Reimagining Education for the 21st Century
Tech Forward Initiative

A Vision for Essential Education

IDEA hub
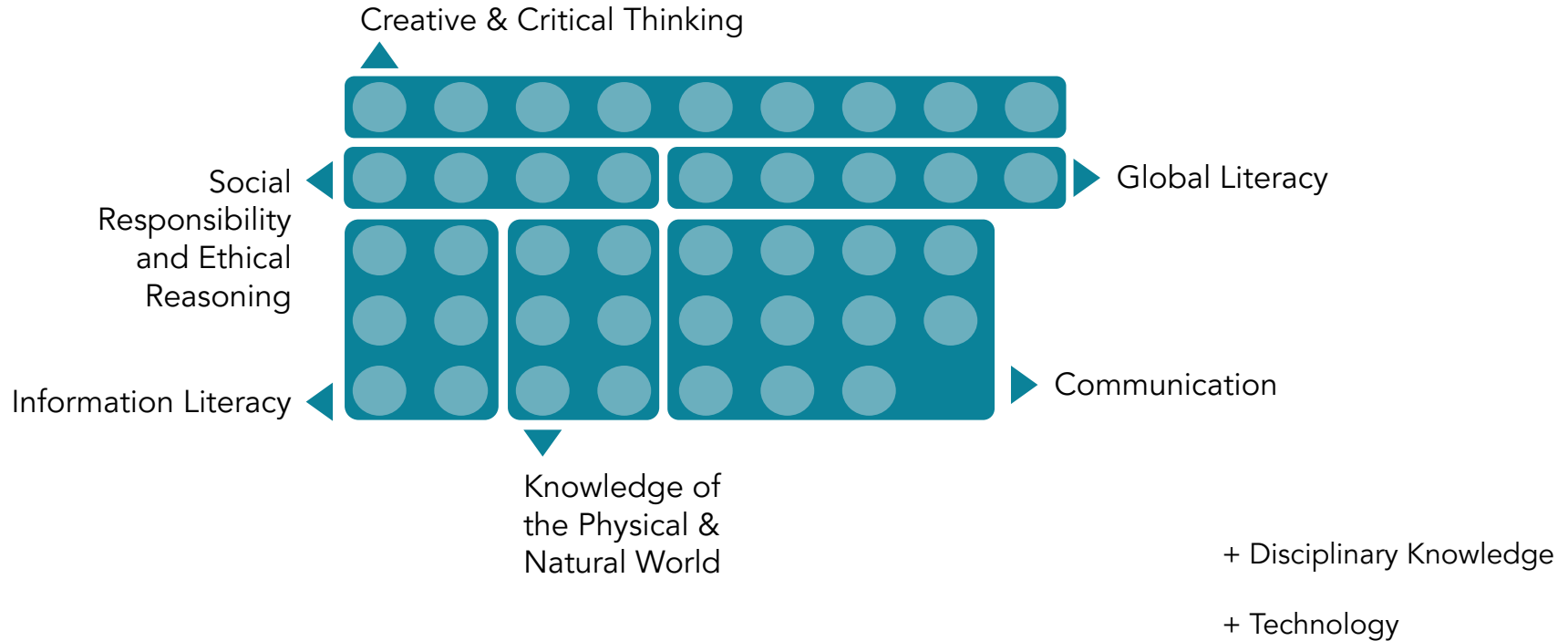Innovate | Design | Engage | Act

