



Report of the General Education Review Task Force

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Executive Summary

The General Education Review Task Force (GERTF) was formed in spring 2013 to conduct a comprehensive review of university general education requirements and develop recommendations to improve the program, after the General Education Advisory Council (GEAC) had found it difficult to respond to multiple proposals requesting changes to general education requirements. The expected outcomes of the review included

1. A rationale for general education requirements
2. Recommendations regarding general education requirements and/or ISLOs for clear alignment
3. A recommended structure for an ongoing review process
4. Support during implementation of general education requirements and/or review process
5. Recommendations for institution-wide support of general education goals

The review and recommendations took three years to complete and included an internal review that involved surveys of student, faculty, and alumni stakeholder groups, meetings with all academic departments and student affairs, review of catalogs, accreditation requirements, previous reform efforts, and state academic agreements. The external review included a literature review, general education conference attendance by members of the task force and other university faculty, and consultation with general education experts at the AAC&U Summer Institute. The majority of the three-year period was devoted to development and vetting of various iterations of a revised general education model. Early work by the Assessment Commission to revise the 8 Institutional Student Learning Outcomes (ISLOs) into six Essential Student Learning Outcomes (ESLOs) formed the basis for the new general education program, called Essential Studies.

Initial program mapping to the learning areas that would become the ESLOs allowed the task force to identify gaps and areas of strength in the current program. The formation of outcome committees to develop specific recommendations to support the learning outcome areas allowed the institution to have targeted conversations about how students could best be supported in achieving the ESLOs. Additional program mapping exercises using revised versions of the Essential Studies program, and department meetings to gather input and answer questions, ultimately allowed the task force to develop the Essential Studies program, and a supporting rationale for it, with due consideration and a delicate balance of many competing interests including general education and program departments, transferability, curricular intentionality, alumni and employer desires, and many others. The development of a unified committee structure for the Assessment Commission, Commission on College Teaching, and GEAC, that includes the outcomes committees will ensure a sustainable review and support process into the future.

The Essential Studies program maintains the 47 credits considered to be at the core of the current general education requirements (18 communication, 12 social science, 9 humanities, 4 natural science, 4 math), but restructures them according to pathways associated with the six ESLOs. Twenty nine credits of foundational coursework supports practice-level coursework in the pathways that is divided into 15 credits of essential practice offered by general education departments, program-integrated courses specified by major programs, and an Essential Studies Synthesis Experience (ESSE) course supported or offered by general education departments, which draws the outcome pathways together to ensure students have an interdisciplinary learning experience that synthesizes their general education coursework prior to demonstration of the outcomes at the capstone level in a program-specified learning experience.

While the work of implementation is ongoing, and a timeline is offered in this report, the recommendation of the task force is complete and is incorporated in detail in this report along with elaboration of the process, committees, and individuals involved. Additional materials produced during the review process, including detailed survey results, meeting minutes, and intermediate documents, have been carefully archived and are available for review.

Introduction

The General Education Review Task Force (GERTF) was formed during winter term 2013, following a charge for a comprehensive review of Oregon Tech's general education requirements issued by Provost Brad Burda on January 29, 2013 (Appendix A). This charge was prompted by a request from the General Education Advisory Council (GEAC) chair Cristina Negoita. Due to limited institutional knowledge of the justification and rationale of the current general education program, GEAC had found it difficult to respond to multiple proposals requesting changes to general education requirements over the past several years. This led to the request for a comprehensive review by an ad hoc committee to establish a rationale for general education that could be used by GEAC as a basis for making future revisions to general education requirements.

The original charge recognized that this review would span several years and require input from both internal and external stakeholders. In conducting this review the task force was asked to draw on work that has been done in recent years with the Association of American Colleges & Universities' (AAC&U) LEAP Vision project, the development and assessment of our own Institutional Student Learning Outcomes (ISLOs), and statewide efforts incorporating community colleges and public universities in an attempt to define what the broad outcomes should be for all degrees independent of discipline using the Degree Qualifications Profile (DQP). The expected outcomes of the review included:

1. A rationale for general education requirements
2. Recommendations regarding general education requirements and/or ISLOs for clear alignment
3. Recommended structure for an ongoing review process
4. Support during implementation of general education requirements and/or review process
5. Recommendations for institution-wide support of general education goals

The General Education Review Task Force initially included the following membership:

- C.J. Riley (Civil Engineering), co-chair
- Sandra Bailey (Director of Assessment), co-chair
- Terri Torres (Mathematics)
- Maria Lynn Kessler (Psychology)
- Matt Search (Communication)
- Jenny Kellstrom (Medical Imaging Technology)
- Maureen Sevigny (Business Management)
- Provost Brad Burda (ex-officio)

In spring of 2015, Linda Young (Communication) replaced Matt Search on the task force. The first meeting of the task force was held on April 23, 2013. The task force began its work by developing a three-year timeline for the review and the following guiding principles.

General Education at Oregon Tech is:

Aligned with Oregon Tech's mission, vision, and strategic plan

We maintain that Oregon Tech's vision for General Education must reflect the institution's overall principles, values, and goals. General Education is and must remain an integral part of Oregon Tech's mission, vision, and strategic plan.

Engaged with the Oregon Tech community

We recognize that General Education is a function of the university as a whole. We commit to seeking, welcoming, and valuing the views of all members of the Oregon Tech Community.

Informed by internal and external expertise

Our goal is to articulate a rationale for General Education at Oregon Tech that incorporates both:

- The body of knowledge generated by past and current scholarly research into General Education practices, policies, and outcomes; and
- The expertise, experience, and institutional knowledge of Oregon Tech's stakeholders, both internal and external.

Adaptable to current and future needs

We recognize that the guidelines for General Education at Oregon Tech must not only provide a rational foundation for policies that reflect the needs and goals of our students, our institution, and our community as they currently exist, but also must be flexible enough to provide a framework for future policies.

As the General Education Review Task Force, we commit to:

Transparent, open communication

We believe that the best way to encourage an engaged, inclusive, institution-wide review process is to ensure that our work is transparent and accessible to the community at large. We will report to our community throughout the review process, through a variety of venues; we will provide various methods for our community to participate in the review process.

A collaborative process

The General Education Review Task Force is not intended to be a representative body, proposing and establishing specific policies for Oregon Tech. Rather, we are members of the Oregon Tech community, and all stakeholders in the future of General Education at Oregon Tech. Our goal is to collaborate with our fellow stakeholders at each stage of the review process.

Timeline of the Review

2013—2014

- External review (described in section III)
- Internal review (described in section II)
- Development of subcommittees (work described in section II)

2014—2015

- Outcomes subcommittees formed (work described in section V)
- Development of a conceptual model for general education at Oregon Tech
- Development of rationale for general education (defined in section IV)
- Development of a governance structure to support general education (described in section II)

2015—2016

- Governance structure implemented
- Development of final model for Oregon Tech general education (defined in section VI)
- Development of implementation plan and timeline (described in section VII)

Internal Review

In fall 2013 the task force began an internal review of general education at Oregon Tech which included:

- reviewing current general education requirements and structures;
- surveying faculty, students and alumni to identify opinions, expectations, and opportunities;
- visiting all academic departments seeking input about strengths and weaknesses of current program;
- gathering institutional knowledge of general education review and reform efforts;
- compiling a history of general education at Oregon Tech; and
- forming subcommittees charged with more detailed review efforts and recommendations to guide the continued work of the task force.

Previous General Education Review and Reform Efforts

Recognizing the need to develop a justification and rationale for Oregon Tech's general education program, the task force dedicated several meetings in early fall 2013 to gathering institutional knowledge regarding the current general education program and past review and reform efforts. In addition to reviewing reports by [DeRosier, Brown, and Clark](#), the task force met with several current faculty to capture their reflections on past work in general education, including Kevin Brown, Linda Young, Mark Neupert, and Mark Clark. It was clear that there had been no substantive change to Oregon Tech's general education model for over thirty years, though several groups had conducted previous reviews. This review emphasized the need for mechanisms for a sustainable review process and improved governance structures to support recommended changes.

As a follow-up, the task force created subcommittees in fall 2013 to aid the task force in a more detailed assessment of the current general education program and provide recommendations for potential changes. The reports and recommendations of these subcommittees follow.

Documentation of Historical General Education Requirements

In addition to the review of historical documents and gathering of institutional knowledge, the task force charged the Documentation subcommittee to review and compile the general education requirements from Oregon Tech catalogs beginning with the 1971-72 catalog. The general education requirements from 1971-2015 are located on the Oregon Tech general education website.

Common general education requirements for baccalaureate degrees first appeared in the Oregon Institute of Technology catalog in 1979 along with seven institutional competencies.

1. Ability to think clearly and effectively, and use the scientific method to propose reasonable solutions to problems.
2. Ability to read and to communicate effectively, both orally and in writing.
3. Ability to develop and maintain mental and physical health.
4. Familiarity with underlying principles in physical, biologic, and social sciences and mathematics.
5. Ability to establish and maintain harmonious and ethical professional and personal relations, and responsibly adapt to a changing social structure.
6. Informed acquaintance with the technical philosophic, literary and artistic achievements of man.
7. Preparation for responsible participation in decision-making through awareness of our heritage and the impact of social, economic and environmental change on mankind's future.

1979-80 General Education Requirements

- 18 credits Communications
- 9 credits Humanities
- 12 credits Social Science
- 12 credits Technology
- 16 credits Math/Science
- 5 credits Physical Education/Health

The structure for general education at Oregon Tech has remained relatively unchanged over the past thirty plus years. Most notable changes in requirements include:

- 1981—a requirement of 36 credits in math and science or 45 credits in math, science and social science was added to receive the Bachelor of Science degree;
- 1985—a 6 credit upper division business requirement was added, then increased to 9 credits in 1987;
- 1993—the 5 credit physical education/health requirement was dropped;
- 1995—an Intercultural Studies “recommendation” was added;
- 2003—the 12 credit technology and 9 credit business requirements were dropped; and
- 2005—lab science requirement added.

Of significant interest is the 36/45 requirement added in 1981 since this requirement and lack of clarity for the rationale behind this requirement was one of the concerns that prompted this review. The task force was particularly interested in researching the origin of this requirement. Based on this explanation in the 1981-82 catalog, “most departments have incorporated the math, science and social science requirements into their curricular requirements,” it appears that this requirement may have been added to serve integration within the major.

Current General Education Requirements

- 18 credits Communications
- 9 credits Humanities
- 12 credits Social Science
- 16 credits Math/Science
- 36 credits Math/Science or 45 credits Math/Science/Social Science

Accreditation and Program Requirements

The Accreditation and Program Requirements subcommittee was led by Jenny Kellstrom and included membership from a wide variety of Oregon Tech programs:

- Jenny Kellstrom—Medical Imaging Technology, Chair and Task Force liaison
- Linda Young—Communication
- Rose McClure—Natural Sciences
- Matt Sleep—Civil Engineering
- Teresa Wolfe—Clinical Lab Science
- Ben Bunting—Humanities
- Jim Hulse—Respiratory Care
- Sean Sloan—Mechanical Engineering
- Christina Crespo—Electrical Engineering
- Maria Lynn Kessler—Psychology

This group was charged with ensuring consistency of general education curricular requirements with program and institutional accreditor requirements. A report listing all programmatic accrediting bodies and a summary of curricular requirements relating to general education was compiled by the subcommittee and provided to GERTF (Appendix B).

Broadcasting and Marketing

The Broadcasting and Marketing subcommittee was charged with ensuring that the general education review was transparent and accessible to the community at large, and supporting the value of general education through marketing. As the general education review evolved into general education reform, the charge of the Broadcasting and Marketing subcommittee shifted to include branding of the new general education program and development of marketing materials to support implementation of the new program. Membership of this subcommittee includes:

- Christian Vukasovich, Department of Communication, Chair
- Sandra Bailey, Director of Assessment, General Education Review Committee Liaison
- Kevin Brown, Department of Communication
- Di Saunders, Associate VP for Communication and Public Affairs
- Bill Goloski, Publications and Graphic Design Manager
- Holly Anderson, Admissions
- Ryan Madden, Department of Humanities and Social Sciences
- David Hammond, Department of Mathematics

The initial work of transparency for the general education review was initiated by the GERTF. Incorporating input from the task force, Sandra Bailey developed a website linked from the Provosts' webpage designed to provide updated

information on the review process to various stakeholders. Information on the website included the original charge from the Provost and expected outcomes of the review, guiding principles developed by the task force, a timeline for the review, subcommittee membership and charges, resources and readings identified by the task force, and reports of the task force throughout the review process.

The Broadcasting and Marketing Subcommittee was formed winter term 2014 and held its initial meeting March 6, 2014. During this meeting the subcommittee reviewed its charge and made recommendations for the already established website. Several additional modes to achieve the goal of transparency were initiated by this group including updated reports and FAQs on the website, visits to department meetings, announcements at Faculty/Administrator meetings, university wide forums, and reports during fall convocations. Copies of presentations are located on the general education review website.

In January 2015, the subcommittee received a specific charge from Oregon Tech President, Chris Maples, via the task force. This charge was to develop a name and tagline for the common education experience of Oregon Tech students. The subcommittee reviewed examples from other institutions, the Oregon Tech mission statement, and the draft rationale for general education created by the GERTF. In addition, the subcommittee received suggestions from faculty, staff and students. Following a vetting process the committee recommended “Essential Studies” to describe the new general education model being developed by the task force. During spring term 2015, the name was presented to campus during a forum introducing the conceptual model.

The work of the Broadcasting and Marketing subcommittee will continue through the implementation of the Essential Studies program transitioning from a subcommittee of the General Education Review Task Force to a subcommittee of the Academic Excellence Coordinating Committee. The subcommittee’s charge through implementation includes:

1. Develop messaging about the current process (implementation timeline).
2. Generate and test names and descriptions of the various elements of the Essential Studies program and support structures.
3. In close cooperation with the Marketing Department, develop talking points, language and materials to describe the Essential Studies program for the various groups who will be describing it (faculty, admissions, advisors, executive staff, board).
4. Integrate the Essential Studies messages with the University’s messages.

