

Foothill Comprehensive Program Review 2024-25

Instructional Discipline Template

Instructional Discipline Template 2024

A. Program Information

Program Mission Statement

Please enter your mission statement here.

The mission of the Engineering department at Foothill College is to prepare students to achieve their goals in their future educational endeavors and their work endeavors.

B. Enrollment Trends

Enrollment Variables and Trends

Enrollment Trends For Program Review

Enrollment Trends						
Science Tech Engin & Math - Engineering-FD						
	2019-20	2020-21	2021-22	2022-23	2023-24	5-yr %Inc
Unduplicated Headcount	277	244	185	174	234	-15.5%
Enrollment	383	355	233	237	358	-6.5%
Sections	16	14	12	10	15	-6.3%
WSCH	690	670	465	465	708	2.7%
FTES (end of term)	46	45	31	31	48	4.3%
FTEF (end of term)	1.6	1.8	1.6	1.2	1.7	2.1%
Productivity (WSCH/FTEF)	422	381	290	373	424	0.5%

B.1 - FTES

Goals: What is your program's goal with respect to FTES?

The Engineering department aims to serve as many students as we can effectively, and so are looking to increase FTES.

Observation & Inferences: What do you observe in the data above in relation to your goals? What do you want the college to understand about the FTES in your program?

The data above show that even though we have a slight decrease in unduplicated headcount, we have an increase in FTES over the time period. It appears as though we have recovered from the decline that was seen during the pandemic. With the launch of the semiconductor program and this recovery from the pandemic, we expect to see continued growth in the future.

Action: What actions does your program plan to take in order to achieve your goals?

We plan to offer additional courses next year in addition to additional sections of courses that we currently offer - allowing students more flexibility to take courses in different quarters.

Needs: What does your program need to execute this action plan?

Offering additional sections will require making sure that we have instructors to teach them in addition to departmental support for those instructors in terms of mentoring and instructional materials.

B.2 - Sections

Goals: What is your program's goal with respect to sections?

We plan to add additional sections of classes in high demand. In the past, we had offered Engineering Circuits along with its lab almost every quarter. Additionally, Engr 11 has had tremendous demand this year and we expect that to remain high.

Observation & Inferences: What do you observe in the data above in relation to your goals? What do you want the college to understand about the sections in your program?

In the past, many of our courses were taught by a single instructor, making offerings limited by that instructor's availability. Going forward, we plan to create a team of instructors who work collaboratively with those core course instructors to learn from them and allow for offerings that are not constrained by a single person's schedule as much.

Action: What actions does your program plan to take in order to achieve your goals?

Starting Winter 2025, we are team-teaching (sharing load) for the Engr 10 Introduction to Engineering course. This is in order to be able to expand who teaches the course and provide consistency between Engr 10 courses taught by different instructors. We had done a team-teaching set-up for Engr 101A last spring and have continued it for this fall as well for the Advanced Manufacturing course that is a part of the semiconductor processing apprenticeship program.

Needs: What does your program need to execute this action plan?

Luckily all that is needed for this program is willingness from the administration to allow for setting up team-teaching for these courses. Additionally, administrative support in hiring instructors is needed as well.

B.3 - Productivity

Goals: What is your program's goal with respect to productivity?

The Engineering department aims to have a productivity above 420. This value takes into consideration the fact that some of our classes are limited by lab size. Many students attend Foothill College for the unique engineering course offerings that we have, and end up taking many more courses in Math, Physics, and Chemistry while they are here. While the productivity of some individual engineering courses might be lower, the impact that those courses have on the college-wide productivity is much higher.

Observation & Inferences: What do you observe in the data above in relation to your goals? What do you want the college to understand about the productivity in your program?

We observe that while the productivity fell during the pandemic due to reduced class-size, we have now recovered to pre-pandemic levels.

Action: What actions does your program plan to take in order to achieve your goals?

We plan to continue to offer courses based on observing strong student demand. In order to better understand student demand, we plan to collect data from students about the courses they would like to see offered. In order to increase demand, we plan to implement more community-building activities within the Engineering department.

Needs: What does your program need to execute this action plan?

In order to execute this plan, we need to work with marketing to get the word out to students about the events that we are hosting.