Agenda

1. Undergraduate Student Learning Goals

2. The Essential Education Framework

3. How Essential Education supports credit reductions

4. How Essential Education supports improvements to assessment

5. How Essential Education supports students

6. Resources for Essential Education
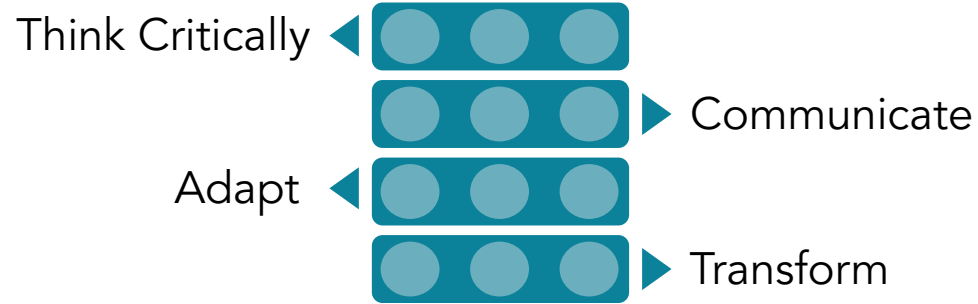
Undergraduate Student Learning Goals

Today's Undergraduate Student Learning Goals

8 goals; 41 performance criteria

Creative & Critical Thinking

Social Responsibility and Ethical Reasoning

Global Literacy

Information Literacy

Communication

Knowledge of the Physical & Natural World

+ Disciplinary Knowledge

+ Technology

Proposed Essential Education Learning Goals

4 goals; 12 performance criteria

Think Critically ◄
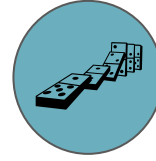
Communicate ►

Adapt ◄
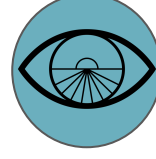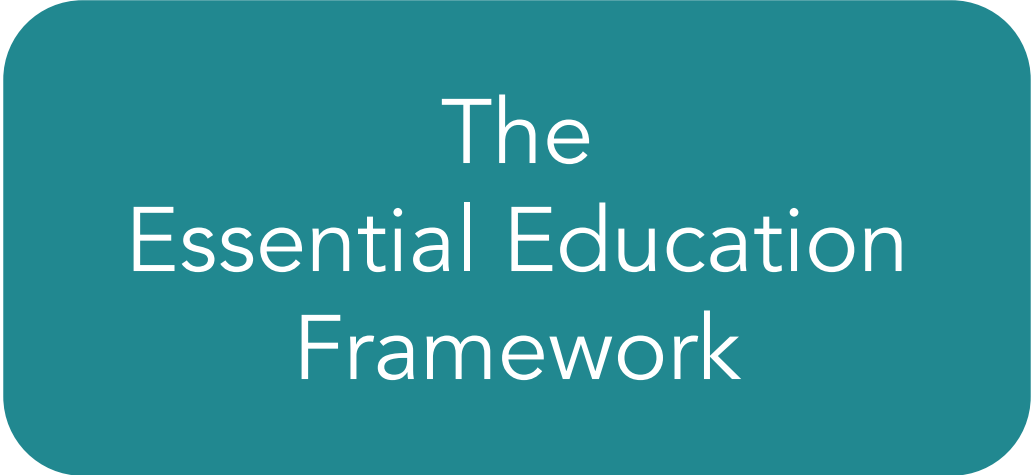
Transform ►

The
Essential Education
Framework

Current General Education Framework

39 credits + 3 units of co-curricular = 42
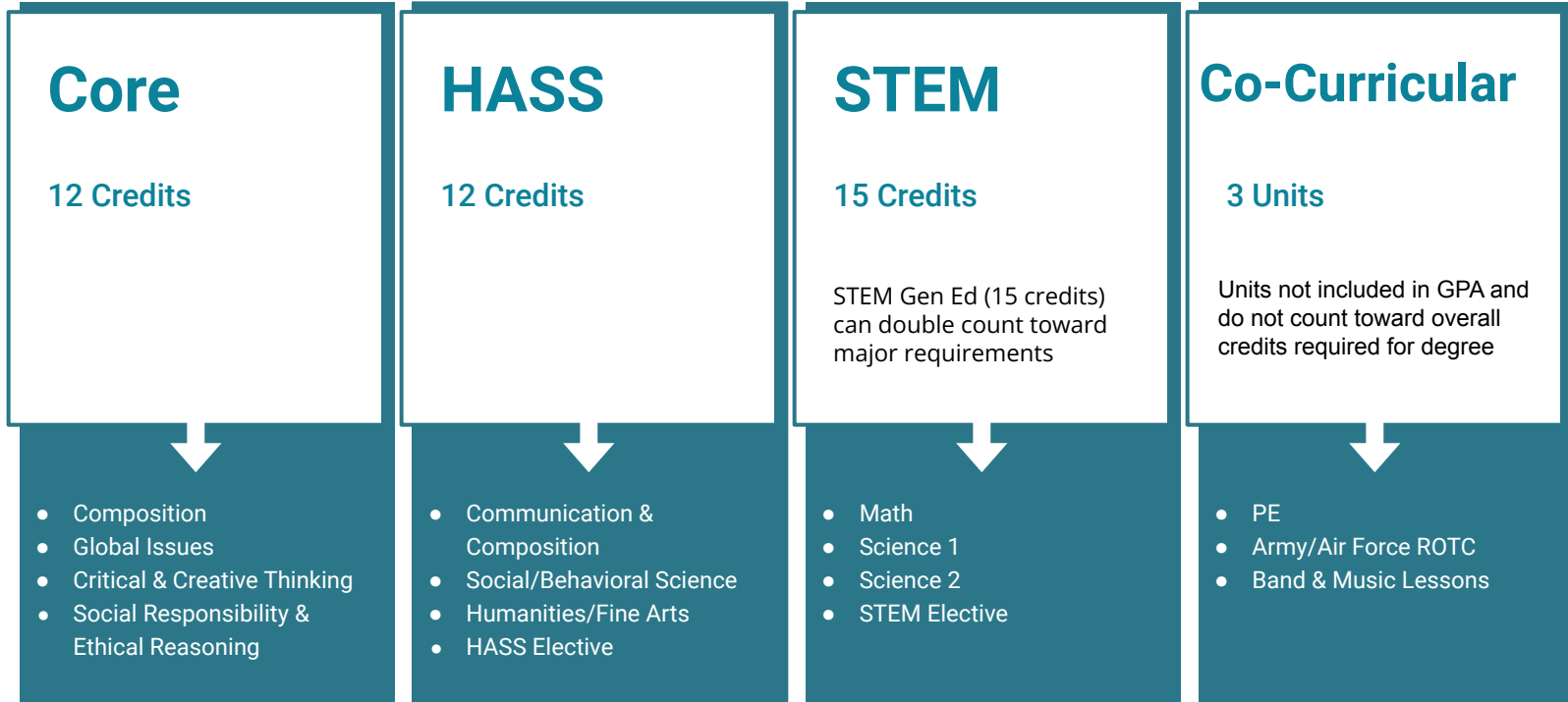
Core
12 Credits