Structures and Processes

The membership of the Structures and Processes subcommittee was made up of the General Education Advisory Council (GEAC), with Terri Torres as chair and liaison to the task force. This subcommittee was charged with conducting a review of current general education structures and processes, making recommendations for changes to general education structures and processes, and planning for implementation of any changes to policy, structures, and processes. This subcommittee consisted of

- Aaron Scher, Department of Electrical Engineering and Renewable Energy
- Andria Fultz, Department of Communication
- Dawn LoweWincentzen, Librarian
- Dibyajyoti Deb, Department of Mathematics
- Douglas Lynn, Department of Computer Systems, Chair of CPC
- James Ballard, Department of Mathematics
- Linda Young, Department of Communication
- Matt Search, Department of Communication

- Molly OShaughnessy, Department of Natural Science
- Ryan Madden, Department of Humanities and Social Sciences
- Sandra Bailey, Director of Assessment

Following a review of existing GEAC policies and procedures the Structures and Processes subcommittee determined the need for a better defined structure and committee organization to support the ongoing maintenance of general education at Oregon Tech. Major problems were identified that contributed the committee's inability to make substantive changes to general education over the past several years including:

- no documented rationale for general education to serve as a foundation on which to base change;
- no system of periodic review of general education;
- a lack of continuity given high turnover in leadership and membership of GEAC;
- GEAC was mostly tasked with looking at individual general education requirements, without a global vision;
- a scarcity of institutional knowledge led to ongoing changes to policies and procedures;
- GEAC had a perceived lack of decision-making power;
- a lack of professional development for faculty serving on GEAC; and
- a lack of designated support staff.

The subcommittee envisioned a governance structure that would connect GEAC to the work of existing committees to better leverage the scarce resource of faculty time and energy. The biggest connections emerged between general education (GEAC) and the following groups:

- the Commission on College Teaching (CCT), which could be leveraged to provide and support faculty professional development focused on the general education program,
- the Assessment Commission, which measures student learning and identifies opportunities for improvement both within programs and general education; and
- the outcomes subcommittees created to redefine Oregon Tech's institutional student learning outcomes and recommend general education requirements to support these outcomes.

Given the Assessment Commission's already strong connection with CCT to deliver convocation workshops that support both bodies (and the institution), it was decided there needs to be a structure that more clearly aligns the work of the two committees. Given general education's (developing) clear association with institutional student learning outcomes, which form the basis of our institutional assessment work, alignment is not only reasonable but more efficient. And given CCT's mission of promoting excellence in teaching at the institution, it makes sense that they are the body to strategically identify opportunities to promote those areas with identified needs for improvement.

Recommendations

- Unify committee structures to better support the work of GEAC, CCT and the Assessment Commission (Appendix C).
- Establish Essential Student Learning Outcomes (ESLO) Committees as standing committees with shared membership with the three main committees to ensure ideas and initiatives are connected.
- Appoint a Director of Academic Excellence to coordinate the work of these committees and lead the Center of Academic Excellence at Oregon Tech.
- Hire a dedicated executive assistant to support the Director and three main committees.

- Establish the Academic Excellence Coordinating Committee including the chairs of the three main committees and the Director of Academic Excellence.
- Connect GEAC to Faculty Senate by including the chair of Academic Standards as a member of GEAC and providing regular general education reports at Faculty Senate meetings.
- Establish release time for the chairs of the three main committees to focus on the needs of these three critical committees and to form the basis for a potential Center for Academic Excellence that would serve faculty in a more apparent way to promote the goals of general education and teaching excellence.
- Establish funding for professional development through conference attendance for the chairs of the three main committees and the Director of Academic Excellence.
- Develop charters/charges for each of these committees defining roles and responsibilities and post on the Provost's webpage.
- Review Oregon Tech's governance structure in light of these proposed changes and other governance changes at the institution. It is important the Academic Excellence structure is clearly aligned with other existing groups to ensure open communication between faculty committees and decision making bodies.

Provost Brad Burda approved the recommended governance structure in spring 2015 and began implementation fall 2015 by establishing the ESLO committees as standing committees, appointing a Director of Academic Excellence, and providing support staff. The three main committees have been charged with rewriting their charters in 2015-16. In addition, GEAC has developed and piloted a course approval process (Appendix D) and developed a timeline for approval of all Essential Studies courses in 2016-17 coordinating with the Curriculum Planning Commission (CPC) processes. Implementation of the Essential Studies program will be led by the Academic Excellence Coordinating Committee beginning spring 2016.

Outcomes and Assessment

The membership of the Outcomes and Assessment subcommittee included the Assessment Executive Committee, with Veronica Koehn as chair and Maria Lynn Kessler as liaison to the task force. Their charge included a review of internal and external assessment data, identification of gaps, and recommendations for changes to general education requirements and/or ISLOs. In addition, this group was asked to revise assessment plans and processes as needed.

ISLO Review

The 2013-14 review of Oregon Tech's Institutional Student Learning Outcomes included reflection on seven years of ISLO assessment data, mapping the ISLOs to the general education requirements, and comparing ISLOs and current Gen Ed requirements to national trends (the DQP and the AAC&U LEAP Essential Learning Outcomes). The subcommittee found the ISLOs and general education requirements were not aligned and therefore submitted to GERTF a recommendation to revise the ISLOs based on six learning areas identified in the review (Appendix E).

During the fall 2014 Convocation, the task force led faculty in a mapping exercise. Program faculty mapped their curriculum to the six learning areas. Following this exercise six outcomes subcommittees were formed to define the learning areas and criteria. The subcommittees completed their work and provided recommendations for changes to the ISLOs in November 2014. The Assessment Executive Committee compiled the recommendations and held a faculty forum on December 2, 2014. Six new ISLOs were adopted by the Assessment Commission and approved by the Provost on February 2, 2015 (Appendix F). In spring of 2016 Oregon Tech's ISLOs were renamed Essential Student Learning Outcomes (ESLOs) to more clearly connect to the general education program, Essential Studies.

Assessment Processes and Plan

The Outcomes and Assessment subcommittee also recommended changes to the academic assessment plan to formalize connections created with the new governance structure, connecting assessment findings to the work of CCT and GEAC to better support continuous improvement. The result is a six year continuous improvement cycle connecting ESLO assessment, professional development, and general education (Appendix G). The Assessment Commission began implementation of this six year cycle beginning in 2015-16.

Articulation and Transfer

Maureen Sevigny served as the liaison to the task force regarding articulation and transfer by providing information on current transfer policies and articulation agreements, and warning of potential issues with transferability in the creation of new general education requirements. In spring 2016 a transfer committee was formed with Marla Edge, Director of Academic Agreements, as chair. The charge of this group is to organize the work surrounding transfer through the implementation process.

Stakeholder Input

The Stakeholder Input subcommittee of the General Education Review Task Force was charged with gathering input from stakeholders by conducting surveys and/or forums. Membership included:

- CJ Riley—Task Force liaison
- Michael Benedict – ASOIT President
- Justin Parnell – Alumni Survey
- Carl Thomas – HS/CC connections and prospective parents
- Brittany Miles – Industry
- Barb Conner - Retention
- Joseph Maurer – Student Affairs
- Dan Ziriach – Graduate Survey and Career Services
- Sophia Lyn Nathenson – HAS and survey writing
- Ken Usher – Health

The subcommittee conducted surveys of faculty, students, and alumni beginning in fall 2013. The results of these surveys summarized below, were used to develop the rationale for general education at Oregon Tech. In some cases, there was very clear alignment between the highest ranked outcomes of general education between the stakeholder groups, such as all groups prizing clear and persuasive written communication, but faculty had a clear preference for breadth of study, problem solving and decision making with ethical, evidence-based approaches, while students and alumni seemed focused on working effectively with others to reach similar outcomes. Complete survey results are maintained in the GERTF archive. The written comments from these groups were particularly enlightening and indicated in some cases just how important general education is and in other cases how misunderstood it is and how dismissive some students and alumni can be about its value, especially when compared to major courses. These comments, whether positive or negative, ultimately confirmed the necessity of the review and reform.

Top 10 Ranked Outcomes of General Education from Faculty, Student and Alumni Surveys

Faculty	Students	Alumni
Write clearly and persuasively	Write clearly and persuasively	Write clearly and persuasively
Practice ethical decision making	Converse with anyone	Listen actively
Critically evaluate information	Solve a wide variety of problems	Read and understand a variety of topics in a variety of media
Recognize bias	Listen actively	Converse with anyone
Use data to evaluate claims	Critically evaluate information	Be humble and tolerant
Solve a wide variety of problems	Get things done in the real world	Solve a wide variety of problems
Make connections between diverse fields of study	Read and understand a variety of topics in a variety of media	Critically evaluate information
Read and understand a variety of topics in a variety of media	Be humble and tolerant	Practice ethical decision making
Be self-critical/recognize personal bias	Seek out intellectual challenges	Use the scientific method
Use the scientific method	Practice ethical decision making	Be self-critical/recognize personal bias

The AAC&U employer survey and economic trend research was also referenced at this point in the review. It provides valuable support for a broad education that incorporates the application of general studies in addition to field-specific learning.

External Review

In the early stages of the review process the task force recognized a need to survey the general education landscape beyond the borders of Oregon Tech. Beginning in the summer of 2013 task force members conducted a literature review reading a wide range of publications focused on the evolution of general education and higher education in the United States. Some of the most influential readings are included in Appendix H.

In addition, the GERTF attended general education conferences and institutes sponsored by AAC&U and the Association for General and Liberal Studies where task force members learned from other institutions involved in similar reform efforts. In the spring of 2014 the task force held a faculty forum and presented the findings from the external review as “National Trends in Gen Ed.” The presentation included basic features of general education models and examples from a variety of institutions.

In June 2014 six members of the task force attended the AAC&U Institute on General Education and Assessment. During the Institute, campus teams explore intentional, well-defined, and meaningfully assessed models of general education; processes of redesign; and the implementation of highly effective practices aligned with the Essential Learning Outcomes. This week-long institute provided the Oregon Tech team with the opportunity to bring together much of what was gleaned from the internal and external reviews and begin to shape a new general education model. Institute faculty offer their time during the week to consult with campus teams; the Oregon Tech team was fortunate to connect with Ann Ferren, a senior fellow at AAC&U. Ann continued to consult with the task force over the next two years reviewing progress and offering advice on curricular reform, as well as, academic processes and governance. Other

key takeaways from the Institute included a recognized need for resources for sustainability, institutional reward structures, and communication strategies throughout the review process.

Rationale Development

The development of a rationale to support Oregon Tech's general education program was a main outcome of this review and was informed by both the internal and external reviews. The rationale which follows is unique to Oregon Tech and aligned with our mission (Appendix I). The first draft was presented at a Faculty-Administrator meeting on March 11, 2014 and the final version was the basis of the recommendations of the task force presented at the April 19, 2016 Faculty/Administrator meeting. The task force recommends that GEAC use the rationale as a guide when considering future changes to general education requirements.

Essential Studies Rationale

Given Oregon Tech's

- applied mission
- diverse student body composed of traditional and non-traditional, first-year and transfer, first-generation, low-income and legacy students
- history of rigorous professional preparation
- established focus on communication
- teaching-focused faculty
- innovative programs and general electives
- established culture of assessment
- excellent placement rates for graduates

and

- the rapidly changing nature of technology and the world, and
- the fundamental purpose of a university to educate students both broadly and deeply

Oregon Tech will ensure that students are equipped not only with the technical ability to influence and succeed in the world through a particular program of study, but that they will apply their skills and knowledge eloquently, responsibly, collaboratively, objectively, considerately, and in broad contexts beyond the major program.

Oregon Tech will provide students with ways to engage in lifelong and professional learning by developing their abilities to effectively

- communicate
- conduct inquiry and analysis in diverse fields
- practice ethical decision making,
- work with others
- reason quantitatively, and
- function individually and within diverse global and cultural systems.

In support of these outcomes, Oregon Tech will offer and maintain an Essential Studies program that

- is intentional and scaffolded
- is developmental with Essential Student Learning Outcomes (ESLOs) supported and demonstrated at the foundation, practicing, synthesis, and capstone levels

- prepares active and educated citizens with a sense of personal and civic responsibility as well as a professional career
- provides a broad education in areas outside of the major program allowing for personal growth, broad disciplinary learning, and exploration
- allows students the freedom to choose from a variety of elective courses
- includes upper-division coursework that may be required even for transfer students and is intentionally tied to lower division or transfer work
- provides opportunities for interdisciplinary courses and co-teaching
- incorporates high-impact practices supported by strong faculty professional development structures
- uses a curricular design philosophy that ensures that all cognitive levels of Bloom's taxonomy are addressed at each level of achievement (foundational, practice, capstone) but that the difference between these outcome levels is the amount of scaffolding and instructor support
- is integrated with major programs with necessary communication and staff supported by the administration and faculty policy
- is reviewed and updated on a regular cycle, based on rigorous assessment data

Reform Process

Insights gained from the review (April 2013—June 2014) not only supported the development of the rationale for general education at Oregon Tech, but also indicated the need to make changes to the governance structure to support general education and adjustments to Oregon Tech's current general education model. As mentioned, the beginnings of the reform process began at the AAC&U summer institute in June 2014 where the task force first developed a vertically integrated model for general education.

The following fall (2014) six outcomes committees were formed (Appendix J) to redefine institution-level student learning outcomes based on the recommendation of the Outcomes and Assessment subcommittee. Once outcomes and criteria for assessment were vetted and approved, these groups went on to recommend curricular pathways that would lead to fulfillment of the identified expectations upon completion of a baccalaureate degree (committee reports are maintained in the task force archive). The task force held a two-day retreat with consultant Ann Ferren in March 2015 to consider the recommendations from these committees and further develop the model. The result of this work was presented at a Faculty/Administrator meeting on May 5, 2015 and followed up with visits to all academic departments to collect feedback on the model.

Fall 2015 brought further refinement of the model, curricular mapping of all academic programs, and more rounds of vetting seeking input from ESLO committees (formerly outcomes committees) and academic departments. Based on this round of feedback, the task force spent winter term making final adjustments to the model and developing the recommendations detailed in the next section of this report.

