EAC of ABET
Readiness Review Report
for the
Electrical Engineering Study Program
at
Hasanuddin University
Makassar

September 29th, 2018

CONFIDENTIAL

The information supplied in this Readiness Review Report is for the confidential use of ABET and its authorized agents, and will not be disclosed without authorization of the institution concerned, except for summary data not identifiable to a specific institution.

BACKGROUND INFORMATION

A. Contact Information

Dr.-Ing. Ir. Faizal A. Samman
Department of Electrical Engineering
Kampus Gowa, Fakultas Teknik, Universitas Hasanuddin
Jl. Poros Malino Km. 6, Bontomarannu 92171
Kab. Gowa, Sulawesi Selatan, Indonesia
Fax. +62 411 585 188
Telp. +62 411 585 015 / +62 411 586 262
e-mail: faizalas@unhas.ac.id
Mobile: +62 823 4913 0451

B. Program History

The Electrical Engineering Study Program (EESP) at Hasanuddin University, Makassar, Indonesia was founded in 1963 as a part of the Faculty of Engineering established a few years earlier. The campus was originally located at Baraya, near the downtown of Ujung Pandang which was the old name of the city of Makassar. In early 1980s, the university campus was relocated to Tamalanrea, about 10 km north-east of downtown Makassar. More than 30 years later, the Faculty of Engineering was relocated again to its new campus at Gowa, 20 km south of Tamalanrea, and the EESP - under the Department of Electrical Engineering - officially settled at its new facilities in the new campus at Gowa in 2017.

During the first years after its establishment in mid 1960s, most EESP students of Hasanuddin University continued and completed their undergraduate degrees in 2 (two) major universities in Indonesia, namely Gadjah Mada University (UGM) in Yogyakarta and Bandung Institute of Technology (ITB) in Bandung. The majority of the graduates from this period made their careers as academicians, or as engineers at the state-owned power company (PLN) and telecommunication (TELKOM), or started their own private companies related to electricity and telephone businesses.

A major change of curriculum was implemented in 1980. The EESP was split into 2 (two) sub-study programs or concentrations, namely: (1) The Electrical Power Engineering and (2) The Telecommunication and Electronic Engineering. It was an 8 (eight) semester undergraduate engineering study program provided in 4 (four) academic years. In the first three semesters, the students took common courses on the fundamentals of Electrical Engineering and the required mathematics, physics and chemistry. Beginning at the fourth semester, the students voluntarily selected their preferences of concentration, and took different required and elective courses accordingly.

The next stage of curriculum development was started in 1995. A new concentration was established by divided the Telecommunication and Electronic Engineering sub-study program into 2 (two), i.e. (1) The Telecommunication Engineering and

Information Systems, and (2) The Computer, Control and Electronic Engineering sub-study programs. Common courses for both new concentrations were listed until the fourth semester. The basis of the curriculum establishment was the nationally decreed higher education curriculum development in Indonesia: Competency-Based Curriculum (KBK).

Most recently, a major change in the EESP curriculum was made related to the campus relocation to Gowa in 2015. The new campus is designed to support the Laboratory-based Education (LBE) system adopted by the Faculty of Engineering. By this time the EESP has established its Masters and Doctoral Degree programs supported by no less than 20 research laboratories and working groups. The process of curriculum development was managed by a Focus Group Discussion (FGD) on Curriculum 2015 in a 5 (five) year working period from 2012 to 2017, with a tagline: "From Competency To Contribution".

Tabel 1-1 Summary of Major Changes in the History of Hasanuddin University.

Year	Events
1963	The Electrical Engineering Study Program (EESP) founded
1980	Split into 2 (two) sub-study programs:
	(1) Electrical Power Engineering Sub-Study Program
	(2) Telecommunication and Electronic Engineering Sub-Study Program
1984	Relocated from Baraya Campus to Tamalanrea Campus
1995	Split into 3 (three) concentrations:
	(1) Electrical Power Engineering
	(2) Telecommunication Engineering
	(3) Computer, Control and Electronic Engineering
2000	Minor Revisions of Curriculum
2005	Minor Revisions of Curriculum, competency-based curriculum (KBK)
2010	Minor Revisions of Curriculum, competency-based curriculum (KBK)
2012	Focus Group Discussion (FGD) on Curriculum 2015 established
2015	Relocated to the Faculty of Engineering Campus at Gowa
	Commencement of the Laboratory-based Education System (LBE)
2016	Implementation of the R&D-based Curriculum 2015
2017	Focus Group Discussion (FGD) on Curriculum 2015 dismissed

The main idea of the recent curriculum change is to extend the competency-based curriculum previously implemented to a brand new curriculum called the "R&D-

(research and development)-based curriculum". The existing (since 1995) three concentrations were discontinued and all merged back to only one EESP. The curriculum structure is now composed of 4 (four) semesters of fundamentals and 2 (two) semesters of (elective) course packages to develop the competency, and the final laboratory-based, or R&D-based, 2 (two) semesters to make the contribution.

The timeline of the EESP 55 year history is summarized in Table 1-1. After 1995, in fact the EESP curriculum has been revised every 5 (five) years, in 2000, 2005 and 2010 consecutively, but only with minor revisons.

Most recently, a major change in the EESP curriculum was made related to the campus relocation to Gowa in 2015. The new campus is designed to support the Laboratory-based Education (LBE) system adopted by the Faculty of Engineering. By this time the EESP has established its Masters and Doctoral Degree programs supported by no less than 20 research laboratories and working groups (see Table 1-2 in the next section). The process of curriculum development was managed by a Focus Group Discussion (FGD) on Curriculum 2015 in a 5 (five) year working period from 2012 to 2017, with a tagline: "From Competency To Contribution".

The main idea of the recent curriculum change is to extend the competency-based curriculum previously implemented to a brand new curriculum called the "R&D (research and development)-based curriculum". The existing (since 1995) three concentrations were discontinued and all merged back to only one EESP. The curriculum structure is now composed of 4 (four) semesters of fundamentals and 2 (two) semesters of (elective) course packages to develop the competency, and the final laboratory-based, or R&D-based, 2 (two) semesters to make the contribution (see Figure 1-1 in the next section).

The timeline of the EESP 55 year history is summarized in Table 1-1. After 1995, in fact, the EESP curriculum has been revised every 5 (five) years, in 2000, 2005 and 2010 consecutively, but only with minor revisions.

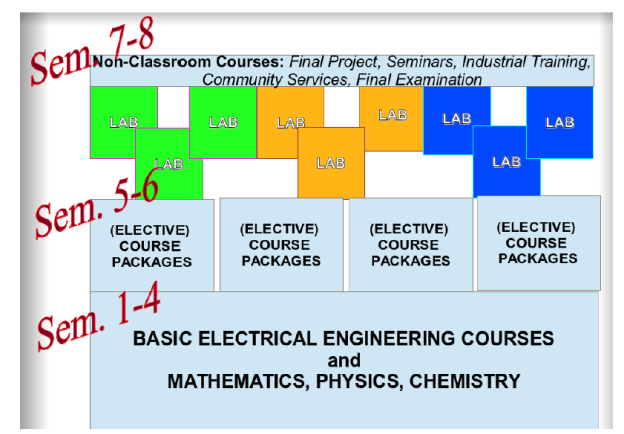

Figure 1-1 The Curriculum Structure.

C. Options

The main structure of the curriculum is shown by Figure 1-1. In the first 4 (four) semesters, freshmen and sophomores spend most of their time in classrooms and supporting teaching laboratories to develop their knowledge on required mathematics and basic sciences (physics and chemistry), and the Electrical Engineering fundamentals, especially the 4 (four) basics namely1: (1) Electric Circuits, (2) Electro-magnetics, (3) Solid-state Electronics and (4) Digital Logic Circuits. They also begin to develop their skills to conduct simple experiments, to analyze, interpret and present data, to enhance their knowledge on the required subjects.
After completing all basic and fundamental courses, in the third year the students are supposed to take at least one elective-course package per semester consisting of 3 to 4 courses in a specific area of electrical engineering that will - but not necessarily - lead to one of the research laboratories or working groups in the fourth year that they are interested to apply. Roughly 6 to 8 elective-course packages are offered each semester to juniors, covering the total of more than 50 elective-courses.

