Evaluation Plan for Logistics Engineering Technician Work Study

Overview of the Project

The main LET WS project goal is to enhance the career pathway for logistics engineering technicians with experiential learning and directed employment opportunities. The project objectives include

- Establish an academic model for STEM-intensive programs that can be used to support a variety of technical occupations and sectors.
- Provide access to careers that offer significant earnings potential in the central Ohio area and provide flexible skill sets to meet the needs of many industries.
- Increase diversity in the workforce through intensified outreach to underserved populations such as women, minorities, and veterans.

The project's theory of change: By increasing experiential learning opportunities among LET students, particularly involving adult underemployed, incumbent, and military veterans, then, these students will be able to increase their wages while graduating with minimal debt.

There are four (4) project objectives (e.g., deliverables):

1. Develop a Work Study Model in Logistics Engineering Technology - The proposed expansion provided through this proposal will integrate a work study component into the career pathway for Logistics Engineering Technicians.
2. Develop a Logistics Engineering Technology Work Study Summer Institute for high school graduates on careers in logistics engineering operations, with a classroom component and site visits/shadowing to regional leaders in supply chain management.
3. Develop bridge Program with Prior Learning Assessment (PLA) for adult learners to identify knowledge gained outside of the traditional classroom and evaluate it for college credit
4. Develop a Logistics Engineering Technology Laboratory for hands-on application - The PIs will develop an automated work cell to simulate a smart conveyer used in regional warehouses

Overview of the Evaluation

The evaluation is guided by the following five (5) evaluation questions:

1. How effectively is the project being planned and implemented (esp. the WS module)? What aspects of planning and implementation have gone well, and what challenges have been experienced? How have challenges been addressed? (Formative)
2. How effective are the outreach strategies that are designed to increase awareness of LET careers and pathways among high school educators, students & parents, unemployed/underemployed, veterans? To what extent have these efforts increased interest, applications, and enrollment (into LET)? (Summative)
3. To what extent has the PLA module effectively correlated attainment of learning outcomes to PLA credit. (i.e., Are the programs being tailored effectively to adult learners or are they getting credit for courses they truly need and/or being enrolled in courses they truly don't need?) (Formative)
4. In what ways have students benefited from the Work Study component? In what ways have industry partners benefited from the Work Study component? To what extent has the Work Study module contributed to students' knowledge and skills needed for positions in LET? To what extent has it improved their ability to find employment? (Summative)
5. How effectively has the Logistics Engineering Technology Laboratory enhanced students' knowledge, skills, and attitudes? (Summative)

Data indicators and measures/data collection strategies

Evaluation Question #1: How effectively is the project being planned and implemented? What aspects of planning and implementation have gone well, and what challenges have been experienced? How have challenges been addressed? (Formative)

Data indicators	Measures/data collection strategy
• Type and number of project milestones completed • Type and number of successes and challenges experienced (esp. regarding the recruitment of industry partners and establishment of WS arrangements)	• Periodic meetings with project team • Collection and review of project level documents • End-of-term interviews with project staff (?)

Evaluation Question #2: How effective are the outreach strategies that are designed to increase awareness of LET careers and pathways among high school educators, students & parents, unemployed/underemployed, veterans? To what extent have these efforts increased interest, applications, and enrollment? (Summative)

Data indicators	Measures/data collection strategy
• Representation in terms of the number of high schools and range of faculty/staff roles participating in outreach activities.	• Participant lists from outreach activities (e.g., Summer Institute, Bus Tour)
• Representation in terms of the number of prospective students (& their parents) reached through some type of information sharing.	• Participant lists from informational/educational activities (e.g., Summer Camp)
• Increased **awareness of** LET careers re types of jobs, availability of training/educational pathways, demand, and potential pay. Targeted populations include educators and prospective students from high schools and underserved groups	Educators • Outreach activity evaluations (e.g., Summer Institute, Bus Tour) Prospective students (& their parents) • Informational/educational activity evaluations (e.g., Summer camp evaluation survey)
• Increased **interest in** LET careers among prospective students as indicated by increases in inquiries, applications, and enrollment (into LET WS program). Targeted populations include students unemployed/ underemployed, veterans.	Inquiries • Web analytics re unique site visits • Number of individuals requesting program or application information. Applications • Numbers of individuals submitting applications. Enrollment • Enrollment numbers and term completion rates after each term. • Reenrollment rates • Program completion numbers and rates

