CALIFORNIA STATE UNIVERSITY EAST BAY

ACADEMIC SENATE

Committee on Academic Planning and Review

College	Science
Department	Engineering
Program	B.S. Industrial Engineering
Reporting for Academic Year	2024-2025
Last 5-Year Review	09/2022
Next 5-Year Review	2027-2028
Department Chair	Cristian Gaedicke
Date Submitted	10/12/2025

ANNUAL PROGRAM REPORT

SELF-STUDY *(suggested length of 1-3 pages)*

A. Five-Year Review Planning Goals

1. The semester –based Industrial Engineering curriculum is designed such that students have many opportunities to achieve program-learning outcomes. We completed and external review by the Accreditation Board of Engineering and Technology (sept 2022). Our program received accreditation by ABET.

2. Faculty: We are hired a new Assistant Professor, Dr. Christian Hernandez-Negron, in Industrial Engineering for Fall 2025. We had not hired any faculty in this program since 2004, while two Industrial Engineering Professors fully retired (Dr. Bowen and Dr. Gajeizadeh). Additionally, two of our remaining full professors in industrial engineering (Dr. Motavalli and Dr. Zong) are in the FERP program.

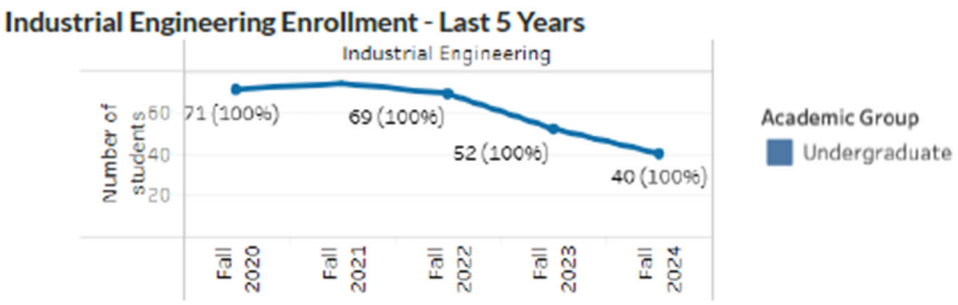
3. Research: The Industrial Engineering faculty are active in research and are publishing in refereed journals. They have strong industry connections and as such, our students have the opportunity to complete several real-life projects before graduation

4. Laboratory Development: We have been successful in receiving A2E2 funds for lab development every year. Our labs are up-to-date.

5. Equipment: Through A2E2 annual funding and the normal refresh cycle of computers by IT, we are keeping the Industrial Engineering Laboratories current. The refresh of the Engineering computer laboratory was completed last year.

6. Enrollment: Enrollment: Student enrollment in the Industrial Engineering program has declined in recent years, which we believe is partly due to the impact of the pandemic. **To reverse this trend, we launched a School of Engineering–wide college ambassador program**, through which faculty and students visited local high schools to promote our engineering programs—with special emphasis on Industrial Engineering.

   Preliminary data is encouraging, showing that Fall 2025 enrollment increased by approximately 35%. Additionally, we are partnering with Career Services to develop new internship opportunities for our Industrial Engineering students.



7. Excess credits: The program requires 120 credit hours to complete. The transformed curriculum just meets the minimum accreditation requirements in areas of basic science and engineering hours. No engineering electives could be added to the program.

B. Progress Towards Five-Year Review Planning Goals

1. We transformed the senior design course in accordance to program reviewer's feedback.

2. Assessment and continuous improvement of the program is an ongoing process.

C. Program Changes and Needs

Overview: The Industrial Engineering program was established in 2000 and experienced steady growth until 2018, when enrollment began to decline. Preliminary data from Fall 2025 suggests that this trend may be reversing, though additional data will be needed to confirm. We remain committed to actively promoting our Industrial Engineering program.

The program currently has 1.5 full-time equivalent faculty and five lecturers. We are in the process of hiring a new assistant professor in Industrial Engineering.

Curriculum: The revised curriculum incorporates more active learning practices and includes courses and materials aligned with current industry trends in Industrial Engineering. We have also reorganized the class schedule to support internships throughout the academic year by concentrating classes into two days per week.