Beginning in the fifth semester, a junior should make a decision to choose **at least one** of the following 5 (five) options by solicitedly selecting the related package of elective courses:

Option 1: Electrical Power Engineering and Electricity
Option 2: Telecommunication Engineering and Information Systems
Option 3: Computer Engineering and Robotics
Option 4: Control Systems and Instrumentation
Option 5: Electronic Engineering

The ultimate learning process is at the final fourth year. Seniors are required to apply to one of the research laboratories or working groups. When a senior is admitted to a research laboratory or working group then he or she becomes a member of the laboratory or group by signing an annual contract with the head of the laboratory or the chairman of the group. The seniors will work together with professors and their associates and assistants, their fellows graduate and undergraduate students, to develop their ability to apply their knowledge and to design experiments, systems, processes and/or components to meet desired needs. They also learn how to work effectively not only as individuals but also in teams, either as leaders or members.

After completing all basic and fundamental courses, in the third year the students are supposed to take at least one elective-course package per semester consisting of 3 to 4 courses in a specific area of electrical engineering that will - but not necessarily – lead to one of the research laboratories or working groups in the fourth year that they are interested to apply. Roughly 6 to 8 elective-course packages are offered each semester to juniors, covering the total of more than 50 elective-courses.

Tabel 1-2 List of Available Research Laboratories and Working Groups in the Academic Year of 2018-2019.

Area	Research Laboratories And Working Groups
Electrical Power Engineering and Electricity	Electric Machines and Power Drives
	Power System Stability, Control and Protection
	Power Electronics
	High Voltage and Insulation
	Power System Distribution and Installation
	Renewable Energy and Intelligent Systems
	Energy and Power Systems
	Electricity Infrastructures
	Distributed Power Generation
	Electricity Market and Power Systems
Telecommunication Engineering	Antenna And Wave Propagation
	Radio Telecommunications and Microwave
	Wireless Communication Technology
	Transmission And Telecommunication Network
	Radio Engineering
	Multimedia Telecommunication and Artificial Intelligence
	Telematics, Radar and Satellite
Computer And Robotics	Cognitive, Social and Intelligent Robotics
	Computer Engineering and Network
Control Systems and Instrumentation	Control Systems and Instrumentation
Electronic Engineering	Electronics and Devices

In the seventh semester, the students are expected to learn how to identify and formulate a problem, present it and propose a final project in a seminar to solve it. They should be able to define the scope of the problem so that they could complete the solution within months in the next eighth semester.

The final examination at the end of eighth semester is a special occasion to give an opportunity for graduating students to show their in-depth technical competence in at least one area of Electrical Engineering and to prove their academic contributions by demonstrating and defending their final undergraduate projects.

D. Program Delivery Modes

The Faculty of Engineering officially runs all academic activities in working hours 07:00 AM to 05:00 PM Monday to Friday, 2 (two) semesters per academic year, 16 weeks per semester. Traditional or regular lecture courses are delivered during these working hours, while other activities, including non-lecture activities, may be delivered in these working hours or in the other time.

An EESP graduate must complete at least 145 credit hours of courses, a total of 28 credits hours equivalent of those are non-lecture courses, incuding:

a) The Undergraduate Final Project Report (called "*Skripsi*"), presented and defended in a Final Examination, 4 credit hours
b) Seminar on the Undergraduate Final Project Results, 2 credit hours
c) Seminar on the Undergraduate Final Project Proposal, 2 credit hours
d) Community Services (called "*Kuliah Kerja Nyata*" or *KKN*), an off-campus 1 month activity run by the university, usually in a remote area or a village, 4 credit hours
e) Practical (Industrial or "On Job") Training, an off-campus 1 to 2 month activity, typically in an industrial site, 2 credit hours
f) Laboratory 1, an intra-laboratory or working-group R&D activity, semester 7, 8 credit hours, to develop an undergraduate final project proposal
g) Laboratory 2, an intra-laboratory or working-group R&D activity, semester 8, 8 credit hours, to produce a contribution from the undergraduate final project

The remaining 117 credit hours are delivered as regular lecture courses in classrooms supported by prescribed syllabii and text books, and/or by conducting experiments in the teaching laboratories: *Basic Physics Laboratory*, *Basic Electrical Engineering Laboratory* and *Computer Software Laboratory*.

E. Program Locations

All academic teaching and learning processes are located in the new Faculty of Engineering campus at Gowa, about 20 km to the south from the old campus at Tamalanrea, Makassar. The new campus is designed to accommodate the concept of Laboratory-based Education (LBE) adopted by the Faculty of Engineering. Common facilities such as classrooms, the central library and the Faculty of Engineering administrative offices, are located in the main area of campus. A three-story building as seen in Fig. 1-2 is functioned as the Classroom Building to house classrooms with the capacity of 20 to 100 students. Lecture theaters for an audience of hundreds of students are also available for general lectures. For smaller classes, less than 20 students, the seminar and meeting rooms in laboratories at the Electrical Engineering Building can be used, as shown in Fig. 1-3.

Figure 1-2 The Faculty Engineering's Common Classroom Building.

Figure 1-3 The Electrical Engineering Building

Figure 1-4 The Standing Banners in Front of the Depatment's Administrative Office

F. Public Disclosure

The information regarding the PEOs, SOs, annual student enrollment and graduation data, etc. is posted both on the standing banners in front of the Department's administrative office (see Fig. 1-4) and in the official website of the EESP (Please see Fig. 1-5): http://eng.unhas.ac.id/electrical/en.

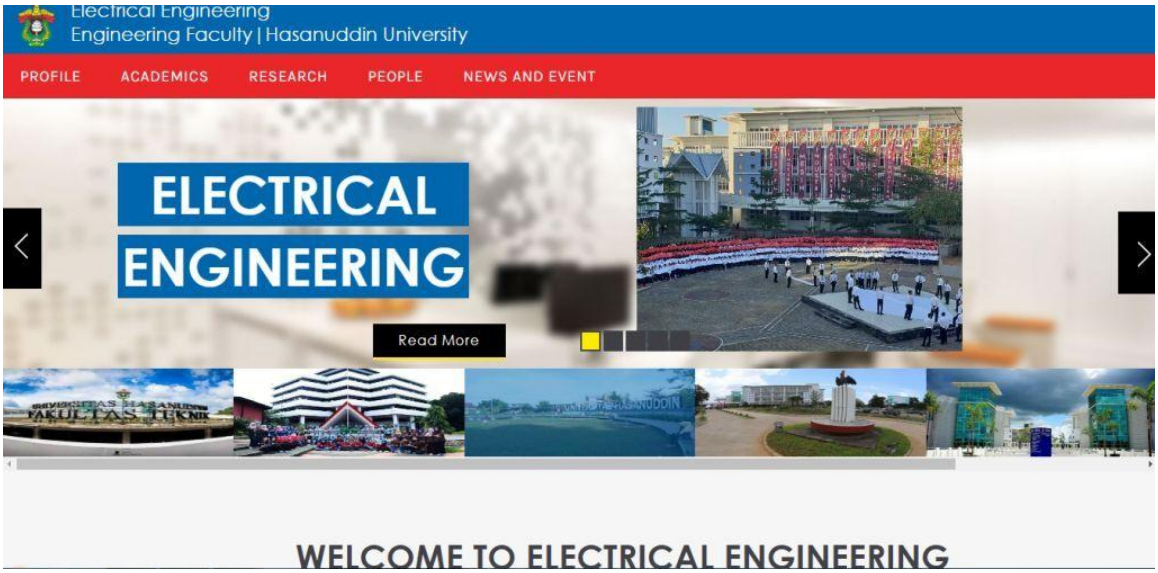

Figure 1-5 The Screen-Shot of the Front Page of the EESP Official Website.

G. Deficiencies, Weaknesses or Concerns from Previous Evaluation(s) and the Actions Taken to Address Them

Not yet applicable for Readiness Review.

GENERAL CRITERIA

CRITERION 1. STUDENTS

A. Student Admissions

All student candidates have to graduate from high school and should pass the National Exam (UN). Process for accepting new students into the Civil Engineering Study Program (CESP) is conducted during academic year from May to June. Student admission is carried out by Hasanuddin University for the entire program. Prospective students are assessed for their academic performance in science, i.e. math and physics as basic capabilities for civil engineering student. Admission is carried out in several schemes as described as follows:

1. SNMPTN, a special invitation for high school potential graduates which has an excellent academic performance.
2. SBMPTN, National Admission Selection for Public University which is managed by Ministry of Research and Higher Education.
3. POSK, Local/Hasanuddin University entrance test for those having exceptional achievement in arts, sports and sciences.

B. Evaluating Student Performance

Not yet submitted submit for Readiness Review.

C. Transfer Students and Transfer Courses

No transfer students and transfer courses.

D. Advising and Career Guidance

Faculties are served as Academic Advisor (AA) who counsels the selection of courses prior to registering for the following semester. This counseling activity is in the form of recommendations for strategy to select courses in relation to prospective job after graduation.

