

Engineering Leadership (UG) - Reviewer's Report - Academic Data

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Engineering Leadership (UG)

Program Mission

Mission:

The Engineering Leadership Certificate Program has been established to provide engineering student graduates with a broad set of industry-preferred competencies that prepares them for leadership roles in their engineering careers. The certificate helps accomplish a strategic objective of the Engineering Leadership Institute and supports the Herbert Wertheim College of Engineering's strategic initiative to "power the new engineer and transform the future".

Program Type and Level: Certificate – Undergraduate

Start: 07/01/2021

End: 06/30/2022

Program: Engineering Leadership (UG)

Program CIP: 14.2701

Site Information:

If Other Site: :

Responsible Roles:

PG 1 Increase enrollment

Goal:

Increase enrollment in the certificate program 10% each academic year. This target goal for increased enrollment is based on Certificate demand since certificate approval in Summer 2017 semester.

Program: Engineering Leadership (UG)

Evaluation Method:

Report the number of approved student applications for the certificate.

Results:

Academic year (AY) approved enrollments since inception of the certificate program, based on a revised data query, are summarized in the following table:

Academic Year	# New Applicants	Growth Rate (%)	Time (years since start)	CAGR* (%)
2017-2018	8	---	1	---
2018-2019	10	25	2	11.8
2019-2020	13	30	3	17.6
2020-2021	17	31	4	20.7
2021-2022	25	47	5	20.1

*compound annual growth rate

As indicated, undergraduate student enrollments exceeded the target program goal during AY 2021-2022.

SLO 1 Foundations

Outcome: Students describe and apply the foundations of and critical success factors for effective leadership

SLO Area (select one):

Assessment Methods Checklist: Non-exam Course assignment(s)

Assessment Method Narrative:

Develop and successfully implement an Individual Leadership Development Plan (ILDLP), with a competency level $\geq 90\%$.

SLO Not Assessed This Year:

Threshold of Acceptability: 70

How many students did you assess for this outcome?: 12

How many students met the outcome?: 12

What percentage of students met the outcome?: 100

Does this meet your threshold of acceptability?: Yes

Results:

The assessment was based on students within the traditional programs of the Herbert Wertheim College of Engineering who were awarded the certificate during AY 2021-2022. According to UF records, 12 students received the undergraduate certificate during this period. The scores that these students received on the ILDP assignment are indicated below:

Student	Score
1	100
2	99
3	100
4	99
5	100
6	93
7	100
8	100
9	92
10	98
11	100
12	99

The ILDP used as the assessment method for SLO1 was designed to be an experiential application of key content from the first course required to obtain the certificate. Students identify and complete a semester leadership related experience focused on applying and improving their top 5 predetermined competencies, while also applying their core values and other foundational elements from the course. The ILDP serves as the reporting tool to document the student's leadership development outcome and carries a 20% weighting in terms of the final course grade. The ILDP serves as a direct and indirect indicator of how well students grasp and apply key content items from the course.

The rubric used to assess the final ILDP submittal of the semester assignment is provided below. The points for this submittal combine with 20 points from an initial submittal made at the outset of the semester describing their identified experience for a total 100 points for the complete assignment. The rubric reflects both a quantitative and qualitative assessment about the amount of content included in the submittal as well as the quality of how the content was presented.

Criteria	Ratings						Pts
Content	60 pts Comprehensive all sections in all forms reflect comprehensive responses	55 pts Substantially Comprehensive considering all the forms, 1 section did not reflect comprehensive responses	49 pts Somewhat Intermediate considering all the forms, 2 sections did not reflect comprehensive responses	43 pts Incomplete Status see ILDP Framework for description	43 pts Intermediate considering all the forms, more than 2 sections did not reflect comprehensive responses	0 pts No submittal	60 pts
Quality see ILDP Framework for descriptions of quality levels	20 pts High Quality	9 pts Medium Quality	0 pts Incomplete Status see ILDP Framework for description	0 pts Low Quality	0 pts No submittal	20 pts	
Total Points: 80							

The assessment results indicate that all the certificate-holding students during this period met or exceeded the 90% competency level for this value-added activity. Comparing against this value: 10 scores (~ 83%) were in the high 98-100 score range considered outstanding performance; 2 scores (92 and 92) were considered above-average performance; and no scores approached the threshold value indicating satisfactory performance. The results reflect strengths in the virtually all the certificate-holders' abilities to apply the key course content into a plan for their continued development as future engineering leaders, with few to no significant weaknesses.