Students: Demand for Industrial Engineering graduates remains relatively strong. Most of our graduates are employed in engineering positions, primarily in the Bay Area. We have a strong advisory board whose members routinely hire our graduates for permanent positions and our students for internships.

Faculty: We hired a new Assistant Professor, Dr. Christian Hernandez-Negron, in Industrial Engineering for Fall 2025. Two Industrial Engineering professors, Dr. Bowen and Dr. Gajeizadeh, fully retired in recent years. Additionally, two of our remaining full professors, Dr. Motavalli and Dr. Zong, are currently in the

FERP program with a workload of 12 WTU per year. The program requires new faculty to remain current and sustainable.

Staff: The College of Science recently reorganized staff support across departments. Engineering and Computer Science are now served by a HUB of three full-time staff members (CS/ENGR HUB). We also have an SSP staff member, Mrs. Lisa Holmstrom, who advises students in our program. In addition, we have a full-time laboratory technician, Mr. Linh Nguyen. The School is fully supported by this staff team.

Resources: We have upgraded our Manufacturing processes equipment and the engineering computer laboratory, VBT 223.

Assessment: An extensive assessment process is in place for the industrial engineering program. Sample results are provided in the following section.

II. SUMMARY OF ASSESSMENT

A. Program Learning Outcomes (PLO)

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics. (ILO 1)
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. (ILO 1 & 5)
3. An ability to communicate effectively with a range of audiences. (ILO 2)
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. (ILO 3, 4 & 5)
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. (ILO 3 & 4)
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions. (ILO 1 & 2)
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies. (ILO 1, 2, & 4)

B. **Program Learning Outcome(S) Assessed**

We have assessed the following SLO for the Industrial Engineering program during the 2023-2024 Academic Year:

Year 2: 2024-2025	
1. *Which PLO(s) to assess*	6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions. (ILO 1 & 2)
2. *Is it aligned with ILO*	Yes ILO 1, 2
3. *Sample (courses/# of students)*	INDE 410, Facilities Planning, Design and Material Handling
4. *SLO from the course*	Ability to analyze industrial facilities including location and layout of production, service, and material handling processes. Ability to design and improve industrial and service facilities.
5. *Assessment indicators*	*Auto assembly simulation lab reports*
6. *Assessment instrument*	Program rubric
7. *Time (which semester(s))*	Spring 2025
8. *Responsible person(s)*	Prof. Motavalli
9. *Ways of reporting (how, to who)*	The results (qualitative and quantitative) will be reported by faculty to the department chair via completion of the course Faculty Self-Assessment form.
10. *Ways of closing the loop*	Interaction between chair, faculty and industrial advisory board

C. SUMMARY OF ASSESSMENT PROCESS:

Instructor: Erik Olivar
Course: INDE 410
Term: Spring 2025
Enrollment: 9

Course Summary: Design, improve, and analyze industrial facilities including production, service, and material handling processes, material flow analysis, line balancing, systematic layout planning, design of warehouse facilities, and facilities location. Prerequisite: ENGR 210

Learning Outcomes: This course addresses the following ABET Student Learning Outcomes:

- Ability to analyze industrial facilities including location and layout of production, service, and material handling processes.
- Ability to design and improve industrial and service facilities.

Summary of student course performance: The assessment tool was the Final Course Project. Students formed teams of 2 to 3 and worked with an actual service or manufacturing company to understand their current facility layout, analyze product/process flow, and develop alternative layouts utilizing quantitative methods covered in the course. Students prepared a formal project proposal, prepared a written report, and completed an oral presentation. 100% of students scored 80% or higher on the Final Course Project.

Student comments:

Students commented that they liked going over case studies of facility design projects from other companies and enjoyed the facility tour of Honeywell Aerospace, as it helped them see how course concepts are used in the real-world. Students also liked how the course tied in concepts from other industrial engineering courses like INDE 390 and 410.

Summary of faculty experience and observations: Active small group learning and 15-20 minute in-class exercises during lecture were found to be effective. Students were able to connect course concepts after completing exercises and getting real-time feedback from the instructor.

