



Memorandum of Understanding

This MOU has been read and approved by:

Department Chair: Sergio Mendez Date: 2/12/2025
Sergio Mendez

Dean, College of Engineering: Jinny Rhee Date: 2/12/2025
Jinny Rhee

Interim Vice Provost Academic Programs: Pei-Fang Hung Date: 2/12/2025
Pei-Fang Hung



Program Review Summary Memorandum of Understanding

Department of Chemical Engineering
College of Engineering
February 2025

This document serves as a summary of the Program Review findings and a Memorandum of Understanding outlining the consensus reached by the Department of Chemical Engineering, the College of Engineering, and the Division of Academic Affairs, based on the recently conducted program review (self-study in June 2024, external site visit in November 2024 and final report in January 2025). This Memorandum of Understanding (MOU) outlines the goals to be achieved and the actions to be undertaken by all parties involved during the upcoming program review cycle. Progress toward goals is to be addressed in an annual report.

The Department of Chemical Engineering offers a Bachelor of Science and a Master of Science in Chemical Engineering. They also offer a minor in Environmental Engineering and contribute courses to the BS in Environmental Engineering degree. The BS degrees in Chemical and Environmental Engineering are reviewed under ABET accreditation, and therefore will not be a part of this review. The purpose of this review was to fulfill the requirement for a 5-year program review to assess the newly implemented MS in Chemical Engineering program. This program has therefore not previously been reviewed.

Resources reviewed for the report:

1. Self-study 2024
2. External review 2024
3. Department of Chemical Engineering website

Strengths Identified in the Reports

- **Curriculum:** The program has delivered the curriculum as proposed. A new course, CHE 582 in Mathematical Modeling in Fluid Dynamics, and been added to the program. In addition, two mathematics courses (CHE 580 Theoretical Methods in Chemical Engineering and CHE 582 Mathematical Modelling in Fluid Dynamics) have been added to the program to strengthen math and problem-solving skills, as well as elective courses focusing on emerging fields like sustainable energy.
- **Research Opportunities:** Highly qualified faculty, well-equipped faculty-assigned laboratories, collaborations with industry partners, and access to high-impact research projects provide students with excellent research opportunities.
- **Graduation Record:** The program has a strong track record for time to graduation.



- **Enrollment:** The department has had a steady FTES and student headcount since program inception, with a headcount of 35 students in Fall 2023.
- **Faculty:** Chemical Engineering Faculty currently consists of six (6) tenured/tenure-track members and seven (7) part-time lecturers. In Fall 2023, their total FTEF was 7.8 based on the CSULB IR&A dashboard. Their typical graduate core course enrollment falls within a range of 10 to 15 students, enabling faculty to deliver course materials efficiently, ensuring that students receive ample one-on-one interaction time with their instructors.
- **Facilities:** No additional resources were needed to initiate and implement this program.

Concerns Noted in the Reports:

- None

Opportunities for Development noted in the reports:

- **Assessment:** The department has clearly outlined Program Learning Outcomes (PLOs) on its website. It has revised the original assessment plan, developed a rubric, and completed assessments in Fall 2023 and Spring 2024. There is an opportunity to assess all PLOs during the next review period.
- **Student Learning Outcomes (SLOs):** While the Student Learning Outcomes (SLOs) are clearly listed on the website, their number and scope could be streamlined and restructured to enhance implementation.
- **Data Collection:** A benchmark and data collection timeline should be established during the next review period. Suggestions from the external reviewer could help the program better align Student Learning Outcomes (SLOs), Program Learning Outcomes (PLOs), and Institutional Learning Outcomes (ILOs) while developing a comprehensive program evaluation data collection system.
- **Graduation Rate and Time to Degree:** There is no clear trend observed for the two-year and three-year graduate rates of the MS in Chemical Engineering, since the inaugural cohort started in Fall 2019. In addition, the COVID pandemic occurred immediately after the program started. In AY 2022-2023, students who graduated earned an average of 34.4 units in 2.3 years. The department plans to require graduate students to meet with the academic advisor at least twice a semester to ensure that they are on track for timely graduation.

Recommendations:

It is therefore agreed that the Department of Chemical Engineering will collaborate with the College of Engineering and Division of Academic Affairs to:

1. Continue to improve the assessment plan for PLOs and SLOs that includes assessment tools, data reporting, and data sharing mechanism.
2. Consider restructuring SLOs and developing clear benchmarks and data collection timeline during the next review period.



3. Provide an annual assessment report (due June 1) including progress made towards the actions agreed to in this MOU to the COE dean, the Vice Provost for Academic Programs, and the Coordinators for Program Review and Assessment. The review cycle will be from 2023-2030. A comprehensive self-study will be due June 2030 for 2030-2031 Academic Year program review process.
4. Continue to track and analyze student success data as additional cohorts progress through the program. If graduation rates do not meet expected targets, consider developing a strategic plan to support improvement in graduation rates.
5. Explore possible partnerships with industry and other higher education institution.

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