EESP carry out academic dialogue regularly to obtain input and find solutions for student's obstacles in the study process. Moreover, this academic dialogue discusses employment opportunities for graduated student. EESP also invites alumni association (IATEL) to provide job information.

At the college level (deputy dean for student and alumni affairs) and at the university level (Directorate of Alumni and Career Preparation) regularly conduct job affair for students and alumni.

E. Work in Lieu of Courses

The EESP does not implement the requirements and process for awarding credit for work in lieu of courses.

F. Graduation Requirements

An EESP graduate must complete at least 145 credit hours of courses, a total of 28 credits hours equivalent of those are non-lecture courses. In the final year, a student must present and defend his/her undergraduate Final Project Report, called "*Skripsi*", having 4 credit hours. In the last semester, before the Final Project Report, a student must also present in a seminar his/her the Undergraduate Final Project Results, having 2 credit hours, undertake a Community Service, called "*Kuliah Kerja Nyata*" or *KKN*, one-month off-campus activity run by the university, usually in a remote area or a village, 4 credit hours, and undertake a Practical (Industrial or "On Job") Training, one-/two-month off-campus activity, typically in an industrial site, having 2 credit hours.

In the last year, a student must also do a research activity termed as Laboratory Work 1 (for Semester 7) and Laboratory Work 2 (for Semester 8). The Laboratory Work 1 is an intra-laboratory or working-group R&D activity, having 8 credit hours, to develop an undergraduate final project proposal. The Laboratory Work 2 is an intra-laboratory or working-group R&D activity, having 8 credit hours, to produce a contribution from the undergraduate final project.

G. Transcripts of Recent Graduates

An example of a recent gradute can be found in the attachments.

CRITERION 2. PROGRAM EDUCATIONAL OBJECTIVES

A. Mission Statement

Not yet submitted for Readiness Review.

B. Program Educational Objectives

The program educational objectives of the EESP are as follows:

1. The EESP graduates have a mastery in basic sciences and mathematics relevant to the basic competency in the field of electrical engineering (*Basic Science Skills*).
2. The EESP graduates have an ability to anticipate, to formulate and to solve problems related to the field of electrical engineering (*Professional Skills*).
3. The EESP graduates have the spirit of leadership and entrepreneurship, the academic attitude, and have an ability to compete to work in various sectors all over the world, especially in Indonesia and Asia-Pacific region (*Entrepreneur Skills*).
4. The EESP graduates have capability to continue their study to higher degree of education all over the world (*Research Skills*).

These Program Educational Objectives are posted in the official website of the Department and also shown to visitors on standing banners in front of the Department's administrative office.

C. Consistency of the Program Educational Objectives with the Mission of the Institution

Not yet submitted for Readiness Review.

D. Program Constituencies

At the time of what so called the era of “disruption”, the era of the emergence of entirely new kinds of business like Uber and Airbnb, it is almost impossible to predict, who or what will be the EESP's main constituencies in the future when the graduates start to enter the job market. Therefore, it is important to strengthen the basics, especially mathematics, basic sciences and basic electrical engineering, and the spirit of entrepreneurship that will give the graduates a strong self-confidence to face the new challenging world, and then successfully create jobs at least for themselves, and also for others.

Relying merely on the traditional constituencies such as the state-owned enterprises in electrical power systems and electricity, telecommunication, general contractors and consultants, etc., has a potential to leave the graduates irrelevant in the future which is more dangerous than becoming out of job. The issue of relevance is the most

important factor to be considered when stating the Program Educational Objectives above.

E. Process for Review of the Program Educational Objectives

The EESP curriculum is subject to be reviewed periodically every five years since 1995. The process for review usually begins with a tracer study by surveying the alumni's well-being and their views on the curriculum after they leave campus all that long. The alumni's points of view are the most important consideration in the development of new curriculum. In the last tracer study in 2013, the alumni were asked what courses that they still remember after graduation. The alumni's strong memory on specific courses indicates how important the courses are for them now, or how good the courses were delivered during their tenure as students in previous years.

CRITERION 3. STUDENT OUTCOMES

A. Student Outcomes

By participating in various academic programs in EESP, the students will attain the basic competency in the field of electrical engineering, and at least one of the following options:

Option 1: Electricity and Electrical Power Engineering

1. an ability to design and to analyse electricity systems both tecnically and economically
2. a mastery in power system generation, instalation, transmission and distribution, and power station operation
3. a mastery in electric machines applications, maintenance, control and operation.

Option 2: Telecomunication and Information System

1. a mastery in system management and control of network, hardware and multimedia software applications in telecommunication and information systems
2. an ability to anticipate, to formulate and to solve problems related to the network, hardware and multimedia software applications in telecommunication and information systems
3. an ability to participate in the science and technology development, especially in the area of telecommunication and information systems, and always being adaptive to the advancement of science and technology in this area

Option 3: Computer Engineering

1. an ability to utilize the computer software packages for modeling and simulation of various electrical engineering problems, and general engineering problems
2. a mastery in concepts, design and application of the digital computer hardware

Option 4: Control Engineering

3. a mastery in the basic control theory, both classical and modern control theory, and its application in the control systems analysis and design

Option 5: Electronic Engineering

4. a mastery on the knowhow of design and application of electronic devices, circuits and systems, and microelectronics, including the utilization of software packages for integrated circuit layout design

In addition to the specific student outcomes above, the following ABET criteria are also made as references:

General Enginering Criteria (ABET)

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors

3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Electrical Engineering Criteria (ABET)

1. Broad knowledge over all areas within electrical engineering (power engineering, telecommunication, control engineering, electronics and computer enginering)
2. Depth of knowledge in at least one area.
3. Knowledge of probability and statistics, including applications to electrical and computer systems
4. Knowledge of mathematics through differential and integral calculus
5. Knowledge of basic sciences, computer science, and engineering sciences necessary to analyze and design complex electrical and electronic devices, software, and systems containing hardware and software components
6. Knowledge of advanced mathematics, linear algebra, complex variables
7. Sufficient background for graduate study

As summary, the EESP uses ABET Engineering and Electrical Engineering Criteria as well as at least one of the aforementioned Criteria of each options in the EESP.

B. Relationship of Student Outcomes to Program Educational Objectives

Not yet submitted for Readiness Review.

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 descriptions 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 study, every student is also encourage to enrich his/her portfolio. The student's portfolio is described concretely in a single or multiple papers. Different with student's transcript that gives student performance in quantitative grading points, the student portfolio describes the student skills achievement qualitative description. The student portfolio states 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.

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 at least one of the student outcomes. 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. Extensive advising is given by the project supervisor including the scientific writing.

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, government representatives 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 with the EESP curriculum, through the Senior Exit Surveys, 2) the employers satisfies with the performance of our alumni, through the purpose sampling industrial advisory committee meeting, and 3) the existences 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 and 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. The committee will discuss about the industrial needs and how the EESP Alumni can meet the requirements.

A. Student Outcomes

Table 4-1 presents a Skill-Assessment Map or listing of skills related to the program education objectives, which are assessed with the direct and indirect assessment methods. The complete student outcomes have been presented in Criterion 3, Section A. The EESP uses the ABET's Engineering and Electrical Engineering Criteria as well as at least of the options study in the EESP.

The student outcomes are the reflection of four program educational objectives of the EESP, presented in Criterion 2 Section B. The program educational objectives are termed as Competency Skills, Professional Skills, Entrepreneur Skills and Research Skills. The assessed skills of each student is reported in the student outcome portfolio.

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 cult.exams	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
Competency Skills																
Math., science skills	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 assessments 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.

CRITERION 5. CURRICULUM

A. Program Curriculum

The Program Curriculum of the EESP is designed to meet the program educational objectives.

The EESP requires that all educational programs must have a freshman year that consists of mathematics and basic science, a set of general education, and engineering topics. With these constraints, the implementation of the EESP curriculum consists of three elements and with a total minimum of 145 credits hours as shown in the Figure 5-1.

