

**Report of Student Learning and Achievement
Concordia University Irvine
School of Arts and Sciences – Engineering Program**

For Academic Year:	2025-2026
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School of Arts and Sciences Mission
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Engineering Program Purpose

The School of Arts & Sciences fosters the virtues of curiosity, courage, and humility in our students, thereby preparing them for their vocations in service to others. This is accomplished within the Lutheran liberal arts tradition by engaging with many enduring questions while relying upon the truth found in Jesus Christ.

The School of Arts and Sciences teaches a majority of the Q&I general education offerings of the university and monitors the courses, majors, minors, and professional programs through its different departments for the purpose of developing "wise, honorable, and cultivated citizens" in a variety of fields of study.

The Engineering Bachelor of Science challenges students to investigate, formulate, analyze, and articulate engineering problems by connecting principles of engineering, science, mathematics, and computer science with studies in liberal arts, in order to produce and communicate informed solutions which consider the impact of global, environmental, health, safety, and economic factors.

Program Learning Outcomes (PLOs)

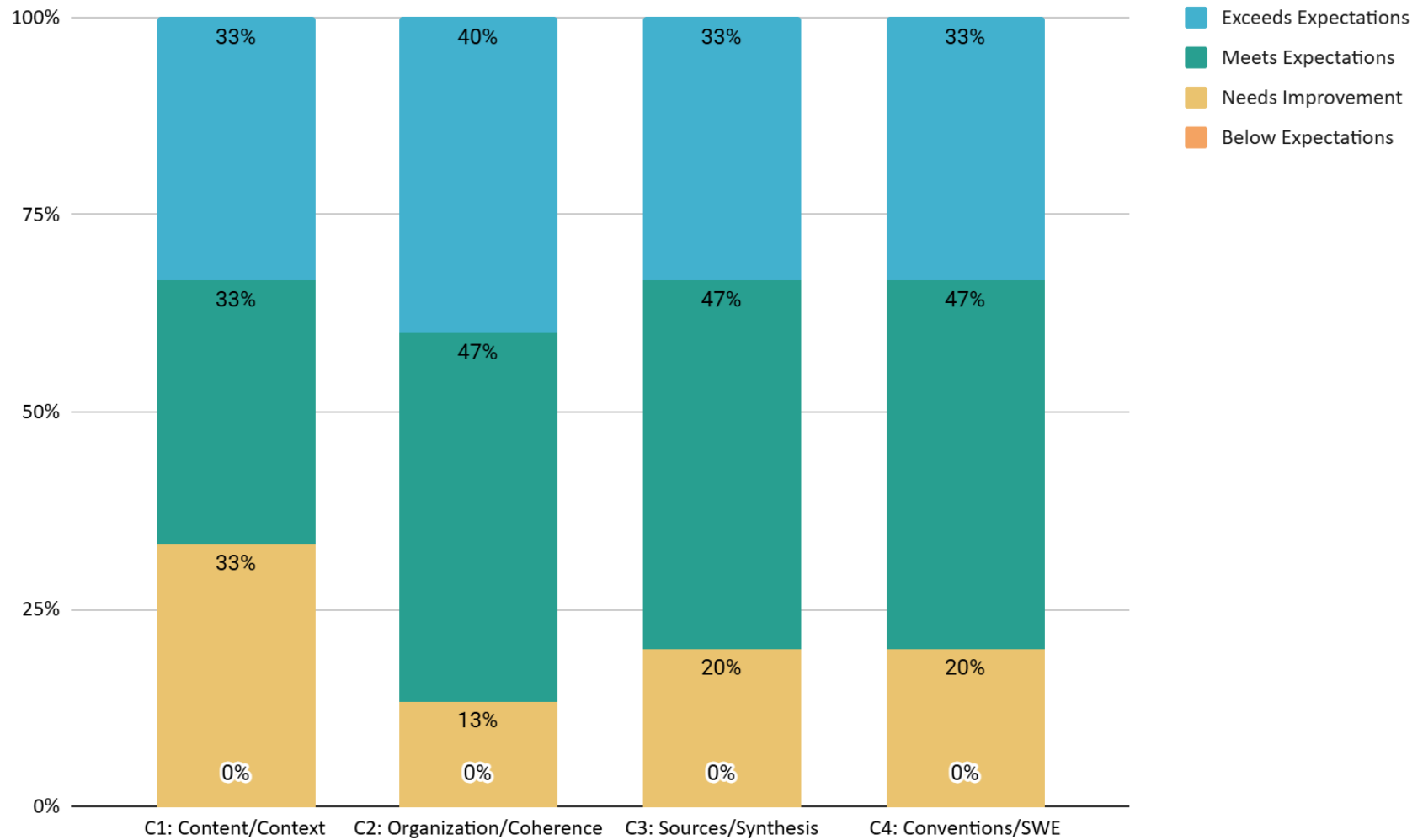
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| 1. An ability to identify, formulate, and solve engineering problems by applying principles of engineering, science, and mathematics. |
| 2. An ability to apply engineering design to produce solutions that meet specified needs with consideration 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. An 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.

