Work-in-progress: Many Hands Make Light Work: A Faculty-Engaged Framework for Program Assessment and Continuous Improvement

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Abstract

The BS program in Engineering at East Carolina University was founded in 2004 and secured initial ABET accreditation in 2009. The BS Engineering degree is a 125 credit-hour program, and students choose from one of six concentrations: Biochemical, Biomedical, Electrical, Environmental, Industrial and Systems, or Mechanical Engineering. Each concentration represents 22 credit hours in the degree program. The program employs a multi-layered approach to program assessment designed to ensure continuous improvement and faculty engagement at every level. Each course has a designated course coordinator responsible for gathering and interpreting course-level assessment data, which serves as the foundation for program-level evaluation. That course-level data is then parsed by outcome and distributed for analysis by a team of fourteen faculty members designated as outcome coordinators. Those outcome reports are subsequently reviewed by the departmental assessment committee, which synthesizes the findings into an annual department-level assessment report. Internal process reviews revealed gaps in procedural clarity leading to reduced compliance over time.

This work describes the structure, responsibility map, and feedback loops built into our overall assessment plan that sustain the "many hands make light work" approach to the assessment process. It also outlines process modifications implemented over time with the goal of reducing reporting burden and increasing compliance. These improvements include the transition from academic-year to calendar-year data compilation and reporting, as well as implementation of assessment data collection using Canvas, the university's learning management system (LMS). The resulting workflow has increased efficiency, improved data completeness and accessibility, and enhanced faculty participation in assessment cycles. Importantly, this structure can lead to more meaningful discussions about student learning outcomes, more timely identification of curricular gaps, and a stronger culture of evidence-based decision making. The process now serves as both a compliance mechanism and a catalyst for pedagogical innovation, aligning faculty effort with the broader mission of continuous program improvement. More broadly, this LMS-enabled, faculty-distributed framework offers a transferable model for engineering and other accreditation-driven programs seeking to improve assessment consistency, reduce administrative burden, and build a more sustainable culture of evidence-informed educational improvement.

Background

Accredited engineering programs are expected to demonstrate sustained, documented program assessment and continuous improvement. This focus on outcome-based program evaluation is an impetus for repeatable, evidence-driven processes. Connecting the dots between clear objectives, outcomes, and performance indicators and ensuring that course design is aligned with accreditation expectations improves programs [1]. Olds *et al.* discuss the need for sustainable practices that are authentically embedded in the process [2]. Faculty engagement is a consistently identified factor in successful implementation [3] and the "many hands make light work" is hardly a new approach to building faculty buy-in [4]. Such distributed responsibility models build a shared vision and purpose and help reduce single-point failure modes; however, there is an increased need for clarity in roles, timelines, and expectations. It is natural that engineers would gravitate toward the use of technology to standardize, streamline, and improve assessment processes.

Introduction and History

The leadership of the department has promoted a strong culture of continuous improvement since the engineering program's inception in 2004. In addition to faculty members with experience with assessment and accreditation, consultants with ABET experience contributed to the creation of the department's original Assessment and Evaluation Plan. The plan targeted the assessment of the student outcomes in specific classes and assigned the role of Outcome Coordinator to a faculty member for each outcome. The Outcome Coordinator is responsible for summarizing the assessment data for their assigned outcome and presenting the summary to the department faculty. With the transition of ABET's Student Outcomes from a-k to the 1-7 with the 2019-2020 assessment cycle, two faculty members have since been assigned as coordinators for each of the seven outcomes. In this way, faculty members new to East Carolina University Engineering and/or ABET accreditation can become more involved in assessment processes along with a more experienced member. This is one example of many hands making light work, and a way to maintain a strong culture of assessment in the department.

Drilling down from the Outcome level to the individual courses, each course taught by the department is assigned a faculty member as Course Coordinator. The Course Coordinator is responsible for maintaining the master syllabus (similar to an ABET syllabus), ensuring that every section of a course covers the objectives stated in the master syllabus, coordinating assessment activities within the course, and reporting assessment results. Course-level assessment is conducted once per year. For the courses in our engineering core that are offered every semester, assessment is conducted during the semester in which more students typically enroll.

