PROGRAM STUDENT LEARNING OUTCOMES (P-SLOS):HOW DO YOU MEASURE SUCCESS?

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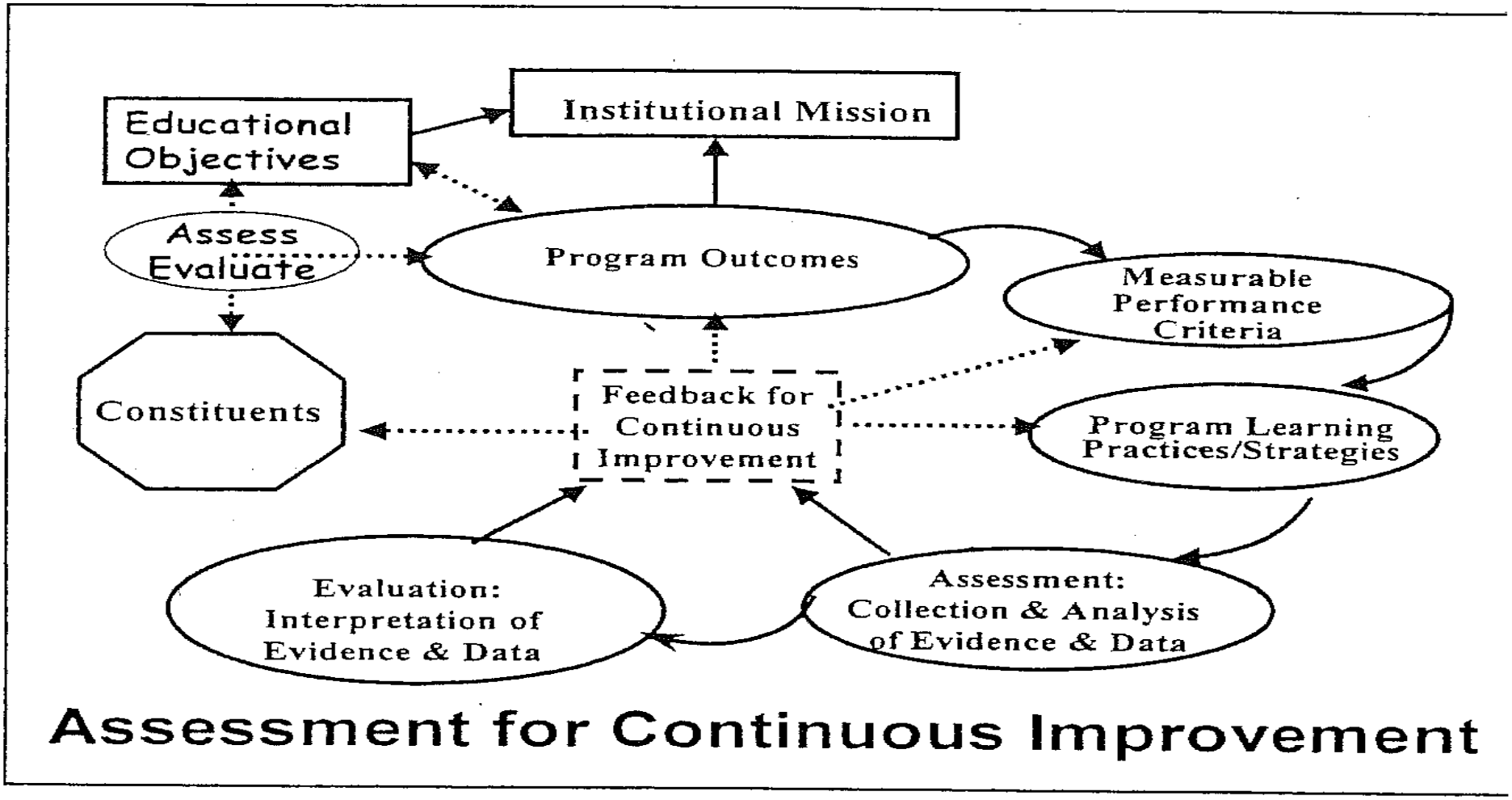
PRESENTATION CONTEXT

Institutions accreditation and reaccreditation require the continuous assessment of educational programs. Each program offered must have an assessment with documented results. Evidence must be given that the results are applied to the further the development and improvement of the program. The assessment process must demonstrate that the outcomes align with the mission of the institution and the stated outcomes of the programs are continuously measured.



