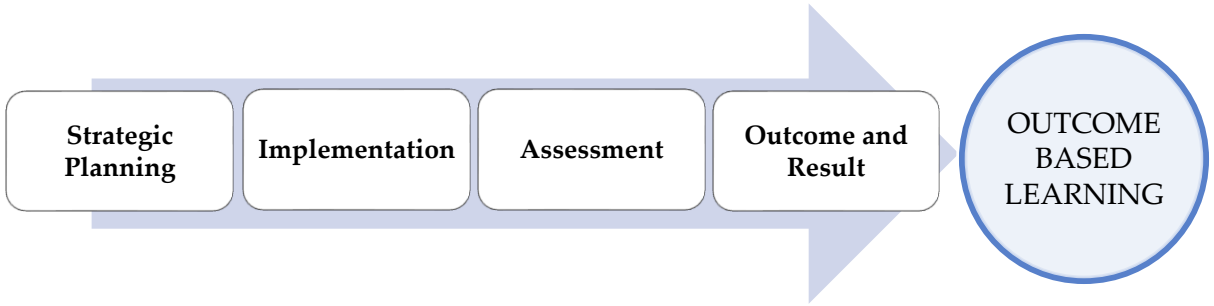
COLLIN COLLEGE

ASSOCIATE OF APPLIED SCIENCE
CONSTRUCTION MANAGEMENT

TECHNICAL CAMPUS
972.553.1290

Program Quality Improvement and Strategic Plan

The purpose of the AAS Construction Management program's Quality Improvement and Strategic Plan (QISP) is to provide a basis in which to self-assess the performance in delivering quality education and to plan future improvements. The QISP is consists of four major components directed toward outcome-based learning:



A. Program Strategic Planning

The program's strategic plan provides guidance for decisions, both short and long-term and makes sure that decisions and operations:

- *Carry out the program's mission, goals, and objectives.*
- *Comply with mandates and regulations of the college, government, accrediting bodies, etc.*
- *Keep the program operationally and fiscally healthy, now and in the future.*

A.1 Our Mission:

Collin College Construction Management is a student and community-centered program committed to developing skills, strengthening character, and challenging the intellect to better serve those that will design, build, and maintain our built environment.

A.2 Program Goals and Objectives

The program goals and objectives assessment serve as one of the guiding framework where the program operates effectively and guide the program in the pursuit of academic excellence. The program goals and objectives include strategic approach as well as key performance measures on how the program achieve the stated objectives and goals. The outcome of the assessment will be used in providing faculty, staff, and other stakeholder in the program with information for evaluating program's effectiveness and identifying areas for instructional or curricular improvement. Data are being collected at the end of each academic school year and evaluated as indicated in Table 5 – Assessment Review Cycle.

OBJECTIVES	GOALS	STRATEGY	METRICS
OBJECTIVE 1: Enhanced student experience and program focus on industry relevance	**Goal #1**: Provide an excellent teaching and learning opportunity to a larger and more diverse student population.	▪ Recruitment and Marketing Strategy. ▪ Promoting the program and reach out to area HS. ▪ Recruit qualified faculty members ▪ Professional Development of Faculty and membership in professional organization.	▪ *Enrollment Rate: >= 10%* ▪ *Number of faculty doing professional development: >= 75%* ▪ *Number of faculty members in professional organization: >= 75%*
	Goal #2: Provide an experience centered on student engagement, development, and success, which prepares graduates to contribute, lead, and excel in the construction industry and society.	▪ Partnership with industry for internship recruitments ▪ Participation in volunteer activities through Habitat for Humanity etc. ▪ Provide tutorials or peer mentoring for students ▪ Maintain reasonable class size ▪ Professional Development of Faculty and membership in professional organization.	▪ *Number of students interning: >=75%* ▪ *Number of students receiving scholarship: >=10 Students* ▪ *Percentage of industry related employment of graduates: >=75%*
	Goal #3: Improve curricular and student support infrastructure to enhance access, educational quality, and student success in a growing institution.	▪ Enhanced curriculum focused on student marketability skills ▪ Encourage students to avail the Career Coach initiatives ▪ Assign students to Faculty mentor	▪ *Percentage of graduate satisfied with the curricular offering: >=70%* ▪ *Employers' rating of graduates: >= 3.0 in the Likert Scale*

