and course group assessment (a process similar to what is currently in place for assessment of Goal 2 at the course level and has been successfully piloted by Goal 4 and 5 instructors).

Assessment will be supplemented by evaluation of sampled reflective portfolios created through each students’ path through the Essential Education Program. Assessment processes within Essential Education will be overseen and modified by the Essential Education program administration team, charged by the provost to facilitate continual improvement of student learning.

Curriculum design

Total credits: 37

All course requirements will be selected from lists of approved courses.

16 credit core:

- 1 credit: Michigan Tech Seminar list
- 3 credits: Composition-focused course (e.g., UN1015)
- 9 credits STEM:
 - 3 credits (min): Math list
 - 3 credits (min): Science list
 - 3 credits (min): STEM list
- 3 credits: Foundations in the Human World (“Foundations”) list: 1000 or 2000-level course in the SHAPE disciplines⁴

18 credit pathway:

Distribution Pathway

- 3 credits: Communication Intensive list
- 3 credits: Arts and Culture list
- 3 credits: Intercultural Competency~~DEIS~~ list (3000-4000 level)

⁴ Social Sciences Humanities & the Arts for People and the Economy/Environment. ~~See Vision Document.~~

- 3 credits: STEM list
 - 3 credits: SHAPE list
 - 3 credits: Essential Education Experience (**E³**) list (3000-4000 level)
- OR Essential Education Minor Pathway
- 3 credits: Communication Intensive list
 - 3 credits: ~~DEIS~~ **Intercultural Competency** list (3000-4000 lvl)
 - 3 credits: minor course from SHAPE list
 - 3 credits: minor course from SHAPE list
 - 3 credits: Minor elective⁵
 - 3 credits: Essential Education Experience (**E³**) OR upper-level minor course from SHAPE list (either option at 3000-4000 level)

3 credits from Activities for Well-being and Success (“Activities”) list

NEW Course Descriptions

None.

Model schedule

	Year 1	Year 2	Year 3	Year 4
Core (16 cr)	Seminar, Math, Composition, Science, STEM, Foundations.			
Distribution (18 cr)	18 cr Distribution Pathway Courses or Essential Education Minor			
Activities (3 cr)	3 cr Activities for Well-being and Success			

Figure 2: Outline of the Essential Education program requirements.

Faculty Qualifications

All faculty employed to teach Essential Education courses will have appointments with an appropriate academic unit, disciplinary expertise, and will meet or surpass the basic qualification requirements for their appointment rank.

Program-specific policies

- Overlap with major requirements: The Michigan Tech Seminar and up to 5 Essential Education Components may be satisfied by major requirements and would be marked as “met by degree requirements” (or similar language) on degree audits.

⁵ Minor electives can be from outside SHAPE and STEM lists as long as the course is open to all students and only includes prerequisites that can be completed as part of Essential Education.

- Courses already included in existing major degree requirements that are also on the Essential Education course lists can be used to satisfy Essential Education requirements without additional approvals.
- Majors that wish to change their degree requirements to include specific courses or choice points to satisfy an Essential Education requirement must seek approval from the course's offering unit. This is consistent with the standard practice for proposals for new programs that expect the proposing unit to demonstrate approval for the inclusion of any courses from outside their own unit.
- Programs may not dictate students' Essential Education minor or elective choices, beyond the fact that some major courses may also satisfy Essential Education or Minor requirements.
- In the effort to reduce the credit burden on our students, programs ~~should~~ not use the credit reduction between the general education and Essential Education programs as an opportunity to add credits to their degree totals, except in those cases where the revision will bring the total number of degree credits below the 120-credit minimum. This does not preclude future, well-reasoned, curricular changes that impact degree totals.
- Approval of all changes to degree requirements, which are initiated by the degree program, will be in accordance with established practices and procedures.
- ~~Proposed rules for inclusion for course categories are included in Appendix E to demonstrate the initial working definitions and operational intent of the proposing committee. These are not included in the formal senate proposal to allow flexibility for future innovation and to ensure that specific definitions and rules can be adapted to address concerns that emerge through the first several years of implementation of the program.~~ Course lists and rules for inclusion will be overseen by the Essential Education program administration team with approval from the provost (or their designee).
- As it is expected by our institutional accreditor that assessment practices lead to program changes in an effort to improve student learning, structural updates to the Essential Education program may be completed through the annual curricular update process, as used by other academic programs on campus, with the limit that no more than 10% of credits (4 credits, rounded up) may change compared to the senate-approved program without additional senate approval. Such changes would only occur with the approval of the Essential Education program administration team and the provost (or their designee).
- The proposed learning goals and Essential Abilities may evolve over time as part of assessment-driven continuous improvement. Such changes would only occur with the approval of the Essential Education program administration team and the provost (or their designee).