Assessment for Continuous Improvement

WHO ARE OUR INSTITUTION'S CONSTITUENCIES; WHAT ARE THE EXPECTATIONS OF EACH; HOW & WHEN WILL EACH BE SATISFIED; WHAT RELATIVE PRIORITY DO CONSTITUENCIES HOLD; HOW WILL CONSTITUENCIES BE INVOLVED IN THE IMPROVEMENT OF OUR INSTITUTION'S LEARNING OUTCOMES (ILOS) & PROGRAM LEARNING OUTCOMES (P-SLO)?

Students, Parents, Employers, Faculty,

Business & Industry Advisors, Accrediting Agencies

Administration- Department, Colleges and Universities.

Government-Local, State, Federal

Transfer Colleges and Universities

Donors and contributors

A MODEL HIERARCHY`

NECESSARY DEFINITIONS

Program Educational Objective – statements describing expected achievements of graduates in the early years of their careers after graduation as a result of their educational preparation.

Program Outcomes – statements describing what students are expected to know and do at the time of graduation. These relates to skills, knowledge and behaviors that students acquire in the program.

Program Performance Criteria (Indicators) – Specific measureable statements that identify the performance required to meet the expected outcome that is confirmable by evidence.

Assessment – process of gathering and discussing information from multiple and diverse sources in order to develop a deep understanding of what students know, understand and can do with their knowledge as a result of their educational experiences. The process culminates when assessment results are used to improve subsequent learning (Huba & Freed,2000)

Evaluation – processes for interpretation of data and evidence from assessment practice that (a) determine the extent program outcomes or educational objectives are achieved or (b) result in decisions and actions to improve program.

FOCUS OF PRESENTATION:

Most common misconceptions about program assessment.

The four main purpose (mission) of program assessment.

Defining Effective program learning outcomes (P-SLO)

Characteristics of effective program assessment

Developing an effective program assessment plan.

Checklist for identifying program assessment needs

Inventory of assessment methods (Validity & Reliability of Instruments/Methods)

MOST COMMON MISCONCEPTIONS ABOUT PROGRAM ASSESSMENT

MISCONCEPTION 1: The results of assessment will be used to evaluate faculty performance.

Nothing could be further from the truth. Faculty awareness, participation and ownership are essential for successful program assessment, but assessment result should never be used to evaluate or judge individual faculty performance. The results of assessment are used to improve programs.

MISCONCEPTION 2: Our program is working well, our students are learning; we don't need to bother with assessment.

The primary purpose of program assessment is to improve the quality of educational programs by improving student learning. Even if you feel that the quality of your program is good, there is always room for improvement. Various accreditation bodies mandate conducting student outcomes assessment and use the results to improve programs. To not conduct assessment is not an option.

CONT.

Misconception 3: We will assign a single faculty member to conduct the assessment. Too many opinions would only delay and hinder the process.

While it is a good idea to have one or two faculty member head the assessment process for the department, it is really important and beneficial to have all faculty members involved so that they can bring different perspectives and ideas for improving programs.

MISCONCEPTION 4. We will come up with an assessment plan for this year and use it every year thereafter.

For program assessment to be useful , it must be an on-going and continuous process. Just as your program should be improving, so should your assessment plan and measurement methods. Always look for better ways to measure student learning and other program outcomes. Your assessment plan should be continuously reviewed and improved.

THE WHO? , WHAT? AND WHY? OF ASSESSMENT

LEVEL OF ASSESSMENT- Who are we assessing?