Through the years, collection, collation, and distribution of assessment data has evolved. Prior to the pandemic, student surveys were implemented with a mix of electronic distribution, usually via Qualtrics, and paper surveys, which were tabulated by hand by the course coordinators.

Regardless of the method of gathering the student input, a standardized student survey results reporting form was used. The student survey report forms were Microsoft Word templates designed to break out student survey questions by outcome. Additional Word templates were distributed for student work sample assessment. Once all course assessment information is gathered according to the assessment plan, historically, one assessment coordinator would then parse the course data, collect it into Outcome specific folders. The collected Outcome information was then compiled into aggregate pdf documents and emailed individually from the assessment coordinator to the Outcome coordinators for subsequent Outcome analysis. That assessment coordinator served as data quality and data completeness monitor for the department. Even with our strong culture of assessment, this particular task remained burdensome. With time, reporting formats drifted to be less consistent and less compliant with the original intent, creating even more administrative burden for the assessment coordinator and/or the Outcome coordinators.

One limitation of the original plan implementation was the unfortunate but inevitable crunch of timing for assembling the academic year's assessment results. At the end of the Spring semester, it can be difficult to collect and assemble the data with all the other end-of-academic-year activities that must conclude before the end of the nine-month academic appointments. To address this barrier to timely and careful assessment compliance, the program moved to a calendar-year assessment schedule in 2018. That is, analysis of assessment data takes place during the spring semester, based on data generated during the previous calendar year. This change has helped eliminate that end of Spring term crunch and has been retained to present day.

The program's most recent ABET reaccreditation occurred during the tumultuous time of the pandemic. After subsequent personnel transitions in several key roles, an effort to broadly evaluate assessment processes and revitalize the culture of assessment was initiated during the 2024-25 academic year. Faculty input was requested via an anonymous instrument with a response rate of 84%. The instrument included the following key assessment related items:

- Yes/No: I have completed all assessment tasks on schedule (40% yes, 60% no)
- I have been unable to complete my assessment because:
    - I have not been properly trained on what to report (20%)
    - I have not been properly trained on what should be assessed or when (0%)
    - I don't have enough time to complete the tasks (13%)
    - I don't have the information I need from other instructors (20%)
    - Other (47%)
- A free response prompt asked for additional context on not completing assessment (to explain the "Other" choice.)
- Another free response prompt: Please provide suggestions on how we can bring the department to 100% assessment buy-in and 100% assessment completion.

Distillation of the free response results included three important response themes. The results indicated:

- strong affinity for creating dedicated, structured 'workshop' time to complete the required tasks.
- strong enthusiasm for rebuilding the institutional knowledge and shared ownership of assessment.
- an identified need for clearer course-level instructions and timelines (who does what, when, with what artifacts).

At the conclusion of Spring 2025, a contingent of key faculty participated in a two-day assessment-focused retreat with the following charge:

- To develop collective understanding of how well our program is meeting program outcomes by rolling up and analyzing prior year assessment data;
- To collaboratively review and reach consensus on our assessment plan and process;
- To develop mutual knowledge of the ABET reaccreditation process; and
- To design a cooperative 18-month workplan to ensure we are prepared for a successful ABET visit.

Armed with renewed focus and understanding, key support materials (like the infographic included in Appendix 1) were developed for use. Department leadership recast the master teaching schedule for AY25-26. The common time during which no department faculty have a teaching obligation was increased from one hour per week to three, enabling far more scheduled common assessment work session time during the academic year. The clarity of assessment guidance has been addressed by additional seminar style sessions during the increased common time, and also by the current innovation of using our LMS for collecting assessment material.