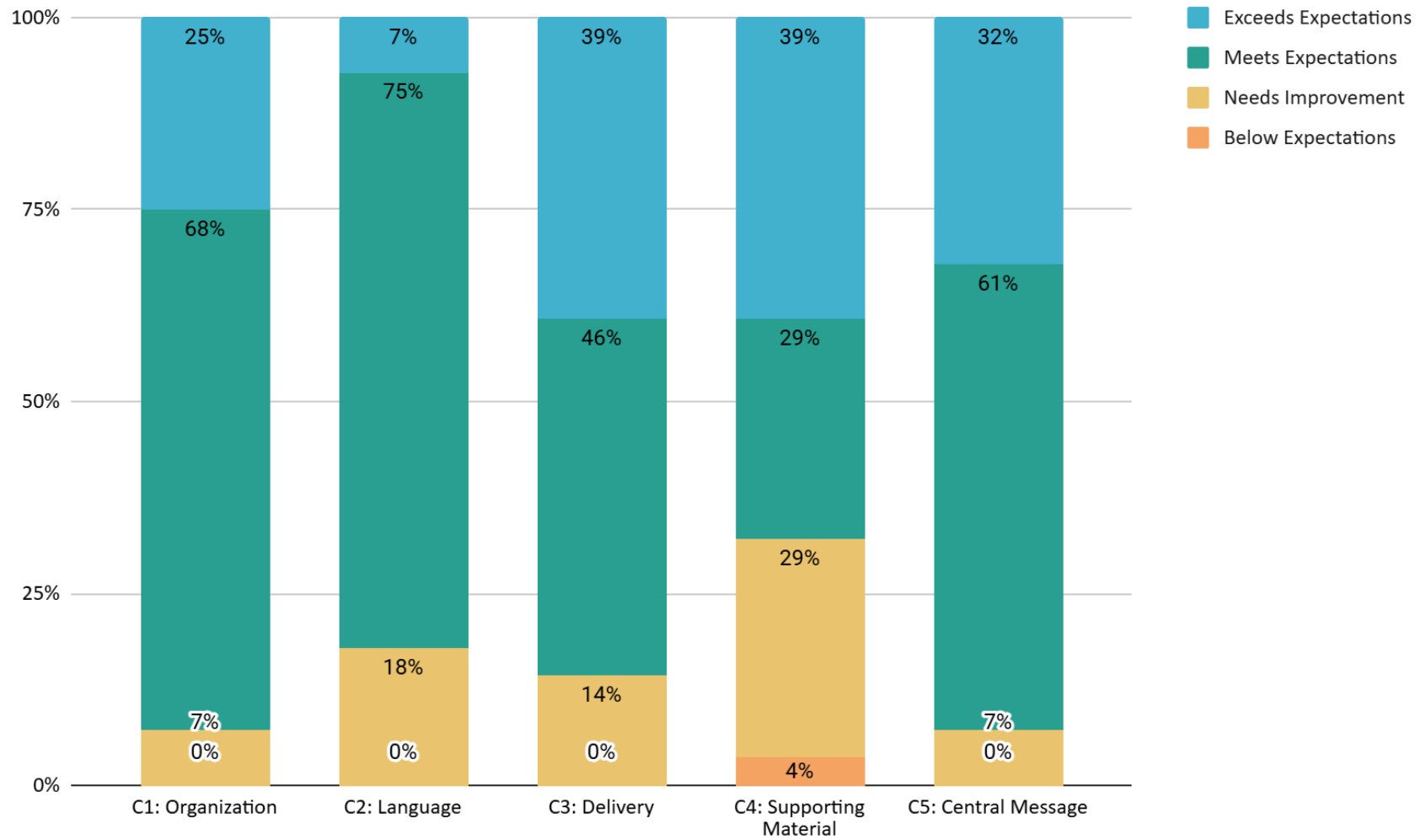
Program Assessment Overview			
Aligns with ULO: Written Communication / Oral Communication and Specialized Knowledge			
PLOs Assessed	Evidence and Assessment Instrument	Performance Objectives (Targets/Criteria) Measures:	Results for Measures of Student Learning:
An ability to communicate effectively with a range of audiences.	ENGR 496 - Final paper/presentation	75% scoring a 3 or higher	Written Communication Percentage of students who met or exceed expectations: Content / Context - 67% Organization / Coherence - 87% Sources / Synthesis - 80% Conventions / SWE - 80% Oral Communication Percentage of students who met or exceed expectations: Organization - 93% Language - 82% Delivery - 86% Supporting Material - 68% Central Message - 93%
An 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.	ENGR 101 - Project	75% scoring a 3 or higher	Specialized Knowledge Percentage of students who met or exceed expectations: Reliability - 87% Respectfulness - 98% Quality of Work - 89% Contribution - 84%

