



Program Review - Overall Report

Instructional: Engineering

Data Review

2021 - 2024

Overall Trends

What overall trends do you see in success, retention, program of study, educational planning, and awards over the past 3 or more years?

Overall, students in Engineering Courses have been (increasing) from 69.9% to 76.7% or higher in success, except for in males during transition to DE due to COVID-19.

Also, students in Engineering Courses have been about the same in retention from 85% to 86.8% over the past 3 years with an exception of 80.8% during the transition to DE due to COVID 19.

The Success rate seems to be growing between male and female studnets in the past three years.

Disaggregated Student Subgroups

Look at the disaggregated student subgroups in success, retention, program of study, educational planning, and awards for your area. Are there any equity gaps that you will address in the next 3 years?

There is a large disproportion of female, African American, Asian, Native American, and Pacific Islander enrollments in ENE courses. However, the students within those demographics that do enroll in engineering courses demonstrate higher success. There seems to be disproportionate impact of White and Hispanic Males.

If there are any concerning trends over the past 3 or more years, or if equity gaps exist, what is your action plan to address them?

The current plan is to continue working with Engineering Pathways to recruit female engineering students as well as other disproportionate demographics through partnerships, and events.

Is there a resource request associated with this Data Review? (If yes, please complete a Resource Request, which you can access from the main menu to the left)

No

Assessment Review

2021 - 2024

Section 1: SLO Assessment Status (Based on Dashboard - Assessment Status)

Which Disciplines are included in this Assessment?

ENE

What percent of SLOs in the disciplines you identified above have been assessed?

48.7

Which SLOs have not been assessed and why? Identify both the Course and the associated SLO(s).

ENE35 has been fully assessed recently, although it is still showing in the dashboard as not Assessed. ENE40, ENE41 are new and have never been offered yet. ENE 42B has not been offered due to many low enrollment cancelations. ENE-52 has recently been updated.

Section 2: Mapping Status (Based on Dashboard - Mapping Status)

Are all SLOs mapped to at least one PLO?

No

If all SLOs are not mapped to at least one PLOs, please explain why.

All SLOs for ENE39, ENE40, ENE41 are not currently in a program as they are new courses.

Are the appropriate SLOs mapped to GELOs? (If you have a course that is listed in any general education area, it should have at least one SLO mapped to at least one GELO)

No

If the appropriate SLOs are not mapped to GELOs, please explain why.

No GE courses

Section 3: PLO Analysis (Based on Dashboard - Analysis: PLO Direct Assessment)

Which Programs are included in this Assessment?

ENE- Pre-Engineering

Please identify the PLO(s) - and name the associated Program(s) - that achieved benchmarks.

ENE- Pre-Engineering, PLO2, PLO3

To what do you attribute this success?

The Chemistry, Physics, and Math faculty have worked diligently to improve the success of SSTEM students throughout these courses. Lab equipment, new full time faculty members and support services have recently been added which seems to have had a positive impact on students.

Please identify the PLO(s) - and name the associated Program(s) - that did not achieve benchmarks.

ENE- Pre-Engineering, PLO1

Assessment Review

If there are PLOs that did not achieve benchmarks, what do you plan on doing to improve benchmark attainment?

MAT-01A , SLO3, SLO4 and MAT-01B SLO2 did not meet benchmarks. Although Mat is a different program and discipline, it is vital for Pre-Engineering Students. Additional support is needed to help students be successful in math courses.

Section 4: Alignment to Career and Transfer

Describe the process used in this area to ensure programs (PLOs) align with career and transfer needs.

ENE Faculty works close with STEM Pathways staff to ensure we offer the proper courses needed for students. Each semester team members meet to discuss the course offering needs according to student ED plans and student goals. ENE also holds advisory meetings with industry partners regularly to get feedback on curriculum and lab equipment and discuss industry needs and outlook.

Describe the activities, projects, and opportunities this program offers to support experiential learning and alignment of programs to career and transfer (e.g. capstone projects, portfolios, service-learning opportunities).

In collaboration with the STEM Pathways program, ENE encourages students to engage in experiential learning by offering design challenges, guest speakers, field trips, internships, and more. Additionally, ENE works with the apprenticeship program to get students paid on the job learning opportunities.

Without looking at your current PLOs, describe some program outcomes which would best help your students continue on the path towards their workforce and transfer goals (e.g. subject matter expertise, hands on experience, partnerships, etc.).

Critical evaluation of problems. Creative approaches to solutions. Diversity, leadership and teamwork. Technical Correspondence.

Review current PLOs. Do the outcomes listed above align with the current program outcomes?

The current PLOs seem like a great start, however there seems to be a practical/skills bases aspect missing.

Program Review: Part 1

EMP GOAL 1. Expand college access by increasing both headcount and full-time equivalent students (FTES).

GOALS AND ACTIVITIES

What are you doing now in support of this goal?

