CRITERION 4. CONTINUOUS IMPROVEMENT

The EESP assesses regularly and evaluate the extent to which the student outcomes have been attained. The assessment of the student outcome is generally divided into two methods, i.e. direct and indirect assessment method. The description of the methods are given as follows.

Direct Assessment.
In general the direct assessment method is made during study period, which is divided into two main parts, i.e.:

1. Examinations, which are divided into:
    a. Course exams. These exams are part of grading systems of student's works in each course.
    b. Lab exams, These exams are part of grading systems of student's work in each lab work.
    c. Final examination bundled in an Undergraduate Final project presentations.
2. Student's Outcomes Portfolios. Besides the student's grades for all courses, which are presented in student's transcript after finishing their student, every student is also encourage to enrich his/her portfolio. The student's portfolio is described concretely in single or multiple papers. Different with student's transcript that gives student performance in grading (quantitative) points, the student portfolio describes the student skills achievement qualitatively. In the portfolio, the student experiences in design contests or competitions, in national and/or international conferences as presenter or passive participant, including their achievements in those events, obtained awards or honors, etc. are also described.

In the first semester, each student is given a skill map (single paper), presenting some skills that the student wish or expect to master after completing his/her BSEE degree. Each student can select until 3-5 skills with a given priority number. The given skills are stated for example that "he/she will be able to design a component of an electric vehicle". It is not necessary that the given skills sound similar with the student outcomes, but they can implicitly represent or reflect the student outcome. The EESP collects then the skill map signed by the student, and let the student keep a copy for his/her archive. In the last Semester, this skills map is opened again and the student expectations shown in the skills map are cross checked with the student portfolio that he/she will have made upon completing his/her BSEE study.

During their study-period, the student outcomes will be assessed. Four skills are given to students in accordance with the program educational objectives of the EESP (Criterion 3), i.e. basic science skills, professional skills, entrepreneur skills and research skills. The student outcomes related to their technical knowledge (professional skills) to solve an engineering problem can be achieved after Semester 6 (third year). Therefore, the professional skills can be measured after the third year. The research skills of a student can be assessed in the last semester (Semester 8) during completing his/her undergraduate final project.

At least once a year or once per semester, the EESP opens a local student conference and exhibition (SCE). In the SCE, some students will have chance to demonstrate their communication or presentation skill, to show their scientific writing skill, and to expose their undergraduate projects.

All students, teaching staff and the parents and/or family members of the student will be invited to attend the SCE.

Indirect Assessment.
The EESP indirect assessment is divided into three methods, i.e.:

a. Senior Exit Surveys
b. Alumni Surveys using google form or an existing social media (LinkedIn as our preference)
c. Employer Surveys through a purpose sampling industrial advisory committee meetings

The indirect method is made to know the extent to which: 1) a fresh graduate satisfies the EESP curriculum, through the Senior Exit Surveys, 2) the employers satisfies the performance of our alumni, through the purpose sampling industrial advisory committee meeting, and 3) the existence of our alumni that have established their own company. Point 2) above is related to both, the Alumni and Employer Surveys, while Point 3) is related to the Alumni Surveys.

To gather the data of our alumni, every fresh graduate is asked to register on a social media. In this case, we select LinkedIn as our preference. The fresh graduated alumni is asked to link his/her account to the EESP alumni account and continuously update their last employment status. The EESP will then collect the alumni data from the social media put them in the EESP alumni database.

At least once a year, the EESP selects or samples an employer to host an industrial advisory committee meeting. The industrial advisory committee are the EESP staff and staff from industries or employers in which the EESP Alumni are employed.

A. Student Outcomes

Table 4-1 presents a listing of skills related to the program education objectives, which are crosschecked with the direct and indirect assessment methods. The complete student outcomes have been presented in Criterion 3, Section A.

Table 4-1 Skill-Assessment map.

Ver. 1.0	Assessment/Evaluation Methods															
	Indirect			Direct												
EESP Program Outcome	Senior Exit Surveys	Alumni Surveys	Employer Surveys	Math, Physics exams	Advanced Math, Physisc, Linear Systems exams	Numerical methods, comp. progr. exams	Basic electronics, telec, power eng. Exams	Env. sciences, Princ. of Maritime science exams	Dig. Sys, Electric, Electronics Labs	Integrated Electronics, Microprocessors Labs	Selected Elective course exams	Engineering Economics, Entrepreneurship exams	Concepts of Sci, Techn. & Arts, maritime	Lab Works exams, Practical (on-ob) training	Research Method and Scientific Writing exams	Final Examination
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Basic Science Skills																
Basic Sciences	x	x	x	x												
Problem Modeling	x	x	x		x	x										
Analytical Skills	x	x	x			x	x									
Critical thinking	x	x	x					x								
Professional Skills																
Software Tools	x	x	x				x		x	x	x					
Design Skills	x	x	x						x	x	x					
Experiment Skills	x	x	x						x	x	x					
Engineering Knowhow	x	x	x						x	x	x					
Entrepreneur Skills																
Innovations	x	x	x								x					
Leadership	x	x	x									x				
Entrepreneurship	x	x	x									x				
Global Insights	x	x	x										x			
Research Skills																
Teamwork skills	x	x	x											x		
Scientific Writing	x	x	x												x	
Presentation Skiils	x	x	x													x

B. Continuous Improvement

As inputs in the continuous improvement of the EESP student's outcomes, the EESP will collect data from the direct and indirect assessment explained in Section A. The collected data are analyzed and used as the references to evaluate the EESP curriculum and to improve the student outcome achievements. The students outcomes of each graduate reflected in the student portfolios are documented in a database.

C. Additional Information

Not yet submitted for Readiness Review.