The final model and task force recommendations were presented to the university community through a series of presentations in April 2016. A summary of these presentations and approvals follows:

- **ESLO Committees and GERTF Subcommittees**, April 1, 2016—as the individuals involved in development, this group was the first to preview the model, hear recommendations regarding implementation, and ask questions.
- **Faculty Senate**, April 5, 2016—C.J. Riley gave a final report from GERTF and asked for support to move to implementation resulting in a unanimous vote.
- **Executive Staff**, April 12, 2016—this group also supported the move to implementation and identified many positive benefits to the institution as a result of this work.

- **Provost’s Leadership Team**, April 13, 2016—the presentation to this group focused on resource needs and the implementation timeline. The group also offered their support to move forward.
- **Academic Council**, April 15, 2016—this presentation allowed academic department chairs to ask questions regarding implementation, faculty workload, implications on transfer, and assessment of the new model. This group was asked to support faculty and recognize their efforts through the implementation process.
- **Faculty/Administrator Meeting**, April 19, 2016—task force co-chairs C.J. Riley and Sandra Bailey presented the final recommendations and details of the Essential Studies Program. Provost Brad Burda thanked faculty for their excellent work on this project over the past three years and provided a commitment to support the work moving forward.

A detailed timeline of the work is provided in Appendix K. GERTF meeting minutes and feedback from department visits have been submitted to the Provost along with this report.

Recommendation

Following the extensive review and reform process described in this report, the General Education Review Task Force recommends replacing Oregon Tech’s current distribution model for general education with the newly developed Essential Studies program. These recommendations are in addition to the previously approved and implemented recommendations regarding governance structures, and processes for assessment and general education course approval described in section II of this report.

The Essential Studies Program

- is unique to Oregon Tech and supportive of our applied, hands-on mission;
- is directly tied to the rationale for general education (section IV) developed as an outcome of the review;
- provides experiences that lead to the development of demonstrable proficiencies aligned to Oregon Tech’s ESLOs;
- ensures the Oregon Tech ESLOs will be practiced and integrated at increasingly more challenging levels from Foundation to Capstone and are deliberately connected to the complexities of the world beyond college;
- integrates student learning as it prepares students for the changing nature of knowledge, even in their own fields;
- is deliberately designed to prepare all students for their personal, civic, and professional lives beyond Oregon Tech by fostering knowledge of the wider world and by preparing them to think analytically and learn collaboratively; and
- asks that curricula go beyond simply requiring students to take courses from different disciplines. The program asks that students explore connections among different disciplines and then apply information and habits of mind learned in one setting to other settings. Deliberateness is essential; it is not enough to be exposed to information.

Purpose of Essential Studies

Oregon Tech’s Essential Studies program has been designed to help students

- acquire knowledge and skills as integrated elements of the educational experience through the study of broad topics, principles, theories, and disciplines;
- widen perspectives, explore relationships between subjects, and develop critical and analytical thinking skills in areas integrated with a student’s major;

- make progress toward becoming educated persons while providing a Foundation for lifelong learning; and
- become competent, well-rounded professionals as well as well-educated human beings and citizens.

Oregon Tech’s Essential Student Learning Outcomes (ESLOs) are embedded in the Essential Studies curriculum and help to ensure that students are not only equipped with the technical ability to enact significant change in the world through a particular program of study but are also prepared to enact that change eloquently, responsibly, collaboratively, and considerately. The Essential Studies program provides students with opportunities to engage in lifelong and professional learning by effectively

- communicating,
- conducting inquiry and analysis in diverse fields,
- practicing ethical decision making,
- working with others,
- reasoning quantitatively, and
- working within diverse global and cultural systems.

Employers want graduates who can

- contribute to innovation in the workplace,
- think critically, communicate clearly, and solve complex problems, and
- draw on both field-specific knowledge and skills and a broad range of skills and knowledge (as cited in *General Education Maps and Markers*, AAC&U, 2015).

Identified Gaps in Current Program

Through the internal and external reviews described in sections II and III of this report, specific problems were identified with Oregon Tech’s current general education program and requirements. The following table describes these gaps and the specific solutions designed into the Essential Studies program.

Identified problem in current GE	Essential Studies solution
Current distribution model with ‘a la carte’ menu of disconnected courses. Curricular mapping indicates lack of clarity and intentionality between institutional outcomes and the curriculum.	Coherent curriculum defined by what all Oregon Tech students should know and be able to do when they graduate. Connections of foundation to practice to capstone. Integrated into the discipline, synthesis in the ESSE and Capstone. ESLO pathways articulate clear connection of required coursework to the six essential outcomes.
Students lack an understanding of the outcomes they are expected to achieve and fail to see the relevance of GE courses.	The Essential Studies program requirements identify the outcomes (ESLOs) and the curricular pathways to achieve them. GE and major complementary. Major programs place greater value on GE proficiencies by enabling students to continue to develop those proficiencies.
Curriculum is not vertically connected outside the program. The 36/45 requirement provides depth in program rather than GE.	Practice and capstone levels build upon foundation knowledge and skills. Depth outside the major in required practice courses.

Diverse Perspectives ESLO is not a GE requirement and curricular mapping reveals that it is not systematically addressed by programs.	Diverse Perspectives foundation course and pathway.
Reinforcement of writing is not intentional in current GE program. Writing assessments indicate students have difficulty transferring skills from WRI courses into disciplinary writing.	Writing at the practice level is integrated into the program through Essential Practice course and Program-Integrated courses. Writing is reinforced in the upper division Essential Studies Synthesis Experience and program-defined Capstone. Professional development supporting common expectations and pedagogy is provided for faculty teaching practice courses.
Assessment results indicate a weakness in inquiry and analysis skills.	Inquiry and analysis foundation courses, Essential Practice courses, Program-Integrated courses and the Essential Studies Synthesis Experience.
Assessment of the Math Knowledge and Skills ISLO indicated a vast difference in expectations across majors, this led to the Assessment Commission adoption of the new Quantitative Literacy ESLO as a better institutional outcome. Quantitative Literacy has been defined with personal, civic and professional components. The current math requirement does not connect to the new ESLO.	The Quantitative Literacy foundation statistics requirement provides essential skills so students can apply quantitative reasoning in personal, civic and professional settings. The Essential Studies Synthesis Experience will reinforce all aspects of Quantitative Literacy.
Ethical Reasoning ESLO is not consistently embedded in curriculum across programs. While most programs address professional ethics at some level, few students are exposed to formal ethical reasoning to guide ethical decision making in all aspects of their lives.	The recommendation builds on programs' strengths to introduce ethical obligations within the profession. The Essential Practice courses introduce and apply moral theories to guide students in making rational moral judgements. The Program-Integrated courses apply ethical reasoning in the context of the discipline. Ethic reasoning is reinforced in the Essential Studies Synthesis Experience and the Capstone.
No requirement exists to provide opportunities for students to work with others outside their major. Students being "siloed" in major programs limits their practice of Essential Studies skills to a narrow application, when employers are asking for a curriculum that requires students to integrate their major area of study with other disciplines and apply all they have learned to real-world situations.	SPE 321 Small Group and Team is being repurposed as a foundation course (SPE 221) equipping students with knowledge and skills for collaborative work at the practice and capstone levels of the Teamwork pathway. The Essential Studies Synthesis Experience, designed as a co-curricular experience, involves collaborative application of learning to real-world challenges.

The Essential Studies Pathways and Levels of Achievement

The Essential Studies program is structured to provide an intentional progression via six pathways from foundation, through practice, to capstone levels of student achievement based on the university's six Essential Student Learning Outcomes (ESLOs). Levels of achievement are described at the foundation, practice, and capstone levels for each pathway and are supported by essential foundational and practicing-level coursework, program-integrated practicing-level coursework, a synthesis course and a capstone experience.

Courses will be approved by GEAC based on recommendations from ESLO Committees to support a particular pathway at a particular level of achievement. Courses will be taught by content area experts, determined by a representative department(s), to satisfy the established ESLO criteria at a particular level of achievement:

Pathways, ESLO Committees, and Representative Departments

Pathway (and ESLO Committee)	Department(s)
Communication	Communication

Inquiry and Analysis	Humanities and Social Sciences Natural Sciences
Ethical Reasoning	Humanities and Social Sciences
Teamwork	Communication
Quantitative Literacy	Applied Mathematics
Diverse Perspectives	Communication Humanities and Social Sciences

Relationship to Current General Education Requirements

The Essential Studies program maintains 47 credits in the university's current general education program, which is articulated in terms of distribution requirements:

- Humanities – 9 credits
- Social Science – 12 credits
- Communication – 18 credits
- Natural Science – 4 credits
- Mathematics – 4 credits

Accreditation and program constraints will ensure that programs have the necessary Math and Science to support their technical goals, alleviating the need for the math/science/social science block requirements in the current model. The primary goal of the Essential Studies program is to support student achievement at the capstone level in the six ESLOs. Disciplinary breadth in traditional general education disciplines represented by the previous distribution requirements has also been maintained.

Pathways

The requirements of the six pathways are each described here individually from the foundation to capstone level. Rubrics for each ESLO clearly describe the criteria and level of proficiency that must be demonstrated by the student at each level.

Communication

- Foundation: 9 credits (WRI121, WRI122, SPE111)
- Essential Practice: at least 3 credits from the practicing communication list
- Program-Integrated Practice: one or two courses selected by the major program that address written and oral criteria in the context of the major
- ESSE: Practice-level communication criteria will be demonstrated in an ESSE course
- Capstone: Capstone-level communication will be demonstrated in a capstone experience defined by the major program

Inquiry and Analysis

- Foundation: 3 credits humanities, 3 credits social sciences, 4 credits lab-based natural sciences
- Essential Practice: 3 credits humanities, 3 credits sciences (outside of areas that traditionally support the major)
- Program-Integrated Practice: one course selected by the major program that addresses practicing-level inquiry and analysis in the context of the major
- ESSE: Practice-level inquiry and analysis criteria will be demonstrated in an ESSE course

- Capstone: Capstone-level inquiry and analysis will be demonstrated in a capstone experience defined by the major program

Ethical Reasoning

- Foundation: one course within or prescribed by the major that introduces ethical reasoning
- Essential Practice: 3 credits from the ethical reasoning list
- Program-Integrated Practice: one course selected by the major program that integrates ethical reasoning in the context of the major
- ESSE: Practice-level ethical reasoning criteria will be demonstrated in an ESSE course
- Capstone: Capstone-level ethical reasoning will be demonstrated in a capstone experience defined by the major program

Teamwork

- Foundation: 3 credits (SPE 221 Small Group and Team Communication)
- Program-Integrated Practice: one course selected by the major program that integrates teamwork in the context of the major
- ESSE: Practice-level teamwork criteria will be demonstrated in an ESSE course
- Capstone: Capstone-level teamwork will be demonstrated in a capstone experience defined by the major program

Quantitative Literacy

- Foundation: 4 credits in statistics (MATH 243 or MATH 361)
- Essential Practice: 3 credits from the quantitative literacy list
- Program-Integrated Practice: one course selected by the major program that integrates quantitative literacy in the context of the major
- ESSE: Practice-level quantitative literacy criteria will be demonstrated in an ESSE course
- Capstone: Capstone-level quantitative literacy will be demonstrated in a capstone experience defined by the major program

Diverse Perspectives

- Foundation: 3 credits from the foundational diverse perspectives list
- Essential Practice: 3 credits from the practicing diverse perspectives list
- Program-Integrated Practice: one course selected by the major program that integrates diverse perspectives in the context of the major
- ESSE: Practice-level diverse perspectives criteria will be demonstrated in an ESSE course
- Capstone: Capstone-level diverse perspectives will be demonstrated in a capstone experience defined by the major program

Levels of Achievement

The Essential Studies program is developmental in design, beginning with a broad foundation in traditional general education courses, supported by additional practice in general and program coursework, and culminating in a capstone experience.

All courses in the Essential Studies program must be approved by GEAC to satisfy the criteria for the designated pathway and level of achievement.

Foundation

The foundation level provides a broad education in areas outside of the major allowing for personal growth and exploration. Foundational courses guide students via intensive work in a highly structured environment to learn new skills, gather tools, and acquire basic factual knowledge that supports the ESLOs. Assignments at this level are likely to be guided and scaffolded. Active learning is appropriate at this level.

The foundational level consists of a minimum of 29 credits taught by content area experts:

- Communication: 9 credits in written and spoken communication (WRI121, WRI122, SPE111)
- Inquiry and Analysis: 10 credits from the humanities, social sciences, and natural sciences (from a list of approved courses)
- Ethical Reasoning: a major program or major program-specified course must address ethical reasoning at the foundation level
- Teamwork: 3 credits (SPE221)
- Quantitative Literacy: 4 credits in statistics (MATH 243 or MATH 361)
- Diverse Perspectives: 3 credits (from a list of approved courses)

Courses at the foundation level may be approved to support no more than two pathways. Different courses must be used to satisfy the 29-credit minimum at this level. A single course may satisfy no more than one pathway.

Practice

The purpose of practice level courses is to build on foundational knowledge and skills through intensive work in continued general education, major coursework, and cross-disciplinary experiences. Assignments reflect moderate scaffolding, but students are learning how to work with unstructured/open-ended problems and situations. Students learn how to apply skills and tools in a moderately structured environment.

The practicing level consists of Essential Practice courses, Program-Integrated Practice courses, and an Essential Studies Synthesis Experience.

Essential Practice

Essential Practice courses provide a wide variety opportunities for advanced work in general education courses taught by content area experts. Students will demonstrate ESLO criteria beyond the foundational level.

The Essential Practice courses consist of a minimum of 15 credits in courses supporting

- Communication
- Inquiry and Analysis – Humanities
- Inquiry and Analysis – Sciences
- Ethical Reasoning
- Quantitative Literacy
- Diverse Perspectives

Essential Practice courses may be approved to support up to two pathways, and all pathway designations above are considered.

Program-Integrated Practice

The purpose of Program-Integrated Practice is to integrate student learning, founded in previous Essential Studies courses, into the major course of study. Students transfer essential knowledge and skills through direct application in disciplinary contexts, but courses may be offered by the major program or other departments.