- Composition
- Global Issues
- Critical & Creative Thinking
- Social Responsibility & Ethical Reasoning

HASS
12 Credits

- Communication & Composition
- Social/Behavioral Science
- Humanities/Fine Arts
- HASS Elective

STEM
15 Credits

STEM Gen Ed (15 credits) can double count toward major requirements

- Math
- Science 1
- Science 2
- STEM Elective

Co-Curricular
3 Units

Units not included in GPA and do not count toward overall credits required for degree

- PE
- Army/Air Force ROTC
- Band & Music Lessons

Proposed Essential Education Framework

37 Total Credits

A 5-credit reduction
(plus truth in advertising)

Distribution Pathway Option

First Year Experience
16 credits

OR
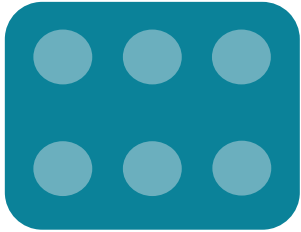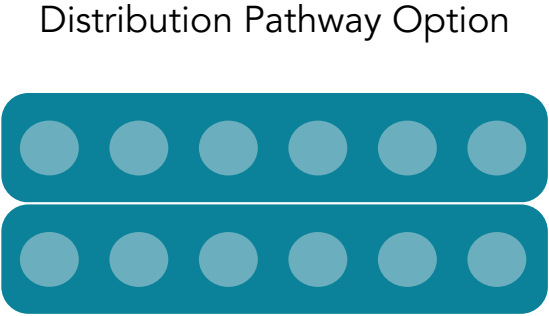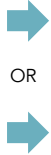
Minor Pathway Option
18 credits

Activities for
Well-being & Success

3 credits

Proposed Essential Education Framework

SHAPE = Social Sciences Humanities & the Arts for People and the Economy/Environment