SLO 2 Leadership knowledge and practices

Outcome:

Students interpret, evaluate and apply strategic leadership knowledge and practices that are critical to the success of many modern-day engineering and technology-based businesses

SLO Area (select one):

Assessment Methods Checklist: Non-exam Course assignment(s)
Presentation(s)

Assessment Method Narrative:

Develop and present a persuasive business case to launch a new technical product for a mythical company operating in a highly-competitive industry, at a competency level $\geq 85\%$

SLO Not Assessed This Year:

Threshold of Acceptability: 70

How many students did you assess for this outcome?: 12

How many students met the outcome?: 12

What percentage of students met the outcome?: 100

Does this meet your threshold of acceptability?: Yes

Results:

The assessment was based on students within the traditional programs of the Herbert Wertheim College of Engineering who were awarded the certificate during AY 2021-2022. According to UF records, 12 students received the undergraduate certificate during this period. The scores that these students received on the business case assignment are indicated below:

Student	Score
1	100
2	91
3	94

4	88
5	92
6	94
7	92
8	87
9	89
10	88
11	98
12	92

The assessment method used for SLO2 involves preparation and delivery of a team presentation that makes a business case to the executives of a mythical company (for whom they've been working during the semester) to accept their recommendations to move forward with development of a new engineering product. The assignment was designed to be an experiential application of key content items from the second course required to obtain the certificate.

Throughout the semester, student teams work on specific activities designed to apply key course concepts and principles related to strategic leadership. The efforts culminate in this final business case presentation assignment that carries a 15% weighting in terms of the final course grade. As such, the assignment serves as a direct and indirect indicator of how well students grasp and apply key content items from the course.

The focus of this presentation assignment is for students to provide only relevant information appropriate for the target audience (i.e., the company leadership executives) so that they can clearly understand the team's concept, its business importance and the unique value that it brings, and what the team is requesting from the company leadership. The assessment is largely directed towards the content preparation with some focus on how well the content was delivered by the team.

The assessment results indicate that all the students during this period met or exceeded the 85% competency level for this value-added activity. Comparing against this value:

***only 2 students (~17%) with scores of 98 and 100 reflected outstanding performance in providing and presenting the relevant and appropriate content to the target audience;

***6 students (50%) with scores in the low to mid 90s reflected above-average performance in this regard; and

***4 students (~33%) with scores in the 80s reflected satisfactory performance in this regard but were getting close to the target competency level.

Compared to results for SLO1, the results for SLO2 reflect a significantly higher performance percentages in scores considered to be above average and satisfactory. The higher percentage likely reflects that the specific assessment method carries a higher degree of difficulty, although it's possible that it indicates that certificate holders have greater difficulty in grasping and applying key course content aspects reflected in this SLO.

Engineering Leadership (C - Undergraduate) Programmatic Use of Results

Improvement Types Checklist: No changes made based on this review (Check this box no more than 2 years in a row)

Use of Results for Improvement Narrative - Required:

The results for this AY review period support that no changes are recommended. Certificate enrollments appear to be robust although it's possible that growth rates may stabilize or subside with maturity of the program. The assessment methods are appropriate for the SLOs and results indicate that SLOs are being fully met for the certificate program.

Program Results Not Reported This Year:

Program Results Reporting Complete: true

Academic Assessment Plan Detail

Providing Department: Engineering Leadership (UG)

Assessment Cycle:

Assessment Cycle

Academic Year	19-20	20-21	21-22	22-23	23-24
SLOs					
Content Knowledge					
#1	X	X	X	X	X

#2	X	X	X	X	X
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SLO Assessment Rubric:

Rubric attached as part of the SLO results sections.

Assessment Oversight:

Assessment Oversight

Name	Department Affiliation	Email Address	Phone Number
Hans van Oostrom	HWCOE	oostrom@ufl.edu	352-392-1345

Methods and Procedures - Undergraduate and All Certificate Programs:

Curriculum Map - Undergraduate Degree Programs:

Research :

SLO Measures - Graduate and Professional Programs:

Assessment Timeline - Graduate and Professional Programs:

Assessment Timeline for Engineering Leadership Certificate Program

Assessment	Assessment 1	Assessment 2
SLOs		
Content Knowledge		
#1	May, December	
#2		May, December