In order to expand college access by increasing both headcount and full-time equivalent students ENE has been in progress of adding several new classes and labs which are not offered by many other community colleges throughout the region. In order to successfully transfer to four year institutions, Engineering students must take many required ENE courses. In the past two years, ENE has quadrupled the number of ENE 35 courses offered, which are full on a continuous basis. ENE has also added ENE 38, ENE 39, ENE 40, ENE 41, ENE 48 in the past two years. Additionally, the ENE lab has implemented many industry standard lab stations to maintain regional interest.

What are your plans/goals (3-year) regarding this goal?

In the next three years ENE plans to develop manufacturing engineering and quality engineering programs to attract both, engineering technology students and professional engineers who would like to further develop their skills. Additionally many of these courses will be offered online to reach a wider range of students.

EVIDENCE

Do you have assessment data or other evidence that relates to this goal?

In the assessment section you will find that several courses have not been assessed as they are newly developed courses. Also, you can see from the ENE 35 assessment that students are learning the information required to be successful in the next stage of their education and program update efforts have been working.

RESOURCES

Is there a resource request associated with this EMP Goal? (If yes, please complete a Resource Request, which you can access from the main menu to the left)

Yes

EMP GOAL 2. Implement Guided Pathways framework.

GOALS AND ACTIVITIES

What are you doing now in support of this goal?

To support the guided pathways framework ENE, in partnership with STEM Engineering Pathways, has developed a program to support students planning to transfer to a 4-year university for engineering. The STEM Engineering Pathways program provides students with career and academic counseling, assistance with the transfer process, and coaching every step of the way. The program also provides [internship](#), [research](#), [scholarship](#) and [field trip](#) opportunities for students.

Program Review: Part 1

What are your plans/goals (3-year) regarding this goal?

In the next three years, we would like to continue these services by institutionalizing the practice. The program is currently funding by a grant which will end soon. In order to retain these vital services, support is needed in this area.

EVIDENCE

Do you have assessment data or other evidence that relates to this goal?

Please see the Engineering Pathways website for a comprehensive set of information on the program.

Additionally, evidence can be found in the data review and assessment review section to indicate a need for the program.

<https://www.norcocollege.edu/academicAffairs/instruction/acp/stemPathways/Pages/index.aspx>

RESOURCES

Is there a resource request associated with this EMP Goal? (If yes, please complete a Resource Request, which you can access from the main menu to the left)

Yes

EMP GOAL 3. Close all student equity gaps.

GOALS AND ACTIVITIES

What are you doing now in support of this goal?

In partnership with STEM Pathways, ENE has held many events in the past three years to celebrate and encourage underrepresented groups as defined in the data review section. Additionally, ENE has expanded its partnerships with local high schools that have a large number of underrepresented student demographics in attempts to inform, inspire and encourage underrepresented students and close equity gaps.

What are your plans/goals (3-year) regarding this goal?

The plan in the next three years is to increase partnerships throughout the region and hold additional events to inform, inspire and encourage underrepresented students to pursue engineering degrees.

EVIDENCE

Do you have assessment data or other evidence that relates to this goal?

See below for link to events calendar for evidence of events.

<https://www.norcocollege.edu/academicAffairs/instruction/acp/stemPathways/Pages/STEM-events.aspx>

Program Review: Part 1

RESOURCES

Is there a resource request associated with this EMP Goal? (If yes, please complete a Resource Request, which you can access from the main menu to the left)

Yes

EMP GOAL 6. Pursue, develop, & sustain collaborative partnerships.

GOALS AND ACTIVITIES

What are you doing now in support of this goal?

ENE has recurring advisory committee meetings with local industry partners. Additionally, ENE has collaborated on projects to develop pathways to local four year institutions. Recently ENE obtained an MOU with UCR Engineering to secure a guaranteed transfer pathway for our NC ENE students.

What are your plans/goals (3-year) regarding this goal?

Currently ENE is developing courses and working with Cal Poly ENE Tech programs to develop a direct transfer pathway. To complete this, the program must develop new courses and lab over the next three years.

EVIDENCE

Do you have assessment data or other evidence that relates to this goal?

The Cal Poly Program Course Gap Analysis will be included in the document repository which outlines the various gaps between labs and curriculum that the team must work to overcome.

RESOURCES

Is there a resource request associated with this EMP Goal? (If yes, please complete a Resource Request, which you can access from the main menu to the left)

Yes

Program Review Part 2

2021 - 2024

Curriculum

Are all your courses current (within four years)?

Yes

What percentage of your courses are out of date?

0%

If you have courses that are not current, are they in the curriculum process?

N/A

For out of date courses that are not already in progress of updating, what is your plan?

NA

Do you have proposals in progress for all the DE courses you intend to file?

No

Do you require help to get your courses up to date?

No

Program Review Reflections

What would make program review meaningful and relevant for your unit?

Program Review was great, however, it would be great if we could possibly combine program units and complete a comprehensive review by guided pathways defined programs or by schools. Also I think it is important to include a program review prompt that focuses on equity.

What questions do we need to ask to understand your program plans, goals, needs?

The questions were great, however we should add additional equity questions in the future.

What types of data do you need to support your program plans, goals, needs?