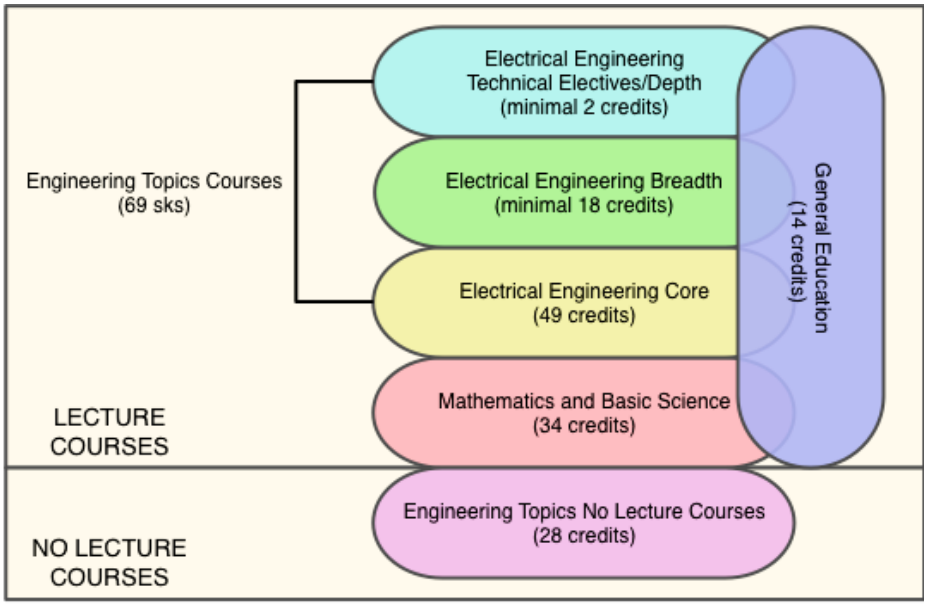

Figure 5.1 Overview of EESP curriculum.

Table 5-1 describes the plan of study for students in this program including information on course offerings in the form of a recommended schedule by year and term along with maximum section enrollments for all courses in the program.

The flowchart or worksheet that illustrates the prerequisite structure of the program's required courses is shown in Figure 5-2.

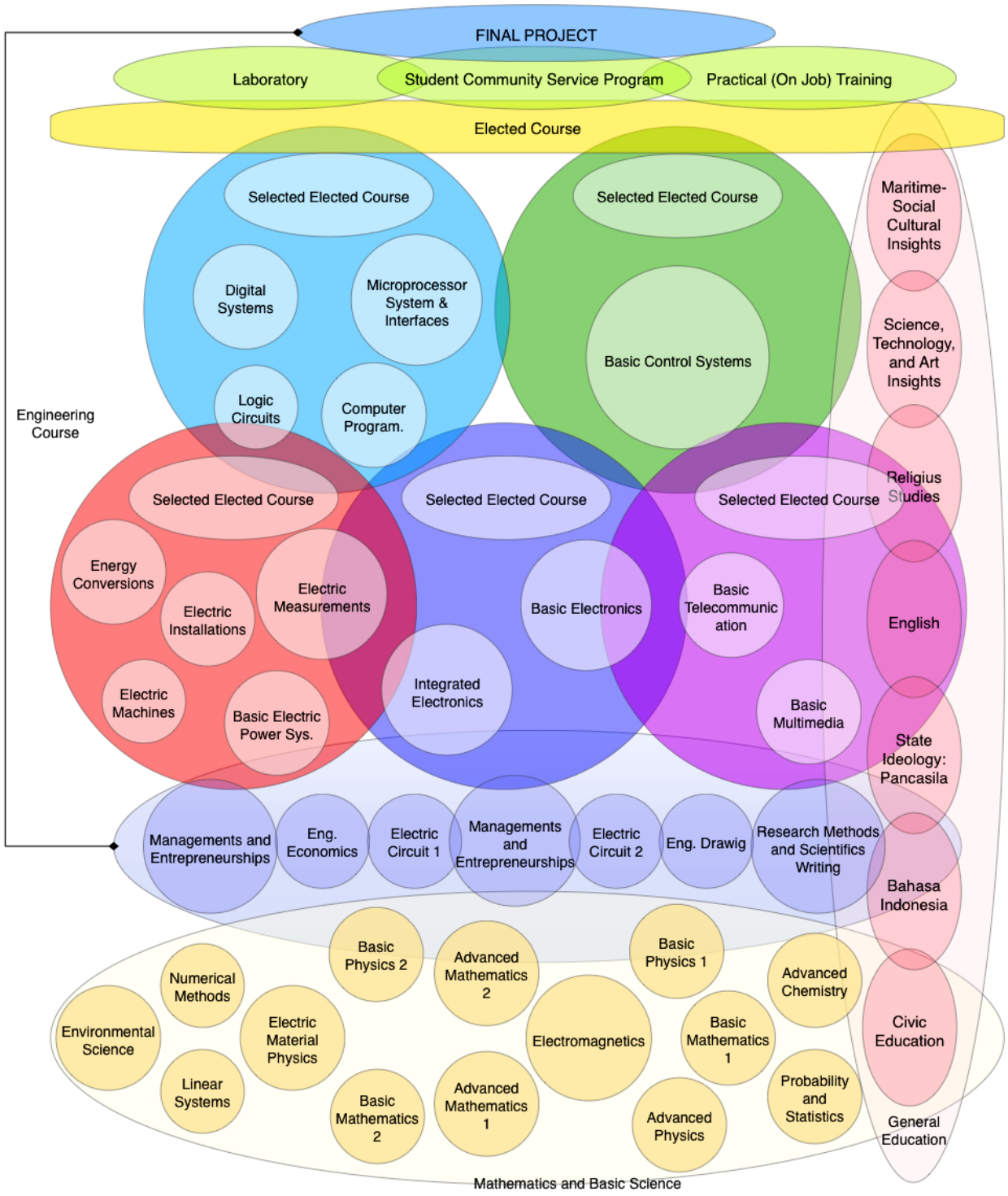

Figure 5-2 Flowchart or worksheet that illustrates the prerequisite structure of the program.

B. Course Syllabi

The Course Syllabi can be found in Appendix A of this Readiness Review Report.

Table 5-1 Curriculum

Electrical Engineering Study Program

Course *Electrical Engineering*	*Required, Elective, or a Selected Elective*	*Subject Area (Credit Hours)*				*Last Two Terms the Course was Offered: Year and Semester or Quarter*	*Maximum Section Enrollment for The Last Two Terms the Course was Offered*
		Math & Basic Sciences	*Engineering Topics Check If Contains Significant Design ()*	*General Education*	*Other*		
Lecture Courses							
011U0032 Citizenship Education	R			2		I; 1	84
009U0032 Bahasa Indonesia	R			2		I; 1	84
016U0033 Basic Mathematics 1	R	3				I; 1	100
020U0033 Basic Physics 1	R	3				I; 1	100
101D4113 Electrical Circuits 1	R		3			I; 1	100
102D4112 Logic Circuits	R		2			I; 1	100
103D4112 Engineering Drawing	R		2			I; 1	100
104D4112 Advanced Chemistry	R	2				I; 1	100
001U0032 Religious Studies (Islam, Catholic, etc)	R			2		I; 2	84
012U0032 State Ideology: Pancasila	R			2		I; 2	84
010U0032 English	R			2		I; 2	84
017U0033 Basic Mathematics 2	R	3				I; 2	100
022U0033 Basic Physics 2	R	3				I; 2	90
105D4123 Electric Circuits 2	R		3			I; 2	90
106D4122 Digital Systems	R		2			I; 2	100
107D4122 Computer Programming	R		2			I; 2	95

Course *Electrical Engineering*	*Required, Elective, or a Selected Elective*	*Subject Area (Credit Hours)*				*Last Two Terms the Course was Offered: Year and Semester or Quarter*	*Maximum Section Enrollment for The Last Two Terms the Course was Offered*
		Math & Basic Sciences	*Engineering Topics Check If Contains Significant Design ()*	*General Education*	*Other*		
108D4121 Electric Circuits Laboratory	R		1			I; 2	100
109D4121 Digital Systems Laboratory	R		1			I; 2	95
008U0032 Principle of Science, Technology, and Art	R			2		II;3	70
201D4113 Advanced Mathematics 1	R	3				II;3	85
202D4112 Basic Electric Power (Systems)	R		2			II;3	70
203D4112 Basic Telecommunication (Systems)	R		2			II;3	85
204D4112 Basic Electronics	R		2			II;3	85
205D4112 Electric Material Physics	R	2				II;3	70
206D4112 Advanced Physics	R	2				II;3	85
207D4111 Basic Electric Power laboratory	R		1			II;3	85
208D4111 Basic Telecommunication Laboratory	R		1			II;3	85
209D4111 Basic Electronics Laboratory	R		1			II;3	85
007U0032 Principle of Maritime Science	R			2		II;4	70
210D4123 Advanced Mathematics 2	R	3				II;4	85
211D4122 Linear Systems	R	2				II;4	85
212D4122 Electric Machines	R		2			II;4	70
213D4122 Basic Multimedia	R		2			II;4	70
214D4122 Integrated Electronics	R		2			II;4	85
215D4122 Microprocessor Systems and Interfaces	R		2			II;4	85
216D4122 Basic Control Systems	R		2			II;4	70