Distribution Pathway Option

OR

First Year Experience

Minor Pathway Option

Activities for Well-being & Success
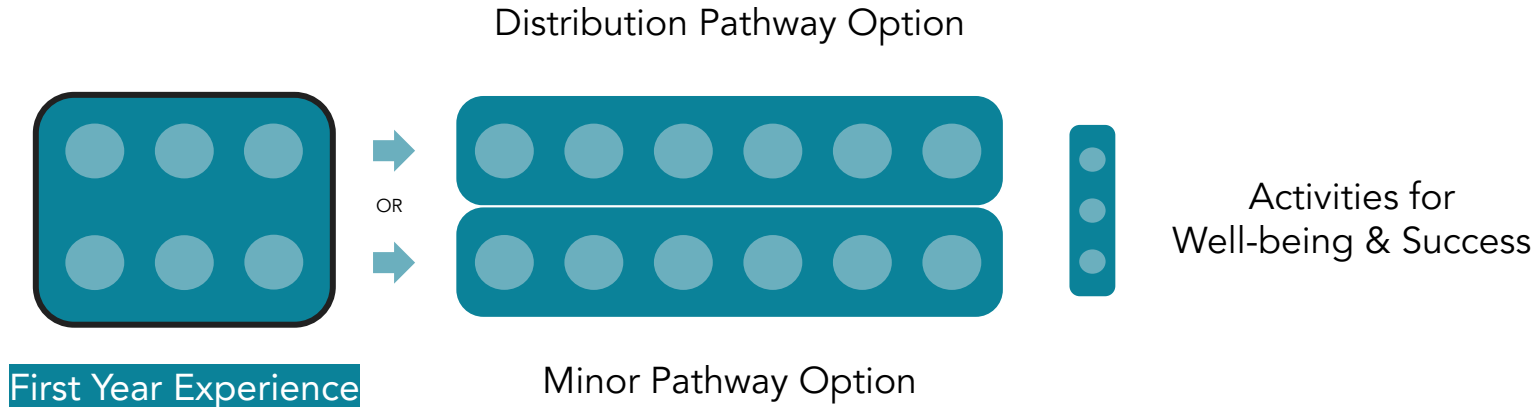
1. Michigan Tech Seminar
2. Composition/Read Write Engage
3. Foundations in the Human World
4. Math
5. Natural and Physical Science
6. STEM

Proposed Essential Education Framework

SHAPE = Social Sciences Humanities & the Arts for People and the Economy/Environment

Distribution Pathway Option

First Year Experience

Minor Pathway Option

OR

Activities for Well-being & Success
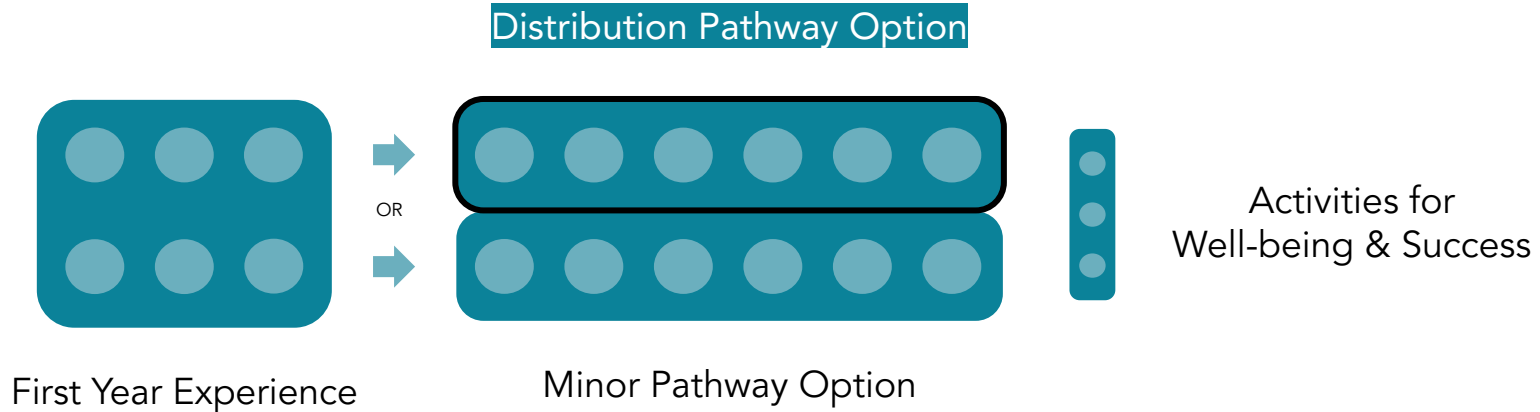
1. Communication Intensive
2. Arts and Culture
3. DEIS (upper division)
4. STEM
5. SHAPE Elective
6. Essential Education Experience (upper division)

Proposed Essential Education Framework

SHAPE = Social Sciences Humanities & the Arts for People and the Economy/Environment