Program Administration

The Essential Education Program will be overseen by the Office of the Provost, who will assemble a team of representative stakeholders to provide guidance for the interpretation and continuous improvement of the curriculum. This team will use the document "Vision for Essential Education" that was developed through the Tech Forward Initiative on Education for the 21st

Century as a guiding document for their work. This team will work with the associate provost to evaluate all proposed revisions to the Essential Education curriculum for consistency with the philosophy and goals of Essential Education.

Course and Minor Approvals:

- Courses currently on the HASS, HASS restricted, STEM, and STEM restricted lists will be automatically included in the Essential Education lists. During the implementation phase, individual departments/units will be asked to determine which Essential Education designators are appropriate for their courses (for example, Foundations in the Human World, Communication-intensive, Intercultural Competency~~DEIS~~, Arts and Culture) based on rules for inclusion provided by the associate provost and the Essential Education implementation team. Lists developed by departments/units will be reviewed by the associate provost and the Essential Education implementation team.
- New courses may be proposed for inclusion in the Essential Education program by following procedures outlined by the associate provost and the Essential Education program administration team. At a minimum, this procedure will include a course description, syllabus, and declaration of which Goals/Essential Abilities the course intends to support and assess.
 - Courses that are not offered on a regular basis or whose assessment results over time do not demonstrate that the course is meeting its learning goals may be removed from the approved list of Essential Education courses.
- In addition to the requirements for inclusion in Essential Education, minors must follow all normal senate policies and procedures related to minors.
 - The Essential Education program administration team will approve requests for an existing or proposed minor to be included in the approved minors list.
 - Units proposing new Essential Education minors should work with the Essential Education program administration team as part of the proposal development phase to ensure that the following considerations are met:
 - Essential Education Minors should be interdisciplinary, with courses representing multiple disciplinary perspectives on cross-cutting themes (~~e.g. sustainability, health and well-being, social justice, entrepreneurship~~). A minimum of 6 credits ($\frac{1}{3}$ of the overall minor credits) must come from outside of the proposing department.
 - Essential Education Minors are intended to provide breadth to a student's overall academic journey. Accordingly, Essential Education Minors in a given department will typically be restricted from students majoring in the same department. Proposing departments may apply for an exemption to this rule if they demonstrate that there is not significant overlap (more than 6 cr.) with existing major course requirements. For example, we envision Essential Education Minors related to Modern Languages would be open to all majors.
 - Essential Education minors that do not include an Essential Education Experience must require the submission of a showcase ePortfolio. Mechanisms for recording the completion of the ePortfolio will be implemented by the Registrar's Office.

- Essential Education minors must designate choice points within the minor in a way that ensures all students will meet the Essential Education minor requirements.
 - Courses/choice points included in the proposed Essential Education minor must have the capacity to accommodate likely student enrollment.
 - Minors must be designed so it is possible to complete them in no more than three years. Offering units should demonstrate this ability by indicating semester offerings and capacity. Consideration should be given to any courses that are offered in alternate years only.
 - Minors proposed as Essential Education minors should not have substantial overlap with other Essential Education minors. In an effort to maintain a curated list of Essential Education minors with clearly distinguished objectives, and to avoid student confusion, the program administration team will consider overlap between minors as part of the approval process.
- During the implementation phase, the Essential Education implementation team will work with units interested in developing Essential Education minors.

Library and Other Learning Resources

No additional library resources would be needed.

Suitability of Existing Resources

No additional space or specialized equipment will be needed.