C. Enrollment by Student Demographics

Enrollment Distribution

Enrollment Distribution For Program Review

Enr Distribution by Student Demographics
Science Tech Engin & Math - Engineering-FD

Student Headcounts by Gender

	2019-20		2020-21		2021-22		2022-23		2023-24	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Female	96	25%	89	25%	49	21%	45	19%	93	26%
Male	281	73%	257	72%	184	79%	188	79%	255	71%
Non-Binary	0	0%	1	0%	0	0%	0	0%	0	0%
Unknown gender	6	2%	8	2%	0	0%	4	2%	10	3%
Total	383	100%	355	100%	233	100%	237	100%	358	100%

Student Headcounts by Race/Ethnicity

	2019-20		2020-21		2021-22		2022-23		2023-24	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Asian	177	46%	156	44%	84	36%	90	38%	145	41%
Black	11	3%	9	3%	13	6%	5	2%	17	5%
Filipinx	21	5%	29	8%	14	6%	9	4%	15	4%
Latinx	65	17%	62	17%	51	22%	50	21%	72	20%
Native American	4	1%	0	0%	0	0%	0	0%	0	0%
Pacific Islander	5	1%	10	3%	5	2%	2	1%	0	0%
Unknown ethnicity	13	3%	10	3%	8	3%	7	3%	9	3%
White	87	23%	79	22%	58	25%	74	31%	100	28%
Total	383	100%	355	100%	233	100%	237	100%	358	100%

C.1 - Enrollment by Gender

Goals: What is your program's goal with respect to enrollment by gender?

Our program aims to help students of all genders to feel both welcome and capable of doing engineering work. While the population is about 50% female, engineering programs across the country have remained at about 20% female even in programs that are not open enrollment. Our aim is to continue to increase the percentage of female students in the program, celebrating anything above 20% as better than the national average.

Observation & Inferences: What do you observe in the data above in relation to your goals? What do you want the college to understand about enrollment by gender in your program?

We observe that 2023-2024 has the highest percentage of female students that we have had in the history of the program (at least going back to 2011, when I was hired). As instructors, we have worked to help maintain a psychologically safe learning environment based on research results that we share and discuss at regular department meetings. As psychologically safe learning environment should end up increasing the presence and success rate for all of our underrepresented groups.

Action: What actions does your program plan to take in order to achieve your goals?

We plan to continue to have discussions at department meetings about how to improve feelings of psychological safety.

Needs: What does your program need to execute this action plan?

Actually, funds for coffee and cookies at the department meetings would be great!

C.2 - Enrollment by Ethnicity

Goals: What is your program's goal with respect to enrollment by ethnicity?

We aim to have our percentages more closely match the percentages for each group living in the Foothill College area.

Observation & Inferences: What do you observe in the data above in relation to your goals? What do you want the college to understand about enrollment by ethnicity in your program?

Because of typically small number of students, making statements about enrollment trends by demographic group does not make statistical sense. However, we can see that we have generally had a very consistent Latinx population in our engineering courses.

Action: What actions does your program plan to take in order to achieve your goals?

We plan to continue faculty discussions around psychological safety in the classroom. We are also supporting MESA students in the program. Additionally, Sarah Parikh begins her sabbatical this year and her project is to read books regarding how racism shows up in the classroom and put together lesson plans about how to better address these topics in a more supportive way for already disproportionately impacted populations.

Needs: What does your program need to execute this action plan?

Additional support for the department meetings to facilitate these discussions would be great. Additionally, it is important that the college continue to offer professional development courses and workshops on these topics which require continual learning and improvement.

D. Overall Student Course Success

Student Population Areas of Focus

Course Success For Program Review

Limits: Course Credit Status Credit

Course Success											
Science Tech Engin & Math - Engineering-FD											
	2019-20		2020-21		2021-22		2022-23		2023-24		
	Grades	Percent	Grades	Percent	Grades	Percent	Grades	Percent	Grades	Percent	
Success	266	69%	230	65%	174	75%	172	73%	279	78%	
Non Success	74	19%	48	14%	24	10%	35	15%	45	13%	
Withdrew	43	11%	77	22%	35	15%	30	13%	34	9%	
Total	383	100%	355	100%	233	100%	237	100%	358	100%	

Course Success for Black, Latinx, and Filipinx Students

	2019-20		2020-21		2021-22		2022-23		2023-24	
Success	55	57%	60	60%	56	72%	41	64%	62	71%
Non Success	29	30%	18	18%	11	14%	14	22%	18	21%
Withdrew	13	13%	22	22%	11	14%	9	14%	7	8%
Total	97	100%	100	100%	78	100%	64	100%	87	100%

Course Success for Asian, Native American, Pacific Islander, White, and Decline to State Students

	2019-20		2020-21		2021-22		2022-23		2023-24	
Success	211	74%	170	67%	118	76%	131	76%	217	80%
Non Success	45	16%	30	12%	13	8%	21	12%	27	10%
Withdrew	30	10%	55	22%	24	15%	21	12%	27	10%
Total	286	100%	255	100%	155	100%	173	100%	271	100%

Some courses may continue to be listed but no longer have data due to renumbering or because the course was not offered in the past five years.