Course ***Electrical Engineering***	***Required, Elective, or a Selected Elective***	***Subject Area (Credit Hours)***				***Last Two Terms the Course was Offered: Year and Semester or Quarter***	***Maximum Section Enrollment for The Last Two Terms the Course was Offered***
		Math & Basic Sciences	***Engineering Topics Check If Contains Significant Design ()***	***General Education***	***Other***		
217D4122 Electric Installation and Laboratory	R		2			II;4	85
218D4121 Integrated Electronics Laboratory	R		1			II;4	85
219D4121 Microprocessor Systems and Interfaces Laboratory	R		1			II;4	85
301D4112 Engineering Economics	R		2			III;5	
302D4112 Probability and Statistics	R	2				III;5	
303D4112 Electric Measurement	R		2			III;5	
304D4112 Electromagnetics	R	2				III;5	
*Selected Elective Course (1 Package)**	SE		9			III;5	
342D4122 Numerical Methods	R	2				III;6	
343D4122 Energy Conversion	R		2			III;6	
344D4122 Environmental Science	R	2				III;6	
345D4122 Management and Entrepreneurship	R		2			III;6	
*Selected Elective Course (1 Package)**	SE		9			III;6	
402D4112 Research Methods and Scientific Writing	R		2			IV;7	
*Elective Course***	E		2			IV;7	
Total Required Minimum Lecture Courses		34	69	14	0		
Total-ABET Basic Level Requirements							
Total Credit Hours for Lecture Courses	117						
Percent of Total		29,1%	59,0%	12,0%	0,0%		

Course ***Electrical Engineering***	***Required, Elective, or a Selected Elective***	***Subject Area (Credit Hours)***				***Last Two Terms the Course was Offered: Year and Semester or Quarter***	***Maximum Section Enrollment for The Last Two Terms the Course was Offered***
		Math & Basic Sciences	***Engineering Topics Check If Contains Significant Design ()***	***General Education***	***Other***		
Total Must Satisfy Either Credit Hours of Percentage	Minimum Semester Credit Hours	32 Hours	48 Hours				
	Minimum Percentage	25,0%	37,5%				
Non-Lecture Courses							
401D4112 Practical (On Job) Training	R		2			IV;7	
403D4112 Final Project Proposal	R		2			IV;7	
Laboratory 1	R		8			IV;7	
491D4124 Student Community Service Programs	R		4			IV;8	
492D4122 Final Project Results	R		2			IV;8	
Laboratory 2	R		8			IV;8	
493D4122 Final Project Report	R		2			IV;8	
Total Credit Hours for Non-Lecture Courses	28						
Overall Minimum Total Credit Hours For Completion of The Program	145						

Notes:

Percentages of	**Lecturer Course Only (117 credits)**	**Total Courses (145 credits)**
Math & Basic Science	34 (29%)	34 (23.4%)
Engineering Topics	69 (59%)	93 (64.2%)
General Education	14 (12%)	18 (12.4%)

The proportion of Mathematics and Basic Sciences is only 23.4% of the total 145 credit hours minimum requirement for graduation. However, 28 credit hours out of those 145 credit hours are non-lecturer courses, such as Final Undergraduate Projects (Final Project, Seminars, and Laboratories) and Student Community Services, which may have Mathematics and Basic Sciences contents and are not comparable ("apple to apple") to the regular lecture courses. Based on argument above, the non-lecture courses may be excluded so that the proportion of Mathematics and Basic Science is now 29.0% of the total of 117 credit hours of regular lecturer courses.

The following information provides the components of the EESP curriculum.

General Education

The general education consists of 7 courses (total 14 credit hours). The general educations are listed in Table 5.2 General Education Component below. These fourteen credit hours satisfy all the requirements of the Hasanuddin University general education curriculum, which is design to accomplish the goals of Hasanuddin University as defined by its mission statements.

Table 5-2 General Education Component

Code	General Education	Credit	Course (%)	Lab (%)	Other (%)
011U0032	Citizenship Education	2	100		
009U0032	Indonesian Language	2	100		
001U0032	Religion	2	100		
012U0032	State Ideology: Pancasila	2	100		
010U0032	English	2	100		
008U0032	Concept of Science and Technology	2	100		
007U0032	Social Science of Maritime Culture	2	100		

Mathematics and Basic Science

The mathematics and basic science consist of 34 (thirty-four) credit hours. It divides to 18 (eighteen) credit hours of mathematics as shown in the Table 5.3 and 16 (sixteen) credit hours of basic science as shown in The Table 5-4.

Table 5-3 Mathematics Component

Code	General Education	Credit	Course (%)	Lab (%)	Other (%)
016U0033	Basic Mathematics 1	3	100		
017U0033	Basic Mathematics 2	3	100		
201D4113	Advanced Mathematics 1	3	100		
210D4123	Advanced Mathematics 1	3	100		
211D4122	Linear Systems	2	100		
302D4112	Probability and Statistics	2	100		
342D4122	Numerical Methods	2	100		

Table 5-4 Basic Science Component

Code	General Education	Credit	Course (%)	Lab (%)	Other (%)
020U0033	Basic Physics 1	3	75	25	
022U0033	Basic Physics 2	3	75	25	
206D4112	Advanced Physics	2	100		
104D4112	Advanced Chemistry	2	100		
205D4112	Electric Material Physics	2	100		
304D4112	Electromagnetics	2	100		
344D4122	Environmental Science	2	100		

Engineering Topics

The engineering topics component divides to 69 (minimum) credit hours of lecture course as shown in the Table 5-5 and 28 credit hours of no lecture course as shown in the Table 5-6.

Table 5-5 Lecture Courses

Code	General Education	Credit	Course (%)	Lab (%)	Other (%)
101D4113	Electric Circuits 1	3	100		
102D4112	Logic Circuits	2	100		
103D4112	Engineering Drawing	2	100		
105D4123	Electric Circuits 2	3	100		
106D4122	Digital Systems	2	100		
107D4122	Computer Programming	2	50	50	
108D4121	Electric Circuits Laboratory	2		100	
109D4121	Digital Systems Laboratory	1		100	
202D4112	Basic Electric Power (Systems)	2	100		
203D4112	Basic Telecommunication (Systems)	2	100		
204D4112	Basic Electronics	2	100		
207D4111	Basic Electric Power Laboratory	1		100	
208D4111	Basic Telecommunication Laboratory	1		100	
209D4111	Basic Electronics Laboratory	1		100	
212D4122	Electric Machines	2	100		
213D4122	Basic Multimedia	2	100		
214D4122	Integrated Electronics	2	100		

Code	General Education	Credit	Course (%)	Lab (%)	Other (%)
215D4122	Microprocessor Systems and Interfaces	2	100		
214D4122	Basic Control Systems	2	100		
217D4122	Electric Installation and Laboratory	2	75	25	
218D4121	Integrated Electronics Laboratory	1		100	
219D4121	Microprocessor Systems and Interfaces Lab	1		100	
301D4112	Engineering Economics	2	100		
303D4112	Electric Measurements	2	100		
343D4122	Energy Conversions	2	100		
345D4122	Management and Entrepreneurships	2	100		
402D4112	Research Methods and Scientific Writing	2	100		
	Selected Elective Course (2 package)	18			

Table 5-6 Non-Lecture Courses

Code	General Education	Credit	Course (%)	Lab (%)	Other (%)
401D4112	Practical (On Job) Training	2			100
491D4124	Student Community Service Programs	4			100
	Laboratory 1	2	100		100
	Laboratory 2	3	100		100
403D4112	Final Project Proposal	2			100
492D4122	Final Project Results	2			100
493D4122	Final project Report	2			100

The major design experience that prepares students for engineering practice.

In the EESP curriculum, there are some courses credits allocated to give students experience in project design. In the first semester, students take the Engineering Drawing course (103D4112), in which the students learn how to use CAD (Computer-Aided Design) software to design for example electric and electronic circuits.

In Digital Systems course (106D412) and Digital Systems Lab (109D4121), the students learn to design logic circuits using a CAD Software Tools. In the last lab meeting, the students are divided into several groups and given a design project with any specifications. The students will then solve the problem given in the project, design digital circuit, implement it on a programmable logic device (in this case, we use Field Programmable Gate Array or FPGA device), and then test their functional and performance behaviors.

In Integrated Electronics Course (214D4122) and Integrated Electronics Lab (218D4121), the EESP students will learn how to design integrated circuits using educational CAD tools. The students learn how to design layout topographies of NMOS and PMOS transistors and CMOS logic circuits, simulate the circuit behaviors and analyze their performance.

