

# UNIVERSITY OF ROCHESTER: Arts, Sciences and Engineering (AS&E)

## Executive Summary Assessment Plan

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### Introduction

One of the core missions in the Schools of Arts, Sciences and Engineering (AS&E) is to ensure a coordinated and effective educational experience for students. Existing committees, processes, and infrastructure, bolstered by targeted initiatives and activities, support continual improvement of courses, programs, and the overall educational experience for learners in AS&E, aligning with the university motto, “Meliora – ever better”.

### Educational Effectiveness in AS&E (EEASE)

The Educational Effectiveness in AS&E (EEASE) Advisory Committee plays a pivotal role in supporting the assessment plan across AS&E and provides a forum for the exchange of ideas, information and expertise in AS&E. The EEASE Advisory Committee is led by the Director for Educational Effectiveness in the College in Arts, Sciences and Engineering (the College), the Associate Dean for Education and New Initiatives in Hajim School of Engineering and Applied Sciences (HSEAS), and the Assistant Dean for Graduate Education and Post-doctoral Affairs (GEPA). Recognizing that synergistic relationships exist across educational and assessment initiatives, departmental and program representatives for academic, academic support, and co-curricular are all included as members of the EEASE Advisory Committee. Continuing collaborations across departments and programs provide the cornerstone for interdepartmental conversations, sharing of best practices and experiences, community building, and promoting the scholarship of teaching, learning and assessment.

### Curriculum and Assessment Connections

Ongoing partnerships and open channels of communication between undergraduate and graduate leadership serve to simultaneously inform curriculum and assessment initiatives. The Director of Educational Effectiveness reports to the Associate Dean for Academic Affairs in AS&E who is a standing member of both the College Curriculum Committee and the EEASE Advisory Committee. Both work closely with the Associate Dean for Education and New Initiatives Education in HSEAS and the Assistant Dean for GEPA. Together they form the curriculum and assessment leadership team for AS&E.

The Director of Educational Effectiveness provides leadership, guidance, resources, and feedback for assessment in AS&E and support for institute-level and discipline-specific accreditation. The Director of Educational Effectiveness also ensures assessment of processes occurs periodically to inform continual improvement in infrastructure and protocols.

### Student Learning Outcomes Assessment

A comprehensive student learning assessment plan that uses both direct and indirect assessment evidence to inform continual improvement in teaching and learning exists for the Schools of Arts, Sciences and Engineering. The assessment plan encompasses overall undergraduate and graduate educational learning outcomes achievement including both curricular and co-curricular learning experiences. The student learning assessment plan is an evergreen plan and is coordinated by the Director of Educational Effectiveness for the College,

the Associate Dean for Academic Affairs in AS&E, the Associate Dean of HSEAS, the Assistant Dean of GEPA, and the EEASE Advisory Committee.

The Director of Educational Effectiveness provides input and assistance for the design and implementation of direct and indirect assessment strategies that are both formative and summative in nature. The overall design of assessment plans and large-scale surveys to measure learning outcomes achievement at all levels and across curricular and co-curricular learning experiences is organized and managed by the Director of Educational Effectiveness

### School Learning Outcomes for AS&E

Learning objectives for AS&E center on student learning and engagement, fostering a sense of belonging to the University community and the greater community at large in which all students are encouraged to become innovative and adaptive lifelong learners. AS&E aims to prepare students to live and be leaders in an ever-changing global environment.

The AS&E educational objectives provide the foundation for the core learning outcomes for both undergraduate and graduate students. Students develop these essential learnings through both curricular and co-curricular experiences, with emphasis on choice, experiential learning, and engaging opportunities and environments to promote critical and creative thinking, equity, ethics, leadership, and teamwork. Students who successfully complete undergraduate and graduate degrees in AS&E will be able to demonstrate achievement in: 1) Research and Scholarship, 2) Educational Excellence, 3) Intellectual Agility, 4) Equity and Inclusivity Mindset, 5) Cross-cultural Responsiveness, and 6) Appreciation for Lifelong Learning.

For undergraduate students in AS&E, the College Student Learning Outcomes include both the MSCHE essential skills and the College Competencies. This combination of core curricular learning outcomes and co-curricular learning outcomes serves to underpin all programs and learning experiences for students in AS&E. At this time, all undergraduate degree major program learning outcomes, degree minors, and cluster programs have been aligned with the MSCHE core learning outcomes. AS&E departments and units are completing the process of aligning academic support and co-curricular program learning outcomes with the College Competencies. Next steps will include aligning degree major, minor, and co-curricular learning outcomes with both MSCHE essential skills and the College Competencies.

### Degree Learning Outcomes

A three-year assessment cycle has been established in AS&E supports student learning achievement and success. Learning outcomes are identified, curricular alignment and vertical alignment with institute, school and course level learning outcomes are reviewed, assessment metrics are designed and implemented, and assessment data is used to inform continual improvement of programs.

### Assessment Processes for MSCHE Essential Skills and the College Competencies

Direct assessment of the MSCHE essential skills is incorporated as part of undergraduate degree learning outcomes assessment with the alignment of student learning outcomes for the academic program with the MSCHE essential skills.