The Program-Integrated Practice courses along with appropriate foundation level prerequisites are selected by the major program and no more than two pathways may be supported by a single course. Pathways that must be supported are Communication (written and oral), Inquiry and Analysis, Ethical Reasoning, Teamwork, Quantitative Literacy, and Diverse Perspectives.

Essential Studies Synthesis Experience

A student must take a course designated as an Essential Studies Synthesis Experience (ESSE). The purpose of the ESSE is, as its name suggests, to synthesize the learning in all six pathways and apply it at the practicing level in a single course, ideally prior to the capstone experience.

These courses should be interdisciplinary in nature (by topic, major, faculty or student team) and may be taught by anyone in any department at the university, but they are developed collaboratively with the sponsorship of one of the following departments: Communication, Humanities and Social Sciences, Natural Sciences, or Applied Mathematics. At least one foundational course in each pathway must be completed prior to a student taking an ESSE course.

Capstone

The Essential Studies Capstone is a culminating experience unique to each major program where students demonstrate ESLO proficiency at a level expected at completion of the bachelor's degree.

The capstone level of achievement in each pathway must be demonstrated by a student in a capstone project, course(s), externship or experience identified by the major program, preferably in the senior year, within the context of the major program, and not necessarily in a single course or experience. Students are given opportunities to apply knowledge and skills in unstructured environments and work independently to address unscripted problems. At this level, students are expected to meet the criteria with minimal or no prompting; scaffolding is essentially gone.

The Essential Studies Program requirements are summarized and may be visualized using the following table.

CAPSTONE	Capstone Experience								
SYNTHESIS (3 credits)	Essential Studies Synthesis Experience 3 cr: _____								
PROGRAM- INTEGRATED PRACTICE	Program-integrated: Written _____ Oral _____	Program-integrated: _____			Program-integrated: _____	Program-integrated: _____	Program-integrated: _____	Program-integrated: _____	
ESSENTIAL PRACTICE (15 credits minimum)	Practice List _____	Humanities Practice List _____	Sciences Practice List _____		Practice List _____	Program-integrated: _____	Practice List _____	Practice List _____	
FOUNDATION (29 credits minimum)	3 cr: WRI 123	3 cr: _____		3 cr: _____	4 cr: _____ Laboratory-based science course	Foundation List _____	3cr: SPE 221 Small Group and Team; currently listed as SPE 321	4cr: MATH 243 or 361 Statistics	Foundation List 3 cr: _____
	3 cr: WRI 121	3 cr: _____		3 cr: _____	Program-integrated foundational ethical reasoning in a program course or program-specified course	Ethical Reasoning	Teamwork	Quantitative Literacy	Diverse Perspectives
	3 cr: SPE 111	Humanities		Social Sciences	Natural Sciences	Inquiry and Analysis			
	Communication	Humanities		Social Sciences	Natural Sciences	Inquiry and Analysis			

The task force recommends relying on established committees and processes to further develop details of the Essential Studies program within the spirit of the established rationale for general education. GEAC will be responsible for all Essential Studies course approvals and population of appropriate lists specified in the model. It is recommended to begin building lists with existing general education courses, then filling in critical gaps with new courses. The recently formed ESSE Council will further define parameters for the Essential Studies Synthesis Experience (initial description in Appendix I). In addition, the task force recommends creating an ad hoc Capstone Council to support programs in capstone development/adjustment to address baccalaureate level proficiency in all ESLOs. Detailed responsibilities for these committees and connections to the work of other groups will be further defined in the implementation plan in the following section of this report.

Implementation Plan

The completion of this report is the final duty of the General Education Review Task Force, implementation of the recommendations from this group will pass to various committees as follows:

- **Academic Excellence Coordinating Committee**—will function as the implementation team and coordinate the efforts of all other committees, departments, and individuals involved in the implementation of the Essential Studies program. This group is responsible for allocation of resources to support the implementation and development of the Essential Studies program. The following ad hoc committees will support the implementation as described.
 - **Broadcasting and Marketing Subcommittee**—will work with various groups in creation of messages and materials for a variety of audiences including the Advising Coordinators Commission, Transfer Team, Admissions, and Student Affairs (new student orientation and Leadership Academy). In addition, this group will work with the Marketing Department to develop materials to support the program and integrate Essential Studies messages with the university’s messages.
 - **ESSE Council**—will develop parameters for the ESSE, solicit courses from existing experiences and as well as new proposals with options for all locations and delivery modes, and create a plan to scale-up for full implementation.
 - **Capstone Council**—will develop criteria to govern capstone approval and support programs in the development of capstone experiences or revision of existing experiences to incorporate all ESLOs. This group will develop sample assessment tools and coach program faculty in efficient and authentic embedded assessment processes.
 - **Transfer Team**—will work with the Registrar and the Director of Academic Agreements to review existing course equivalencies and articulation agreements, update existing processes and structures to better support the transfer process, and work with transfer partner institutions to provide clear transfer pathways. In addition, this group will provide guidelines for grandfathering agreements for transfer students in the first few years of implementation of the Essential Studies program.
- **General Education Advisory Council (GEAC)**—will approve all Essential Studies courses, manage lists of courses for each pathway, and plan for sufficient offerings in all locations and modes of delivery. This group is responsible for any adjustments to the Essential Studies model in the implementation phase and beyond.
- **Assessment Commission Executive Committee**—will implement the new assessment plan, collect baseline data, and share analysis and recommendations for improvements with appropriate groups. This committee will update ESLOs as needed based on recommendations from GEAC.
- **Commission on College Teaching (CCT)**—will support faculty development and facilitate conversations within ESLO pathways and specific elements of the model.
- **ESLO Committees**—will review Essential Studies course proposals for specific pathways, provide feedback to initiators and requests for revision or make recommendations to GEAC for approval. In addition, these groups will monitor assessment results and make recommendations to GEAC for adjustments to the model or request faculty development opportunities through CCT.
- **Curriculum Planning Commission (CPC)**—will provide a platform for course approval, and review all program curriculum maps for submission, along with Essential Studies course approvals (completed by GEAC), to the Registrar for inclusion in the catalog.
- **Advising Coordinators Commission**—with the help of the Broadcasting and Marketing subcommittee will develop advising materials, revise advisor training to incorporate the elements of the Essential Studies program, and coordinate advisor training for all faculty.

Timeline for Implementation

The task force proposes implementation of the Essential Studies program beginning with freshmen students in fall 2017. In order to meet the 2017-18 catalog deadline and scale-up for the first cohort the following timeline coordinating work from various committees is suggested. A detailed PERT chart and responsibility assignment matrix is located in Appendix M.

Spring 2016

- Academic Excellence Coordinating Committee approve implementation plan, allocate resources, and recommend committee leadership/membership
- GEAC pilot course approval process and plan for 2016-17 work
- Transfer team develop plan and timeline for transfer work
- Broadcasting & Marketing identify various audiences, create marketing plan and timeline for 2016-17 work

Summer 2016

- Call for Essential Studies course proposals (foundation and essential practice)
- ESSE Council attends WPI Institute on Project-Based Learning and drafts parameters for ESSE
- Hire temporary support staff for Registrar and Academic Agreements to aid in transfer work
- Draft charters for GEAC, Assessment Commission, and CCT
- Develop messages and talking points for various audiences
- Marketing Department create visual representation of model and branding for Essential Studies
- ITS complete development of CPC software for fall implementation
- Explore grant opportunities

Fall 2016

- Communicate implementation plan at Convocation
- GEAC approve Foundation and Essential Practice courses
- GEAC develop lists for model by October 31
- Program faculty create new curriculum maps
- Review existing course equivalencies and recommend changes to align with the Essential Studies model
- Broadcasting & Marketing work with Admissions to develop recruitment materials and the Advising Coordinators Commission to develop new advising materials and training
- CPC review Essential Studies courses requiring a CPC course change or new course form
- ESSE Council coordinate work with existing programs, experiences and courses (clubs, STEM Hub, Innovation & Entrepreneurship)

Winter 2017

- Review program maps to evaluate resource needs and plan for new faculty hires
- GEAC develop catalog copy for Essential Studies program
- GEAC plan for fall 2017 offerings and solicit new course proposals to fill critical gaps in model
- Ethical Reasoning ESLO committee approve Foundation courses
- Work with program faculty to create new articulation agreements
- Registrar incorporate changes from the new model into Degree Works

- Pilot ESSEs, gather feedback from faculty and students
- CPC approve program curriculum maps and list of course approvals from GEAC
- Advising training for new faculty to incorporate Essential Studies
- Create Capstone Council to support programs in development/revision of capstone experiences

Spring 2017

- GEAC begin approval of Program-Integrated courses and Capstone experiences
- Visits to transfer institutions
- Advisor training for all faculty
- Plan for new student orientation
- Plan for scale-up of ESSEs
- Create Essential Studies website with connections to assessment and CCT
- Develop student success metrics to assess effectiveness of the Essential Studies program (ESLOs, GPA, retention, NSSE, etc.)

Fall 2017

- ESSE Institute to support new ESSE development
- New student orientation—kick off Essential Studies program
- Advising freshmen in Essential Studies program
- Continue scale-up of ESSEs and other practice level courses

Fall 2019

- Essential Studies program fully implemented
- Assess first cohort at junior level

Spring 2021

- First graduates of the Essential Studies program
- Assess student success at exit

To phase in the implementation of the Essential Studies program and allow time for scale-up, the task force recommends a grandfathering plan for all transfer students beginning in fall 2017 regardless if they enter with an articulation agreement. Focusing first on the Foundation level for fall 2017, which will then allow time for the scale-up of practice and capstone level courses most importantly the ESSE which will require significant time for full development.

Resource Needs

Working with various committees the task force has developed the following recommendations regarding necessary resources to support the implementation of the Essential Studies program. It should be noted however, that all resource needs cannot be identified at this time and it is imperative that resource needs are re-evaluated annually by the Academic Excellence Coordinating Committee to ensure proper support for the success of the Essential Studies program. The intentionality of the program is entirely contingent on availability of adequate sections of Essential Studies courses in all locations and across all modes of delivery.

- **Faculty**—2 new faculty in the Humanities/Social Science department to support the Ethical Reasoning requirement; 1 FTE in interdisciplinary studies to support the development of the ESSE; may require additional faculty to support sufficient offering (re-evaluate in winter 2017); release time for chairs of Assessment, CCT and GEAC.
- **Professional Development**—increased budget for CCT to support workshops; stipends for initial development of ESSES; budget for conference attendance for chairs of Assessment, CCT and GEAC; funds to support advisor training.
- **Director’s Office**—full-time support position; budget sufficient to support Essential Studies program.
- **Articulation and Transfer**—temporary staff in Registrar’s Office and Office of Academic Agreements beginning fall of 2016 (1 FTE).

In addition to these requested resources, the task force recommends in future planning the institution plan for interdisciplinary spaces for students and faculty.

The task force has explored external funding through grant opportunities and recommends NSF grants as potential funding to develop the ESSE. A group has been identified to support the Academic Excellence Coordinating Committee in developing a proposal.

Conclusion

The extraordinary level of participation and effort on the part of Oregon Tech faculty members over the past three years is evidence that we value general education. The Essential Studies program advances the goals of general education. Instead of experiencing general education as something to “get out of the way,” students will see how general education is integral to an Oregon Tech education, is part of a meaningful learning trajectory, and helps prepare them for life beyond Oregon Tech.

With the approval of both faculty and administration the General Education Review Task Force respectfully submits these recommendations to the Provost.

Appendix A: GEAC Charge

To: Brad Burda, Provost, OIT
Marla Miller, Management Dept Chair
From: Cristina Negoita, GEAC Chair
Date: 6/11/2012
Re: General Education Requirements

This is the General Education Advisory Council formal response to the request to

...to eliminate the clause in the General Education requirements that states “The Bachelor of Science Degree requires the student to opt between completion of 36 credits in mathematics and science or 45 credits in mathematics, science and social science.” (pg. 38)

For some perspective, this requirement is in addition to the following “core” requirements:

- 18 credits in Communication
- 9 credits in Humanities
- 12 credits in Social Science
- 16 credits in Math and Science (with 4 credits minimum in Math, and at least 4 credits in a lab-based science course)

These “core” requirements add up to 55 credits, nearly equally divided among Art (Humanities and Communication add up to 27 credits) and Sciences (Math, Sciences and Social Sciences add up to 28 credits). The additional requirement under review (referred to in this document as the 36/45 requirement) asks a student graduating with a Bachelor’s of Science to have a total of 36 credits in math/science or 45 credits in math/science and/or social science. This option creates some inequity in terms of the total credit requirement such that:

- the student opting to fulfill the 36 credits of math/science has to take an additional 20 credits in these areas (16 math/science credits have already been fulfilled as part of the “core”);
- the student opting to fulfill the 45 credits of math/science/social science has to take an additional 17 credits in these three areas (16 credits in math/science and 12 in social science add to 28 credits already fulfilled as part of the “core”)

The committee recognizes the merit of this proposal in questioning this 36/45 requirement due, in part, to credit inequity depending on which option a student makes. In addition, many programs have built this particular 36/45 credit requirement within their programs, either by choice (as in the case of Communication Studies) or to fulfill accreditation requirements (as in the case of many ABET accredited degrees). The Department of Management is currently the only department which houses some programs that have difficulty in satisfying the 36/45 requirement, and which do not see this requirement as serving their students in the same way that this requirement serves students in majors that have incorporated this requirement in their program.

GEAC is mindful of the impact of this 36/45 requirement on all of our programs, current and future. GEAC is also responsible for the stewardship of general education as a whole, in providing “breadth and depth to the OIT educational experience” (OIT Catalog, 2011-12).

GEAC acquired feedback from the OIT community, performed research on the topic of general education at large, as well as sought our own comparators’ and other OUS institutions’ general education requirements to understand our place within the broad spectrum of curriculum that’s currently part of general education. The decision of what is considered “general education requirements” rests with our university, and are not mandated through OUS or other entities.

Based on our analysis of all this information, GEAC recommends that the proposal to eliminate the 36/45 requirement be denied.