Program Assessment Results

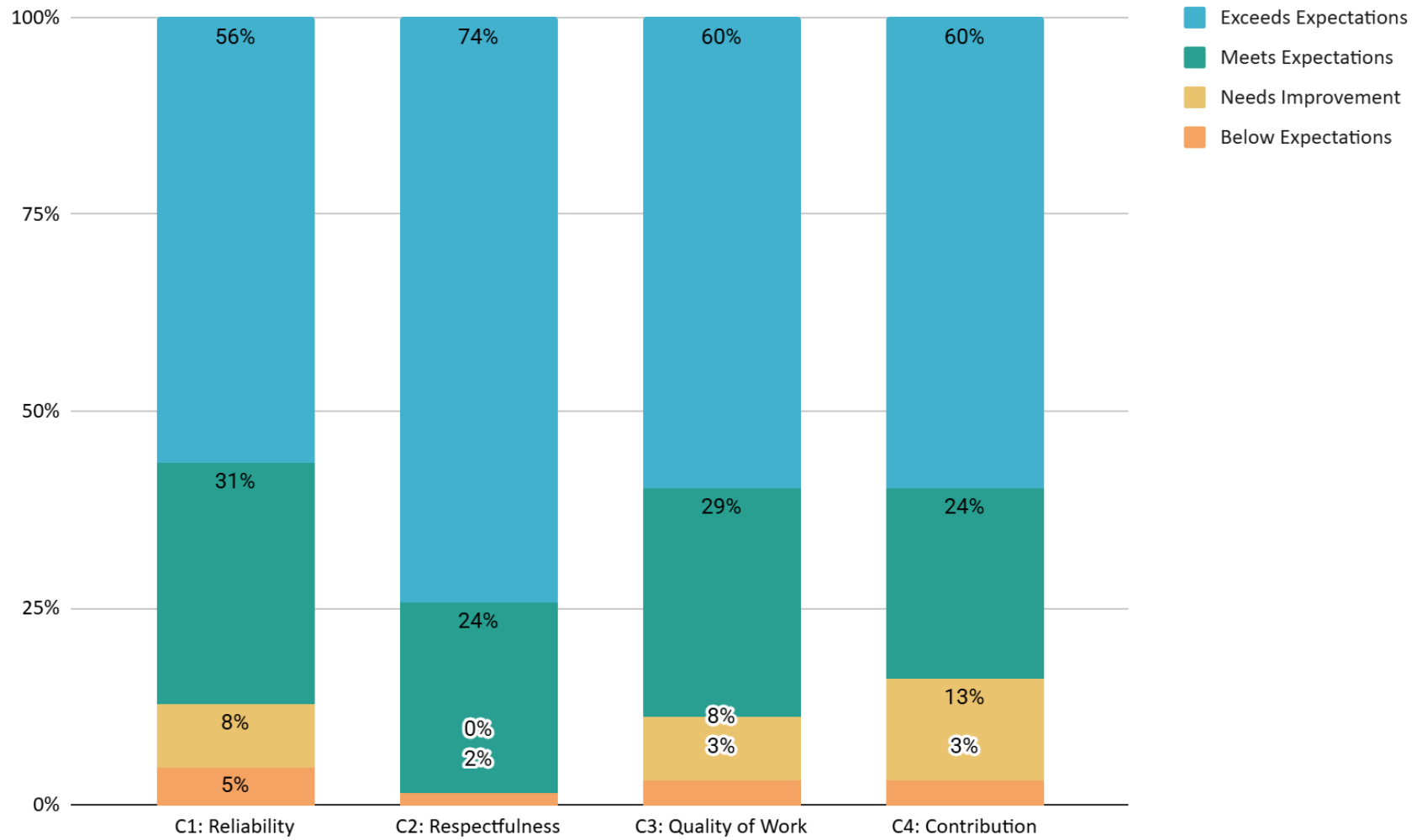
Written Communication



Oral Communication



Specialized Knowledge



Summary of Program Assessment Findings

Written Communication and Oral Communication

Each ULO's criterion had an expected standard of at least 75% of students scoring a 3 or greater (meet or exceed expectations). For both WC and OC, all but one criterion met the expected standard. The criteria that fell short were C1: Content/Context (67%) and C4: Supporting Material (68%) within WC and OC, respectively.

The assessment process was an excellent opportunity for the engineering program faculty to reflect on our Senior Capstone series of courses. The course is relatively new and has had several instructors, both full-time and adjunct. This is important context that provides a lens through which we learn about student learning.

Senior engineering students have had three prior major design projects, each requiring a presentation and paper. This likely accounts for students meeting the expected standard for most of the criteria. This is particularly encouraging since our engineering program prioritizes training engineers who can communicate their ideas, designs, and data. However, this year's assessment did point to areas for improvement.

Beginning with Content/Context (WC), it is important to note that there is significant variation in the assessment data. Raters frequently disagreed, resulting in a single artifact receiving scores ranging from 2 to 4 within this criterion. This suggests that engineering faculty have different priorities. Since these faculty members also provided mentorship for the student groups, this difference in prioritization may have led to confusion among students about content and context expectations.

For Supporting Material (OC), there is a greater number of evaluators and substantially more consistency among scores within this criterion. From prior conversations, students were daunted at the prospect of presenting a year-long project in only 20 minutes. Although 68% of the artifacts met the expected standard, a challenge that all groups struggled with was deciding on what was most important to include. Many presentations skewed toward emphasizing the problem statement and design process, but did not provide the most compelling supporting data (even if it was actually collected!). This indicates that students would benefit from additional guidance on obtaining and utilizing evidence that will bolster the main objective(s) of their work.