Distribution Pathway Option

First Year Experience

OR

Activities for Well-being & Success

Minor Pathway Option
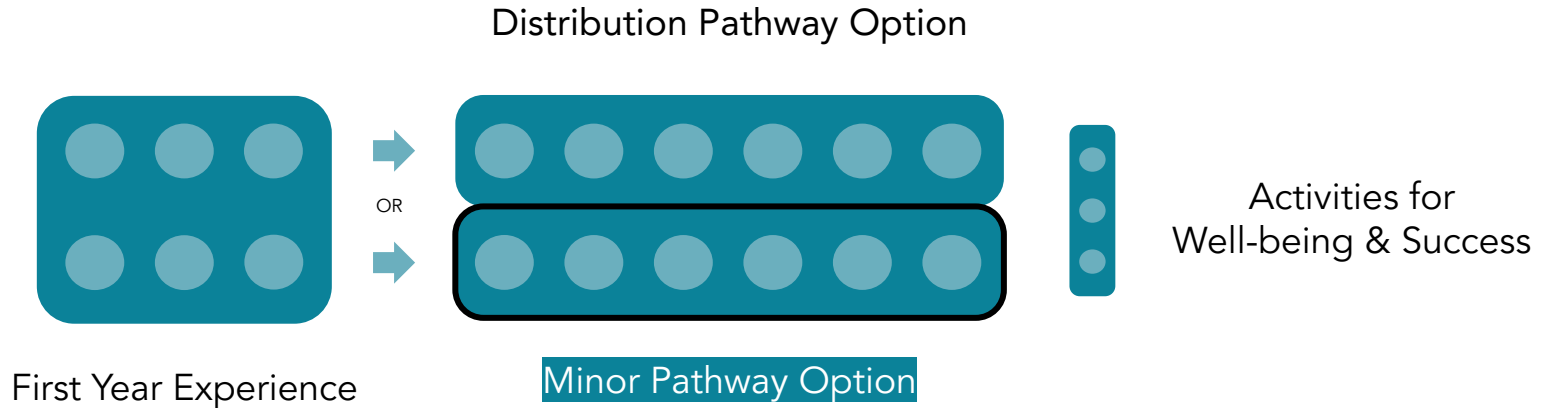
1. Communication Intensive
2. DEIS (upper division)
3. Minor SHAPE Course
4. Minor SHAPE Course
5. Minor SHAPE Course or Essential Education Experience (upper division)
6. Minor Course (no list restrictions)

Proposed Essential Education Framework
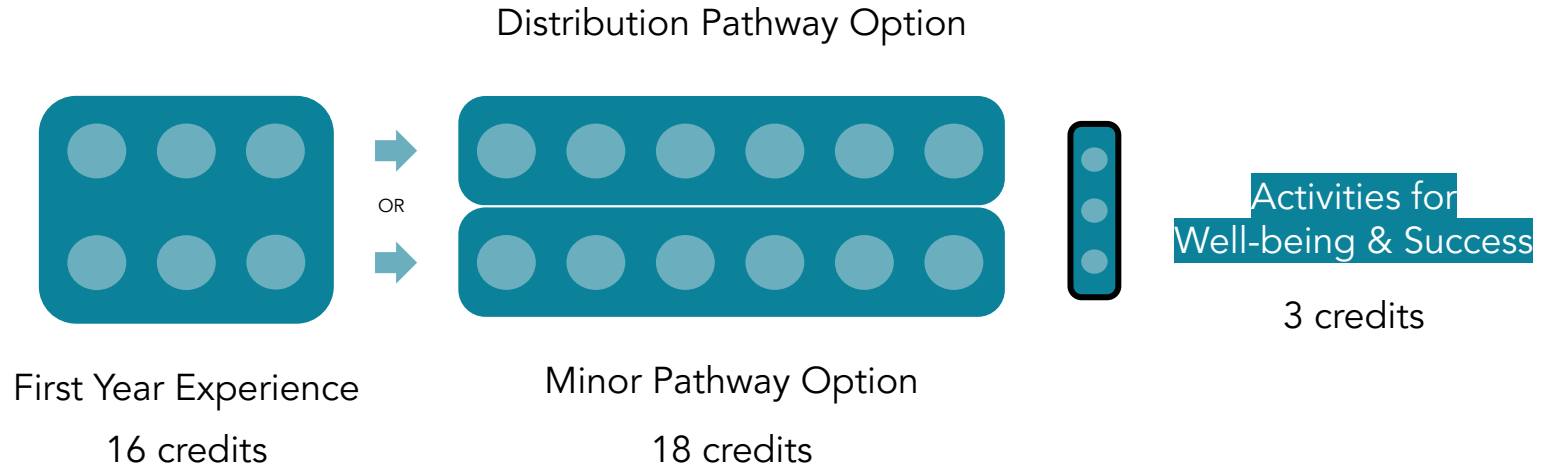
Distribution Pathway Option

OR

Activities for Well-being & Success

3 credits

First Year Experience

16 credits

Minor Pathway Option

18 credits

Proposed Essential Education Framework

37 Total Credits

A 5-credit reduction
(plus truth in advertising)