		▪ Provide lecture/seminar series from industry practitioners ▪ Pursue industry certification	
OBJECTIVE 2: Program effectiveness	**Goal 1:** Encourage and cultivate a culture of integrity, effectiveness and openness that promotes academic and workforce excellence of the CM program initiatives.	▪ Provide opportunity for faculty members to attend professional developments through seminars, symposium, conference, and trainings ▪ Encourage students to become active members of student organizations and affiliated professional associations and organizations to create camaraderie and networking among students and professional in the field ▪ Provide seminar series/ panel discussion for students in the program to keep abreast of latest trends in construction industry ▪ Provide opportunity for students to participate in various student competition regionally and nationally ▪ Participate as volunteer in community service or service learning of students and faculty	▪ *Number of professional developments attended by faculty members: >= 3 or more per year* ▪ *Number of seminars conducted: >= 2 per semester* ▪ *Number of students participating in student organization: >20 Students*

	Goal 2: Increase and maintain enrollment, retention, and graduates	▪ Provide mentoring and advising to students ▪ Early alert for students who habitually missed classes ▪ Identify student who are at risk of dropping out ▪ Provide flexible course delivery methods or modality ▪ Partners with industry to create internship and employment opportunity for students and graduates ▪ Increase scholarship availability awareness ▪ Promotes industry benefits of program completion versus course completion.	▪ *Number of students availing mentoring and advising: >= 50 Students* ▪ *Number of courses offered in various modality: >=10 courses* ▪ *Employment rate of graduates: >= 75%* ▪ *Number of graduates: >= 15 students per year*
	Goal 3: To be accredited by the ACCE or ABET to elevate status and affirm quality education offering of the program	▪ Conform to ACCE minimum standard in curriculum ▪ Active participation and attendance to ACCE conferences	▪ *Accredited by ACCE* ▪ *Number of faculty participate in ACCE conference/visiting team participations: >= 2 Faculty members*

A. 3 Program Learning Outcome:

Program Learning Outcome (PLO) assessment is to provide faculty in the program with information for evaluating student learning and identifying areas for instructional or curricular improvement. PLOs facilitate faculty-driven reflection on and modifications to academic programs and give primary responsibility for identifying the need for programmatic improvements to program faculty. The AAS CM program's PLO is consists of four learning outcomes that students should achieve upon completion of their degree. Data are being collected at the end of each academic school year and evaluated as indicated in Table 5 – Assessment Review Cycle.

Program-Level Learning Outcomes	
Program Learning Outcome 1: Construction Safety	*Students will be able to identify safety hazards on a construction site and implement standard prevention measures to reduce risk.*
Program Learning Outcome 2: Effective Communication and Teamwork	*Students will be able to apply, assess, and demonstrate management and communication skills required to complete a construction project.*
Program Learning Outcome 3: Construction Project Management	*Students will be able to demonstrate entry level competence in planning, analyzing, decision-making and problem-solving in construction to appropriately estimate costs and to successfully apply conventional scheduling skills to a construction project.*
Program Learning Outcome 4: Construction Fundamentals	*Students will be able to identify construction materials, describe the uses of those materials, and demonstrate the appropriate manner of assembly.*

A. 4 Student Learning Outcome:

Student Learning Outcomes (SLO) are based on ACCE criteria as defined in ACCE Document 103B. The 13 student learning outcomes demonstrate students' ability to apply and understand the fundamental knowledge in construction management areas as described in ACCE Document 103B, which lists required curricular content. Each SLO data are collected and assessed based on the indicated planned schedule in Table 5 – Assessment Review Cycle.

Faculty in the Construction Management program at Collin College operationally defined each of the 13 ACCE learning outcomes. Students graduating with an AAS in Construction Management at Collin College will achieve the following objectives:

1. *Apply effective communication, both orally and in writing.*
2. *Apply quantity takeoff skills for bidding or budgeting purposes on a construction project.*
3. *Apply the aptitude to schedule a basic construction project.*
4. *Apply current technology related to the construction industry.*
5. *Apply the interpretation of construction documents (contracts, specifications, and drawings) used in managing a construction project.*
6. *Apply basic principles of construction accounting.*
7. *Apply basic surveying techniques used in building layout.*
8. *Understand basic principles of ethics in the construction industry.*
9. *Understand the fundamentals of contracts, codes, and regulations that govern a construction project.*
10. *Understand basic construction methods and materials.*
11. *Understand basic safety hazards on a construction site and standard prevention measures.*
12. *Understand the basic principles of structural design.*
13. *Understand the basic principles of mechanical, electrical, and plumbing systems.*