- Individual (PLACEMENT): When we give “gatekeeper” tests – Placement test, Admission test, vocational aptitude test, other diagnostic tests, comprehensive exams, certification exams

- Group (CAMPUS & PROGRAM EVALUATION): As in individual assessment results, this may be aggregated to serve program outcome assessment needs, Program Reviews, Retention Studies, Alumni Studies, “Value-added” Studies

THE OBJECT OF ASSESSMENT- THE WHAT?

What are we Assessing?

- Knowledge
- Skills
- Attitude & Value
- Behavior

PURPOSES OF PROGRAM ASSESSMENT

1. To improve learning and teaching– The assessment process should provide feedback to determine how the program can be improved.

2. To inform- The assessment process should inform faculty and other decision-makers of the contributions and impact of the program

3. To prove -The assessment process should encapsulate and demonstrate to students, faculty, staff and outsiders what the program is accomplishing.

4. To support – The assessment process should provide support for campus decision-making activities such as program review and strategic planning, as well as external; accountability bodies such as accrediting agencies.

SIMILARITIES BETWEEN CLASSROOM & PROGRAM ASSESSMENT

Can be either Formative and or Summative

Intended learning outcomes – Faculty collectively work as a team to develop what students should know, understand and be able to do with their knowledge when they graduate.

They measure

- knowledge
- skills
- behavior
- attitudes and
- Values

EFFECTIVE PROGRAM ASSESSMENT SHOULD ANSWER THE FOLLOWING QUESTIONS:

What are you trying to do in this program – what student should be able to do with their knowledge when they graduate from this program?

What does the degree or certificate that we award mean to employers or institution students transfer to?

How can we prove it? i.e. what evidence can you show to document this?

How well are we as a department/ program doing?

Using the answers to the above questions, how can you improve what you are doing?

What and how does the program contribute to the development and growth of the students?

How can students learning in the program be improved?

DEVELOPING AN EFFECTIVE PROGRAM ASSESSMENT PLAN

Step 1: Clearly define the goals and the intended student learning outcome for the program. (Must be specific and measureable)

Examples:

- to teach students engineering principles (poor, has no program graduate expected behavior)
- To adequately prepare students (better but does not explain the expectation of graduates)
- These are BEST:
- To successfully prepare students for transfer to 4 year colleges.

CONT.

- to have students graduate from the program with the necessary skills and knowledge to succeed in ____ industry.
- To prepare students to be contributing citizens (GE)
- Program goals must concur or align with the college mission.

ASSESSMENT METHODS

Assessment measure should include both direct and indirect assessment of student learning to provide accurate and useful information for making decisions about learning.

(Palomba & Banta,1999)

Written Survey and Questionnaire

- Exit and other Interviews
- Standardized Exams
- Locally Developed Exams – data from agreed upon embedded questions.
- Capstone Course or a Project
- Focus Groups
- Portfolios
- Simulations
- Performance Appraisal
- External Examiner
- Oral Exam
- Behavioral Observation

DIRECT ASSESSMENT MEASURES

Direct measures provide for the direct examination or observation of student knowledge or skills against measurable learning outcomes

Examples:

- Projects, Products, Papers, Theses, Exhibitions
- Case Studies, Clinical Evaluations, Performances
- Exit Interviews
- Standardized Exams
- Locally developed Exams, oral or written
- Portfolios
- Simulations

NOTE: In all of these Assessments we ask students to demonstrate what they know or can do with their knowledge

- Some of the above require the use of Rubrics (Scoring based on subjective judgment using criteria we developed.

INDIRECT MEASURES

Indirect measures of student learning ascertain the perceived extent of value of learning experiences. They include self-reporting measures such as-

Examples:

- Written Graduate Surveys and Questionnaires
- Employer Surveys / Survey of faculty of colleges/ universities student transferred to.
- Exit and other interviews
- Archival records
- Focus Groups

NOTE: In the above assessment cases Respondents share their perceptions about what graduates know or can do with their knowledge

SELECTING ASSESSMENT METHODS AND CRITERIA FOR DETERMINING STUDENT SUCCESS

When selecting assessment method it is important to be aware of the Validity and Reliability of the assessment method.