The College Competencies (<https://www.rochester.edu/college/academics/competencies.html>) will also be assessed using a comprehensive approach. The College Competencies

Implementation Group, with support from the Director of Educational Effectiveness and partners across AS&E, has developed rubrics that can be used for assessment of student learning outcomes achievement for each of the College Competencies.

With the identification of the College Competencies informing learning experiences offered and assessment of student learning achievement across AS&E, academic support and co-curricular offices and centers can leverage the assessment rubrics developed for use with learning experiences that include substantive emphasis on one or more of the specific competencies. Additionally, pre/post surveys, focus groups, etc., continue to inform learning experiences and assessment processes.

### Data Collection Tools and Approaches

AS&E's assessment plan for the degree majors, minors, and the cluster system within the Rochester Curriculum is based on both direct and indirect measures of learning outcomes achievement.

- Direct assessment of degree learning outcome achievement supports continual improvement of programs. Degree programs are asked to assess all program-level student learning outcomes with findings, evaluations, recommendations, and actions documented for review and follow-up.
- Department/program faculty/staff members review and revise learning experiences, courses, and programs based on assessment data findings, evaluations, and recommendations.
- Direct assessment of core learning outcomes is both embedded in program student learning outcomes assessment and included as part of targeted assessment initiatives. For example, faculty teaching specific courses (e.g., senior level, part of degree requirements, and/or part of a cluster) are asked to choose an assessment (e.g., final exam question, project, presentation, etc.) that best represents student achievement of the intended learning outcomes. Both quantitative and qualitative data can be used in analyses.
- AEFIS, a cloud-based integrated assessment management platform, is used to facilitate assessment and accreditation processes. AEFIS modules feature: course evaluations, curriculum mapping for programs, collection and archiving of student learning assessment data, reporting to support programmatic reviews, and self-study preparation for accreditation needs. With time, AS&E will be able to leverage the integrated AEFIS system to analyze, report, and benchmark achievements at the program and school level. The use of AEFIS will afford cross-sectional and longitudinal reporting of assessment data and trend analyses for programs. This aggregate data will be useful in assessing program capacity to achieve its intended learning outcomes, will inform teaching and learning, and will support continual improvement of programs.
- Indirect assessment data is collected via the COFHE suite of surveys (i.e., the Survey of New Students, the Enrolled Student Survey, the Senior Survey) and the EBI/Skyfactor survey (i.e., Benchworks Engineering Exit Survey) and the AS&E Graduate Student Surveys wherein students self-assess learning with many question items also dedicated to assessing levels of engagement. The surveys allow the AS&E team to gain a student-centered sense of potential areas of strengths and challenges in achievement of intended learning outcomes.

Our plan also includes mapping question items across the surveys for the purpose of longitudinal and/or cross-section analyses. This is an iterative process with the goal of supporting more comprehensive and/or historical review of data, interpretation of data trends, and the potential to inform needed follow up action.

- Alumni surveys, while on pause during the pandemic, include the COFHE Alumni Survey among others and are used to gather additional (indirect) assessment data from alumni.

### Use of the Evidence

- All School of Arts & Sciences programs develop a three-year assessment plan with direct and indirect measures, routinely complete a data collection and analysis process, identify areas for specific improvements, and prepare an annual learning outcomes assessment report. The annual program learning outcomes report documents the cycles of continuous improvement wherein assessment data are reviewed, areas of success and concern identified, and curricular improvements identified and recommended. Program faculty/staff then discuss and implement recommendations to “close the loop”. These reflective review forms, along with the quantitative assignment scoring data in AEFIS combine with indirect survey data supporting continual improvement of programs.
- The HSEAS undergraduate engineering programs that are ABET-accredited also complete a self-study every 6 years ensuring continuous accreditation status. Assessment processes incorporate some of the same strategies used in the School of Arts & Sciences along with the additional departmental/program processes to support and address ABET requirements for accreditation supporting continual improvement of programs.
- The Chemistry department completes a self-study regularly as part of their accreditation with the American Chemical Society supporting continual improvement of their program.
- The Undergraduate Business Program is included with the AACSB self-study for accreditation supporting continual improvement of their program.
- The doctoral degree major in Clinical Psychology completes a self-study for accreditation by the American Psychological Association supporting continual improvement of their program.

### AS&E Assessment Reporting

In consultation with the EEASE Advisory Committee, the Associate Dean for Academic Affairs in AS&E, the Associate Dean for Education and New Initiatives in HSEAS, and the Assistant Dean of GEPA, the Director of Educational Effectiveness prepares an annual assessment report that includes: identifying or re-affirming goals, listing activities supporting achievement of the goals, noting assessment strategies and targets, and describing the results, use of the assessment data and planned follow up.

Documents and data from a variety of sources are used as reference for the annual report. Retention and graduation data are also available upon request to provide greater insight into student achievement, sometimes by relevant populations, to help identify student needs and/or how best to support learning outcomes achievement. The assessment and curriculum leadership team collaborates together, often consulting with faculty and staff, in developing and implementing educational initiatives to address areas of need to “close the loop” and support continual improvement of programs at all levels.