In the Microprocessor Systems and Interfaces course (215D412) and Microprocessor Systems and Interfaces Lab (219D4121), the students learn design techniques to implement a simple microcontroller-based project. The students learn Assembly and C/C++ Programming language and use them to interface the microcontroller with some I/O units such as sensors and actuators through standard interfaces.

The EESP cooperative education to satisfy curricular requirements

The EESP allows students to gather experience in industries and in society by taking the Practical (On Job) Training course (401D4112) and the Student Community Service course (491D4124) proposed in the last semester.

In the Practical (On Job) Training course, the students will work part-time in industries. Two supervisors are assigned to assess the students work, one from industry and one from the EESP faculty member. The student make a report and presents his/her work in a small meeting with his/her supervisor. Both supervisors give then the grade of the student work according the student performance in industry.

In the Student Community Service course, a groups of students from the EESP and other disciplines will work and learn in a village. A few groups could be sent to rural areas. In the village, the students will analyze any problem in the society and then they will try to find the solution. Student supervisors, normally faculty staff from university, are assigned to assess the student work and will evaluate them and give a grade according to student performance.

Final Examination and Scientific Writing

In the 7^{th} semester, the EESP students take the course of Research Methods and Scientific Writing (402D4112). In first 8 course meetings, the students learn research methodology, and then in the second 8 course meetings, students learn to write a scientific article. This scientific article is also presented in the Final examination in the last semester.

CRITERION 6. FACULTY

A. Faculty Qualifications

The EESP faculty member consists of 31 core members, 5 of them are professors. The faculties come from a wide variety of graduated domestic and overseas institutions. They are dedicated persons who have competence and expertise that support the achievement of learning in EESP. Their expertise includes Telecommunications and Information Engineering, Electric Power Engineering, and Computer, Control and Electronic Engineering.

In Telecommunication and Information Engineering, the EESP has 9 faculties. They have many years of experience in design and planning of telecommunication system related to wireless, satellite, fiber optic, antenna, traffic engineering, and switching. In Electric Power Engineering, the EESP has 17 faculty members. They have expertise in Stability, Control and Power System Protection, Power Electronics, High Voltage and Isolation, Distribution of Power Systems and Electrical Installations, Power Systems and Electricity, Electricity Infrastructure. In Computer, Control and Electronic Engineering, the EESP has 5 faculty, excluding a visiting lecture from Germany. The name of Faculty Core Members is presented in Table 6-4.

Most of the faculty conduct highly research activities and manage the research groups in their each field of expertise. They are also very active in writing some articles for some conferences and reputable international journals.

B. Faculty Workload

The EESP full-time faculty members requires to fulfill 12-16 credits hours in each semester which covering the area of teaching, research, community service, and others. Teaching and research typically accounts for minimum 9 credits hours of workload, where teaching for minimum 6 credit hours. The teaching activities include thesis supervisor, examiner for proposal seminar and final year report, and academic advisor. The faculty members engage in minimum 3 hours of community service and other activities. Table 6-2 presents the Faculty Workload Summary and describes this information in terms of workload expectations or requirements.

C. Faculty Size

The faculty members are sufficient to cover all of the courses both required engineering courses and elective courses, with at least two faculty members competent of teaching the courses. All of the courses are presented at once a year, and some of the elective courses are offered for every semester.

Interactions with students: Several ways are conducted to interact between faculty and students. The faculty interacts closely with the students by face-to-face meeting in classroom

or meeting in the faculty room. Interaction can also be done through online media such as e-mail, Learning Management System (LMS), social media, and special social media application groups. The interactions are usually done in relation to the assignment of the course, faculty as academic advisor, as a supervisor: undergraduate research and field study, student activities i.e. robotic contest.

University service activities: The service activities carried out by the faculty are extensive, both on campus and off campus. Some faculty members become members of the university division. Also some faculty members participate in various committees for university or faculty activities, participate in coaching student activities such as robot contests, student creativity programs, and others. In addition, participation is also conducted outside the campus to serve the community. Community service in the form of: Procurement and counseling on how to obtain clean water for people in areas that are difficult to get clean water. Engaged in electricity-saving education programs and the use of solar panels for locations that have not installed electricity services by the government.

Professional development: Professional development for faculty members is regularly carried out. A faculty is required to take apart in the course design and pedagogical techniques training such as Instructional Technique for Basic Skills Improvement Training and Applied Approach Training. Some of the trainings are also attended by faculty members such as training on: the research proposal preparation, the strategy to penetrate international scientific journal publications, and the research output utilization with potential for patents. In addition to professional developments, the faculty members also build effective network with others lecturer in both domestic and abroad through post graduated program in foreign universities, national and international conferences, the program of scheme for academic mobility and exchange (SAME) in foreign universities.

Interactions with industrial and professional practitioners including employers of students: Some of the faculty members are actively involved in solving industrial problems, and conducting collaborative research such as with electric utility and cement companies. The EESP is regularly invited representatives from industry as guest lecturers in undergraduate classes to give public lectures to broaden the students understanding of current industrial context.

D. Professional Development

The summary of professional development activities for each faculty member is presented Table 6.3.

E. Authority and Responsibility of Faculty

Faculty members at the EESP have responsibility related to academic program in electrical engineering which is approved by faculty. Besides semester evaluation, every five years, faculty members evaluate / review the implementation of academic program as a whole including such us program goals, curriculum, student ratings, and equipment resources. The review is intended to know the implementation level of the academic program so it can be

used as a reference in designing the next academic program. If there are big changes such as deleting or adding new course, then it is proposed to department and forwarded to faculty for final approval. Faculty members have authority for course modifications.

C Table 6-1. Faculty Qualifications

Electrical Engineering Study Program (EESP)

Faculty Name	*Highest Degree Earned- Field and Year*	*Rank [1]*	*Type of Academic Appointment[2] T, TT, NTT*	*FT or PT[3]*	*Years of Experience*			*Professional Registration/ Certification[5]*	*Level of Activity[4] H, M, or L*		
					Govt./Ind. Practice	*Teaching*	*This Institution*		*Professional Organizations*	*Professional Development*	*Consulting/summer work in industry*
Ansar Suyuti	Dr., Eng. Science, 201x	P		FT			26	PE			
Syafruddin Syarif	Dr., Eng. Science, 2013	P		FT			30				
Andani Achmad	Dr., Eng. Science, 2010	P		FT			31				
Salama Manjang	Dr., Power Eng., 2001	P		FT			28	PE			
Zaenab Muslimin	MS, Elec. Eng., 2004	ASC		FT			26				
Sri Mawar Said	Dr., Eng. Science, 2014	ASC		FT			32				
Elyas Palantei	Dr., Elec. Eng.	ASC		FT			24				
Gassing	MS, Elec. Eng.	ASC		FT			31				
Zulfajri Basri Hasanuddin	Dr., Elec. Eng., 2003	ASC		FT			25				
Zahir Zainuddin	Dr., Elec. Eng.	ASC		FT			29				
Indar Chaerah Gunadin	Dr., Elec. Eng., 2013	ASC		FT			20				
Yusran	Dr., Elec. Eng., 2013	ASC		FT			18				
Rhiza Samsoe'oed Sadjad	Dr., Control Eng., 1994	ASC		FT	2.5	28	36				
Dewiani	Dr., Elec. Eng., 2013	ASC		FT	-	18	24				
Indrabayu	Dr., Eng. Science, 2013	ASC		FT			16				
Intan Sari Areni	Dr., Elec. Eng., 2013	ASC		FT			18				
Syafaruddin	Dr., Power Eng., 2009	P		FT			19				
Amil Ahmad Ilham	Dr., Comp. Eng., 2011	ASC		FT			20				
Wardi	Dr., Elec. Eng., 2012	AST		FT			19				