Program costs

There are at least three categories of spending necessary to achieve a successful launch of the Essential Education program by fall 2025:

1. **Start-up Costs:** As with other Tech Forward investments made on campus, there will be start-up costs to support faculty and staff for efforts beyond the usual and customary activities to develop, pilot test, and implement this new program. We outline below a summary of these costs. ~~President Koubek has indicated that he sees these one-time implementation costs as an augmentation of the initial Tech Forward investment in Education for the 21st Century.~~

2. **Infrastructure enhancement:** We anticipate that there will be support system updates needed around campus to be congruent with the high level of delivery being proposed. This will likely include software upgrades in the Registrar's office to enhance student degree planning and degree audit reporting as well as a subscription to an ePortfolio platform. The implementation of this new curriculum provides the impetus to make these investments at this time. ~~President Koubek has indicated his support for this infrastructure investment, which is beyond the scope of this proposal.~~

3. **Steady-State Operational Costs:** Steady-state operational costs will be addressed in the larger context of the university's budget process. Supporting this project will be worked into the normal budget development/reallocation process as needed to assure resources are available to support the success of the program. ~~As per President Koubek: "Budgeting and reallocation exercises for campus-wide programming occur at a university-wide level and are always an ongoing process. Supporting this project will be worked into the normal budget development/reallocation process as necessary to assure resources are there to achieve success."~~

Start-up Costs

The successful launch of Essential Education in Fall 2025, with full scale delivery by Fall 2027, will require funds to support the following:

- Course development grants (buyouts/summer pay): Michigan Tech Seminars and Essential Education Experiences (\$278k)
- Essential Education Minor development grants (buyouts/summer pay): (\$44k)
- Buyouts/summer pay for working groups: (\$206k)
- Advising workshops: advisor stipends and event costs (\$40k)
- ePortfolio piloting: 200 accounts/year (\$10k)
- Project management: (\$173k)
- Temporary staffing for the registrar's office to support encoding of the new program (\$158k)
- Buyouts/summer pay for implementation team leadership: (\$48k)
- Marketing: internal and external communications, materials for recruiting, website (\$200k)

We expect that total start up costs will total approximately \$1.2 Million over 4 years.

Infrastructure enhancements

Implementation of the new program requires enhancements of Michigan Tech's technological infrastructure, including the procurement of an ePortfolio platform to support the use of ePortfolios as a high impact practice to support student learning and supplement assessment. We also strongly recommend the procurement of an integrated degree planning and course demand planning system as part of the transition to Essential Education.

Software: ePortfolio Platform

- To support student integration of learning and reflection throughout the curriculum as well as enhanced opportunities for meaningful assessment, we recommend a subscription to an ePortfolio platform. All Michigan Tech undergraduate students and faculty would have unlimited access to the platform, and for the single subscription price, they could create multiple ePortfolios (perhaps for major capstone projects, career preparation, job searching) in addition to their use in Essential Education.

- Implementation-year estimated cost would be \$21,000 based on 2000 student accounts. Annual cost would rise as the number of students in Essential Education increases. Based on 6000 users, the annual cost is estimated at \$52,500 per year. Faculty and alumni accounts are provided free of charge. A limited pilot would cost \$4,800/year for 200 accounts and is included in the expected start-up costs.
 - The cost of this software could be covered by a \$10/year student fee or equivalent course fees. It is a resource students can keep after graduation if they choose.
 - The cost per account drops to \$9 with 5000 or more users. Any fees collected in excess of the annual subscription cost will fund ePortfolio support in general and related professional development opportunities for faculty.

Integrated degree planning (audit) and course management software

- Michigan Tech currently subscribes to u.achieve as a degree audit tool. With subscription fees around \$10-15k/year, this is a low-frills audit system that provides limited ability for students to plan their schedules or simulate the effects of changing majors. Importantly, u.achieve has no ability to simulate the effect of adding or changing a minor, a function that would greatly support advising of Essential Education minors. Moreover, the system does not support course demand planning, leaving departments to plan only based on past enrollment trends.
- Integrated software solutions are available to support both degree planning and course demand planning. Subscriptions to these systems typically cost approximately \$100k per year. Adopting a more advanced system with improved usability would increase student satisfaction and reduce bottlenecks in advising by providing students with robust course planning tools. Despite the increased subscription costs, there is potential for overall cost savings across the university.
 - Subscribing to a cloud-based system would reduce IT responsibility and upgrade time/costs.
 - Improved system usability would make it easier for the registrar's office to encode courses, saving personnel time.
 - The ability to simulate the effect of selecting among Essential Education minors will reduce demands for additional advising resources.
 - The ability to forecast demand for certain courses (and certain minors) will allow units to distribute resources more intentionally and make hiring decisions proactively, reducing bottlenecks and reliance on last-minute hires to meet general education course demands.
- Adoption of a more integrated degree planning and course management system is a matter of when, not if. We recommend that an investment is made in these software systems in coordination with the implementation of the Essential Education program to ensure that the registrar's office does not need to re-encode the system twice, once in u.achieve and then later in a more modern system.