VALIDITY:

- is the assessment method appropriate for measuring what you want to measure?
- Does the selected method cover the program objectives?
- Does it match the desired level of complexity?
- Can the results be generalized, and to what extent?
- Will we gain information that will be useful in improving program?

Note: Each assessment method has advantages and disadvantages, therefore use more than one method.

RELIABILITY: A RELIABLE ASSESSMENT METHOD IS ONE THAT YIELD CONSISTENT RESPONSES OVER TIME. NOTE THREE SOURCES OF POSSIBLE ERRORS -

- The respondents, the instrument, assessment method and the administration.
- Selected method should be one that provides dependable, consistent results time after time.
- It should be clearly worded NOT ambiguous.
- The instructions and time allotted for completing should be consistent across programs or departments.

INVENTORY OF ASSESSMENT METHODS

Direct Assessment Methods (Performance Based)

Examples

Capstone Course; Capstone project; Case Studies; classroom Assessment Methods.

- They can be useful tools for program-level assessment
- The assessment of important program learning outcomes can be integrated into capstone course or project.
- Assessments structured into the capstone experience can include one or more of the following: exams, integrative papers or projects, research projects, reflective essay, oral reports, surveys and focused groups. They can be senior seminars and graduates demonstrate their competence in several areas and their ability to synthesize learning in their major with product or performance.
- Projects are generally judged by a panel using pre-selected scoring rubric for the purpose of identifying where to improve the program.

ADVANTAGES OF CAPSTONE COURSES OR PROJECTS

They can provide meaningful data that permit meaningful reflection on the program.

Seniors are well into the curriculum and can reflect on their learning experience and the curriculum.

These assessment methods provide seniors with an opportunity to provide meaningful feedback when they believe that their opinions are respected and valued.

They give student feedback on their accomplishments and student responsibility is encouraged.

CONT.

They can be used for both student evaluation (assesses senior' overall ability and knowledge gained from the program and program evaluation (annual, continuous evaluation of curriculum from student feedback).

They support program coherence

They provide the opportunity to create a local assessment instruments that can be used in conjunction with other methods, such as surveys and standardized tests.

DISADVANTAGES OF CAPSTONE COURSE, PROJECTS, ETC.

Student performance may be impaired due to "high stakes" of the project.

Successfully completing the capstone course may be a requirement for graduation which may generate some anxiety for both faculty and students.

COURSE-EMBEDDED QUESTIONS AND ASSIGNMENTS

The test is typically a locally developed test.

They are predetermined questions that measure student learning in specific areas

They cab be used to assess students growth in discipline-specific knowledge, skills or attitudes using the same set of embedded questions in tests for different courses throughout the curriculum.

PORTFOLIOS

Portfolios are a collection of samples of student work.

Content vary widely (collection of photographs, written assignments, collection of computer programs, etc.)

An electronic portfolio is one in which electronic storage and access of the sample of student work is facilitated.

SCORING PORTFOLIOS

A rubric may be used to evaluate a collection of student work.

A rubric is an assessment tool used to specify scoring criteria for a paper, project, performance etc.

A rubric is most effective when it is shared with students prior to the start of the assessment assignment. All key element of an assignment and their weighting on the total score are identified and necessary training are offered to evaluators.

A committee or designated group of faculty members or external trained experts may review and evaluate portfolio for the purpose of identifying where improvements in the program are needed.

SENIOR ASSIGNMENT

Senior assignment is usually a comprehensive assignment of key knowledge and skills.

The assignment usually reflect what students know or can do as well as the attitudes that they hold regarding a specific area of the program.

A rubric is used to score this kind of .

assignment. Rubric should be shared with students prior to use.

ESSAYS

Essays may be designed to measure specific learning objectives, e.g. writing skills, appreciation of art, appreciation of diversity, etc.

These essays are scored using rubrics established by panel of faculty.

The rubrics may be reviewed for the purpose of identifying elements needing more emphasis in the academic program.