B. Program Implementation

B.1 Assessment Location

The established Program Learning Outcomes (PLO) and the identified thirteen (13) Student Learning Outcomes (SLO) are distributed throughout the program's curricular offerings to reinforce and ensure student mastery of basic construction management concepts and skills. Concepts and skills are generally introduced in the lower-level courses and reinforced through practice in the upper-level courses. In some courses where concepts are practiced, students are assessed for both achievements of course objectives and proficiency in selected student learning outcomes.

The curriculum has been carefully designed to ensure student learning outcomes are fulfilled. The following table illustrates the contribution of individual courses in the AAS CM curriculum to the achievement of student learning outcomes. An "I" indicates introduction of the student learning outcome through the course content to create an awareness or basic understanding of the idea or concept. An "E" indicates courses in which skills and concepts contributing to the student learning outcome are emphasized or reinforced. Reinforcement of the student learning outcome (SLO) may create a deeper understanding of relevant knowledge and skills and/or providing

practice "P" in the practical application of the skills or concepts. An "A'" is where the knowledge or skills are being measured or evaluated.

Table 1. Program Learning Outcome and Assessment Location

I=Introduced P=Practiced E=Emphasized A=Assessed

Program Courses	Program Learning Outcome 1	Program Learning Outcome 2	Program Learning Outcome 3	Program Learning Outcome 4
CNBT 2342	E	IPEA	IP	
CNBT 1311	IPE	P	PE	IPEA
OSHT 1305	IPEA	E	E	P
BMGT 1305		IPE	PE	
CNBT 1300		IP	PE	E
CNBT 2304	PE		PE	IPEA
CNBT 1280	PE	PE	PE	IPE
CNBT 1359		P	IPEA	
CNBT 1346		P	IPEA	
CNBT 2344	E	E	PE	
CNBT 2340	IE	P	P	PE
CNBT 1315	IPE	PE	P	IPE
CNBT 1342	E	P	IE	PE
CNBT 2346	E	PE	PE	E
ENVR 1401			IPE	

The comprehensive direct and indirect assessment plan for each of the thirteen (13) student learning outcomes is graphically represented in the Distribution of Student Learning Outcomes and Assessment in the AAS CM curriculum matrix as shown in the following table. In the table, a "DA" designation indicates the course in which the student learning outcome will be assessed using a direct assessment method. An "IA" designation indicates a course in which the student learning outcome will be assessed using an indirect assessment method.

Table 2. Direct and Indirect Assessment Location for Each ACCE SLO

Level of Knowledge	SLO #	SLO DESCRIPTION	DIRECT ASSESSMENT LOCATION (DA)	INDIRECT ASSESSMENT LOCATION (IA)
APPLY	1	Apply effective communication, both orally and in writing.	**CNBT 1346**	Graduate Exit/Alumni & Employer Survey
	2	Apply quantity takeoff skills for bidding or budgeting purposes on a construction project.	**CNBT 1346**	Graduate Exit/Alumni & Employer Survey
	3	Apply the aptitude to schedule a basic construction project.	**CNBT 1359**	Graduate Exit/Alumni & Employer Survey
	4	Apply current technology related to the construction industry.	**CNBT 1359**	Graduate Exit/Alumni & Employer Survey
	5	Apply the interpretation of construction documents (contracts, specifications, and drawings) used in managing a construction project.	**CNBT 1300**	Graduate Exit/Alumni & Employer Survey
	6	Apply basic principles of construction accounting.	**CNBT 2344**	Graduate Exit/Alumni & Employer Survey
	7	Apply basic surveying techniques used in building layout.	**CNBT 1315**	Graduate Exit/Alumni & Employer Survey
UNDERSTAND	8	Understand basic principles of ethics in the construction industry.	**CNBT 1342**	Graduate Exit/Alumni & Employer Survey
	9	Understand the fundamentals of contracts, codes, and regulations that govern a construction project.	**CNBT 1342**	Graduate Exit/Alumni & Employer Survey
	10	Understand basic construction methods and materials.	**CNBT 1311**	Graduate Exit/Alumni & Employer Survey
	11	Understand basic safety hazards on a construction site and standard prevention measures.	**OSHT 1305**	Graduate Exit/Alumni & Employer Survey
	12	Understand the basic principles of structural design.	**CNBT 1311**	Graduate Exit/Alumni & Employer Survey
	13	Understand the basic principles of mechanical, electrical, and plumbing systems.	**CNBT 2340**	Graduate Exit/Alumni & Employer Survey

C.Program Assessment

C.1 Methods of Assessment

The assessment cycle for the Program Goals and Objectives, PLO and each SLO will be is indicated in Table 5 – Assessment Review Cycle.