Steady-state operational costs

To realize the promise of the Essential Education program requires both an initial investment of resources and sustained support to ensure that we have the faculty in place to deliver these programs and meet the capacity that comes with growing enrollment. Essential Education should be delivered on a model that relies primarily on full-time faculty to ensure that students have high quality instruction in the first year by faculty who understand and are invested in Essential Education.

We anticipate the following on-going program costs:

Faculty Lines

- To ensure program success, an increase in budget allocation for instruction should include several strategic hires in Essential Education to reduce our dependence on adjunct instruction to meet capacity demands. Additional hires to support Essential Education instruction will be needed as Michigan Tech's enrollment grows.
 - ~~Currently, annual budget allocations do not fully cover the demands of general education courses. To provide enough capacity, the annual budget allocation is supplemented with funds from other sources, including summer tuition returns.⁶ Eight faculty hires are required simply to replace current general education instruction delivered by temporary faculty funded by other means.~~
 - The transition to Essential Education will require at least similar teaching capacity to the current system, though some realignment of resources may be needed to deliver the new program effectively. This may include addition or realignment of full-time faculty lines to support the Essential Education Program.
 - Growth to any undergraduate program anywhere on campus demands growth in our capacity to teach Essential Education. Commitment to ensuring maintenance of and increases in resources as the student body grows is necessary to ensure that the promise of Essential Education is fully realized for all students. As the Essential Education minors grow in popularity, enrollment in those minors should be used as one of the metrics that informs decisions regarding where teaching capacity is required.

Program Staff Support

- Program Director. Given the large number of responsibilities currently assigned to the Associate Provost for Undergraduate Education, we recommend the formation of a position of Program Director for Essential Education. The details of this position would be determined by the Office of the Provost, but might include involvement in administration of the Essential Education program and pursuing grant funding to support curricular innovation through sources such as NSF DUE, S-STEM, IUSE; NEH or NEA funding; foundations such as KEEN, etc. We envision this role as a faculty line, with a

⁶~~For example, the College of Sciences and Arts spends approximately \$1.2 million annually on temporary instruction. Over half of these expenditures support general education instruction, with funding drawn from sources outside of the annual budget allocations for salary and fringes.~~

0.5 FTE allocation to Essential Education, similar to the model used in Purdue's Cornerstone program.

- Integrative Learning Support. To get the most out of our High Impact Practices, we recommend the creation of a faculty position for integrative learning support. We envision this as a .5 FTE reallocation of a current instructional track faculty position to support Essential Education. This person should be involved in the pedagogical oversight of at least one Essential Education Experience course. This position would support faculty development in ePortfolio pedagogy, coordinate resources for faculty and student ePortfolio use, support ePortfolio assessment-related needs, and facilitate continuous improvement stemming from assessment results.
- Essential Education Experience Coordinator. We propose the creation of a new full-time staff position dedicated to coordinating community engagement and programmatic efforts related to the high-impact Essential Education Experiences, including faculty-led study abroad.
 - To ensure positive university relationships with local communities and organizations, (including protecting partners from research/engagement fatigue) it is critical that communication is coordinated and centralized to avoid overwhelming these partners and to maintain institutional awareness of the number and nature of requests. We expect that this position would also coordinate with other Michigan Tech offices that engage in outreach activities.
 - The Essential Education Experience Coordinator will facilitate faculty who aim to collaborate to design and deliver cross-cutting high impact E³ experiences for students. This will include coordinating with departments when courses are co-taught or need to be co-scheduled, making travel arrangements, setting up meetings for external partners, managing finances of E³ experiences.
 - Currently, faculty-led study abroad coordination is spread across several units without a clear mechanism for faculty collaboration and support or a strategy for promoting student awareness of the range of study-away options at Michigan Tech. Developing a single, centralized position could be seen as a cost-saving reallocation of resources.