DIRECT OBSERVATION

A panel of individuals or experts in the field and or supervisors can score students' performance in practice e.g. (music, communications, clinical).

Panel may include members of faculty, advisory board members, experts in the field, etc.

Scoring rubrics are often used to improve inter-rater reliability.

STANDARDIZED EXAMINATION AND TESTS

Available nationally with standardized scores and sub-scores.

They can be sued to determine where to improve the program. (NCLEX, ETS Exams, Psychology Area Concentration Achievement Test (PACAT)etc. , ATMAE)

Local Tests: Designed by members of the academic program to measure student achievement of specific learning outcomes.

PRE-POST TESTS

Locally developed tests administered before and after a specific leaning experience to measure students' level of knowledge, skills, behavior ad attitudes

They can be used to assess learning experience in a program, course or unit.

Post-test scores are compared to pre-test scores to determine if students have learned specific information or concept.

DESCRIPTION OF INDIRECT ASSESSMENT METHODS

Institutional Level (Alumni Surveys, Employer surveys, etc.): Locally or nationally developed surveys focus on evaluating satisfaction with academic programs service experience, perceived learning outcomes, plans for further education and employment, further, etc. education

The use of surveys has advantages and disadvantages

ADVANTAGES OF USING SURVEYS

Can be used for getting responses from a large group .

Can be used as a tool to understand students' academic needs and their perception of their educational experience.

They can be used to determine students' satisfaction with the services offered at the college as well as program-specific services such as advising, etc.

DISADVANTAGES OF USING SURVEYS

Surveys are used to gather data regarding the perceptions of individuals about personal experience.

In most instances surveys methods does not provide direct evidence of knowledge, skills and abilities. Therefore it is best to use a direct measurement approach as well.

SUMMARIZING COLLECTED DATA

Collected data should be summarized clearly and concisely on what was assessed.

Data measuring student learning should be organized into categories that both match educational outcome and allow faculty to identify areas for change.

Should be able to identify areas of strengths and weakness for students.

CONT.

Determining weak areas allow a program to target those areas for improvement.

Use data from direct assessment of program and department to improve areas of support (advising, computer assistance, tutoring etc.)

Use data to evaluate curriculum mapping

Use data to evaluate assessment mapping

LINKING RESULTS TO PRACTICE

Development of Curriculum Mapping

Linking curriculum content/pedagogy to knowledge, practice and determination of learning outcomes

DOCUMENT CHANGES MADE :

Changes to Assessment plan

- revision of intended learning outcome statements.
- revision of measuring approaches
- collection of and analysis of additional data and information
- changes to data collection methods

Changes to curriculum

- changes in pedagogical practice

Revision or enforcement of pre-requisites

Revision of course sequence

Revision of course content

Addition of courses

-deletion of courses

CONT.

Changes to Academic processes

- modification of frequency or schedule of course offerings.
- changes in personnel
- implement additional training
- revision of advising standards or processes
-revision of admission criteria.

Faculty should develop recommendation for Change.

DEVELOP PLAN TO MONITOR CHANGES AND COMPARE DATA WITH PREVIOUS YEARS' DATA

The continuous improvement cycle should be implemented.

The implemented changes should be monitored to determine whether or not the changes made have the desired effects.

SAMPLE PROGRAM OUTCOME ASSESSMENT

Student Outcomes Assessment Worksheet

DRAFT
1-12-06

Academic Program: Electronic Engineering Technology (Basic or Robotics/Automated Systems)