Faculty Name	*Highest Degree Earned- Field and Year*	*Rank [1]*	*Type of Academic Appointment[2] T, TT, NTT*	*FT or PT[3]*	*Years of Experience*			*Professional Registration/ Certification[5]*	*Level of Activity[4] H, M, or L*		
					Govt./Ind. Practice	*Teaching*	*This Institution*		*Professional Organizations*	*Professional Development*	*Consulting/summer work in industry*
Muhammad Niswar	Dr., Comp. Eng., 2010	AST		FT			19				
Faizal Arya Samman	Dr., Elec. Eng, 2010	AST		FT	2.8	11	16				
Inggrid Nurtanio	Dr., Eng. Science, 2013	AST		FT			30				
A. Ejah Umraeni Salam	Dr., Eng. Science, 2015	AST		FT	-	18	21				
Ardiaty Arief	Dr., Elec. Eng., 2012	AST		FT			17				
Yusri Syam Akil	Dr., Elec. Eng., 2013	AST		FT			13				
Ikhlas Kitta	Dr., Eng. Science, 2016	AST		FT			10	PE			
Christoforus Yohannes	MS, Elec. Eng., 2002	AST		FT			21				
Muhammad Bachtiar Nappu	Dr., Elec. Eng., 2013	ASC		FT			15				
Adnan	Dr., Comp. Eng., 2013	AST		FT			13				
Hasniaty A.	MS, Elec. Eng., 2002	AST		FT			18				
Ida Rachmaniar Sahali	MS, Elec. Eng., 2012	I		FT	2	5	5				
Muhammad Anshar	Dr., Elec. Eng., 2017	AST		FT			13				
Merna Baharuddin	Dr., Elec. Eng., 2010	AST		FT			13				
Andini Dani Achmad	MS, Elec. Eng.,	AST		FT							
Nadjamuddin Harun	Dr., Elec. Eng.	Em		PT			50				
Muhammad Tola	Dr., Elec. Eng.	Em		PT			41				
Muhammad Arief	Dr., Elec. Eng.	Em		PT			48				
Sonny Taniadji	Ir., Elec. Eng.	A		PT							
Andreas Vogel	Dipl.-Ing., Elec. Eng.	A		PT		9	12				
Tajuddin Waris	MS, EE, (Dr. in progress)	AST		FT			26				
Fitriyanti Mayasari	MS, EE, (Dr. in progress)	AST		FT			12				

Table 6-2. Faculty Workload Summary

Electrical Engineering Study Program

No	*Faculty Member (name)*	*PT or FT[1]*	*Classes Taught (Course No./Credit Hrs.) Term* and Year***	*Program Activity Distribution (%)[3]*						*% of Time Devoted to the to the Program5*
				Teaching		*Research or Scholarship*		*Other[4]*		
				1st	*2nd*	*1st*	*2nd*	*1st*	*2nd*	
1	Ansar Suyuti	FT	1. Engineering Economics (301D4112/27) 1st 2. Electrical Measurement (303D4112/27) 1st 3. Electric Motor Application (406D4132/27) 1st 4. Electric Installations Laboratory (217D4122/27) 2nd 5. Electric Machines (212D4122/27) 2nd 6. Management and Entrepreuneurship (345D4122/27) 2nd 7. Algorithm and Data Structure (366D4122/27) 2nd	48	53	22	13	30	33	100%
2	Syafruddin Syarif	FT	1. Digital Communication (324D4112/27) 1st 2. Terresterial Network Design (320D4112/27) 1st 3. Information Theory and Coding (355D4122/27) 2nd 4. Telecommunication Systems Performance (364D4122/27) 2nd 5. Wireless Technology (354D4122/27) 2nd	43	58	26	12	31	30	100%
3	Andani Achmad	FT	1. Logic Circuits (102D4112/27) 1st 2. Basic Electronics (204D4112/27) 1st 3. Basic Electronics Laboratory (209D4111/13) 1st 4. Probability and Statistics (302D4112/27) 1st 5. Process Control Technology (330D4112/27) 1st 6. Optical Fibre Communication (323D4112/27) 1st 7. Digital Systems (106D4122/27) 2nd 8. Spread Spectrum (354D4122/27) 2nd 9. Control Systems Design (374D4122/27) 2nd	44	42	26	29	30	29	100%
4	Salama Manjang	FT	1. Electrical Engineering Materials (205D4112/27) 1st 2. Electromagnetics (304D4112/27) 1st 3. Electric Power Distribution Systems + Lab. (348D4122/27) 2nd 4. High Voltage Engineering + Laboratory (352D4122/27) 2nd 5. Electric Power Distribution Systems + Lab. (348D4122/27) 2nd	45	48	24	19	32	33	100%

No	*Faculty Member (name)*	*PT or FT*[1]	*Classes Taught (Course No./Credit Hrs.) Term* and Year***	*Program Activity Distribution (%)*[3]						*% of Time Devoted to the to the Program5*
				Teaching		*Research or Scholarship*		*Other*[4]		
				1st	*2nd*	*1st*	*2nd*	*1st*	*2nd*	
5	Zaenab Muslimin	FT	1. Electrical Circuits 1 (101D4113/40) 1st 2. Probability and Statistics (302D4112/27) 1st 3. Electric Circuits 2 (105D4123/40) 2nd 4. Electric Circuits Laboratory (108D4121/13) 2nd 5. Linear Systems (211D4122/27) 2nd	50	61	20	8	30	32	100%
6	Sri Mawar Said	FT	1. Electrical Circuits 1 (101D4113/40) 1st 2. Basic Electric Power (Systems) (202D4112/27) 1st 3. Basic Electric Power laboratory (207D4111/13) 1st 4. Electric Power Protection System 1 (308D4112/27) 1st 5. Electric Circuits 2 (105D4123/40) 2nd 6. Electric Circuits Laboratory (108D4121/13) 2nd 7. Electric Power Protection System 2 + Lab. (349D4122/27) 2nd 8. Electric Machines Analysis 2 + Laboratory (350D4122/27) 2nd	46	66	23	5	31	29	100%
7	Elyas Palantei	FT	1. Electromagnetics (304D4112/27) 1st 2. Basic Multimedia (213D4122/27) 2nd 3. Telecomm. Management and Regulations (353D4122/27) 2nd 4. Multimedia Signal Processing + Laboratory (360D4123/40) 2nd	44	43	22	23	34	34	100%
8	Gassing	FT	1. Advance Chemistry (104D4112/27) 1st 2. Basic Electric Power (Systems) (202D4112//27) 1st 3. Advance Physics (206D4112/27) 1st 4. Basic Electric Power laboratory (207D4111/13) 1st 5. Electric Power Generation Systems (309D4112/27) 1st 6. Electric Machines Analysis 2 + Laboratory (350D4122/40) 1st 7. Electric Installations Laboratory (217D4122/27) 2nd 8. Electric Machines (212D4122/27) 2nd 9. Numerical Methods (342D4122/27) 2nd	46	48	20	23	35	29	100%
9	Zulfajri B. Hasanuddin	FT	1. Probability and Statistics (302D4112/27) 1st 2. Satellite Communication Systems (314D4112/27) 1st 3. Terresterial Network Design (320D4112/27) 1st 4. Telecomm. Management and Regulations (353D4122/27) 2nd 5. Telecommunication Systems Performance (364D4122/27) 2nd 6. Radar and Navigation (365D4122/27) 2nd 7. Wireless Technology (354D4122/27) 2nd	51	60	24	9	24	31	100%

No	*Faculty Member (name)*	*PT or FT[1]*	*Classes Taught (Course No./Credit Hrs.) Term* and Year***	*Program Activity Distribution (%)[3]*						*% of Time Devoted to the to the Program5*
				Teaching		*Research or Scholarship*		*Other[4]*		
				1st	*2nd*	*1st*	*2nd*	*1st*	*2nd*	
10	Zahir Zainuddin	FT	1. Logic Circuits (102D4112/27) 1st 2. Engineering Drawing (103D4112/27) 1st 3. Microprocessor Systems and Interfaces (215D4122/27) 2nd 4. Microprocessor Systems and Interfaces Lab. (219D4121/13) 2nd 5. Artificial Intelligence Systems (435D4132/27) 2nd	45	50	26	24	30	26	100%
11	Indar Chaerah Gunadin	FT	1. Advance Physics (206D4112/27) 1st 2. Basic Electric Power (Systems) (202D4112//27) 1st 3. Basic Electric Power laboratory (207D4111/13) 1st 4. Electrical Measurement (303D4112/27) 1st 5. Control and Stability of Electric Power System (310D4112/27) 1st 6. Intelligent Electric Power Systems (411D4132/27) 1st 7. Environmental Science (344D4122/27) 2nd 8. Basic Control Systems (216D4122/27) 2nd	41	42	29	25	29	33	100%
12	Yusran	FT	1. Advance Chemistry (104D4112/27) 1st 2. Advance Physics (206D4112/27) 1st 3. Electrical Measurement (303D4112/27) 1st 4. Electric Power Generation Systems (309D4112/27) 1st 5. Electromagnetics (304D4112/27) 1st 6. Intelligent Electric Power Systems (411D4132/27) 1st 7. Environmental Science (344D4122/27) 2nd 8. Electric Machines (212D4122/27) 2nd 9. Advance Mathematics 2 (210D4123/27) 2nd	53	50	16	18	31	32	100%
13	Rhiza S. Sadjad	FT	1. Process Control Technology (330D4112/27) 1st 2. Control Systems + Laboratory (329D4113/27) 1st 3, Basic Control Systems (216D4122/27) 2nd 4. Control Systems Design (374D4122/27) 2nd 5. Optimal Control Systems (372D4122/27) 2nd 6. Digital Control Systems + Laboratory (371D4123/40) 2nd	57	60	10	9	32	31	100%

