GENERAL EDUCATION COMMITTEE

REPORT TO

THE ACADEMIC SENATE

GE-034-256

Satisfaction of the GE Area 1B (Critical Thinking) Requirement by Completion of the FYE Engineering Course EGR 1000/1000:L

General Education Committee	Date: 3/25/2026
Executive Committee	Date: 4/8/2026
Academic Senate	Date: 4/15/2026 First Reading Date: 4/29/2026 Second Reading

Background

See attached file “EGR 1000_1000L Substitution Referral”. Briefly, the referral proposes replacing the critical-thinking–requirement substitution for College of Engineering (EGR) majors currently in-place (“the entire engineering curriculum”) with a discrete course required for all EGR majors (“EGR 1000 + 1000L” or “redesigned first-year experience”). Such a substitution will provide improvements in pedagogy, objective alignment, assessment, and retention.

Attachments:

EGR_1000_1000L_Recertification_ECO_Jonathan_Puthoff

EGR_1000_1000L_Substitution_Referral_Jonathan_Puthoff

Guidance-LDGE-Exceptions-2025_CO_Directive_Jonathan_Puthoff

Resources Consulted

GE Committee consulted with both the ENG and PHL departments, as they both offer existing GE Area 1B Critical Thinking courses.

The English Department gave the following feedback:

“The emphasis in both EO 1100 and the CPP area description for Critical Thinking is on sound reasoning expressed through language:

‘In critical thinking (1B) courses, students will understand logic and its relation to language; elementary inductive and deductive processes, including an understanding of the formal and informal fallacies of language and thought, and the ability to distinguish matters of fact from issues of judgment or opinion. In 1B courses, students will develop the abilities to analyze, criticize, and advocate ideas; to reason inductively and deductively; and to reach well-supported factual or judgmental conclusions.’

An emphasis on language-based reasoning likewise runs throughout the GE Area 1B rubric, especially in items 1a through 1e. Both PHL 2020 and ENG 2105 dedicate 3 academic units entirely to these outcomes. EGR 1000 does not. The course is a 2-credit course with a 1-credit lab. FYE courses are heavily prescribed, and the course includes FYE SLOs as well as GE SLOs. The course materials include two FYE-related books, but no required Critical Thinking materials other than the case studies. There is, quite simply, less instruction in language-based reasoning in this course than in the other two currently approved critical thinking courses.

When the College of Engineering was granted the waiver originally, it argued that Engineering curricula intentionally dispersed Critical Thinking training throughout the curriculum (i.e. equal to or more than the 3 units of a dedicated class). The Chancellor’s Office has decided that these kinds of justifications are specious and has required course substitutions instead beginning in 2027.

If we're going to approve EGR 1000, a single course, as fulfilling the GE SLOs for area 1B, it needs to be a course that is equivalent in Critical Thinking content to one of the approved GE 1B courses. It can't be a course only partially dedicated to this subject matter, which is the case with the current version. It must include course materials relevant for the Critical Thinking SLOs. I would urge sending it back to the college and asking them to demonstrate Critical Thinking content equivalent to three full units when they resubmit."

The Philosophy Department gave the following feedback:

"Looking over the ECO doc somewhat quickly and the rest very quickly, although ECO suggests that the course teaches "inductive and deductive reasoning", there is no evidence to suggest that anything in the rest of the syllabus or any aspect of course addresses that distinction, or that the authors of this document know what it is. You cannot just say you're going to teach aspects of argument recognition and evaluation. You have to show: 1) how this is going to be done and 2) that you have people qualified to do this.

It's unclear how a topic that for the entire rest of the campus requires a dedicated course could be addressed within the context of a course that is teaching a bunch of other content. This course is the same course it always was with a bunch of meaningless words thrown in to make it sound like it might teach critical thinking."

The GE Committee also regularly engaged with representatives from Engineering and participated in a consistent dialog with Jonathan Puthoff (Chemical & Materials Engineering) and Jessica Lopez (Geological Sciences & Engineering). Both faculty were invited to attend a GE Committee meeting on March 25, 2026 to answer questions about the substitution.