The feedback acquired from the OIT community falls in one of the following areas:

- most constituents seemed indifferent to the proposal;
- some constituents agreed with the proposal, mainly because they did not see their own programs be affected by this proposal;
- some constituents saw this proposal as weakening our standards for a BS education;
- some constituents saw a small loss of students in their courses and viewed the proposal as having a negative impact on their courses;
- some constituents saw this as a benefit to courses offered in their departments as there would be an increase in students in their courses;
- some constituents saw that, through the lenses of general education, the elimination of the 36/45 requirement would make our BS degree similar to our BAS degree.

These views show division of opinions on eliminating the 36/45 requirement. In addition, GEAC’s research found that the 36/45 requirement first appeared in the 1981-82 OIT Catalog under general education requirements, but could not locate any substantive reasons for its implementation.

Most of our research in the area of general education at large shows that requirements for general education are linked to the need of having both breadth and depth in the areas of arts and sciences, and that the particular course requirements for general education should support students in becoming professionals as well as well-educated and informed citizens. In particular, our society is more dependent than ever before in our ability (as citizens) to interpret quantitative information and ask critical questions in the areas of science and social science about data gathering processes and their use in formulating various conclusions. Our general education requirements should reflect students’ preparation as a competent, critical thinkers of quantitative and qualitative information.

Last, eliminating the 36/45 requirement, would place OIT (in terms of credit-count) at the low end of the spectrum of the total credits acquired by students in fulfilling general education requirements.

Based on our work on this proposal, we recommend that the Provost sends a charge to GEAC to review and recommend comprehensive general education requirements that mirror the needs of a 21st century education.

From: Bradley Burda
Sent: Tuesday, January 29, 2013 1:56 PM
To: Tanya McVay
Cc: Sandra Bailey; Charlie Jones; Lawrence Powers; Mateo Aboy; Cheryl Meyers
Subject: GEAC Gen Ed charge

Tanya,

GEAC's review of the Management Department's request for an exemption to 36 credits in mathematics or 45 credits in mathematics, science, and social science has illustrated a need for us to review/reevaluate our overall general education requirements.

We are not alone in this undertaking. OSU recently completed their review. Also, much work has been done in recent years with the AAC&U LEAP vision through a statewide group formed by the Chancellor's office, the development of our own ISLOs, and now a grant incorporating community colleges and public universities in an attempt to define what the broad outcomes should be for all associate and baccalaureate degrees independent of discipline (DQP). All of which can be used as a resource for the work that needs to be done.

I understand that this will be a multi year process and suggest the following timeline:

- **Year 1** - Define the process, including how to dovetail DQP
- **Year 2** - Engage in a campus wide dialogue with the goal of defining Gen Ed outcomes. Compare those outcomes with LEAP, ISLOs, and DQP
- **Year 3**
 - Review our current Gen Ed requirements and recommend changes.
 - Begin the process of submitting changes to CPC

I propose forming a GEAC subcommittee to guide the process. I've met with you, Sandra Bailey, and Maria Lynn to discuss possible membership and will be contacting prospective members in the near future.

Thank you,

Brad

Appendix B: Programmatic Accreditation

Respiratory Care Program
<u>Commission on Accreditation for Respiratory Care (CoARC)</u>
The curriculum must include content in the following areas: Oral and written communication skills, social/behavioral sciences, biomedical/natural sciences, and respiratory care. This content must be integrated to ensure achievement of the curriculum's defined competencies. Biomedical/natural sciences content must include human anatomy and physiology, cardiopulmonary anatomy and physiology, cardiopulmonary pharmacology, chemistry, physics, microbiology, and pharmacology.
Emergency Medical Services Program
<u>Commission on Accreditation of Allied Health Education Programs (CAAHEP)</u>
The curriculum must include content in the following areas: Oral and written communication skills, social/behavioral sciences, biomedical/natural sciences, and respiratory care. This content must be integrated to ensure achievement of the curriculum's defined competencies. Biomedical/natural sciences content must include human anatomy and physiology, cardiopulmonary anatomy and physiology, cardiopulmonary pharmacology, chemistry, physics, microbiology, and pharmacology.
Clinical Laboratory Science Program
<u>National Accrediting Agency for Clinical Laboratory Sciences (NAACLS)</u>
No specific requirements for general education.
Dental Hygiene
<u>Commission on Dental Accreditation (CODA)</u>
<p>2-8 "The curriculum must include content in the following four areas; general education, biomedical sciences, dental sciences and dental hygiene science." P. 18</p> <p>2-9 "General Education content must include oral and written communications, psychology, and sociology." P. 19</p> <p>2-10 "Biomedical science content must include content in anatomy, physiology, chemistry, biochemistry, microbiology, immunology, general pathology and/or pathophysiology, nutrition and pharmacology." P. 19</p> <p>2-19 "Graduates must be competent in interpersonal and communication skills to effectively interact with diverse populations, groups and other members of the health care team." P. 23</p>
Diagnostic Medical Imaging, Echocardiography, Vascular Technology
<u>Joint Review Committee on Education in Diagnostic Medical Sonography (JRCEDMS)</u>
There are no specific requirements for general education in the JRCEDMS standards for programmatic accreditation.
Nuclear Medicine Technology, Radiologic Science Technology
The program is not currently accredited.
There are no specific requirements for general education in the JRCERT standards for programmatic accreditation. However, the JRCERT refers to the ASRT core curriculum of which general education is referenced. The ASRT now requires a minimum of an associate degree for all radiologic science degrees with the assumption that communication, diversity, and logical reasoning are taught.

Electrical Engineering Technology, Manufacturing Engineering Technology, Mechanical Engineering Technology, Computer Engineering Technology, Software Engineering Technology, Embedded Systems Engineering Technology

ABET – Engineering Technology Accreditation Commission (ETAC)

ABET-ETAC accredits programs based on eight criteria, Criterion 5 is Curriculum. There is nothing specific mentioned about Gen. Ed. under the curriculum requirements, but the following items are mentioned, which are pertinent to the discussion on general ed:

Mathematics: The program must develop the ability of students to apply mathematics to the solution of technical problems.

Technical Content: The technical content of the program must represent at least 1/3 of the total credit hours for the program but no more than 2/3 of the total credit hours for the program (Note: math and science content is not considered technical content).

Physical and Natural Science: The program must include physical or natural science with laboratory experiences.

Integration of content: Baccalaureate degree programs must provide a capstone or integrating experience that develops student competencies in applying both technical and non-technical skills in solving problems.

Advisory Committee: An advisory committee with representation from organizations being served by the program graduates must be utilized to periodically review the program’s curriculum and advise the program on the establishment, review, and revision of its program educational objectives.

Electrical Engineering, Renewable Energy Engineering, Mechanical Engineering, Civil Engineering

ABET-Engineering Accreditation Commission (EAC)

ABET-EAC accredits programs based on eight criteria, Criterion 5 is Curriculum. The curriculum criterion can be summarized as follows:

The curriculum requirements specify subject areas appropriate to engineering but do not prescribe specific courses. The faculty must ensure that the program curriculum devotes adequate attention and time to each component, consistent with the outcomes and objectives of the program and institution. The professional component must include:

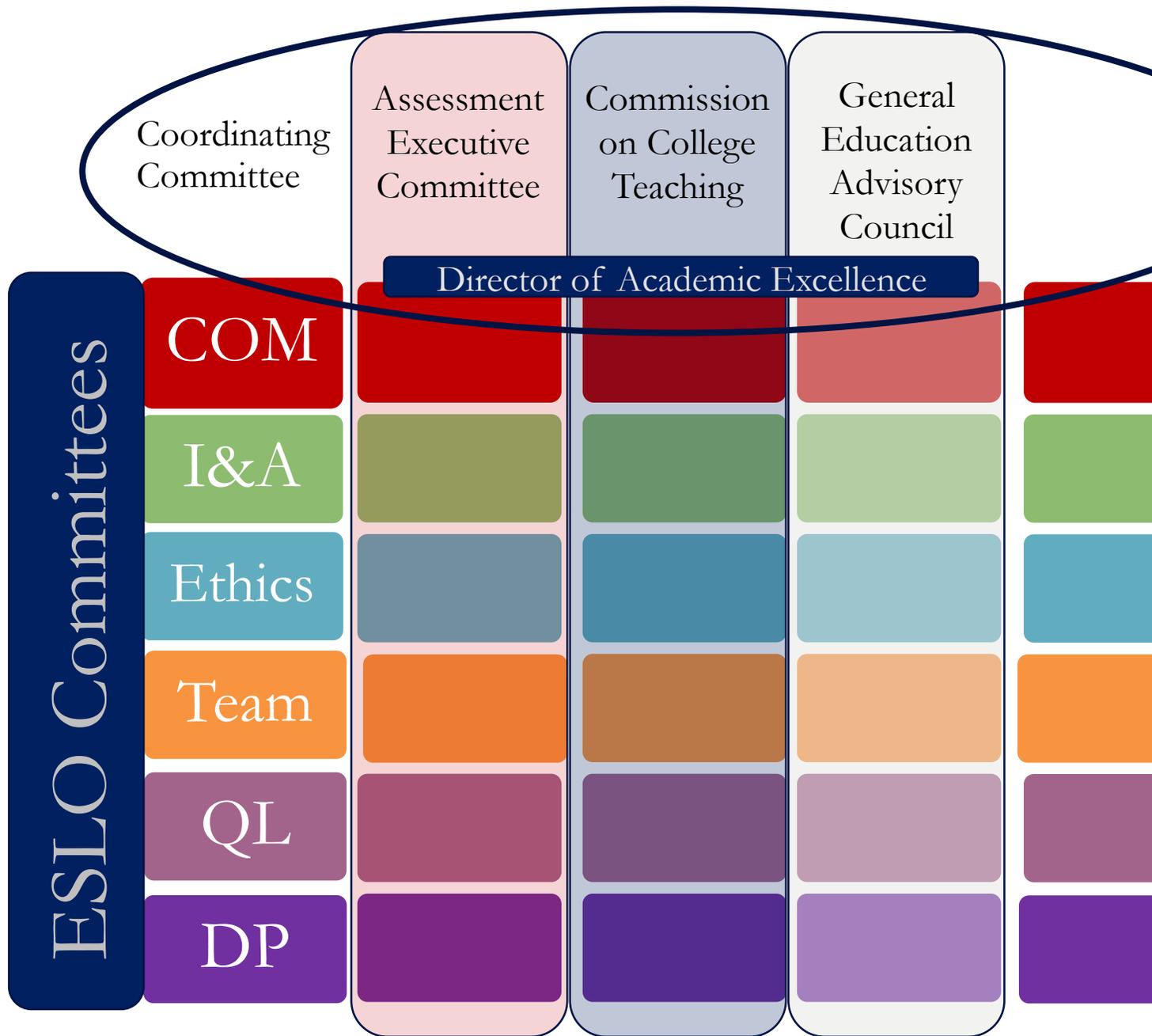
- one year of a combination of college level mathematics and basic sciences (some with experimental experience)
- one and one-half years of engineering topics, consisting of engineering sciences and engineering design appropriate to the student's field of study. The engineering sciences have their roots in mathematics and basic sciences but carry knowledge further toward creative application. These studies provide a bridge between mathematics and basic sciences on the one hand and engineering practice on the other. Engineering design is the process of devising a system, component, or process to meet desired needs. It is a decision-making process (often iterative), in which the basic sciences, mathematics, and the engineering sciences are applied to convert resources optimally to meet these stated needs.
- a general education component that complements the technical content of the curriculum and is consistent with the program and institution objectives.

Management, Information Technology, Operations Management, Bachelor of Applied Science in Technology and Management, Health Care Management—Administration option

International Assembly of Collegiate Business Education (IACBE)

IACBE’s accreditation manual states that it is their expectation that 40% of a bachelor’s degree be comprised of general education courses.

Appendix C: Unified Committee Structure



New Positions

Director of Academic Excellence

- Communicates regularly with
 - Big three committee chairs
 - Academic department chairs
 - Faculty, via convocation presentation
 - University community, via _____
- Support CCT, ESPC, Assessment chairs in their work and implementation of initiatives
- Make recommendations (with big-three chairs) to the Provost for big-three and ESLO committee membership
- Engage in relevant professional development to support Essential Studies and stay abreast of national trends
- Coordinate and communicate academic issues with departments
- Coordinate the development of Essential Studies with ESPC
- Coordinate faculty development opportunities with CCT
- Oversee public relations initiatives and communication efforts for Essential Studies (website, etc)
- Serve as primary liaison to Registrar (and department chairs?) for course availability, catalog, transfer equivalencies,
- Coordinate training for advisors, admissions staff, and Student Success staff (annual training?)
- Ensure Essential Studies is manageable in Oregon Tech Online curricula
- Liaise with and report to relevant bodies on campus (e.g. Faculty Senate)
- Serve on the Provost's Leadership Team
- Serve on Provost's Council and Academic Council
- Represent campus and Essential Studies at external events and to outside stakeholders
- Oversee daily operations of Essential Studies including budget, supervising personnel, preparing annual report and leading conversations for strategic planning
- Teach one course per year on campus
- Other duties as assigned

Academic Excellence Administrative Assistant

Academic Excellence Coordinating Committee

Meeting frequency: beginning of the year and then at least once per term.

Roles and Responsibilities

- Reports to the Provost
- Coordinate recommendations of the big three
- Share information and define collaborations between academic areas and student affairs
- Ensure that student orientation includes Essential Studies
- Write a six-year plan for academic excellence
- Define the deliverables of the big three committees
- Make academic recommendations (not business or admin)
- Chair of Academic Standards reports to Faculty Senate
- Invite Academic Council and Provost's Council to meet as necessary to

Membership

1. Director of Academic Excellence
2. Chair of Assessment Commission
3. Chair of Commission on College Teaching
4. Chair of GEAC
5. Chair of Academic Standards

6. Director of Oregon Tech Online
7. Director of Student Affairs or designee
8. Dean of ETM
9. Dean of HAS
10. Four department chairs, at least two from traditional GE offering departments (HAS/ETM balance?)