Summary of achievement of course outcomes: Course outcomes were achieved by incorporating small group exercises and a team project. Students utilized engineering problem-solving and data analysis skills to develop conclusions and make design recommendations.

Recommended Changes:

- Include process flow and layout software (AutoCAD, Microsoft Visio, etc.) during in-class exercises.

Assessment Plan for Next Year

According to our 5-year assessment plan for the following PLOs will be assessed:

Year 3: 2025-2026	
1. *Which PLO(s) to assess*	7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies. (ILO 1, 2, & 4)
2. *Is aligned with an ILO*	Yes, ILO 1, 2, 4
3. *Sample (courses/# of students)*	INDE 492
4. *SLO from the course*	Ability to use CAD, spreadsheet, database, and mathematics software to solve simple engineering problems 2) Knowledge of global engineering issues including ethical, environmental, sustainability and energy use implications of engineering designs 3) Ability to convey engineering ideas in oral and written formats 4)Ability to understand logic and inductive
	and deductive processes, distinguish between claims, and analyze, criticize, and advocate ideas.
5. *Assessment indicators*	exam question; Ethics final exam question
6. *Assessment instrument*	Program rubric
7. *Time (which semester(s))*	a-Spring 2026
8. *Responsible person(s)*	a-TBD
9. *Ways of reporting (how, to who)*	The results (quantitative) will be reported by faculty to the department chair via completion of the course Faculty Self-Assessment form.
10. *Ways of closing the loop*	Interaction between chair, faculty and industrial advisory board

III. DISCUSSION OF PROGRAM DATA & RESOURCE REQUESTS

The Industrial Engineering program was established in 2000 and experienced steady growth until 2018, when enrollment began to decline. Preliminary data from Fall 2025 suggests that this trend may be reversing, though additional data will be needed to confirm.

We hired a tenure-track assistant professor who is actively collaborating with senior faculty and engaging with students. We remain committed to actively promoting our Industrial Engineering program. The program currently has 2 full-time equivalent faculty and five lecturers. We completed an accreditation visit on September 19, 2021, and were notified that our program received ABET accreditation in 2022.

Discussion of Trends & Reflections

The following graph shows a decline in enrollment between 2021 and 2024, reaching a total of 40 students in Fall 2024. While this reduction mirrors overall CSUEB enrollment trends, it remains a significant concern for our School of Engineering.

To reverse this trend, the following measures have been implemented starting in Fall 2024 and continuing to the present:

- A student ambassador program was launched, with visits to local high schools and community colleges. The ambassadors promote all School of Engineering programs, with special emphasis on Industrial Engineering.

- A new tenure-track faculty member in Industrial Engineering was hired. We believe a significant portion of the decline was due to students observing rapid faculty retirements without replacements, which may have led to concerns about program sustainability.

- Beginning in Spring 2025, we placed special emphasis on hiring lecturers actively working in industry to help connect students to the profession.

- We reactivated the Industrial Engineering student club and the Society of Hispanic Professional Engineers (SHPE) chapter.