D.1 - Student Course Success

Goals: What is your program's goal with respect to student course success?

Our goal is for 100% success rate for all student groups.

Observation & Inferences: What do you observe in the data in relation to your goals? What do you want the college to understand about the student course success in your program?

From the data, we see that the success rate has increase over the time period. The success rate has increased for both targeted groups and majority students, and the difference in success rate for each of these groups has shrunk from a difference of 17% to a difference of 9%.

Action: What actions does your program plan to take in order to achieve your goals?

Our goal might not be practically achievable because our students have many things going on in their lives that might prevent them from being able to achieve success at that time. However, our goal is still a wonderful aim and something that we are constantly working towards. In our department meetings, we discuss how to help support students in learning the material and sticking with it when things get challenging.

Needs: What does your program need to execute this action plan?

Continued support of our department meetings where we have these discussions and the ongoing professional development opportunities that the college offers will aid in making progress towards our goal.

D.2 - Course Success by Modality

Click the link below to view the program's Course Success by Modality data

https://foothilldeanza-my.sharepoint.com/:f:/g/personal/20078222_fhda_edu/Euw5yUwbvn5OiqkDTAn6yIYBycY0PmInLpXnQm47I7cPKQ?e=rSml5L

Goals: What is your program's goal with respect to course success by modality?

Our goal is to have 100% success rate for all modalities.

Observation & Inferences: What do you observe in the data in relation to your goals? What do you want the college to understand about course success by modality in your program?

We observe that face-to-face courses have the highest success rate of all of the modalities. This is probably due to more experience teaching face-to-face than in other modes in addition to students treating a face-to-face course differently than an online course.

Action: What actions does your program plan to take in order to achieve your goals?

We aim to increase the success rate for all of our courses by better understanding what support students need from us. We aim to do this through sharing best practices at department meetings in addition to seeking out information from students on how best to support them.

Needs: What does your program need to execute this action plan?

Just supporting out department meetings and continuing to offer professional development opportunities would be great.

E. Disproportionate Impact

Click the link below to view the program's Disproportionate Impact data

https://foothilldeanza-my.sharepoint.com/:f:/g/personal/20078222_fhda_edu/Euw5yUwbvn5OiqkDTAn6yIYBycY0PmInLpXnQm47I7cPKQ?e=rSml5L

Identify the groups that are experiencing a disproportionate impact in the most recent year (please provide the percentage point gap and the number of additional successes needed to erase the percentage point gap for each group).

Groups experiencing disproportionate impact are Black (+1), Filipinx (+4), Latinx (+3), unknown gender (+1), and low income (+7). Each group would need the number of additional successes indicated in parentheses to erase the gap.

Goals: What is your program's goal with respect to disproportionate impact?

Our goal is to erase the gap for all groups.

Observation & Inferences: What do you observe in the data in relation to your goals? What do you want the college to understand about the disproportionate impact in your program?

From our data, we can see that low income individuals have the largest number of successes needed to erase the gap.

Action: What actions does your program plan to take in order to achieve your goals?

While we have been focusing on providing psychological safety for students in terms of gender and ethnicity, we should look into additional ways to support low income individuals in our program as well.

Needs: What does your program need to execute this action plan?

We would need more information about what low income individuals need in terms of supports and the structures that Foothill has in place to provide that support.

F. Regular and Substantive Interaction

If your program has any courses that are approved for distance education, describe how regular and substantive interaction was incorporated in those courses. (List each course)

The Engineering department offers Engr 35: Statics and Engr 37: Engineering Circuits online. These courses are being taught by a veteran teacher who has decades of experience teaching the courses in person and years of experience teaching them online. The online class has discussions, graded problem solving, and regular exams.

G. Summary

Use this opportunity to reflect on your discussions above and include any closing thoughts.

Ultimately, the department is growing and doing well. The challenge is continually finding instructors and training them through department meeting discussions on the methods that we use to teach here at Foothill. I look forward to seeing what growth and improvements are in store for next year as well.

H. Rubric

Click the link below to view the Instructional Template Rubric.

https://foothilldeanza-my.sharepoint.com/:w/g/personal/20078222_fhda_edu/EeXQOxxcngRGsXkb-Btxsz4BoUJaCXwgPngOB_gc8HQemw?e=2EgwaV