



**Project COMPLETE**  
**Controlling, Operating, and Measuring:**  
**Pathways for Learners to Engineering Technology Employment**  
NSF Award #1801177

**External Evaluation Winter Report**  
**2021-2022**

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## Introduction

This document reports the results of the external evaluation for July 2021 to February 2022, a portion of year four of the grant titled “*Controlling, Operating, and Measuring: Pathways for Learners to Engineering Technology Employment,*” under the National Science Foundation (NSF) Scholarships in the Advanced Technological Education program (ATE).

## Evaluation Objectives

As the time frame covered by this evaluation covers only seven months of year four of Project COMPLETE, the evaluation objectives for this period focus on the activities and evidence regarding the following project elements: Project planning and timeline adherence, industry-based certifications and pathways, curriculum implementation, project dissemination, and enrollment in partner higher education institutions.

Our evaluation of implementation fidelity included ensuring that all program aspects were created and maintained as outlined in the NSF grant application. Year four of the grant is a result of a no-cost one-year extension approved by NSF, and thus some objectives and goals have been added to the original grant application.

## Method

The following section includes information about the team of evaluators, materials, and methodology used in this evaluation.

## Reviewer Background

AROS is a faculty-supervised and student-led consulting group within Louisiana Tech University’s Industrial-Organizational Psychology doctoral program, leveraging the energy, expertise, and creativity of its graduate students. These students are well-versed in the theory and practice of program evaluation and have been through intensive courses on qualitative and quantitative research methods.

## Reviewer Staffing

The AROS Coordinator (**Tilman Sheets**) and faculty project supervisor (**Mitzi Desselles**) have appointed two doctoral graduate students (**Matthew Brady Johnson**) and (**Harry Kohn**) to the project.

## Process

Materials were evaluated using in-person meetings, online correspondence, survey results, management meeting records, and Project COMPLETE’s website.

## Meeting and Communication

The evaluation team maintained regular communication with program manager Alicia Kiremire, program coordinator Rebekah Long, principal investigators Gerry Caskey and Michael Swanbom through email correspondence and online (via Zoom) meetings. Bi-

weekly meetings allowed the project team to provide information on developments regarding the following: acquisition of partner schools, partnerships with non-profits, industry-based certifications, marketing, and dissemination. The information was verified by extensive meeting minutes from meetings between the project team and relevant entities. A shared cloud storage folder containing records of the project team's information was also used to assess progress during this evaluation period.

## Results of the External Evaluation for July 2021 to February 2022

In this section, information collected from records of project team activities during the period between July 2021 and February 2022 of Project COMPLETE is presented. Each section focuses on an aspect of the program outlined in the original grant proposal. For each section description, observations and records made during the 2021-2022 winter period of Project COMPLETE are given; this is followed by the evaluation of the program's components.

### Overall Planning and Timeline

Between June 2021 and February 2022, the project team held bi-weekly management meetings focused on planning and coordinating project aspects. These bi-weekly meetings included the principal investigators, program manager, and program coordinator. Meetings were conducted through Zoom and bi-weekly email correspondence. Additionally, the external evaluator, AROS, was invited to all meetings and online correspondence to maintain an awareness of project developments.

In what is now year four of the project, the project team was approved for a no-cost grant extension. The foci of the grant extension were to make an additional effort to disseminate and evaluate the project while creating sustainable partners. These objectives were to submit a paper for peer-review at a 2022 academic conference, increase partnership with LDCC Workforce Division and a non-profit organization to increase outreach to underrepresented student populations. The meetings allowed all parties to coordinate on achieving overall timeline objectives.

To maintain accountability, the project team used various software such as shared cloud storage and a project role definition agreement – a document that specifies each project members' responsibilities during year four of Project COMPLETE. In combination with the bi-weekly management meetings, this system has assisted the project team with staying on the scheduled timeline. Additionally, it has allowed the project team to correct any deviations from the original timeline.

### *Evaluation:*

The project team has met consistently and, as of this mid-year evaluation, has met almost all the objectives established at the beginning of year four. To meet the primary goals set forth at the beginning of year four, the team must plan how they intend to finalize all changes to the

curriculum, upload the updated files to the website, and reach out to implementing schools to offer any final assistance that may ensure lasting partnership.