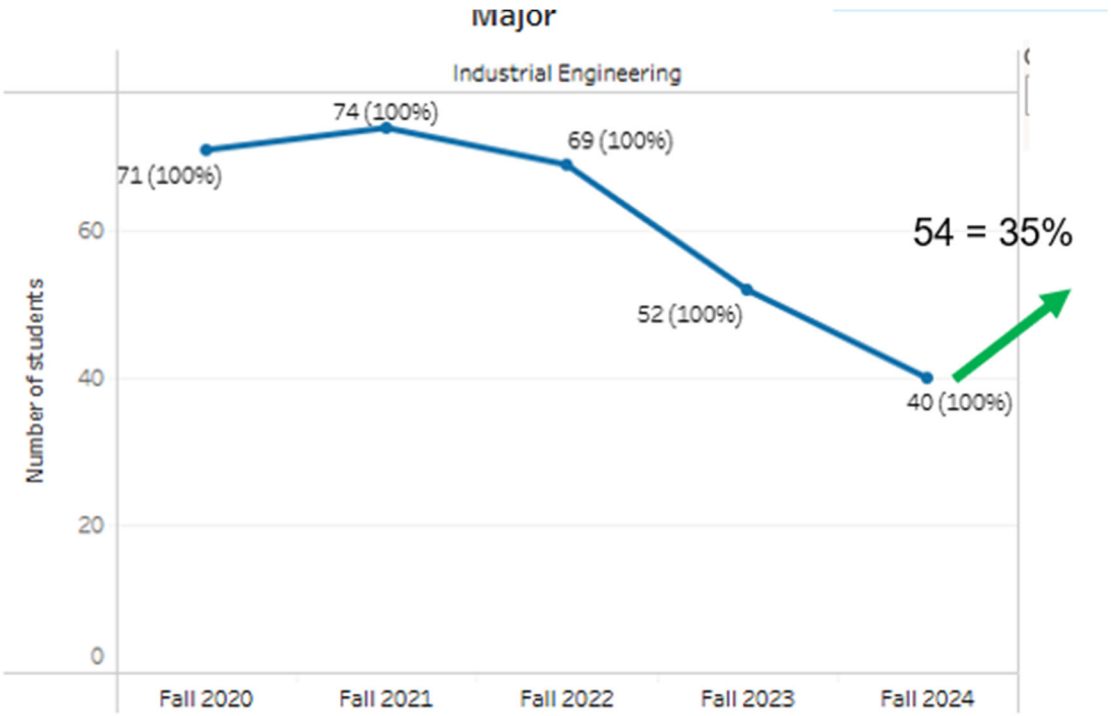
- We met with students to reaffirm the School of Engineering's commitment to the program and invited them to participate in the faculty hiring process.

- We reorganized the Industrial Engineering program class schedule to support part-time work and internships throughout the academic year.

- We partnered with Career Services to connect Industrial Engineering students to internship and job opportunities.

- Student support and pedagogical approaches that promote success are actively discussed in departmental meetings.

Based on preliminary enrollment data from 2025, which shows 54 students, we believe enrollment has stabilized and anticipate future growth. The current Industrial Engineering faculty includes Dr. Christian Hernandez-Negron (tenure-track), Dr. Saeid Motavalli, and Dr. Helen Zong (FERP program). As the number of full-time faculty has declined, we have hired instructors with industry experience to teach several of our courses.



Notable Trends:

We have experienced a downturn in enrollment over the past three years, which we expect to reverse steadily. However, industry demand for our graduates remains strong.

We continue to actively promote our Industrial Engineering program at high schools and community colleges, which should have a positive impact on future enrollment. We also rely on our Advisory Board Council and their industry connections to help raise awareness and support for Industrial Engineering.

Our program has maintained its ABET accreditation, and hiring a tenure-track faculty member will help us meet ABET faculty requirements.

We continue to support a diverse student body and provide close guidance to ensure timely graduation for all our students.

DIVERSITY

More than half (63%) are URM
(50% Latinx, 13% Black)

19
AY 23-24

GRADUATES

48% of undergraduates graduated in 2023-24

5.0
Years (F)
AY 23-24

3.1
Years (T)
AY 23-24

AVERAGE TIME TO DEGREE

URM Frosh (F): 7.3 Years
URM Transfer (T): 3.3 Years

Reflections on Trends and Program Statistics:

Nationally, Industrial Engineering programs often draw students from other engineering majors. Many students initially enroll in more widely known disciplines such as Mechanical, Electrical, or Civil Engineering and later transfer to Industrial Engineering. As a result, freshman enrollment in IE tends to be lower than in other engineering specialties. We expect that the addition of the Civil Engineering program will have a positive impact on Industrial Engineering enrollment as well.

Request for Resources*:* We have upgraded the manufacturing laboratory and the Engineering Computer Lab.

Request for Tenure-Track Hires: We have hired a new Assistant Professor in Industrial Engineering, starting in Fall 2025. However, we experienced the attrition of two full professors in 2024. Therefore, we request the addition of a tenure-track faculty member within the next two academic years to keep the program current and to meet accreditation requirements.

Request for Other Resources: We currently have one full-time junior faculty member and two half-time professors in Industrial Engineering (both in the FERP program). While we are hiring instructors with industry experience to help bridge the gap, we lack sufficient support for service activities. Allocating resources to hire hourly student assistants would help existing faculty manage tasks related to these service responsibilities.