Distribution Pathway Option

OR
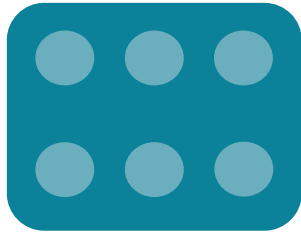
First Year Experience
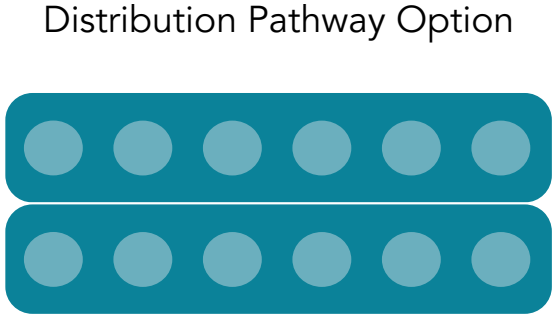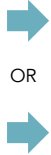
16 credits

Minor Pathway Option

18 credits

Activities for
Well-being & Success

3 credits

New
Essential Education
Components

What is a Foundations in the Human World course?

Not a re-naming of Global Issues!

- The Foundations in the Human World courses ensure that students have exposure to the arts, humanities, and/or social sciences in the first year, to complement first-year courses in math, natural and physical sciences, and composition.

- Student have a choice of which class to take.

Foundations List

Creative & Critical Thinking CORE

Social Responsibility & Ethical Reasoning CORE
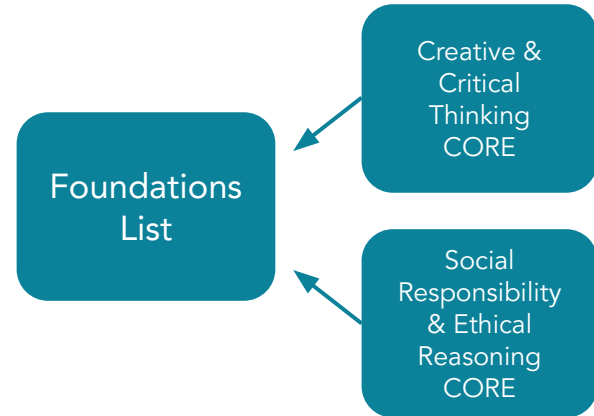
What is an Essential Education Experience?

- An immersive project-based or experiential learning course that leverages, integrates, or expands upon coursework in the pathway.

- Intended to help prepare our students for an ever-changing, dynamic, and diverse world through an experience where the focus is on the application of the knowledge, skills, and perspectives of the SHAPE disciplines.

Option 1: Courses from SHAPE disciplines with a significant civic engagement or service learning component

Option 2: Planned student experiences like faculty led study away or the Pavlis immersion experience.

Option 3: SHAPE curricular course that leverages student's co-curricular experiences, leadership roles, or other philanthropic activities.

How Essential Education supports credit reductions

What are the double-counting rules?

6 of the 13 Essential Education requirements can be satisfied through the major.

Michigan Tech Seminar
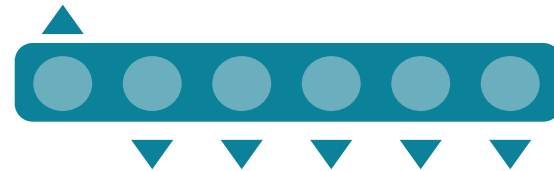
5 other requirements, not restricted by requirement type.

What are the double-counting rules?

Currently, most programs satisfy all STEM components of general education with major requirements. The ability to do so will remain unchanged.

Up to 5 of these can be satisfied by the major.

Michigan Tech Seminar	Satisfied by Major
Mathematics	Satisfied by Major
Natural & Physical Sciences	Satisfied by Major
STEM	Satisfied by Major
Composition/Read Write Engage	
Foundations in the Human World	
Communication Intensive	
Arts & Culture	
DEIS	
STEM	Satisfied by Major
SHAPE Elective	Satisfied by Major
Essential Education Experience	
Activities for Well-being and Success	

What are the double-counting rules?

Flexibility in which requirements can be satisfied via major requirements ensures equity across programs and minimizes penalties for students who change majors.

Up to 5 of these can be satisfied by the major.