Method

The current process innovation is essentially the moving of the "front end" data collection into a LMS course. While this change stops short of other reported efforts [4-8] to automate and streamline the task of assessment, it has nonetheless solved several compliance, accountability, and consistency issues. Our method also uses the LMS differently. In other approaches, the automation or process improvements in other reported methods work to extract assessment data from the course shells faculty use to teach the content. We created a non-curricular LMS course shell in which the course coordinators are given the student role. Assignments with format-restricted templates are made for student survey elements and student work samples. These assignments are then duplicated as appropriate for each Outcome and Course, according to our overall assessment map. The assignments are then gathered into modules by course. The assessment coordinator then assigns the appropriate modules to the respective course coordinators. Parsing results by Outcome now becomes a task for the course coordinator at the

time of reporting, thereby reducing the burdensome nature of repackaging data for redistribution that previously fell to the assessment coordinator.

Submission to the LMS provides additional advantages in instant clarity of assessment expectation for all involved faculty. Each faculty only sees the module that they need to respond to, which has clear deadlines and supporting instructions. The assessment coordinator role previously spent an inordinate amount of time on manual follow up and quality control, with spreadsheets to crosscheck that the correct artifacts were reported in the correct format for the correct course and so on. The LMS eliminates those manual tasks and allows for easy built-in reminders for assignments not yet submitted.

Using the LMS as a central assessment repository enables additional improvement in clarity of assessment expectations. With faculty in the student role in the assessment course, we have also developed a module for each course that includes assessment instructions for that course: a summary of the student assignments that are assessed, rubrics for assessing those assignments, and the student survey quiz is included. These modules can be sent by Course Coordinators within the LMS to all instructors of each course at the start of the semester such that the information for assessment resides in the LMS both in our perpetual assessment course and in each curricular course. That places the assessment information at every instructor's fingertips so to speak, where we need it and where instructors already are logged in, instead of an infrequently used folder in an easily forgotten shared file path.

Results

As this is a work-in-progress, only a portion of the planned evaluation work is complete. The following survey instrument will be distributed to all faculty to broadly understand the impact of our process changes.

Faculty survey items:

1. What is your assessment role? (Faculty, Course Coordinator, Outcome Coordinator)
2. Is the LMS data collection better? Why or why not
3. Did LMS data collection save you time? Why or why not
4. Do you feel more clear on what and how to report assessment data than this time last year?
5. Do you feel more confident in your understanding of assessment than this time last year?
6. Suggestions for additional improvement

The change in compliance for the term immediately before and after implementation of the LMS data collection is as follows in Table 1. Overall, usable assessment completion rose from 63% to 96%.

Table 1. Comparison of Completion Before and After Implementation

Submission	Before LMS Implementation	After LMS Implementation
Completed	12/24* (50%)	15/24 (63%)
Partially Completed	3/24 (13%)	8/24 (33%)
Not Submitted	9/24 (36%)	1/24 (4%)

*: Number of courses assessed in a semester

Conclusion

This work-in-progress describes a faculty-engaged assessment framework for continuous improvement in a multi-concentration engineering program. By distributing responsibilities across course coordinators, outcome coordinators, and an assessment committee, the process links assessment work to where evidence is generated and where curricular decisions are made. Two practical modifications are emphasized: adopting a calendar-year reporting rhythm to reduce end-of-term time pressure, and moving data submission into a dedicated, non-curricular LMS course that functions as a centralized assessment repository. Together, these changes aim to improve completeness and consistency of artifacts, clarify expectations (who submits what, when, and in what format), and reduce manual follow-up previously concentrated in a single coordinator role.

Early implementation suggests that structured common work time, embedded templates, and LMS-based reminders can strengthen shared ownership and rebuild institutional knowledge. The initial comparison of assessment completion before and after implementation indicates that usable assessment completion increased from 63% to 96%, suggesting that relatively lightweight process changes can produce meaningful improvements in compliance and participation. Future work will include year-over-year comparisons, faculty surveys on clarity and time savings, and analysis of whether the revised workflow leads to more timely identification of curricular gaps and more actionable program-improvement discussions.

The broader significance of this work is that it offers a transferable model for making assessment more sustainable in engineering education. Rather than treating assessment as an administrative task completed after teaching has occurred, the framework embeds assessment expectations into the digital infrastructure, routines, and shared responsibilities of the faculty. This approach may be adapted by other engineering disciplines, multi-program departments, and accreditation-driven fields that need to collect consistent evidence of student learning across courses and instructors. By reducing reporting burden while increasing transparency and faculty ownership, the innovation has the potential to improve not only accreditation readiness but also the quality of curricular decision making across engineering education.