I	II	III	IV	V
College Mission Statement	Applicable Program Goal Statement	Criteria for Determining Student Success	Data • Sources • Tools for Collection • Procedures for Collection	Responsibility for Collecting Data
The mission of the Community College of Allegheny County is to make quality education affordable and accessible to the community, to provide leadership in workforce training, and support the economic development of the region. CCAC's Institutional Goals: ➢ To provide access to education without the limits of time, place, and distance. ➢ To make four-year degrees more accessible by providing quality transfer programs. ➢ To provide career programs that meet the needs of students and employers. ➢ To provide opportunities for personal growth and cultural enrichment. ➢ To deliver support	1) Students in the Electronic Engineering Technology Program will successfully demonstrate their ability to: a) Communicate orally and write technical reports, b) Solve scientific, mathematical and electronic engineering problems, c) Apply quantitative and qualitative problem solving techniques to circuit analysis and diagnostic problems, and d) Have developed an understanding of and ability to use state-of-the-art test equipment.	1) Pre-testing of basic math and science ability before enrolling a new student in technical classes. 2) End of semester faculty survey on student proficiency in mathematical and scientific knowledge in each class. 3) Evaluation of mathematical and scientific knowledge from an average student's work (all assignments, lab reports and tests) in every class by an independent agency once every two years. 4) Student performance in a comprehensive final exam in EET area conducted prior to graduation or development	1) Pre-enrollment math placement test by outcomes assessment center. 2a) Computer survey of faculty created by EGR Technology Dept. 2b) Computer survey of student at the end of each semester and the semester prior to graduation on mathematical/scientific knowledge acquired. 3) Quizzes, tests, lab assignments, assessment results from accrediting agency. 4) Proficiency exam result as created by advisory committee or review and evaluation of final	1) College Assessment Center/Counseling Dept. 2) Faculty/EGR Technology Dept. 3) EGR Technology Dept in conjunction with accrediting agency. 4) EGR Technology Dept.

VI **Assessment Cycle**	VII **Data Analysis**	VIII **Interpretation of Assessment Results**	IX **Use of Results**
1) Annually	1) Computer assisted test developed by EGR Technology Dept. Score tabulated in specific format and entered in outcomes assessment data base to be maintained by the college.	1) EGR Technology Dept and respective advisory committee compare results with expected outcomes and identify causes of improvement or decline in student proficiency in math and scientific knowledge prior to enrollment in program.	1) EGR Technology Dept a respective advisory commi recommend steps needed t improve results.
2a) Annually 2b) Annually	2) Computer assisted survey of faculty and students. Results entered in outcomes assessment data base for analysis.	2) EGR Technology Dept and respective advisory committee compare results with expected outcomes and identify gaps in expected outcomes.	2) EGR Technology Dept respective advisory comm recommend steps needed t improve results.
3) Once in three years	3) Accrediting agency evaluation data collected by EGR Technology Dept entered in outcomes assessment data base for analysis.	3) EGR Technology Dept and respective advisory committee compare results with expected outcomes and identify gaps in expected outcomes.	3) EGR Technology Dept respective advisory comm recommend steps needed t improve results.
4) Annually	4) Computer assisted test results collected by EGR Technology Dept entered in outcomes assessment data base for analysis.	4) EGR Technology Dept and respective advisory committee compare results with expected outcomes and identify gaps in expected outcomes.	4) EGR Technology Dept respective advisory comm recommend steps needed t improve results.

I	II	III	IV Data • Sources • Tools for Collection • Procedures for Collection	V
College Mission Statement	Applicable Program Goal Statement	Criteria for Determining Student Success		Responsibility for Data
	2) Students or graduates in Electronic Engineering Technology will be skillful in current technical methods used in industry: a) Apply quantitative and qualitative problem solving techniques to circuit analysis and diagnostic problems. b) Set up (assemble) electrical system and make measurements using appropriate test equipment. c) Fault diagnose equipment. d) Demonstrate usage of computer to calculate solutions and project laboratory results. e) Demonstrate ability to communicate orally and write technical reports.	1) Percent of students receiving employment within six months of graduation.	1) Mail survey to individual students during program and six months after graduation.	1) College Assessm Center/Institutional Research.
		2) Employer survey on student technical skills in respective area during first three months.	2) Employer survey created by advisory committee.	2) College Assessm Center/Institutional Research.
		3) Employer survey on currently employed students on enhancement of their technical skills.	3) Employer survey created by advisory committee.	3) College Assessm Center/Institutional Research.
		4) Employer survey on co-op student skills on technical methods.	4) Employer survey created by co-op advisory committee.	4) College Assessm Center/Institutional Research.
		5) Number of currently employed students receiving career enhancement due to courses or degree completed during past year.	5) Mail survey to individual students.	5) College Assessm Center/Institutional Research.
		6) Student proficiency in computer use for technical applications.	6) Computer skills assessment in final EET exam.	6) Faculty/Enginee Technology Dept.
		7) Student performance in a comprehensive final exam in EET area conducted prior to graduation.	7) Assessment of student skills in final EET exam.	7) Faculty/Enginee Technology Dept.