Requirement	
Michigan Tech Seminar	Satisfied by Major
Mathematics	
Natural & Physical Sciences	
STEM	
Composition/Read Write Engage	
Foundations in the Human World	Satisfied by Major
Communication Intensive	
Arts & Culture	Satisfied by Major
DEIS	Satisfied by Major
STEM	Satisfied by Major
SHAPE Elective	Satisfied by Major
Essential Education Experience	
Activities for Well-being and Success	

All programs will have an effective 3-credit savings, leading to "truth in advertising".

Many programs will have an effective 6-credit savings.

A Sample Audit

Michigan Technological University Bachelor of Science Degree Audit
Major Program: Mechanical Engineering
Program Code: EME, Academic Year 2022-2023
Total credits required for the degree: 128

Major Requirements: 86 credits

Science

- CH 1150 (3)
- CH 1151 (1)

SHAPE

- EC 3400 (3)
- EE 3010 (3)

Seminar

- ENG 1101 (3)
  - or ENG 1001 (2) and ENG 1100 (2)

STEM

- ENG 1102 (3)

Math

- MA 1121 (4) or MA 1160 (4) or MA 1161 (5)
- MA 2160 (4)
- MA 2320 (2) or MA 2321 (2) or MA 2330 (3)
- MA 3160 (4)
- MA 3520 (2) or MA 3521 (2) or MA 3530 (3)
- MA 3710 (3) or MA 2710 (3) or MA 2720 (4)
- MEEM 2110 (3)
- MEEM 2150 (3)
- MEEM 2201 (3)
- MEEM 2700 (3)
- MEEM 2901 (2)
- MEEM 2911 (3)
- MEEM 3201 (4)
- MEEM 3400 (3)
- MEEM 3600 (3)
- MEEM 3750 (4)
- MEEM 3901 (2)
- MEEM 3911 (3)
- MEEM 4901 (2)
- MEEM 4911 (2)
- MSE 2100 (3)
- PH 1100 (1) or PH 1141 (1)
- PH 1200 (1)

STEM

- PH 2100 (3)
- PH 2200 (3)

Technical Electives: 15 credits

Select a minimum of 6 credits from the following:
Any 4000-level or 5000-level MEEM, non-research course except MEEM4990, MEEM 4901, MEEM4911, MEEM 4999, MEEM5010, MEEM5990, MEEM5994, MEEM5995, MEEM5999

Select remaining credits from the following:

OSM4300 or any 4000-level or 5000-level, non-research course in the College of Engineering except BE4000, BE4900, BE4901, BE4910, BE4930, BE5000, BE5900, BE5930, CEE4510, CEE4900, CEE4905, CEE4910, CEE4915, CEE4916, CEE4920, CEE4930, CEE4990, CEE5190, CEE5250, CEE5390, CEE5490, CEE5560, CEE5561, CEE5562, CEE5563, CEE5590, CEE5690, CEE5890, CEE5920, CEE5930, CEE5990, CEE5991, CEE5992, CEE5994, CEE5997, CEE5998, CEE5999, CM4000, CM4020, CM4040, CM4060, CM4080, CM4855, CM4860, CM4861, CM4900, CM4910, CM4990, CM5900, CM5950, CM5990, EE4000, EE4800, EE4805, EE4870, EE4901, EE4910, EE5290, EE5805, EE5900, EE5990, EE5991, EE5992, EE5994, ENG4060, ENG4070, ENG4900, ENG4905 ENG4910, ENG4990, ENG5060, ENG5100, ENG5200, ENG5300, ENG5400, ENG5990, ENG5998, GE4000, GE4900, GE4910, GE4916, GE4930, GE4931, GE4933, GE4934, GE4961, GE4962, GE4970, GE5187, GE5930, GE5940, GE5950, GE5960, GE5970, GE5994, GE5995, GE5998, MEEM4990, MEEM4901, MEEM4911, MEEM4999, MEEM5010, MEEM5990, MEEM5994, MEEM5995, MEEM5999, MSE4130, MSE4131, MSE4140, MSE4141, MSE4970, MSE4990, MSE5100, MSE5900, MSE5970, MSE5990 and all MET (MMET Department) courses.

Free Electives: 3 credit
Any coursework is allowable, excluding co-curricular and coursework below the 1000- level.