Direct Assessment

At the conclusion of each semester, course assessment data will be collected by each faculty member teaching the course and forwarded to the Assessment Program Coordinator or Discipline Lead. To document course-level assessment tools used to assess student learning for each SLO, the data for each student learning outcome will be maintained together in both an electronic file and a paper-based binder, both of which shall be referred to as an SLO Notebook. The SLO Notebooks for each of the 13 student learning outcomes will be maintained by the Assessment Program Coordinator or Discipline Lead.

The SLO Notebook will contain:

- *An SLO Summary and Improvement Form*
    - *A summary of the knowledge or skills assessed for each SLO.*
    - *An assessment of student performance on a question-by-question basis or, alternatively, on a topic-by-topic basis that will include comparisons between student achievement and established metrics for the questions or topics covered in the assessment tools (typically a target pass rate of 70% on each question unless otherwise noted).*
    - *Identification of SLO deficiencies and potential curriculum gaps based on direct assessment of student-level assessment tools.*
- *Relevant assessment material from the appropriate course.*
    - *Assessment material may take the form of any or in combination of the following:*
        - *Exams*
        - *Quizzes*
        - *Assignments*
        - *Projects*
        - *Presentations*
        - *Industry Certification*
- *For each assessment tool submitted, faculty member will provide:*
    - *An example of a student artifact without individual student identifiers*

- *Student scores (grades) for the assessment tool without individual student identifiers*
- *The course syllabus*
- *The assignment used for assessment*
- *The assignment rubric*

The SLO form and notebook will document the extent each student learning outcome described in Table 1 and Table 2 has been met.

Indirect Assessment

Indirect assessment of the Program Goals and Objectives, PLO, and SLO; and the students' perception of the degree's ability to prepare them in an entry level position in the construction industry will be collected during different points of time. Data will be collected in their capstone course, through alumni surveys, and during the Industrial Advisory Committee meetings or sending correspondence to alumni and employers.

- *Graduate Exit Survey*

Students in their capstone course are required to write about their experiences during their capstone project. Many will work an internship in the field and see which aspect of the field they enjoy and dislike. At the end of the capstone, the students discuss what they learned in class that they found useful in their work and what they wish they would have known before working that job. Employers are also able to provide feedback to the program and to the student about the student's performance while on the job. They rate the student's work based on several factors and can provide written feedback.

- *Alumni Feedback Survey*

The program will disseminate survey to the alumni every three-year period. Information from this survey will include how the coursework prepared alumni for their careers. Data will be collected and grouped based on years since graduation to show how respondents perceive the degree at different points in their careers.

- *Construction Industry Advisory Committee*

The program plans on holding at least two Industry Advisory Committee Meeting per year. One of the main goals of this meeting is to evaluate the course assessments and

provide an external assessment of the overall program to ensure that it is meeting ACCE and industry needs.

- *Job Placement*

The program will work to track student job placement at graduation each year. This will include attainment of employment, salaries, and location when possible.

- *Employer Review*

The Construction Management faculty members and staff will meet at the end of each semester to discuss the results of the assessment. All faculty are invited to the meetings but those who teach the courses being assessed are required to be in attendance.

Performance Criteria

Direct Assessment

For each direct measure of an ACCE SLO and PLO, 70 % of students will achieve a 70 % (C grade) or better on the SLO assessment to demonstrate attainment of each SLO and PLO. Direct assessments will be administered and evaluated by the faculty of record for the course in which the assessment is administered as indicated in Table 3 and Table 4. For the program Goals and Objectives, the indicated metrics in Table A.2 are the basis to measure the level of achievements.

Indirect Assessment

For each indirect measure of a specific ACCE SLO and PLO, a rating of at least 3 or above on the Likert Scale to demonstrate achievement of a particular SLO and PLO. The results will be correlated and analyzed.