Big Three

Envision meeting three times per term

Each makes recommendations to the Provost (with the Director) regarding big-three and ESLO committee membership

1. Assessment Commission Executive Committee

Roles and Responsibilities

- Prepare annual report on every ESLO (at respective phase of the cycle)
 - Prepare a report annually summarizing a six-year cycle for a single ESLO
- a. Chair
 - b. Communication ESLO Representative *
 - c. Inquiry and Analysis ESLO Representative *
 - d. Quantitative Literacy ESLO Representative *
 - e. Teamwork ESLO Representative *
 - f. Ethical Reasoning ESLO Representative *
 - g. Diverse Perspectives ESLO Representative *
 - h. Other members

2. Commission on College Teaching (CCT)

Roles and Responsibilities

Membership

- a. Chair
- b. Communication ESLO Representative *
- c. Inquiry and Analysis ESLO Representative *
- d. Quantitative Literacy ESLO Representative *
- e. Teamwork ESLO Representative *
- f. Ethical Reasoning ESLO Representative *
- g. Diverse Perspectives ESLO Representative *
- h. Other members

3. Essential Studies Program Committee (ESPC)

ESLO Representatives should be the chair of the ESLO Committee or their delegate. During the transition to Essential Studies, this representative should be a content area expert.

Roles and Responsibilities

- Establish and maintain the Essential Studies course content and criteria
- Make recommendations to balance institutional needs with the needs of Essential Studies
- Review assessment results
- Conduct a review of Essential Studies every six years
- Provide advising materials for distribution to Advising Commission
- Provide training to department chairs on course criteria (specifically for transfer)
- Work with six-year assessment cycle...
- Collect, analyze and summarize ESLO assessment data

- Write an annual assessment report for the Essential Studies program based on ESLO reports at their respective phase of the cycle
- a. Chair – C.J. Riley
- b. Director of Academic Excellence (Ex-Officio)
- c. Chair of Advising Commission (Ex-Officio)
- d. Communication ESLO Representative * - Christopher Syrnyk
- e. Inquiry and Analysis ESLO Representative * - Seth Anthony
- f. Quantitative Literacy ESLO Representative * - Randall Paul
- g. Teamwork ESLO Representative * - Dan Peterson
- h. Ethical Reasoning ESLO Representative * - Yasha Rohwer
- i. Diverse Perspectives ESLO Representative * - Ben Bunting
- j. Other members

ESLO Subcommittees

Envision meeting as needed

Roles and Responsibilities

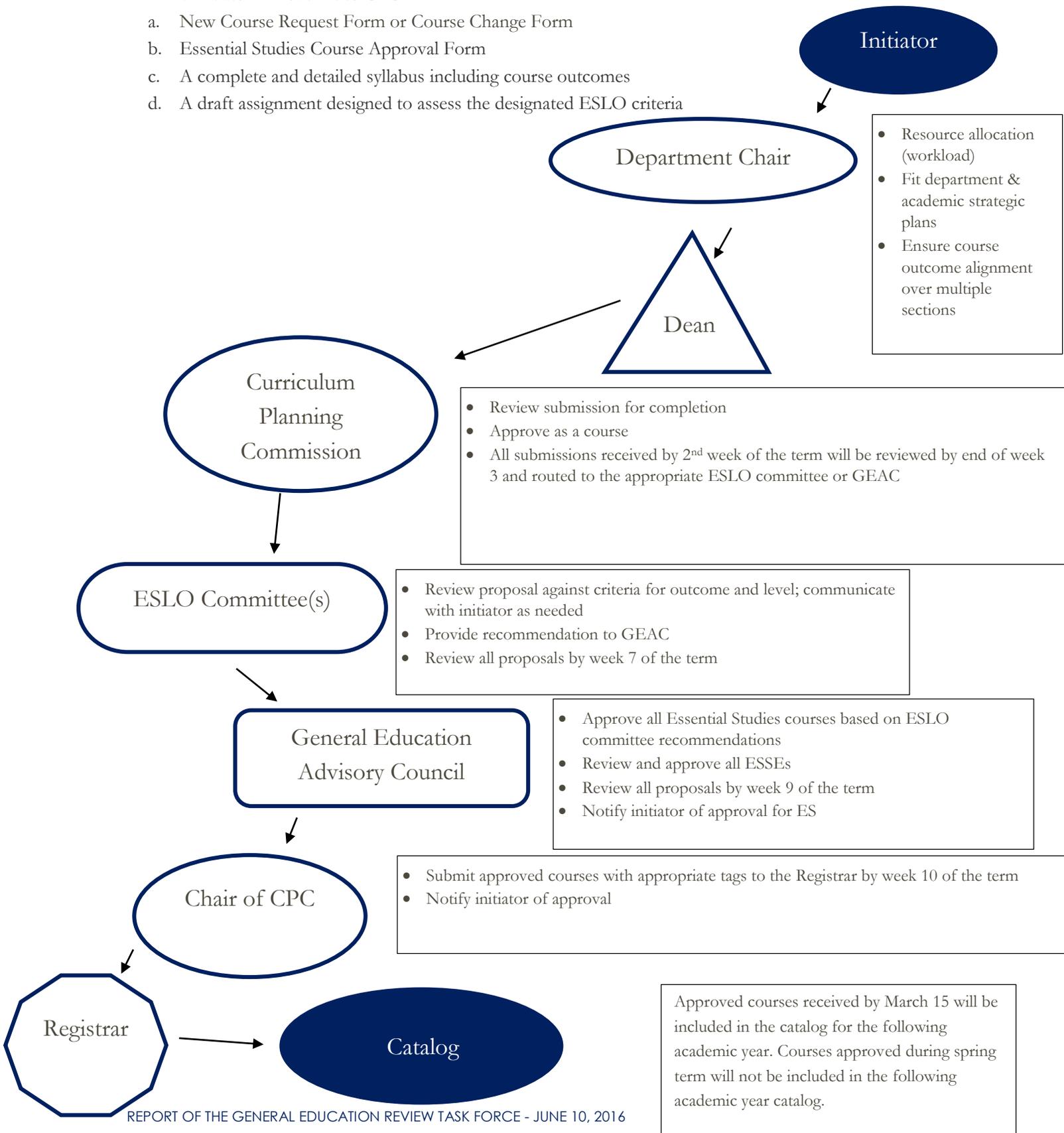
- Establish and maintain criteria to satisfy ESLOs at foundation, practice and capstone levels
- Approve courses satisfying Essential Studies
- Review courses satisfying Essential Studies when course outcomes or content change substantially (see CPC triggers for consistent language)
- Review courses satisfying Essential Studies every 3 years (on a staggered cycle)
- Provide evaluation of transfer course equivalencies, if requested by department chairs
- Recommend professional development to support Essential Studies
- Recommend changes to maintain or improve Essential Studies
- Analyze assessment data every three years as part of the six-year assessment cycle
- Prepare assessment report (as a program)

General Structure of each committee

- Content area expert(s) represented, ideally the chair
- Content area practitioners/consumers (practice/capstone users) included
- Chair could be a representative of one of the big three

Appendix D: Essential Studies Course Approval Process

1. The following procedures apply for approval of, or changes to, Essential Studies courses.
2. The initiator will submit to CPC:
 - a. New Course Request Form or Course Change Form
 - b. Essential Studies Course Approval Form
 - c. A complete and detailed syllabus including course outcomes
 - d. A draft assignment designed to assess the designated ESLO criteria



Essential Studies Course Approval Form

Course Title & Number _____

I. Logistical Information: List the projected capacity of the course, terms offered, mode/location of offering.

II. Levels of Achievement & Prerequisites

What is this course’s “level of achievement”? (Select foundation, practice or capstone)

- **Foundation.** Learning new knowledge and skills. Assignments reflect significant scaffolding; highly structured environment. Active learning is appropriate at this level.
- **Practice.** Learning how to apply knowledge and skills in scripted examples. Assignments reflect moderate scaffolding, but students are learning how to work with unstructured/open-ended problems and situations; moderately structured environment.

Prerequisite courses: _____

Indicate which type of course and specific prerequisites this course builds on:

- Essential Practice. Practice courses taught by content area experts.
- Program-Integrated. Practice courses that require demonstration of ESLOs within the major.
- ESSE. Cross-disciplinary experience that demonstrates synthesis of all ESLOs.
- **Capstone.** Students meet the criteria with minimal or no prompting. Assignments reflect no scaffolding; students work independently in unstructured environments.

Prerequisite courses: _____

III. ESLO: Indicate which ESLO and criteria this course will fulfill.

<input type="checkbox"/> COM	<input type="checkbox"/> IA	<input type="checkbox"/> ER	<input type="checkbox"/> TW	<input type="checkbox"/> QL	<input type="checkbox"/> DP
<input type="checkbox"/> Oral <input type="checkbox"/> Written	<input type="checkbox"/> IA-H <input type="checkbox"/> IA-SS <input type="checkbox"/> IA-NS				
<input type="checkbox"/> Purpose <input type="checkbox"/> Audience <input type="checkbox"/> Evidence <input type="checkbox"/> Genre <input type="checkbox"/> Style & delivery <input type="checkbox"/> Visual <input type="checkbox"/> Justification	<input type="checkbox"/> Identify <input type="checkbox"/> Investigate <input type="checkbox"/> Collect <input type="checkbox"/> Evaluate <input type="checkbox"/> Conclude	<input type="checkbox"/> Theory <input type="checkbox"/> Recognition <input type="checkbox"/> Logic <input type="checkbox"/> Judgment	<input type="checkbox"/> Achieve purpose <input type="checkbox"/> Fulfill roles <input type="checkbox"/> Communicate <input type="checkbox"/> Reconcile <input type="checkbox"/> Contribute <input type="checkbox"/> Develop strategies <input type="checkbox"/> Adjust	<input type="checkbox"/> Calculate <input type="checkbox"/> Interpret <input type="checkbox"/> Construct <input type="checkbox"/> Apply in context <input type="checkbox"/> Communicate	<input type="checkbox"/> Recognize <input type="checkbox"/> Know <input type="checkbox"/> Understand <input type="checkbox"/> Apply

a. How do students learn and practice the targeted ESLO in this course? Briefly describe how the course addresses each of the criteria checked in the targeted ESLO, including potential texts and course materials. (Attach detailed syllabus that includes course outcomes)

b. How do students demonstrate the appropriate level of proficiency in this ESLO? Briefly describe a significant assignment and student work appropriate for proficiency assessment in this ESLO, identifying how the assignment will require students to demonstrate each criteria you selected. (Attach assignment)

Department chair and dean signatures indicate proposal fits departmental and academic strategic plans and are willing to commit appropriate resources to support the proposed course. In addition, the department chair commits to ensuring course outcome alignment over all sections, locations and modes of delivery.

Department Chair

Dean

Appendix E: Recommendations from the Assessment Commission

May 28, 2014

ISLO 1: Oregon Tech students will demonstrate effective oral, written and visual communication.

Recommend changing ISLO to “Oregon Tech students will demonstrate effective oral and written communication.” Visual performance criteria added to both oral and written (as appropriate). Use common language for information literacy criteria for relevant ISLOs.

Recommendations for changes to general education requirements: Vertical integration of written communication to improve gaps identified in information literacy and technical writing.

ISLO 2: Oregon Tech students will demonstrate the ability to work effectively in teams and/or groups.

No changes recommended for this ISLO.

Consider creating a general education requirement; if not feasible, then the Assessment Commission will reconsider keeping as an ISLO.

ISLO 3: Oregon Tech students will demonstrate an understanding of professionalism and ethical practice.

No changes recommended for this ISLO.

Recommend adding ethics as a general education requirement. Consider creating a general education requirement for professionalism and/or career development; if not feasible, then the Assessment Commission will reconsider including professionalism/career development in this ISLO.

ISLO 4: Oregon Tech students will demonstrate critical thinking and problem solving.

Change this ISLO to “Inquiry and analysis” to incorporate yet to be determined aspects of critical thinking, problem solving, lifelong learning, and scientific inquiry.

Recommend aligning general education requirements with this new outcome to provide explicit justification for humanities and sciences (both social and natural). Consider vertical integration to include information literacy.

ISLO 5: Oregon Tech students will demonstrate knowledge and understanding of career development and lifelong learning.

Recommend eliminating as an ISLO and consider incorporating career development in #3.

Lifelong learning should be basis of the rationale for general education.

ISLO 6: Oregon Tech students will demonstrate mathematical knowledge and skills.

Recommend changing outcome to “Quantitative literacy.”

Recommend aligning general education requirements with this new outcome; consider vertical integration.

ISLO 7: Oregon Tech students will demonstrate scientific knowledge and skills in scientific reasoning.

Recommend eliminating as an ISLO; incorporate into new “Inquiry and analysis” ISLO.

Recommend aligning science general education requirements with this new outcome.

ISLO 8: Oregon Tech students will demonstrate cultural awareness.

Keep as an ISLO; Assessment Commission subcommittee led by Ben Bunting to explore definition of outcome, criteria, and expectations fall 2014.

Recommend creating a general education requirement to align with this outcome as defined by the subcommittee.

Appendix F: Oregon Tech’s Essential Student Learning Outcomes

Oregon Tech’s Essential Student Learning Outcomes (ESLOs) support Oregon Tech’s institutional mission and core themes. The outcomes and associated criteria reflect the rigorous applied nature of Oregon Tech’s degree programs.

The ESLOs reflect the common expectations about the knowledge, skills, and abilities that Oregon Tech students will acquire and are reflected in the General Education requirements that lay the foundation upon which the major curricula build. Engaging in these ESLOs will support Oregon Tech graduates in developing the habits of mind and behaviors of professionals and lifelong learners.

COMMUNICATION

ESLO 1: Oregon Tech students will communicate effectively orally and in writing.

Definition

Communication is the creation, development, and expression of ideas. The Communication ESLO differentiates between oral and written communication. The two forms of communication operate much the same but differ in the criterion *Style and Delivery* because of their differing forms of expression.¹ Both forms of communication involve purposeful presentation designed to increase knowledge, to foster understanding, or to promote change in attitudes, values, beliefs, or behaviors.