Discussion

Executive Summary

The GE Committee reviewed a referral from the College of Engineering proposing EGR 1000/L as a substitution for GE Area 1B Critical Thinking. Engineering submitted an extensive set of materials, including a revised ECO, syllabus, course calendar, crosswalk alignment table, and multiple example assignments and lab activities. The committee's discussion centered on whether the course, as designed and documented, constitutes a critical thinking course in the specific sense required by GE Area 1B or whether it is better understood as a first-year experience course that incorporates elements of reasoning. While the materials articulate explicit critical thinking outcomes, the committee identified a gap between these stated outcomes and clearly observable, sustained instruction in foundational critical thinking concepts. The course was widely recognized as a strong and valuable first-year engineering experience, but questions remained about whether critical thinking is the central organizing focus. Discussion also considered the broader policy context, including CSU guidance on GE substitutions and pressures related to unit limits, while noting that engineering students could alternatively complete GE Area 1B through existing GE courses, as students in other majors do. The central analytic issue throughout deliberation was whether the course itself meets GE Area 1B expectations independently, including for students who may not complete the engineering curriculum.

Upon conclusion of discussion, GE Committee voted 6-5-1-0 (Recommend – Do Not Recommend – Abstain – Absent) to recommend EGR 1000/L as a substitution in its current form. If there is opportunity

to revise, In a second vote, the committee voted 10-2-0-0 (Support – Do Not Support – Abstain – Absent) to support recommending revising the course.

Materials Submitted & Received

Following an initial review, the committee requested a syllabus to better evaluate the proposal. Engineering subsequently provided a comprehensive set of materials, which the committee reviewed in full. These included:

- A revised Expanded Course Outline (ECO) aligning the course to GE Area 1B outcomes
- A representative syllabus and detailed course calendar for lecture and lab
- A crosswalk table mapping course components to Area 1B criteria
- Sample assignments and instructional materials, including:
    - CRAAP test assignments focused on evaluating sources
    - Information literacy and search comparison exercises involving AI tools
    - A structured literature review assignment and rubric emphasizing synthesis and research writing
    - Laboratory activities such as Bernoulli's equation experiments, data fitting exercises, and deflection modeling
    - Case studies on engineering ethics and professional reasoning
    - A technical reading assignment drawn from engineering literature

The submitted materials collectively demonstrated a course that integrates research, data analysis, laboratory work, design thinking, and professional development within an engineering context. The ECO and syllabus also explicitly state learning outcomes related to inductive and deductive reasoning, argument construction, evaluation of evidence, and identification of fallacies.

Committee Evaluation of Materials

Committee discussion focused on the distinction between using reasoning within disciplinary contexts and explicitly teaching critical thinking as a structured body of knowledge and practice.

Members of the committee recognized that the course engages students in multiple forms of reasoning, including data interpretation, model fitting, source evaluation, and design-based decision-making. However, the committee repeatedly returned to the question of whether these activities constitute direct, explicit, and sustained instruction in foundational critical thinking concepts, such as argument structure, inference, validity, soundness, and logical fallacies.

A central concern was the gap between stated learning outcomes and observable implementation. While the ECO and syllabus articulate clear critical thinking objectives, the committee found less consistent evidence in assignments, readings, and instructional sequencing that these concepts are systematically taught as primary course content rather than embedded implicitly within broader engineering activities.

The committee also considered whether critical thinking is the central organizing focus of the course. The materials indicate that EGR 1000/1000L serves multiple purposes, including first-year experience, retention, academic skill-building, professional identity formation, teamwork, and exposure to

engineering practice. This raised questions about whether critical thinking can function as the primary focus required for Area 1B within a course with such broad and simultaneous objectives.

Strengths Supporting Substitution

The committee identified several strengths in the proposal:

- The course is a well-developed, high-impact first-year experience that supports student retention, engagement and early academic development.
- Students engage in meaningful analytical work, including evaluating evidence, interpreting data, conducting literature reviews and reflecting on design decisions.
- The course includes significant instructional time through its combined lecture and laboratory structure, allowing for a wide range of activities.
- The materials reflect sustained effort by the College of Engineering to revise and align the course with GE expectations.
- Engineering presented a coherent curricular rationale in which critical thinking is reinforced across the program and assessed at later stages.
- The course plays a role in broader institutional and system-level considerations, including unit limits and substitution policies under CSU guidance

Concerns Regarding Substitution

At the same time, the committee identified several concerns:

- The course appears to function primarily as a first-year engineering experience course, rather than a course centered on critical thinking as defined by GE Area 1B.
- The materials do not consistently demonstrate explicit instruction in core critical thinking concepts, including inductive and deductive reasoning, argumentation, inference and logical fallacies.
- Activities such as research, information literacy, and engineering problem solving, while valuable, do not necessarily substitute for formal critical thinking instruction.
- The presence of multiple course goals raises concerns that critical thinking may not be the central organizing principle of the course.
- Instructor variability and the lack of clear evidence of training in critical thinking pedagogy raised concerns about consistency across sections.
- The proposal at times assumes critical thinking is reinforced elsewhere in the Engineering curriculum; however, because students who leave the major would still receive GE Area 1B credit based solely on EGR 1000/L, the course must independently meet GE Area 1B requirements.
- The committee noted that rejection of the substitution would likely mean Engineering students complete GE Area 1B through existing GE courses, consistent with students in other majors. The committee also observed that other programs have adjusted to the removal of first-year experience courses previously associated with Area E.

Key Questions Raised in Discussion

The committee raised several recurring questions during deliberation. Engineering representatives provided responses and additional context for many of these. However, the committee found that the

available materials and explanations did not fully resolve these concerns or make the relevant forms of instruction sufficiently visible, even as a majority ultimately supported the substitution.

- What specific critical thinking concepts are directly taught, and where are they clearly demonstrated in course materials and assignments?
- Are distinctions such as inductive versus deductive reasoning explicitly taught and reinforced, or primarily implied through laboratory and problem-solving activities?
- To what extent are argumentation, inference, validity, soundness, and logical fallacies addressed as sustained instructional content rather than embedded practices?
- Does the course include readings or instructional materials focused explicitly on critical thinking as a discipline, in addition to engineering content?
- Is critical thinking the central organizing focus of the course, or one of several parallel objectives within a broader first-year experience structure?
- How is student learning in critical thinking assessed at the lower-division level, and how do assignments demonstrate alignment with GE Area 1B expectations?
- How will consistency be maintained across sections taught by a diverse group of instructors with varying disciplinary backgrounds?
- Should the course be understood as meeting GE Area 1B expectations on its own, or as part of a broader curricular sequence in which critical thinking is developed over time?

Taken together, these questions reflect areas where alignment with GE Area 1B expectations was not fully established based on the materials and discussion available to the committee.

Conclusion

The committee found broad agreement that EGR 1000/L is a strong and valuable course that plays an important role in the Engineering curriculum, particularly as a first-year experience. At the same time, significant concerns remained regarding whether the course, as currently documented, satisfies GE Area 1B as a Critical Thinking course in its own right. The central issue was not whether students engage in reasoning within Engineering contexts, but whether EGR 1000/L provides explicit, sustained instruction in the conceptual foundations of critical thinking required by GE policy. While the submitted materials demonstrate thoughtful design and clear intent, the committee identified a gap between articulated outcomes and observable implementation.

In light of these considerations, the committee's vote reflects both recognition of the course's strengths and ongoing concerns about its alignment with GE Area 1B expectations, as evidenced by the narrow margin of the recommendation and stronger support for revision.

Recommendation

On April 6, 2026, the GE Committee voted 6-5-1-0 (Recommend - Do Not Recommend - Abstain - Absent) on whether to recommend EGR 1000/L as a substitution for GE Area 1B (Critical Thinking). The committee recommends EGR 1000/L as a substitution in its current form.

In a second vote, the committee voted 10-2-0-0 (Support - Do Not Support - Abstain - Absent) on whether to recommend EGR 1000/L as a GE Area 1B substitution contingent upon further revision. The committee supports recommending the course contingent on revision, if there is time to revise the course.

In reaching these determinations, the committee recognized the strengths of EGR 1000/L as a first-year experience course and its incorporation of analytical reasoning within engineering contexts. At the same time, discussion centered on whether the course, as currently documented, demonstrates that critical thinking is explicitly taught, central to the course, and independently sufficient to meet GE Area 1B expectations.

In the vote, additional comments from committee members included the following:

- "Substantial revisions -- including ensuring that the faculty teaching the course have actual training in critical thinking content and pedagogy -- are required for my support."
- "The course focuses on the applications of critical thinking. There should be a greater emphasis on the reasoning behind critical thinking, such as distinguishing between inductive, deductive, and abductive reasoning. It is recommended to review the critical thinking literature used by existing GE Area 1B courses."