Suggested External Support

- Writing Center: We recommend the allocation of additional funds to allow the Michigan Tech Writing Center to provide support for ePortfolios and Writing Across the Curriculum for both faculty and students. Writing Center peer tutors can help support student reflection in the Essential Education curriculum and some ePortfolio mechanics. Already, faculty are increasingly using the Writing Center for help with issues related to Writing Across the Curriculum but the center is not currently funded to support this. This is a current unmet need and this will only increase with the proposed changes.
- Humanities Digital Media Zone (HDMZ): We recommend the allocation of funds to support regular workshops to support students in the design and visual communication aspects of the ePortfolio. Some of the expected student fees related to ePortfolio could go to support the Writing Center and HDMZ as ePortfolio use grows.

Additional Program Support Costs

- On-going internal training suggested through a periodic Lunch n' Learn model.

Use of Resources Currently Allotted to General Education

- Resources currently used by the general education program for assessment processes will be reallocated to Essential Education: staffing, stipends for assessors, and administrators.
- Teaching: many courses will continue with minimal changes. Some teaching responsibilities currently associated with Global Issues will be reallocated to support new offerings in Essential Education.

Financial Information for Senate Finance Committee (108.1.2)

1. Relation to University Strategic Plan
 - a. Relation of program to the university's educational and research goals.
 - i. The proposed Essential Education program supports Michigan Tech's strategic initiatives by:
 1. building 21st century skills sets that are critical for our students to become leaders who can respond to the increasingly frequent technological changes impacting our economy and society.
 2. ensuring that all students engage in high impact practices that support retention and student success.
 3. proposing new learning goals that support more meaningful and streamlined assessment of general education and that sets the stage for changes in the university's overall assessment structures to make them more efficient while producing meaningful and actionable data that can be used to improve programs and student learning.
 4. working to reduce credit burdens for our students by reducing the number of credits in the general education component and increasing double counting opportunities with major requirements.
 5. opening new recruiting marketing opportunities (through the Essential Education minors and the Essential Education Experiences) that are aligned with Michigan Tech's brand and help us tell our story to a new generation of Huskies.
 - b. Consistency with the university's resource allocation criteria.
 - i. This Essential Education proposal is the result of one of the Tech Forward Initiatives and is therefore aligned with Michigan Tech's institutional strategic priorities that should guide university resource allocation.
2. Impact on University Enrollment
 - a. Projected number of students in the program.
 - i. All new undergraduate students would participate in this program. With a university goal of reaching 8000 undergraduate students by 2035, it is expected that enrollment may increase by 45 new students per year. As the proposed program implements a number of high impact practices known to support retention, we anticipate that this new program will support university efforts to increase retention.
 - ii. Source of new students; in particular, will the students be drawn from existing programs, or will they be students who would otherwise not have come to MTU? Not Applicable
 - b. What is the likely correlation between demand for the new program and existing enrollment patterns at MTU?

- i. Essential Education will serve nearly all Michigan Tech students. (The exception is students who come in having satisfied the full MTA.) The Essential Education program is aligned with Michigan Tech’s identity as a flagship technological university that prepares students to be leaders in the Fourth Industrial Revolution. The Essential Education minors and Essential Education Experience are both well aligned with the wants and needs of the “New Husky,” students that are self-directed, pragmatic, creative, future-oriented, altruistic, and focused on self-optimization.⁷ These elements of the Essential Education program add value to Michigan Tech’s major programs, maximizing students’ return on investment from their Michigan Tech education. As such, these programs add to the suite of Michigan Tech signature programs that can be used in the recruiting of students marketed as part of the University’s strategy to meet enrollment targets.
 - c. What is the current enrollment in the unit?
 - i. Not Applicable
- 3. Impact on Resources Required by Department in Which the Program is housed. This would include, but not be limited to:
 - a. Faculty lines:
 - i. See section on Steady-state Operational Costs.
 - b. Faculty and student labs, including ongoing maintenance:
 - i. Not Applicable
 - c. Advising:
 - i. Essential Education minors will increase advising needs in the units that house those minors. As the popularity of minors grows, resources will be needed to increase advisor capacity. If the university procures new audit management software as part of the implementation of Essential Education, new advising costs will be minimized as the software puts some routine advising into the hands of the students by allowing them to plan their schedules in advance and simulate the effects of choosing among the set of Essential Education minors.
 - d. Assessment:
 - i. Resources currently used for general education assessment will be reallocated for Essential Education assessment. Savings from the decrease in the number of goal committees and members will be used to provide resources for faculty doing instructor assessment of courses and also to provide more opportunities for sharing assessment results across campus. ~~(such as a possible Student Learning Summit, see Vision Statement)~~
 - ii. Current assessment staff would transition to supporting assessment in the new program.