VI Assessment Cycle	VII Data Analysis	VIII Interpretation of Assessment Results	IX Use of Results
) Annually	1) Survey results collected by college entered in outcomes assessment data base for analysis.	1) EGR Technology Dept and respective advisory committee compare results with expected technical skills and identify causes contributing to deficiency.	1) EGR Technology Dept and respective advisory committee determine if steps are needed to furth improve results.
) Annually	2) Survey results entered in outcomes assessment data base for analysis.	2) EGR Technology Dept and respective advisory committee compare results with expected technical skills and identify gaps in expected outcomes.	2) EGR Technology Dept and respective advisory committee determine if steps are needed to furth improve results.
) Annually	3) Survey results entered in outcomes assessment data base for analysis.	3) EGR Technology Dept and respective advisory committee compare results with expected technical skills and identify gaps in expected outcomes.	3) EGR Technology Dept and respective advisory committee determine if steps are needed to furth improve results.
) Annually	4) Survey results entered in outcomes assessment data base for analysis.	4) EGR Technology Dept and respective advisory committee compare results with expected technical skills and identify gaps in expected outcomes.	4) EGR Technology Dept and respective advisory committee determine if steps are needed to furth improve results.
) Annually	5) Survey results entered in outcomes assessment data base for analysis.	5) EGR Technology Dept and respective advisory committee compare results with expected technical skill and identify gaps in expected outcomes.	5) EGR Technology Dept and respective advisory committee determine if steps are needed to furth improve results.
) Annually	6) Test results entered in outcomes assessment data base for analysis.	6) EGR Technology Dept and respective advisory committee compare results with expected technical skills and identify gaps in expected outcomes.	6) EGR Technology Dept and respective advisory committee determine if steps are needed to furth improve results.
) Annually	7) Test results entered in outcomes assessment data base for analysis.	7) EGR Technology Dept and respective advisory committee compare results with expected technical skills and identify gaps in expected outcomes.	7) EGR Technology Dept and respective advisory committee determine if steps are needed to furt improve results.

I	II	III	IV	V
College Mission Statement	Applicable Program Goal Statement	Criteria for Determining Student Success	Data • Sources • Tools for Collection • Procedures for Collection	Responsibility for C Data
	3) Graduates of Electronic Engineering Technology discipline will be prepared to perform tasks of an entry level Electronic Engineering Technician. Students who have successfully completed one or more courses in EET will have enhanced ability to perform the tasks of an entry level engineering technician.	1) Percent of graduates receiving at least entry level employment in a related field within six months of graduation.	1) Mail survey to individual students during program and six months after graduation.	1) College Assessm Center.
		2) Employer survey on student preparedness in performing entry level tasks during first three months of employment.	2) Employer survey created by advisory committee.	2) College Assessm Center.
		3) Percent of currently employed students receiving enhancement in career within a year of graduation or after taking a particular course.	3) Employer survey created by advisory committee.	3) College Assessm Center.
		4) Percent of graduates passing NICET examination on first try.	4) NICET exam results.	4) NICET and Engi Technology Dept.
		5) Student performance in a comprehensive final exam in EET area conducted prior to graduation or development of final project/portfolio.	5) Assessment of student skills in final EET exam or review and evaluation of final project/portfolio.	5) Faculty/Enginee Technology Dept.