I cannot think of any at this time.

If there are any supporting documents you would like to attach, please attach them here.

[CPP Engineering Tech GAP Analysis.xlsx](#)

Resource Requests

2021 - 2024

What resources do we already have?

Currently Classified professionals are being paid through grant funding, however, in order to sustain these services for engineering students after the grant ends, the program is requesting funding or reallocation of personnel for support staff. This staff could be shared across the entire school of STEM to support recruitment, retention, success, and learning within STEM fields.

What resources do you need?

Outreach specialist, Success Coach, Events Coordinator, Dedicated STEM Counselor

Request related to EMP goal or Assessment?

EMP Goal 2,EMP Goal 3,EMP Goal 1,EMP Goal 6

\$ Amount Requested

400,000

Resource Type

STAFF: Classified Professional, Confidential, Manager

Potential Funding Source(s)

Guided Pathways,CTE: Strong Workforce Project (SWP),CTE: Perkins (VTEA),Department Regular Funding,General Fund,GRANT: Here to Career Title V,Equity

The evidence to support this request can be found in:

Program Review: Part 1,Program Review: Part 2,Data Review,Assessment Review

This request for my area is Priority #:

1

Submission

2021 - 2024

All parts of my Program Review have been completed and it is ready for review

Yes

CPP Course Number	CPP Course Title	CPP Course Units	CPP Requisites	NC Course Number	NC Course Title	NC Course Units	NC Requisites	Notes
ETE 1021	Circuit Analysis I	3	MAT 1060 (Trig) (Pre)	ENE 39	Engineering Circuit Analysis	4	PHY-4B (PRE) MAT-2 (CO)	Complete
ETE 1021L	Circuit Analysis I Lab	1	ETE 1021 (CO)	ENE 39	Engineering Circuit Analysis	4	PHY-4B (PRE) MAT-2 (CO)	Complete
ETE 1151	C/C++ Programming	3	EGR 1000 - Engineering, Society, and You AND ENGR Lab, MAT 1060 (Trig) (Pre)	CIS 5	Programming Concepts and Methodology I: C++	4	None	Complete
ETE 1151L	C/C++ Programming Lab	1	ETE 1151	CIS 5	Programming Concepts and Methodology I: C++	4	None	Complete
ETE 1151	C/C++ Programming	3	EGR 1000 - Engineering, Society, and You AND ENGR Lab - MAT 1060	CIS 17A	Programming Concepts and Methodology II: C++	3	CIS-5 or CSC-5 (Pre)	Does have Object Oriented Design, Missing one unit
ETE 1151L	C/C++ Programming Lab	1	ETE 1151	CIS 17A	Programming Concepts and Methodology II: C++	3	CIS-5 or CSC-5 (Pre)	Does have Object Oriented Design, Missing one unit
ETE 2041	Electronic Devices and Circuits	3	MAT 1300 Technical Calculus I (PRE), ETE 1021 + L Circuit Analysis I (PRE)	NONE				
ETE 2041L	Electronic Devices and Circuits Lab	1	ETE 2041 (CO)	NONE				
ETE 2101	Circuit Analysis II	3	MAT 1310 - Technical Calculus II, ETE 1021	NONE				
ETE 2101 L	Circuit Analysis II Lab	1	ETE 2021 (CO)	NONE				
ETE 2301	Digital Circuits	3	ETE 1021(PRE)	NONE				
ETE 2301 L	Digital Circuits L	1	ETE 2301 (CO)	NONE				
ETE 2721	Electronic CAD, Manufacturing and PCB Fabrication	1	ETE 2041, ETE 2041L, ETE 2301, ETE 2301L	NONE				
ETE 2721 L	Electronic CAD, Manufacturing and PCB Fabrication Lab	2	ETE 2721 (CO)	NONE				
ETM 2101	Applied Statics	3	PHY 1210 - Physics of Motion, Fluids, and Heat, MAT 1300 - Technical Calculus I	ENE 35	Statics	3	PHY 4A, MAT 1A	Complete
ETM 2111	Applied Dynamics	3	MAT 1300 - Technical Calculus I, ETM 2101 - Applied Statics	NONE	Dynamics (ENE 35B)	3	ENE 35	ENE 35B
ETM 2121	Applied Mechanics for Electronic Systems Engineering Technology	3	ETM 2101 - Applied Statics (PRE), MAT 1300 - Technical Calculus I	NONE				
ETM 2171	Material Science for Engineering Technology	3	General Chemistry I, PHY 1210 - Physics of Motion, Fluids, and Heat	ENE 40	Material Science and Engineering	4	CHE 1A, PHY 4A	Complete
ETM 2201	Strength of Materials	3	MAT 1300 - Technical Calculus I, ETM 2101 - Applied Statics, ETM 2171 - Material Science for Engineering Technology	NONE	Strength of Materials ENE 35C	4	ENE 35	ENE 35C
ETM 2201 L	Strength of Materials Lab	1	ETM 2201	NONE	Strength of Materials ENE 35C	4	ENE 35	ENE 35C