⁷ Michigan Tech (2022). *Together We Move Forward*.

4. Impact on Resources Required By Other Units Within the University. This analysis would include, but not necessarily be limited to, the impacts on:
 - a. Other academic (e.g., Gen Ed) units with regard to faculty, labs and assessment. (NOTE: The current Student to Faculty ratio for the university as a whole is approximately 12:1 per Institutional Analysis.)
 - i. Assessment: programs will not be required to assess the new USLGs. They are encouraged to adopt or align their goals to the USLGs but it would not be required.
 - ii. Advising and recruiting will be impacted during the transition, particularly as we will have students in older audit years participating in the current general education program, new students in the proposed Essential Education program, and some students who might opt to switch.
 - b. Information Technology, the Library, central administration and career planning with respect to the impact on the need for computing services, library resources, advising, record keeping, development of employer relations etc.
 - i. The implementation of the selected ePortfolio platform will likely be a project for IT but discussions with EAS suggest it would not likely require additional personnel.
 - ii. Significant additional workload is expected in the Registrar's office to handle all the changes necessary for the switch as this will impact all existing degree audits. We have accounted for this in our budget for start-up costs.
 - iii. It is also expected that demands on the Writing Center will also increase. More faculty have been using the center for assistance with Writing Across the Curriculum-type needs and as the proposed Communication Intensive requirement opens up the ability for other units to offer such courses to meet Essential Education requirements, this need will likely increase. This is currently outside the Writing Center's funded scope. Student peer-to-peer mentors will need training on ePortfolios and there may be additional demand for that help as ePortfolio use grows. This need has been addressed as part of our steady-state operational costs budget.
5. Assessment of the ability to obtain the necessary resources assuming requested funds are obtained
 - a. For high demand fields (e.g., business fields, etc.), will it be possible to fill allocated lines
 - i. Difficulty filling the proposed roles is not expected.
6. Past proposals. Has the department initiated any other new degree programs in the last five years?
 - a. Not Applicable
7. Departmental Budget contribution
 - a. What is the department's total general fund budget?
 - i. Not Applicable

- b. How much tuition does the department generate? This information should be provided for both the credit hours taught by the department and the number of credit hours taken by the department's majors.
 - i. All non-transfer students would be taking the full 37 credit hours in this program.
 - ii. It is estimated that \$35.4 million in tuition dollars per year would be generated in the Essential Education program. This would increase as enrollments increase to hit the desired target of 8000 undergraduate students by 2035. This calculation is based on:
 - 1. [current undergraduate enrollment](#) in each class,
 - 2. The following credit distribution taken by the population in each class: year 1 (16 credits), year 2 (11 credits), year 3 (10 credits), and
 - 3. in-state per-credit tuition (\$653/credit).
- 8. How do the benefits from this program compare to other alternatives that are currently under consideration or development. Will approval and allocation of resources to this program preclude the development of other programs?
 - ~~a.~~—The main alternative is no change.
 - ~~b.a.~~ ~~The proposed resources will serve to correct existing instructional shortages and support units that will be critical to implementing this change.~~
 - ~~c.b.~~ Allocation of these resources will not preclude development of other programs but is expected to have many benefits to our existing degree programs (by reduced total credit counts, simplified assessment), students (reduced time to degree through lowered total credits in engineering programs and fewer bottlenecks in required Essential Education courses, simplified transfer in, more opportunities to credentialize and showcase their learning in Essential Education program), and university (hopefully enhanced enrollments, transfer-in, and retainment).