Evaluation Question #3: To what extent has the PLA module effectively correlated attainment of learning outcomes to PLA credit. (NOTE: PLA strategy still in development)	
Data indicators	**Measures/data collection strategy**
• TBD	• TBD

Evaluation Question #4: To what extent has the Work Study module contributed to students' knowledge and skills needed for positions in LET? To what extent has it improved their ability to find employment? In what ways have students benefited from the Work Study component? In what ways have industry partners benefited from the Work Study component? (Summative)	
Data indicator	**Measures/Data Collection Strategy**
• Increased levels of knowledge and skills needed for LET positions	• Pre and post (work study year) self-assessment survey based on identified competencies. (survey) • Post work study term evaluation of student performance by industry supervisor(?). (counterfactual survey)
• Benefits to students	• Post work study term semi-structured interview
• Benefits to industry partners	• Post work study year semi-structured interview

Evaluation Question #5: How effectively has the Logistics Engineering Technology Laboratory enhanced students' knowledge and skills? (STATUS?)	
Data indicator	**Measures/Data Collection Strategy**
• Positive perceptions regarding the quality/effectiveness of the lab	• Post (lab experience) evaluation survey
• Increased levels of knowledge and skills needed for LET positions	• Pre-Post (lab experience) self-assessment survey based on knowledge and skills targeted by lab experience.

Timing of Evaluation Activities (Year 1 focus)

Month	Activity
On-going	• Periodic meetings with project team • Review of relevant documents
Oct 2017	• Bus tour evaluation
Nov 2017	• Bus tour evaluation report
April 2018	• End-of-term interviews with project staff(?)
July 2018	• Year 1 evaluation report
July 2018	• STEM Educator's Summer Institute and evaluation mini-report
Aug-Sept 2018	• Year 2 Evaluation Plan

Logic model

RATIONALE
- *The LETWS project will replicate a successful model already in place at Columbus State. The College's NSF ATE Modern Manufacturing Work Study program is proving to be a highly successful work-study program.*
- *This proposal will take this proven work-study model and adopt and adapt it in two ways:*
- *(1) expand the model to the growing Central Ohio Logistics industry; (2) expand the model to include adult underemployed, incumbent workers and military veterans.*

Logic Model
Logistics Engineering Technology Work Study (LETWS)

Target Audience:
High school students; Veteran populations, Incumbent workers needing updated skills; Underemployed workers;

INPUTS
INSTITUTIONAL RESOURCES
- Expert faculty/evaluator
- Existing syllabi and curricula
- Blackboard learning management system
- Online distance learning infrastructure
- Student support services (advising, tutoring, etc.)
- CSCC Military and Veteran's Affairs Office
- Experience from previously funded NSF ATE projects: Next Generation Multi-craft Manufacturing Support Technician (1400354) and Building an Academic Pathway for Industrial Engineering Operations Technicians in Supply Chain (1400452)
- Skilled adjuncts from the industry

EXTERNAL RESOURCES
- Industry skills research
- Industry partners committed to the work study model and LET pathway
- High school district partners
- EMSI employment data
- Four-year partners for articulation
- Incumbent workers/ veterans/high school graduates
- Evaluation Data Solutions

Implementation Activities
- Conducted industry led analysis to finalize work study model
- Promote LET work study to students for annual cohorts
- Adjusting existing LET plan of study for second year work study
- Conduct pre-college outreach LETWS summer institute
- Replicate template articulation agreement with other university partners
- Design and implement bridge program with PLA
- Promote program to high school partners
- Perform outreach to veteran populations
- Procure and install LET Lab equipment

DELIVERABLES

Deliverable #1
Work-Study Model in Logistics Engineering technology

Deliverable #2
Logistics Engineering Technology Work Study Summer Institute for high school graduates

Deliverable #3
Bridge Program with Prior Learning Assessment(PLA) for adult learners

Deliverable #4
Logistics Engineering Technology Laboratory for hands-on application

OUTCOMES/IMPACTS
INSTITUTION LEVEL
- New LET work study model is self-sustaining through tuition and fees
- Enrollments increase in LET program
- Faculty expertise is expanded
- New partnerships developed with industry employers
- Additional technicians prepared to meet industry needs

INDIVIDUAL LEVEL
1. Increase in number of students who have completed a certificate or degree
2. Increase industry capacity by training incumbent workers
3. Increase in number of students completing credit hours
4. Increase in number of veteran students entering program
5. Increase in number of students earning credentials
6. Increase in number of students participating in experiential learning
7. Increase in number of students employed after grant-funded program of study completion