VI **Assessment Cycle**	VII **Data Analysis**	VIII **Interpretation of Assessment Results**	IX **Use of Results**
1) Annually	1) Survey results collected by college assessment center entered in outcomes assessment data base for analysis.	1) EGR Technology Dept and respective advisory committee compare results with expected student preparedness and identify causes contributing to deficiency.	1) EGR Technology Dept a respective advisory commit determine if steps are neede further improve results, suc program planning, budgetir scheduling, course offering developing, instruction met etc.
2) Annually	2) Survey results entered in outcomes assessment data base for analysis.	2) EGR Technology Dept and respective advisory committee compare results with expected student preparedness and identify causes contributing to deficiency.	2) EGR Technology Dept a respective advisory commit determine if steps are neede further improve results.
3) Bi-annually	3) Survey results entered in outcomes assessment data base for analysis.	3) EGR Technology Dept and respective advisory committee compare results with expected student preparedness and identify causes contributing to deficiency.	3) EGR Technology Dept a respective advisory commit determine if steps are neede further improve results.
4) Bi-annually 5) Annually	4) NICET or other relevant certification exam passing results entered in outcomes assessment data base for analysis.	4) EGR Technology Dept and respective advisory committee compare results with expected student performance and identify causes contributing to deficiency.	4) EGR Technology Dept a respective advisory commit determine if steps are neede further improve results.
	5) Test results entered in outcomes assessment data base for analysis.	5) EGR Technology Dept and respective advisory committee compare results with expected student performance and identify causes contributing to deficiency.	5) EGR Technology Dept a respective advisory commi determine if steps are need further improve results.

I	II	III	IV	V
College Mission Statement	Applicable Program Goal Statement	Criteria for Determining Student Success	Data • Sources • Tools for Collection • Procedures for Collection	Responsibility for C Data
	4) Electronic Engineering Technology graduates will be adequately prepared for transfer to respective bachelors program in order to continue their education.	1) Number of students accepted as transfer students in four-year degree program.	1) Mail survey to individual students.	1) College Assessm Center/Institutional Research.
		2) Number of students taking higher level classes at a four-year institution.	2) Survey of successive transfer institutions.	2) College Assessm Center/Institutional Research.
		3) Number of graduates eventually receiving bachelors degree in the area of study.	3) Survey of successive transfer institutions.	3) College Assessm Center/Institutional Research.
		4) Grade Point Average of transfer students during the first year of study in a bachelors program.	4) Survey of successive transfer institutions.	4) College Assessm Center/Institutional Research.
		5) Number of transient students who continue their course work after successfully completing one engineering technology course.	5) Number of registering students identified by college registration office.	5) Student record.

VI Assessment Cycle	VII Data Analysis	VIII Interpretation of Assessment Results	IX Use of Results
1) Annually	1) Survey results collected by college assessment center entered in outcomes assessment data base for analysis.	1) EGR Technology Dept and respective advisory committee compare results with expected trend and identify causes contributing to deviation.	1) EGR Technology Dept an respective advisory committ determine if steps are needed further improve results, such program planning, budgeting scheduling, course offering, developing, instruction meth etc.
2) Annually	2) Survey results entered in outcomes assessment data base for analysis.	2) EGR Technology Dept and respective advisory committee compare results with expected trend and identify causes contributing to deviation.	2) EGR Technology Dept an respective advisory committ determine if steps are needed further improve results.
3) Annually	3) Survey results entered in outcomes assessment data base for analysis.	3) EGR Technology Dept and respective advisory committee compare results with expected trend and identify causes contributing to deviation.	3) EGR Technology Dept an respective advisory committ determine if steps are needed further improve results.
4) Bi-annually	4) Survey results entered in outcomes assessment data base for analysis.	4) EGR Technology Dept and respective advisory committee compare results with expected trend and identify causes contributing to deviation.	4) EGR Technology Dept an respective advisory committ determine if steps are needed further improve results.
5) Annually	5) Results entered in outcomes assessment data base for analysis.	5) EGR Technology Dept and respective advisory committee compare results with expected trend and identify causes contributing to deviation.	5) EGR Technology Dept an respective advisory committ determine if steps are needed further improve results.

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