Criteria for Communication Assessment

The following are criteria used in the assessment of student work:

- Purpose: Focus and connections made in presentation of evidence.
- Audience: Adjustments in presentation made for differing levels of knowledge and expertise among listeners and readers.
- Evidence: Support provided by research and disciplinary knowledge.
- Genre and Disciplinary Conventions: Adjustments in structure and order made for various fields and forms of presentation.
- Style and Delivery:
 - Oral Communication: Techniques including posture, gesture, eye contact, and vocal expressiveness.
 - Written Communication: Control of syntax and mechanics, as well as craft in choices of phrasing, vocabulary, and structure.
- Visual Communication: Support provided by visual presentation integrated with oral or written content.
- Justification: Self-assessment and support of choices made in communication.²

¹ Oral communication differs from the Teamwork ESLO because oral communication focuses on an individual speaker presenting, not on interaction. Oral and written communication are assessed individually.

² This may be a separate assignment from the written or oral assignment used to assess the other criteria; this justification piece will ask the students to reflect on the deliberate choices they made during the composition process. While this is most often an implicit process, it will be made explicit for the purpose of assessment of at least one piece of written or oral communication.

INQUIRY AND ANALYSIS

ESLO 2: Oregon Tech students will engage in a process of inquiry and analysis.

Definition

Inquiry and analysis consists of posing meaningful questions about situations and systems, gathering and evaluating relevant evidence, and articulating how that evidence justifies decisions and contributes to students' understanding of how the world works.

Criteria for Inquiry and Analysis Assessment

The following are criteria used in the assessment of student work:

- **Identify:** Identify a meaningful question or topic of inquiry.
- **Investigate:** Examine and critically evaluate existing knowledge and views on the topic of inquiry.
- **Collect:** Design and execute a means of collecting evidence
- **Evaluate:** Analyze evidence obtained in their investigation.
- **Conclude:** Draw conclusions based on analysis of evidence; grasp the limitations and implications of their analyses.

ETHICAL REASONING

ESLO 3: Oregon Tech students will make and defend reasonable ethical judgments.

Definition

Ethical reasoning is the process of recognizing which decisions require ethical judgments, determining potential reasonable courses of action, finding support for potential courses of action, and then selecting the course of action best supported.

Criteria for Ethical Reasoning Assessment

The following are criteria used in the assessment of student work:

- **Differentiate:** Explain the differences between ethics and laws.
- **Recognize:** Recognize decisions requiring ethical judgments.
- **Support:** Support potential courses of action (via major ethical theories/principles, applicable ethical codes of conduct, etc.) and select the best-supported course of action.
- **Apply:** Apply ethical reasoning to novel situations.
- **Evaluate:** Identify and critically evaluate applicable code(s) of ethics and identify common ethical issues in their field.
- **Articulate:** Articulate a code of personal ethics.

TEAMWORK

ESLO 4: Oregon Tech students will collaborate effectively in teams or groups.

Definition

Teamwork encompasses the ability to accomplish group tasks and resolve conflict within groups and teams while maintaining and building positive relationships within these groups. Team members should participate in productive roles and provide leadership to enable an interdependent group to function effectively.

Criteria for Teamwork Assessment

The following are criteria used in the assessment of student work:

- **Identify and Achieve Goal/Purpose:** Share common goals and purpose.
- **Assume Roles and Responsibilities:** Fulfill roles and responsibilities, including leadership roles, which are clearly defined and shared. Members are motivated to complete work in a timely manner and provide leadership in meetings.
- **Communicate Effectively:** Communicate openly and respectfully, listen to ideas, and support and encourage each other.
- **Reconcile Disagreement:** Welcome disagreement and use difference to improve decisions.
- **Contribute Appropriately:** Contribute to discussions, decision-making, and work. The work product is a collective effort.
- **Develop Strategies for Effective Action:** Use effective decision making processes to decide on action, share expectations for outcomes, and reach consensus on decisions.
- **Adjust for Differences:** Recognize and adapt to differences in background and communication style.

QUANTITATIVE LITERACY

ESLO 5: Oregon Tech students will demonstrate quantitative literacy.

Definition

Quantitative literacy comprises the ability to appropriately extract, interpret, evaluate, construct, communicate, and apply quantitative information and methods to solve problems, evaluate claims, and support decisions in students' everyday professional, civic, and personal lives.

Criteria for Quantitative Literacy Assessment

The following are criteria used in the assessment of student work:

- **Calculate:** Perform mathematical calculations correctly (and evaluate/confirm that they have done so).
- **Interpret:** Extract and interpret quantitative information presented in various commonly used forms (e.g., equations, graphs, diagrams, tables, prose).
- **Construct Representations:** Convert relevant quantitative information and data into different forms as appropriate (e.g., equations, graphs, diagrams, tables, prose).

- **Apply in Context:** Apply appropriate quantitative methods, draw justified conclusions, evaluate claims, and make decisions based on quantitative information. Make and evaluate key assumptions in estimation, modeling, and data analysis.
- **Communicate:** Effectively and accurately communicate quantitative information in writing and verbally using representations (e.g., equations, graphs, diagrams, tables, prose) that are appropriate for their intended audience.

DIVERSE PERSPECTIVES

ESLO 6: Oregon Tech students will explore diverse perspectives.

Definition

Recognition of diverse perspectives requires the self-awareness, intellectual flexibility, and broad knowledge that enables perception of the world through the eyes of others.³ This includes the awareness and understanding of the customs, practices, and viewpoints of varied cultures, individuals, and identities.

Criteria for Diverse Perspectives Assessment

The following are criteria used in the assessment of student work:

- **Recognize:** Show awareness of one's own perspectives.
- **Know:** Demonstrate factual knowledge of the foundations of diverse perspectives.
- **Understand:** Display understanding of others' perspectives.
- **Apply:** Apply factual knowledge and understanding of diverse perspectives to their interactions with others.

³ i.e., from the perspectives of diverse cultures and personalities, with consideration of varied places, histories, and technologies.

Appendix G: Six-Year Cycle and Work Plan for ESLO Subcommittees

Year 1: Design Assessment

Develop assessment plan identifying research questions targeting various levels of proficiency. The following tasks should be considered in developing the plan: review ISLO criteria, review ISLO mapping to the curriculum, develop or review rubrics, review past assessment reports. Set appropriate benchmarks for student attainment at various levels. Plan submitted to the Assessment Executive Committee for approval.

Year 2: Analyze Data

Aggregate and analyze data as defined in the assessment plan. Identify potential changes for continuous improvement considering both curricular changes and professional development. Submit written report summarizing findings to the Assessment Executive Committee, the Commission on College Teaching, the General Education Advisory Council, Academic Council and the Provost.

Year 3: Plan Improvements

Create action plan for improvement relating to curriculum including recommendations for curricular change, changes to ISLO criteria and/or rubrics, and changes to course approval process. Submit action plan to the General Education Advisory Council for approval and coordinate implementation with the appropriate bodies.

Design professional development to be implemented in year four based on plan for improvement considering ways to engage the university community including faculty, staff and students. In developing this plan research best practices and opportunities to collaborate with other institutions. Submit plan to the Commission on College Teaching.

Year 4: Engage the University

With the Chair of the Assessment Commission, present report of findings from year two and planned improvements from year three to the university at fall convocation. Coordinate with the Commission on College Teaching to launch the university-wide focus on outcome through professional development based on plan for improvement engaging faculty, staff and students.

Year 5: Evaluate Results

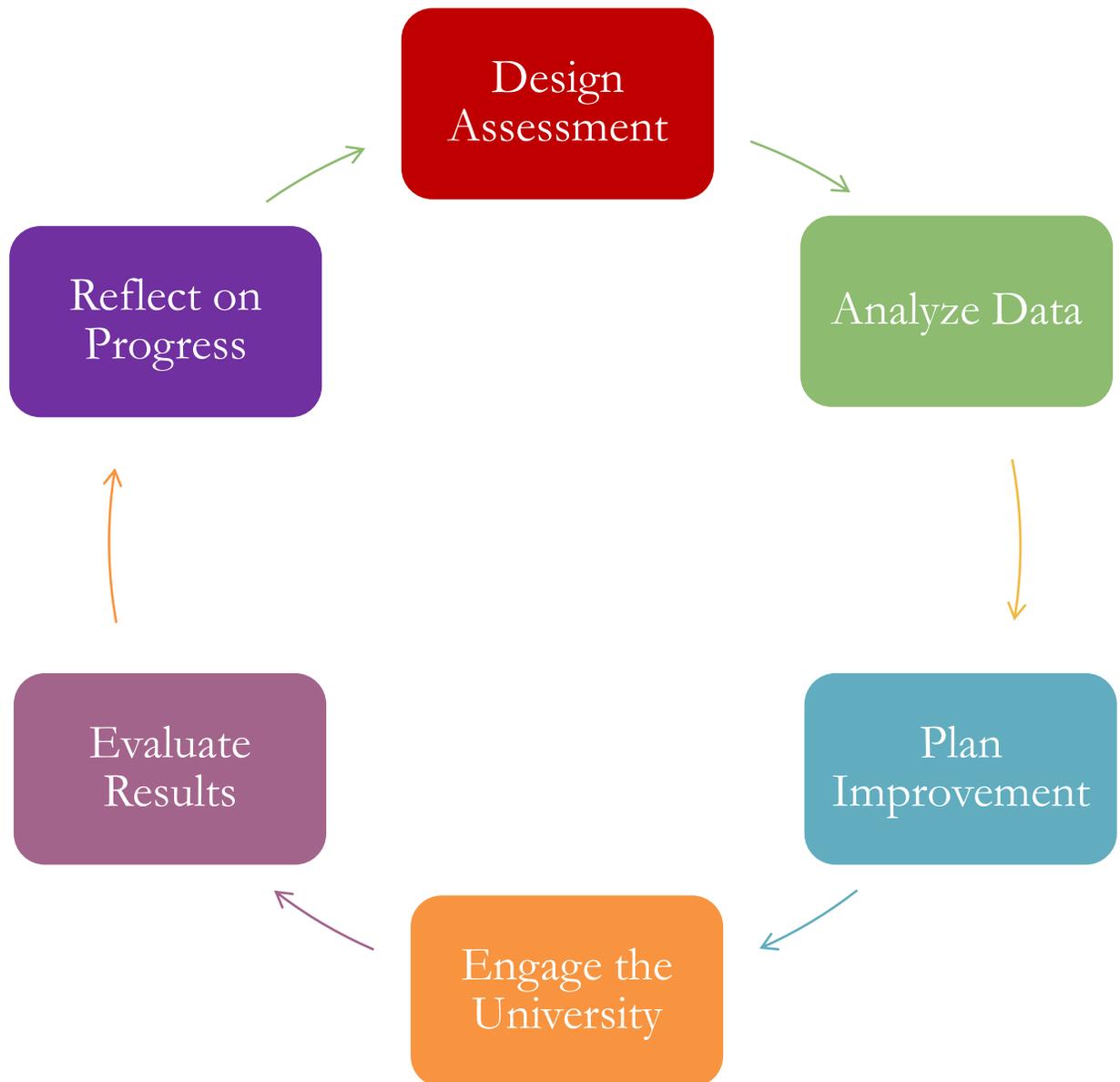
Aggregate and analyze data from targeted areas of weakness identified in the year two report. Prepare a written report indicating areas of improvement and/or recommendations for additional actions. Submit report to the Assessment Executive Committee, the Commission on College Teaching, the General Education Advisory Council, Academic Council and the Provost.

Year 6: Reflect on Progress

Reflect on improvements and consider innovative options for increasing success of all students. Activities could include: mapping outcome and criteria to state and national frameworks, comparing results to state and national benchmarks,

looking at innovative teaching and assessment practices at other institutions, exploring possibilities for collaborations and involvement in state and national projects, seeking opportunities for grant funding to support plans for innovation.

Continuous Improvement Cycle



Six-Year ISLO Cycle

		1	2	3	4	5	6
	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Communication		Design	Analyze	Plan	Engage	Evaluate	Reflect
Inquiry and Analysis			Design	Analyze	Plan	Engage	Evaluate
Ethical Reasoning				Design	Analyze	Plan	Engage
Teamwork		Engage	Evaluate	Reflect	Design	Analyze	Plan
Quantitative Literacy	Analyze	Plan	Engage	Evaluate	Reflect	Design	Analyze
Diverse Perspectives	Design	Analyze	Plan	Engage	Evaluate	Reflect	Design

Appendix H: General Education Literature Review

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Appendix I: Oregon Tech Mission Statement

Oregon Institute of Technology, a member of the Oregon University System, offers innovative and rigorous applied degree programs in the areas of engineering, engineering technologies, health technologies, management, and the arts and sciences. To foster student and graduate success, the university provides an intimate, hands-on learning environment, focusing on application of theory to practice. Oregon Tech offers statewide educational opportunities for the emerging needs of Oregon's citizens and provides information and technical expertise to state, national and international constituents.