Direct assessment as well as indirect assessment results will be evaluated in support of the program mission, learning objectives and program outcomes, to implement change where needed.

Table 3. Assessment and Performance Criteria for Program Learning Outcomes

Program-Level Learning Outcome	Assessment Measure(s) and Where Implemented in Curriculum –	Targets Level of Success Expected
PLO #1 **Students will be able to identify safety hazards on a construction site and implement standard prevention measures to reduce risk.**	1.) Three online proctored exams in OSHT 1305 – OSHA Regulations - Construction Industry aligned to National Center for Construction Education & Research (NCCER) Core Curriculum modules on: a) Basic Safety, b) Introduction to Basic Rigging, and c) Introduction to Materials Handling. 2.) Performance Profiles (i.e. practical assessments) in OSHT 1305 – OSHA Regulations - Construction Industry for National Center for Construction Education & Research (NCCER) Core Curriculum modules: a) Basic Safety, b) Introduction to Basic Rigging, and c) Introduction to Materials Handling. (Includes seven total tasks evaluated to ensure proper safety procedures are executed on construction sites including: a) Basic Safety-Properly set up and climb/descend an extension ladder, demonstrating proper three-point contact; inspect personal protective equipment to determine safety for use; properly don, fit and remove personal protective equipment; inspect a typical power cord and ground-fault circuit interrupter to ensure serviceability. b) Introduction to Basic Rigging-Demonstrate proper ASME emergency-stop hand signal. c) Introduction to Materials-Handling-Demonstrate safe manual lifting techniques; demonstrate hot to tie a subset of four common knots.) 3.) Completing OSHA 30-Hour Construction Safety Course	1.) 80% of students will pass online proctored exams for NCCER Core Curriculum modules on: Basic Safety, Intro. to Basic Rigging, and Intro. to Materials Handling. 2.) 80% of students will pass performance profiles for NCCER Core Curriculum modules on: Basic Safety, Intro. to Basic Rigging, and Intro. to Materials Handling. 3.) 80% of students will complete OSHA 30-Hour Construction Safety Course upon completion of OSHT 1305

PLO#2 **Students will be able to apply, assess, and demonstrate management and communication skills required to complete a construction project.**	1.) Comprehensive Final Exam in CNBT 2342-Construction Management I on the topics of oral and written communication with multiple audiences, leadership and motivation, problem solving, and decision making as applied to the construction industry. 2.) Employer Survey	1.) 80% of students will score a 70% or higher on the comprehensive final exam in CNBT 2342. 2.) Average employer rating of 3.0/5.0 in the Likert Scale
PLO#3 **Students will be able to demonstrate entry level competence in planning, analyzing, decision-making and problem-solving in construction to appropriately estimate costs and to successfully apply conventional scheduling skills to a construction project.**	1.) Comprehensive Final Exam in Estimating I 2.) Comprehensive Exam in Project Scheduling 3.) Employer Survey	1.) 80% of the students will score a 70% or higher on the exam 2.) 80% of the students will score a 70% or higher on the exam 3.) Average employer rating of 3.0/5.0 in the Likert Scale
PLO#4 **Students will be able to identify construction materials, describe the uses of those materials, and demonstrate the appropriate manner of assembly.**	1.) A Term Project used to evaluate each student's individual ability to assemble materials utilizing proper fastening systems and safe installation procedures in CNBT 1311-Materials and Methods I 2.) Final Exam that will test student's ability to identify materials and appropriate use of those materials in CNBT 2304-Materials and Methods II	1.) 80% of the students will score a 70% or higher on the Materials assembly project in CNBT 1311. 2.) 80% of the students will score a 70% or higher on the Final Exam in CNBT 2304.