A Sample Audit

Michigan Technological University Bachelor of Science Degree Audit
Major Program: Mechanical Engineering
Program Code: EME, Academic Year 2022-2023
Total credits required for the degree: 128

Major Requirements: 86 credits

- Science → CH 1150 (3)
- CH 1151 (1)
- SHAPE → EC 3400 (3)
- EE 3010 (3)
- Seminar → ENG 1101 (3)
  - or ENG 1001 (2) and ENG 1100 (2)
- STEM → ENG 1102 (3)
- Math → MA 1121 (4) or MA 1160 (4) or MA 1161 (5)
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- MEEM 3400 (3)
- MEEM 3600 (3)
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- MEEM 3901 (2)
- MEEM 3911 (3)
- MEEM 4901 (2)
- MEEM 4911 (2)
- MSE 2100 (3)
- PH 1100 (1) or PH 1141 (1)
- PH 1200 (1)
- STEM → PH 2100 (3)
- PH 2200 (3)

Technical Electives: 15 credits

Select a minimum of 6 credits from the following:
Any 4000-level or 5000-level MEEM, non-research course except MEEM4990, MEEM 4901, MEEM4911, MEEM 4999, MEEM5010, MEEM5990, MEEM5994, MEEM5995, MEEM5999

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Free Electives: 3 credit

Any coursework is allowable, excluding co-curricular and coursework below the 1000- level.

Old: 86 + 18 + 24 + 3 = 131 effective credits

General Education Core, Humanities, Fine Arts, and Social Science (HASS) Requirements: 24 credits
Courses used to complete Core and HASS requirements may not be used to complete other degree requirements. Students must complete 12 credits of Core coursework and 12 credits of Humanities, Fine Arts, and Social Science (HASS) coursework. Repeatable courses may not be repeated for general education credit. Core and HASS courses can be found on the General Education page.

Core: 12 credits
- UN 1015 (3)
- UN 1025 or an upper level modern language (3)
- Critical and Creative Thinking (3)
- Social Responsibility and Ethical Reasoning (3)

HASS: 12 credits, six of the 12 credits must be at the 3000- or 4000- level
- Communication/Composition (minimum 3 credits)
- Humanities and Fine Arts (minimum 3 credits)
- Social and Behavioral Sciences (minimum 3 credits)
- Any course from the General Education Core, HASS, or Restricted HASS course list (0 to 3 credits)

Co-curricular Activities: 3 credits
Required for graduation, but not included in the GPA calculation or in the overall credits required for the degree. Only courses on the co-curricular course list are eligible. Half (0.5) credit courses may be repeated to a maximum of one time for co-curricular credit. Find eligible courses on the General Education page.

Michigan Tech Experience	Satisfied by Major
Mathematics	Satisfied by Major
Natural & Physical Sciences	Satisfied by Major
STEM	Satisfied by Major
Composition/Read Write Engage	3
Foundations in the Human World	3
Communication Intensive	3
Arts & Culture	3
DEIS	3
STEM	Satisfied by Major
SHAPE Elective	Satisfied by Major
Essential Education Experience	3
Activities for Well-being and Success	3

New:

86 + 18 + 21 =

125 effective credits

How Essential Education supports improvements to assessment

How does Essential Education change USLG assessment?

▶ Fewer goals and performance criteria to manage

▶ More instructor choice in performance criteria to assess (only one in most courses)

▶ Two leadership teams engage faculty in conversations and provide help resources

▶ Student Learning Summit

▶ ePortfolio provides curated student artifacts and reflection that can be used to supplement instructor-based and programmatic assessment

How does this proposal set the stage for streamlined program assessment?

We believe the undergraduate student learning goals are the purview of general education upon which disciplinary programs can build.

We do not expect these USLGs to be imposed on disciplinary programs.

"

The Interim Provost and the Associate Provost for Undergraduate Education have stated that they are committed to an ongoing evaluation and revision of 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.

How Essential Education supports students

How does Essential Education support student outcomes and satisfaction?

01 High Impact Practices — Increase student learning, retention, and satisfaction

02 Michigan Tech Seminar — Supports high school to college transition to support first to second year retention

03 Activities for Well-being and Success — Supports student mental and physical health which in turn supports retention and satisfaction

04 Minor Pathway — Makes earning a minor accessible to all students without increasing cost or time to degree

05 ePortfolios — Helps students synthesize, integrate, and communicate their learning

How does Essential Education support advising?

▶ Reduces bottlenecks in Essential Education program

▶ Provides themed lists of courses to help students choose courses that are more meaningful to them.

▶ For students who opt for an Essential Education Minor, the offering departments will provide support with minor advising.

Resources

Resources for Essential Education

1 Start-up Costs

2 Infrastructure Enhancement

3 Steady-State Operational Costs

"The effort of the faculty, staff and students represented in this proposal is impressive. The outcome is important and if approved, we are committed to help it succeed at its aspirational level."

- President Koubek

Thank you

Submit Questions and Feedback ➡