Core Themes:

- Applied Degree Programs
- Student and Graduate Success
- Statewide Educational Opportunities
- Public Service

Appendix J: ESLO Committee Membership

Communication

Matt Schnackenberg, Chair (2014-15)
Christopher Syrnyk, Chair (2015-16)
Kevin Brown
Roger Lindgren
Elizabeth Gordon
Aja Bettencourt-McCarthy
Ron Swisher
Sean St. Clair
Linda Young
Cara Calvo
Mike Pierce
David Thaemert
Debbie McCollam
Hallie Neupert
Allan Douglas
Dan Ziriak

Ethical Reasoning

Yasha Rohwer, Chair
Teresa Wolfe, Chair (Fall 2014)
Travis Lund
Franny Howes
Jim Hulse
Mike Pierce
Claude Kansaku
Suzanne Hopper

Quantitative Literacy

Randall Paul, Chair (2015-16)
Matt Beekman, Chair (2014-15)
Richard Bailey
Kari Lundgren
Tara Guthrie
Gregg Waterman
Terri Torres
Jack Walker
Kris Rosenberg
Maria Lynn Kessler
Jim Fisher

Inquiry & Analysis

Seth Anthony, Chair
Yasha Rohwer, Co-chair (2014-15)
Melanie Arthur
Mehmet Vurkaç
Ryan Madden
Jeff Pardy
Matthew Sleep
Kelly Peterson-Fairchild
Lloyd Parratt
Lisa Taylor
Paula Russell
Christopher Syrnyk
Grant Kirby
Sherry Yang

Teamwork

Trevor Petersen, Co-chair
Dan Peterson, Co-chair
Kevin Brown
Evelyn Hobbs
Don McDonnell
Josie Hudspeth
Dongbin Lee
Robyn Wilde
Joe Stuart
Hugh Jarrard
Sharon Beaudry

Diverse Perspectives

Ben Bunting, Chair
Barry Canaday
Sharon Beaudry
Veronica Koehn
Hope Corsair
Deanne Pandozzi
Dibyayoti Deb
Gregg Waterman
Ryan Madden
Joseph Maurer
Elizabeth Gordon

Appendix K: Timeline of Review

Spring 2012

GEAC submits request to the Provost to form an ad hoc committee to conduct a comprehensive review of general education

Winter 2013

- Provost issues charge
- Task force co-chairs appointed and membership formed

Spring 2013

- First meeting of the General Education Review Task Force (GERTF)
- Develop guiding principles
- Establish timeline for work
- Catalog resources and begin external review

Summer 2013

- External review of general education literature
- Monthly phone meetings by GERTF to discuss

Fall 2013

- GERTF retreat, September 10-11
- Convocation presentation—justification for work and project timeline
- Association for General and Liberal Studies—GERTF conference attendance
- Faculty forums—dot surveys (Klamath Falls and Wilsonville)
- Academic department visits—input about current general education program
- Faculty forum—internal review (results of faculty survey and department visits)
- GERTF subcommittees formed
- Stakeholder Input subcommittee conducted student and alumni surveys
- General education review website created

Winter 2014

- Outcomes and Assessment subcommittee conducted a review of ISLOs
- Structures and Processes subcommittee reviewed existing general education structures and processes
- Accreditation and Program Requirements subcommittee began to catalog general education requirements defined by programmatic accrediting bodies
- AAC&U General Education & Assessment conference in Portland—attendance by Oregon Tech team
- Faculty/Administrator meeting—presentation of draft rationale

Spring 2014

- Assessment Executive committee submits recommendations for changes to ISLOs and/or general education requirements to GERTF
- Structures and Processes subcommittee drafts governance structure to support general education

Summer 2014

- AAC&U General Education and Assessment Institute—GERTF team attends
- Conceptual model first formed
- Presentation to Executive Staff—progress report
- Mapping of co-curricular experiences with Students Affairs directors

Fall 2014

- Initial phone meetings with consultant—Ann Ferren
- Convocation presentation—program mapping curriculum to outcomes
- Outcomes subcommittees formed, draft definitions and criteria for assessment of outcomes
- Faculty forum—proposed changes to ISLOs
- Outcomes and Assessment subcommittee develop new assessment cycle

Winter 2015

- Outcomes subcommittees define learning experiences for attainment of ISLOs at progressively more challenging levels
- Broadcasting and Marketing subcommittee vet names for new general education program
- New institutional outcomes (ESLOs) approved by Assessment Executive committee and the Provost
- Database created from the fall mapping exercise
- Proposed governance structure presented by GERTF to the Provost and receives approval
- GERTF retreat with consultant Ann Ferren—review of outcomes subcommittee recommendations and model development

Spring 2015

- ESLO committees (formerly outcomes subcommittees) provide specific recommendations for outcomes pathways in the context of the draft model, looking for connections to other ESLOs
- Faculty/Administrator meeting—Essential Studies conceptual model presented along with governance structure and assessment cycle
- Academic department visits—feedback on model

Fall 2015

- Convocation presentation—update and timeline of GERTF work
- GERTF retreat—revisions to model and plan for feedback from ESLO
- Implementation of new governance structure with Director of Academic Excellence
- ESLO committee feedback on model
- Faculty forum—presentation of working model, mapping of program curriculum

- Academic department visits—feedback on working model
- GERTF retreat—consider feedback from ESLO committees and department visits

Winter 2016

- Broadcasting and Marketing subcommittee prepared FAQs—presented at Faculty/Administrator meeting and posted on review website
- GEAC develop course approval process
- GERTF rework of model based on fall input and finalize recommendations from the review

Spring 2016

- Presentation to ESLO committees and GERTF subcommittees—preview of final model and recommendations
- Presentation to Faculty Senate—vote to implement new model based on GERTF recommendations
- Presentation to Executive Staff—support for implementation
- Presentation to Provost’s Leadership Team—commitment to support implementation and resource requests
- Presentation to Academic Council—request to support faculty through implementation
- Presentation at Faculty/Administrator meeting—GERTF final report and recommendations
- GERTF compile documentation from the review and prepare final report (this report) for submission to the Provost
- GEAC pilot Essential Studies course approval process
- Form Transfer Team to workout transfer agreements and processes through implementation
- Form ESSE Council to further define the Essential Studies Synthesis Experience and plan for implementation
- Broadcasting and Marketing subcommittee create Essential Studies marketing plan
- GERTF transfers responsibility of implementation to Academic Excellence Coordinating Committee on direction of the Provost

Appendix L: Essential Studies Synthesis Experience

The portions of the Essential Studies model described thus far do a great job of checking individual boxes -- helping ensure that students get a breadth of essential skills alongside (and within) a depth of technical expertise in their major.

But let's not lose sight of our broader (and common) purpose:

The world needs citizens (our graduates)

who can think about “whole systems”

and tackle cross-disciplinary problems.

And it's what employers⁴ want, too:

- “Nearly all employers (91 percent) agree that for career success, a candidate’s demonstrated capacity to think critically, communicate clearly, and solve complex problems is more important than his or her undergraduate major.”
- “Nearly all employers (96 percent) agree that all college students should have experiences that teach them how to solve problems with people whose views are different from their own.”
- “Nearly all employers (90 percent) give hiring preference to college graduates with skills that enable them to contribute to innovation in the workplace.”

Explicitly bridging this gap is a natural fit for Oregon Tech, where our goals include:

From the Oregon Tech Strategic Plan:

- offering “small classes that enable them to practice the skill through project-based learning with the guidance of a professor practitioner.”
- “teaching students in an environment that will reflect their life and work experiences while on campus and throughout their futures.”
- “reflect[ing] the global environment in which our graduates will work”

... and aligns with our aspirations for connecting with our communities and offering personal and professional growth for students, faculty, and staff..

Again, from the Oregon Tech Strategic Plan:

- “continue building mutually beneficial relationships – and our reputational capital [...] so that our graduates are in even greater demand”
- developing “non-traditional partnerships with local communities.”
- building “a culture of giving that creates enhanced philanthropy and success”
- “provide additional support for faculty and staff... including: a supported environment in which to innovate”

⁴ Hart Research Associates. 2015. *Falling Short? College Learning and Career Success*. Washington, DC: Association of American Colleges and Universities.

So we propose, as the hallmark of the Essential Studies program,
the Essential Studies Synthesis & Application Experience (ESSE).

Taken around the junior year, it synthesizes all six of Oregon Tech's ESLOs into one experience in which a student uses "his or her cumulative learning to pursue a significant project related to a problem he or she defines."⁵

In contrast with capstones in the major, the ESSE is by definition interdisciplinary -- while students may draw upon their disciplinary expertise, they tackle problems best addressed by multi-disciplinary teams, and that lie at the intersections between fields -- between technology and society, between health and engineering -- and require them to work with others with different strengths and backgrounds.

Students' experiences with the ESSE, also prepare them for their more disciplinary capstone -- in which, on top of technical depth, face many of the same challenges in identifying problems, working within teams, analyzing data, confronting interpersonal and ethical difficulties, and communicating with others -- and together, these more effectively prepare students for the large, messy challenges and projects they'll encounter personally and professionally after graduation.

Key Outcomes

1. Collaborative problem solving -- Students work with others to complete a substantial project. Full understanding of the problem requires insights from multiple areas of study.
2. Synthesizing, connecting, transforming -- Students connect relevant experience and academic knowledge and make connections across disciplines and different perspectives. Students transform ideas or solutions into entirely new forms.
3. Transfer -- Students adapt and apply skills, abilities, theories, or methodologies gained in one situation to new situations. Students make explicit references to previous learning and apply knowledge and skills in innovative ways to comprehend and respond to novel situations.
4. Personal and social responsibility -- Students take informed and responsible action to address ethical, social, and environmental challenges in complex systems that exist in a global context and evaluate both the local and broader consequences of individual and collective interventions.
5. Use information effectively to accomplish a specific purpose -- Students synthesize in-depth information from relevant sources representing various points of view or approaches to fully achieve a specific purpose, with clarity and depth.
6. Communication -- Students demonstrate the ability to effectively communicate the results of their work using a medium and message appropriate to the context. Students uses quantitative information in connection with the argument or purpose of the work, present it in an effective format, and explicate it with consistently high quality.
7. Independent Learning -- Students display curiosity, initiative and independence as learners.

Potential Additional Outcomes

1. Creative and innovative thinking -- Students extends a novel or unique idea, question, format, or product to create new knowledge or knowledge that crosses boundaries.
2. Civic engagement -- Students "work to make a difference in the civic life of our communities and develop the combination of knowledge, skills, values and motivation to make that difference [...] promoting the quality of life in a community, through both political and non-political processes." ⁶

⁵ *The LEAP Challenge: Signature Work for All Students*. 2015. Washington, DC: Association of American Colleges and Universities.

⁶ Civic Engagement VALUE Rubric. Washington, DC: Association of American Colleges and Universities.

Potential Examples:

- Sustainability in the Community: A 20-person class fans out in the community in 4-person teams, each working with a local business (or campus unit) that's interested in sustainability, to come with a customized plan that both incorporates more sustainable business practices and helps save the company money.
- Health Challenges in Developing Communities: A student group of 12 works with a local community in a developing country to install a solar water filtration system. While there, they examine the social and technical challenges surrounding its implementation, and, after returning, produce a set of recommendations to help ensure its continued functioning in context.
- Undergraduate Research in Materials: A team of biology and manufacturing/mechanical students field-tests a surface coating for cell phones laced with silver nanoparticles (known antibacterial agents). The group adapts methods from the literature to produce nanoparticles in the lab, apply them to surfaces, and test their effectiveness and efficacy in the field.
- Technology for Counseling: A team of computer science and psychology students collaborate to produce a conceptual design for a smartphone "app" that can help connect students in crisis to support services, working to balance needs of students with the technical challenges of software design.
- Community STEM Engagement: Parallel teams of students from KF, Wilsonville, and Seattle identify local school districts short in STEM opportunities and propose (possibly even launch) a small-scale "connection" program that brings material from their majors into classrooms, both physically and virtually, using telepresence. Student teams at different sites learn from each others' findings and propose a structure for carrying forward these efforts in a sustainable way.
- Innovation and Entrepreneurship: Teams of students receive coaching and technical assistance from faculty mentors to develop a business plan and go-to-market strategies for their invention. The focus will be on the innovation of products based on emerging technologies that are ready for technology transfer. Teams compete against each other for limited resources in a Shark Tech pitch session.

What are the criteria for an ESSE (a.k.a. unsolved problems):

- How should we "define" an ESSE? Should they be courses with standing numbers? Should they be approved by someone or some body? Common syllabi or unique syllabi?
- How do we define the interdisciplinarity in a way that's meaningful, but not overly restrictive?
- Credit size: How many credit hours should this carry? If so, how much student work does that translate into?
- Timeline: Can we do this meaningfully in a single academic term? Over longer periods? Over shorter periods?
- How much foundational-level knowledge should be/could be pre-requisite? Where do we draw the line between a possible ESSE and a possible disciplinary capstone? (or is it OK if the line is blurry?)
- Faculty support: Could/should they be team-taught? How should key partners outside OIT participate, formally or informally?
- Are there "centers" or nuclei around which Oregon Tech could develop/identify lots of ESSE projects/problems?
- Can this be done in a "classroom" style (~20 students, with regular meetings)?
- Is there other instruction that should happen within/alongside the ESSE? (from humanities, communication, social science, management, or library (information literacy) faculty?)
- How should the learning outcomes (probably including all of the 6 ESLOs) be exhibited/assessed for all students?

- What support is needed to sustain this -- to support faculty in new types of teaching, to cultivate opportunities from outside OIT that present themselves? Does it require new dedicated faculty lines for this (if so, how many), or explicit reassignment of current faculty?
- Are we already doing this (or things like it) in various places in our curricula?

Initial Thoughts on ESSE criteria:

Individual ESSE's are defined and approved by their problem statement -- what challenge does the student team aim to address? These may be ongoing or recurring (and therefore repeatable "seminars") or unique, in response to challenges that arise in a specific time and place.

Addressing these problems must involve interdisciplinary work (work that draws upon multiple domains of inquiry -- social, humanistic, aesthetic, scientific, technical, etc.). Technical knowledge in a particular area (beyond foundation-level courses common to multiple majors) should not be a prerequisite for meaningful effort to tackle the defined problem. ESSEs should allow for cross-disciplinary enrollment.

Academic load:

- For a 3-credit ESSE (treated as "lab" hours), 90 hours of student work are expected, completed within the span of one academic year.
- ESSEs may fit within one academic term, but could also span several terms, or could occur in a shorter span of time (2 weeks).
- Team-mentoring of ESSEs by faculty is to be highly encouraged.

Faculty workload:

- While some ESSE experiences may be individually-mentored teams of 3-6 students, we anticipate that, for practical many will be larger ("classes" of 15-20, all tackling related problems connected to a common theme), allowing for workload crediting within existing guidelines.

Students' work product (a final report), must exhibit all ESLOs:

- Communication: Work must culminate in both a written and an oral presentation of recommendations or conclusions.
- Inquiry & Analysis - Must involve a clear "problem statement" as part of the course; final report should reflect high practicing/capstone-level Inquiry & Analysis
- Teamwork: Work must be carried out in teams; reflection on teamwork should be part of final report.
- Quantitative Literacy: Effective use of quantitative information must be part of final presentations.
- Ethical Reasoning: Ethical implications and concerns must be explicitly addressed in final paper or in reflections during project.
- Diverse Perspectives: Perspectives of others must be addressed in final paper or in reflections during project.

Appendix M: Implementation Timeline

Critical Path 2016-17