### Industry Certifications & Pathways

In year three of the grant project, the team shifted its focus from dual enrollment to “industry-based certifications” (IBCs) because the team has found that IBCs are more fitting to the Louisiana Department of Education’s strategic plan and funding incentive program for high schools. The team has continued to work toward this goal by supporting its partner schools as they offer these IBCs. BPSTIL switched to using the Electrical Training Alliance (etA) Interim Credential during the spring 2022 semester.

### Non-Profit Partner Sponsorship

Through a partnership with the LDCC’s Workforce Division and the nonprofit, Propel America, the team supported more paths to gain certification, credit at LDCC, and opportunities to be interviewed. Propel America works to recruit and coach low-income students to career paths in high need. The grant team funded a two-day boot camp in the summer of 2021 and a 12-week pilot program for a cohort of 10 students. In the program, the students receive training, coaching, and an opportunity to earn industry-based certifications.

Without Project COMPLETE, there would not have been a fall cohort, as Propel does not have a budget allocated for that time. Because of the grant’s funding of this cohort, the nonprofit now has experience dealing with a community college and hopes to work with more and offer school credit in conjunction with their workforce programs. Good communication between the three entities involved, Propel America, LDCC Workforce Division, and Project COMPLETE, was an integral part of the success associated with the pilot program in 2021. Among the potential improvements, marketing to and educating the students about a technical career, transportation for students, and coaches that are more demographically similar to the students, were the top reported.

Four students from the 12-week pilot program cohort have completed certifications. Students have been able to create and update their resumes, practice being interviewed for jobs, and participate in job fairs at LDCC. The students have continued to meet with Propel coaches after completing the fall pilot 12-week program. COVID-19 restrictions have prevented some cohort members from securing employment, but there is at least one graduate who is currently employed full-time at a local manufacturing company.

Propel America recently announced that they are, at the national level, shifting focus away from instrumentation technology and solely focusing on healthcare. Thus, the partnership with Project COMPLETE will be discontinued, but the project team was able to learn what a partnership with an outside party could function like in the future.

### *Evaluation:*

The project team prepared instructions for educators to integrate Project COMPLETE into their existing IBC programs. Based on the education partner's interest in the curriculum, it is expected that participation in IBCs and dual-enrollment will increase as COVID-19 social-distancing

protocols are relaxed at schools. Project COMPLETE's financial support of the Propel America students in LDCC's workforce program demonstrates the team's efforts to have a meaningful impact students' lives and the region's economy. The grant team's external project manager was especially conscientious throughout the partnership with Propel. She arranged a full debriefing interview with Propel after the Fall 2021 cohort was complete.

## Implementation and Dissemination

### Current Utilization

BPSTIL is currently implementing the full curriculum for eight students, three of whom are in Dual Enrollment with LDCC. Homer High School fully implemented the curriculum for 55 students through the Fall 2021 semester. Summerfield High, a school that fully implemented the program last year for nine students, could not offer the class this academic year due to scheduling issues; the school intends to provide the full curriculum next year.

### Underrepresented Populations

In a previous evaluation period, the team also took proactive steps to target schools composed of underrepresented students in the STEM field. These students have not historically matched their population ratio in the STEM workforce; typically, women, racial, ethnic, and other minority groups are underrepresented. The project team continued this by renewing the contract with the individual who serves as their partner and liaison to schools comprised of underrepresented students.

Thus far, he has reached out to seven schools, and six have shown interest in joining because of his outreach and relationship building. He has also presented information about Project COMPLETE to two non-traditional (homeschool) groups, which are currently considering the curriculum. One school that he introduced to the curriculum, Red River High School, has 338 students who will have the opportunity to sign up for partial implementation in the 2022 Spring semester as part of enrichment and physics classes. Physics classes at Red River High will incorporate several curriculum instrumentation lessons in the Spring 2022 semester, and the number involved in that effort is estimated at fifteen.

The grant team's partner reported enthusiasm for Project COMPLETE, but implementing something new since the beginning of the COVID-19 pandemic has been impractical. He stated, "Most schools are just trying to survive... something new seems too hard when everything feels new right now." He plans to continue to expose schools to the curriculum and pathways it provides.

### Visibility

Throughout the evaluation period, the team has promoted and maintained awareness of Project COMPLETE per the specified year four objectives. The website offers a variety of workshops (dissemination, curriculum development, and training) and curriculum videos, slides, documents, activities, and supplemental materials openly available to educators. Stakeholders suggested the team do more in direct marketing for project COMPLETE. In response, flyers were mailed to seven schools for Spring 2022. The team could not hold a live online Q&A panel due to low or no communication from partner high schools.