Table 4. SLO Assessment Instrument and Criteria

Level of Knowledge	SLO #	SLO DESCRIPTION	DIRECT ASSESSMENT LOCATION (DA)	ASSEMENT INSTRUMENT	ASSESSMENT CRITERIA
APPLY	1	Apply effective communication, both orally and in writing.	CNBT 1346	Mid Term Report & Presentation	70% of class scores 70% or +
	2	Apply quantity takeoff skills for bidding or budgeting purposes on a construction project.	CNBT 1346	Concrete Estimating Project	70% of class scores 70% or +
	3	Apply the aptitude to schedule a basic construction project.	CNBT 1359	Final Scheduling Project	70% of class scores 70% or +
	4	Apply current technology related to the construction industry.	CNBT 1359	MS Project Project Schedule	70% of class scores 70% or +
	5	Apply the interpretation of construction documents (contracts, specifications, and drawings) used in managing a construction project.	CNBT 1300	Final Exam	70% of class scores 70% or +
	6	Apply basic principles of construction accounting.	CNBT 2344	Quiz	70% of class scores 70% or +
	7	Apply basic surveying techniques used in building layout.	CNBT 1315	Test	70% of class scores 70% or +
UNDERSTAND	8	Understand basic principles of ethics in the construction industry.	CNBT 1342	Quiz	70% of class scores 70% or +
	9	Understand the fundamentals of contracts, codes, and regulations that govern a construction project.	CNBT 1342	Final Presentation	70% of class scores 70% or +
	10	Understand basic construction methods and materials.	CNBT 1311	Laboratory Project	70% of class scores 70% or +
			CNBT 2304	Final Exam	70% of class scores 70% or +
	11	Understand basic safety hazards on a construction site and standard prevention measures.	OSHT 1305	NCCER Module Exam, Performance Profile	70% of class: score 70% or + on exam; earn "Pass" on Perf Profile
	12	Understand the basic principles of structural design.	CNBT 1311	Quiz	70% of class scores 70% or +
	13	Understand the basic principles of mechanical, electrical and plumbing systems.	CNBT 2340	Unit Test	70% of class scores 70% or +

TABLE 5. ASSESMENT REVIEW CYCLE

	YEAR 1			YEAR 2			YEAR 3		
Instructor level - data collection for courses (SLO)	FL 2021	SP 2022	SU 2022	FL 2022	SP 2023	SU 2023	FL 2023	SP 2024	SU 2024
CNBT 1280									
CNBT 1300									
CNBT 1311									
CNBT 1315									
CNBT 1342									
CNBT 1346									
CNBT 1359									
CNBT 2304									
CNBT 2310									
CNBT 2340									
CNBT 2342									
CNBT 2344									
OSHT 1305									
Alumni Survey									
Employer Survey									
Program Learning Outcome (PLO)									
Program Objectives and Goals									
Instructor level - result summary									
Discipline Lead analyze, evaluate, and summarize findings									
Discipline Lead disseminate and meet with faculty									
Present findings to Director									
Develop plan of action									
Implement action									

D.Program Outcome and Result

The result of the evaluation and assessment will be used to guide the direction of the program in terms of improvement, expansion, upgrading of equipment, curriculum revision, teaching methodology, and other factors that relate to the betterment of the AAS Construction Management program.

The intent of the assessment is to identify weaknesses and then to implement changes to improve the curricular offering. These changes could impact several aspects of the program: curriculum, staffing, facilities, internal processes, and intended student learning outcomes. At this point in the continuous improvement cycle, the planned changes should be implemented. In some cases, the changes are easy to implement, while in other instances, the proposed changes will have to be implemented over a period or through a series of steps. The

implemented changes should be monitored to determine whether the changes made have the desired effect(s). One way of achieving this is to use the same assessment plan as used in the previous cycle and compare the actual data to the intended data. Any gaps should be studied carefully to determine the underlying cause. In situations when the outcomes have been met, the action might be to continue monitoring the outcome to ensure quality.
The report will be shared with the faculty members and the administration. The report will also be available to the industry advisory board members and alumni.

E. Program Action and Implementation

E.1 Plan of Action

The intent of assessment is to identify weaknesses and then to implement changes in an effort to improve the program. These changes could impact a number of aspects of the program: curriculum, staffing, facilities, internal processes, and intended student learning outcomes.

At this point in the continuous improvement cycle, the planned changes should be implemented. In some cases, the changes are easy to implement, while in other instances, the proposed changes will have to be implemented over a period of time or through a series of steps. The implemented changes should be monitored to determine whether or not the changes made have the desired effect(s). One way of achieving this is to use the same assessment plan as used in the previous cycle and compare the actual data to the intended data. Any gaps should be studied carefully to determine the underlying cause. In situations when the outcomes have been met, the action might be to continue monitoring the outcome to ensure quality.

E.2 Dissemination

The report will be shared with the faculty members and the administration. The report will also be available to the industry advisory board members and alumni.