Specialized Knowledge

The expected standard for each criterion was 75% and was met for all criteria. By far, the strongest criterion was Respectfulness (98%). The weakest criterion was Contribution at 84%.

We are continuing to learn how to navigate group projects in the classroom. On the one hand, group projects better represent what graduates will encounter in the workplace. On the other hand, it is more difficult to separate individual student learning from group dynamics. It is important and encouraging to note that Respectfulness was so highly rated among peers; even among those with strong disagreements or lower ratings in the other criteria.

It was not surprising to see that Contribution earned the lowest rating, as this is typically where interpersonal disagreements arise. While most students are eager to contribute to their projects, there is always a minority of students who remain disengaged. A significant issue is catching this problem early. Although students are encouraged to communicate this early on, many do not see it as a problem worth reporting until their projects are jeopardized with little time for action. This is particularly an issue among freshmen (or students who are just starting out in the engineering program).

Summary of Achievement Outcomes		
Aligns with ULO: Written Communication / Oral Communication and Specialized Knowledge		
2025-2026 PLO Assessed: Written Communication	Student Evidence: ENGR 496 - Final paper/presentation	Student Evidence: N/A
Criterion Measured	Performance Target Was...	Performance Target Was...
Content / Context	Not Met	
Organization / Coherence	Met	
Sources / Synthesis	Met	
Conventions / SWE	Met	
2025-2026 PLO Assessed: Oral Communication	Student Evidence: ENGR 496 - Final paper/presentation	Student Evidence: N/A
Criterion Measured	Performance Target Was...	Performance Target Was...
Organization	Met	
Language	Met	
Delivery	Met	
Supporting Material	Not Met	
Central Message	Met	

2025-2026 PLO Assessed: Specialized Knowledge	Student Evidence: ENGR 101 - Project	Student Evidence: N/A
Criterion Measured	Performance Target Was...	Performance Target Was...
Reliability	Met	
Respectfulness	Met	
Quality of Work	Met	
Contribution	Met	

Program Proposed Course of Action for Improvement in Learning Outcomes

Improved Senior Capstone paper template

The best way to improve student learning as evaluated by Content/Context (WC) is to more clearly define the requirements of the written report. Although a template for the written report already exists, there was still too much room for interpretation. Senior engineering students are well practiced in meeting requirements. Therefore, greater definition in the paper content requirements will help future assessors distinguish between students who are intentional in their writing and those who choose not to be (as opposed to students who are simply confused by the assignment prompt).

Department meeting to discuss capstone courses

Because of the open-ended nature of Senior Capstone (in engineering and other programs), similar issues have been observed in mathematics and computer science. As a joint mathematics, computer science, and engineering department, we have already scheduled a department meeting for the end of May 2026 to discuss common goals and best practices in capstone courses. This will help the faculty get on the same page and support student learning.

Additional opportunities and/or requirements to collect supporting material

With regard to Supporting Material (OC), a few options have been discussed (but not decided on at this point). One potential improvement is to formally end the design and build phases of the project earlier in the semester to ensure students give themselves sufficient time to test their projects and obtain substantial supporting material. Another improvement would be to include a statistics module in the Senior Capstone course. Ideally, this would occur using their own testing data so they are more invested in applying their statistical knowledge.

Improved alignment between ENGR 101 survey and teamwork-related PLO

The questionnaire itself could be improved to better align with the intended assessment. This year, continuity was prioritized, but in future semesters, we could move toward a 4-point (instead of 5-point scale) and more explicitly identify criteria that match with the items listed in the PLO.

Additional formal check-ins throughout ENGR 101 project

In prior semesters, some upper-level courses require students to formally assign specific roles within their group and provide a weekly action plan for each group member. Students are then graded based on completion of their self-determined goals. This should be considered for ENGR 101 to maintain stronger accountability and identify problems early on. This approach may help more students participate and contribute evenly to their group projects.