The project team submitted an abstract to the American Society for Engineering Education’s (ASEE) 2022 conference in Minneapolis, Minnesota, which was accepted. They have subsequently submitted a full manuscript to ASEE to undergo blind peer-review and are awaiting a decision. The paper details the past 3.5 years of the grant and is written to share the team’s experiences and lessons learned with fellow educators who may attempt similar endeavors. In July 2021, the project team held a professional development workshop for teachers and counselors in the state at the Louisiana Ag Teachers Association (LATA)’s summer conference. The team was able to talk through the curriculum with participating schools and assist them with the accompanying kits.

*Evaluation:*

The project team met their goal of submitting to a peer-review academic conference in the fourth year of the grant. Additionally, the project team made progress toward the year four goal of increasing outreach to underrepresented student populations through the liaison’s efforts with six schools receptive to the curriculum. While the website was well received and reported as a helpful resource by implementing teachers, the evaluation team recognizes that the goal of updating the website is an outstanding objective for the project team at this time, as the last update occurred 8/06/2020.

**Enrollment in Partner Higher Education Institutions**

**LDCC Industrial Instrumentation Technology Enrollment**

Enrollment has remained relatively steady at the LDCC campus closest to the partner university. For the entire LDCC system, enrollment spiked as the concentration was expanded to more campuses from the 2017-2018 to the 2018-2019 academic year. Since that time, enrollment remained has shown a 36%, 3%, and 15% decrease each year, respectively.

<b>Academic Year</b>	<b>Total LDCC Enrollment</b>	<b>Instrumentation Technology All LDCC Campuses</b>	<b>Instrumentation Technology Ruston LDCC Campus</b>
2021-2022	5,303	93	34
2020-2021	5,318	109	37
2019-2020	6,161	112	38
2018-2019	5,588	175	32
2017-2018	5,266	56	0

The decrease in students in Instrumentation Technology would be alarming, but when considering the overall number of students has decreased 14% since the 2019-2020 academic year, the numbers in the concentration of interest appear sufficiently strong.

**Louisiana Tech University ICET/ELET Enrollment**

Two years prior to the start of this project, Louisiana Tech University established its Instrumentation and Control Systems Engineering Technology (ICET) program. Graduate totals for both ICET and its precursor, the Electrical Engineering Technology (ELET) program, are reported here.

Year	All Engineering	ELET	ICET	Total % ELET/ICET
2021	328	2	7	2.8%
2020	376	8	12	5.3%
2019	398	15	n/a	3.8%
2018	355	14	n/a	3.9%

Over the project's duration, overall graduation rates for the college of engineering show an increase over 2018-2019 and then a decrease in 2020 and 2021 to its lowest of all four years. The graduation rate for those in related programs rose 43% from 2018 to 2020, that is, 14 to 20 graduates. This positive trend dropped to 9 in 2021. The number of first-year students that declared majors in the ELET/ICET programs was 5 in 2018 and then dropped to 1 in 2019. In 2020, the number of students jumped to 4, and in 2021 6 students declared an ELET or ICET major.

*Evaluation:*

COVID-19 has affected enrollment in institutions, so determining the grant impact on enrollment is impossible. College student enrollment at the national level has declined since the onset of the pandemic and is currently still in decline during this evaluation period. Considering this trend, enrollment at Louisiana Tech is on par, and the steady numbers at LDCC are notable.

**Conclusion**

Overall, the July 2021 through February 2022 period of Project COMPLETE successfully pursued the goals outlined by the team when applying for their no-cost grant extension.

Based on educator interviews conducted by AROS, many more schools would have implemented or still intend to implement the curriculum. Schools identified the multiple waves of pandemic variant outbreaks as the cause for non-partnership. Student absences and short staffing at the schools create logistical obstacles that make implementing a new curriculum unfeasible.

The project team has met the preestablished year four goals of submitting a paper for peer-review at a 2022 academic conference, increasing visibility of the curriculum in underrepresented student populations, increasing partnership with LDCC Workforce Division, and learning valuable takeaways regarding a partnership with a non-profit organization. The team is on track to complete all of its objectives.