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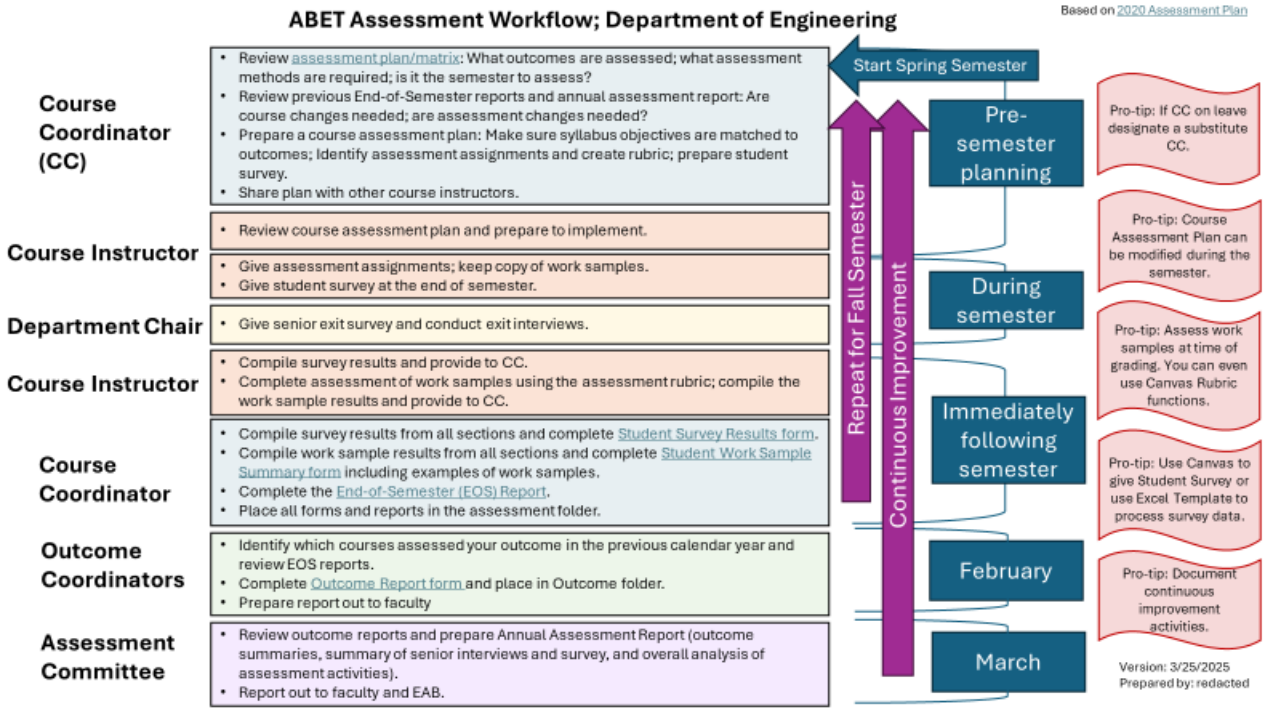
Appendix



Student Outcomes

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. an ability to communicate effectively with a range of audiences.
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Quicklinks:
Assessment Plan
Assessment Forms – Templates
Outcome Report Templates
Engineering Assessment Folder

Faculty	Responsibility
Instructor	• collect and evaluate student work samples and administer surveys as directed by the course coordinator. • share results with CC.
Course Coordinator	• plan assessment activities, collect assessment data as detailed in assessment matrix from all instructors, and report assessment data (Survey form, Work sample forms for each Outcome, and EOS report) • maintain updated ABET syllabi and materials for course displays for accreditation visits.
Outcome Coordinator	• review all assessment data related to their outcomes annually and prepare a summary report.
Assessment Committee	• update the Assessment Plan, administer a senior exit survey, prepare an annual report of assessment results, present assessment results to faculty and the Engineering Advisory Board, and propose curriculum changes to the department's Curriculum Committee.