No	*Faculty Member (name)*	*PT or FT[1]*	*Classes Taught (Course No./Credit Hrs.) Term* and Year***	*Program Activity Distribution (%)[3]*						*% of Time Devoted to the to the Program5*
				Teaching		*Research or Scholarship*		*Other[4]*		
				1st	*2nd*	*1st*	*2nd*	*1st*	*2nd*	
14	Dewiani	FT	1. Basic Telecommunication (Systems) (203D4112/27) 1st 2. Basic Telecommunication Laboratory (208D4111/13) 1st 3. Advance Mathematics 1 (201D4113/40) 1st 4. Probability and Statistics (302D4112/27) 1st 5. Optical Fibre Communication (323D4112/27) 1st 6. Telecommunication Network Optimization (433D4132/27) 2nd 7. Advance Mathematics 2 (210D4123/27) 2nd 8. Linear Systems (211D4122/27) 2nd	55	46	13	20	32	34	100%
15	Indrabayu	FT	1. Engineering Economics (301D4112/27) 1st 2. Artificial Intelligence Systems (435D4132/27) 1st 3. Basic Multimedia (213D4122/27) 2nd	46	48	20	21	35	31	100%
16	Intan Sari Areni	FT	1. Advance Mathematics 1 (201D4113/40) 1st 2. Basic Telecommunication (Systems) (203D4112/27) 1st 3. Advance Mathematics 1 (201D4113/40) 1st 4. Basic Telecommunication Laboratory (208D4111/13) 1st 5. Digital Communication (324D4112/27) 1st 6. Linear Systems (211D4122/27) 2nd 7. Multimedia Signal Processing + Laboratory (360D4123/40) 2nd 8. Analog and Digital Filters (359D4122/27) 2nd	47	46	22	23	31	32	100%
17	Syafaruddin	FT	1. Electric Power System Analysis (306D4112/27) 1st 2. Energy Conversion (343D4122/27) 2nd 3. Numerical Methods (342D4122/27) 2nd	45	47	24	23	31	31	100%
18	Amil Ahmad Ilham	FT	1. Web Programming (327D4112/27) 1st 2. Cloud Computing (328D4112/27) 1st 3. Digital Systems (106D4122/27) 2nd 4. Algorithm and Data Structure (366D4122/27) 2nd	43	46	21	22	35	32	100%

No	*Faculty Member (name)*	*PT or FT*[1]	*Classes Taught (Course No./Credit Hrs.) Term* and Year***	*Program Activity Distribution (%)*[3]						*% of Time Devoted to the to the Program5*
				Teaching		*Research or Scholarship*		*Other*[4]		
				1st	*2nd*	*1st*	*2nd*	*1st*	*2nd*	
19	Wardi	FT	1. Basic Telecommunication (Systems) (203D4112/27) 1st 2. Basic Electronics (204D4112/27) 1st 3. Basic Telecommunication Laboratory (208D4111/13) 1st 4. Basic Electronics Laboratory (209D4111/13) 1st 5. Special Topics in Telecommunication Network (425D4132/27) 1st 6. Data Communication (321D4112/27) 1st 7. Basic Multimedia (213D4122/27) 2nd 8. Multmedia (Network) Systems (362D4122/27) 2nd	50	52	19	21	31	27	100%
20	Muhammad Niswar	FT	1. Logic Circuits (102D4112/27) 1st 2. Computer Network + Laboratory (325D4112/27) 1st Sem 3. Web Programming (327D4112/27) 1st 4. Digital System Design + Laboratory (335D4113/40) 1st 5. Digital Systems (106D4122/27) 2nd 6. Computer Programming (107D4122/27) 2nd	47	42	21	26	32	32	100%
21	Faizal Arya Samman	FT	1. Basic Electronics (204D4112/27) 1st 2. Basic Electronics Laboratory (209D4111/13) 1st 3. Integrated Circuits Technology (339D4112/27) 1st 4. Digital System Design + Laboratory (335D4113/40) 1st 5. Digital Systems (106D4122/27) 2nd 6. Integrated Electronics (214D4122/27) 2nd 7. Basic Control Systems (216D4122/27) 2nd 8. Digital Systems Laboratory (109D4121/13) 2nd 9. Integrated Electronics Laboratory (218D4121/13) 2nd	41	47	29	21	30	33	100%
22	Ingrid Nurtanio	FT	1. Advance Mathematics 1 (201D4113/40) 1st Sem 2. Advance Mathematics 2 (210D4123/27) 2nd 3. Intelligent Control Systems (373D4122/27) 2nd	45	49	18	19	37	32	100%

No	*Faculty Member (name)*	*PT or FT[1]*	*Classes Taught (Course No./Credit Hrs.) Term* and Year***	*Program Activity Distribution (%)[3]*						*% of Time Devoted to the to the Program5*
				Teaching		*Research or Scholarship*		*Other[4]*		
				1st	*2nd*	*1st*	*2nd*	*1st*	*2nd*	
23	A. Ejah Umraeni Salam	FT	1. Logic Circuits (102D4112/27) 1st 2. Basic Electronics (204D4112/27) 1st 3. Basic Electronics Laboratory (209D4111/13) 1st 4. Control Systems + Laboratory (329D4113/27) 1st 5. Artificial Intelligence Systems (435D4132/27) 1st 6. Integrated Electronics (214D4122/27) 2nd 7. Basic Control Systems (216D4122/27) 2nd 8. Optimal Control Systems (372D4122/27) 2nd 9. Linear Systems (211D4122/27) 2nd 10. Digital Control Systems + Laboratory (371D4123/40) 2nd	44	51	23	17	32	32	100%
24	Ardiaty Arief	FT	1. Control and Stability of Electric Power System (310D4112/27) 1st 2. Alternating Current Transmission Systems (305D4112/27) 1st 3. Electric Power System Analysis (306D4112/27) 1st 4. Energy Conversion (343D4122/27) 2nd 5. Power Systems Operations (351D4122/27) 2nd	44	47	26	23	30	30	100%
25	Yusri Syam Akil	FT	1. Basic Electric Power (Systems) (202D4112/27) 1st 2. Basic Electric Power laboratory (207D4111/13) 1st 3. Electrical Measurement (303D4112/27) 1st 4. Electric Motor Application (406D4132/27) 1st 5. Energy Conversion (343D4122/27) 2nd 5. Electric Power System Analysis (306D4112/27) 2nd	45	45	23	23	32	32	100%
26	Ikhlas Kitta	FT	1. Basic Electric Power (Systems) (202D4112/27) 1st 2. Electrical Engineering Materials (205D4112/27) 1st 3. Basic Electric Power laboratory (207D4111/13) 1st 4. Alternating Current Transmission Systems (305D4112/27) 1st 5. Electric Installations Laboratory (217D4122/27) 2nd 6. Electric Power Distribution Systems + Lab. (348D4122/27) 2nd	40	62	33	8	27	31	100%

No	*Faculty Member (name)*	*PT or FT[1]*	*Classes Taught (Course No./Credit Hrs.) Term* and Year***	*Program Activity Distribution (%)[3]*						*% of Time Devoted to the to the Program5*
				Teaching		*Research or Scholarship*		*Other[4]*		
				1st	*2nd*	*1st*	*2nd*	*1st*	*2nd*	
27	Christoforus Yohannes	FT	1. Advance Chemistry (104D4112/27) 1st 2. Industrial Robotics (331D4112/27) 1st 3. Industrial Automation + Laboratory (PLC) (337D4112/27) 1st 4. Integrated Electronics (214D4122/27) 2nd 5. Microprocessor Systems and Interfaces (215D4122/27) 2nd 6. Microprocessor Systems and Interfaces Lab. (219D4121/13) 2nd	47	60	21	7	32	32	100%
28	Muhammad Bachtiar Nappu	FT	1. Advance Physics (206D4112/27) 1st 2. Electricity Market (413D4132/27) 1st 3. Numerical Methods (342D4122/27) 2nd 4. Power Systems Operations (351D4122/27) 2nd	45	48	24	22	31	30	100%
29	Adnan	FT	1. Logic Circuits (102D4112/27) 1st 2. Computer Programming (107D4122/27) 2nd	48	49	21	19	30	32	100%
30	Hasniaty A.	FT	1. Electrical Circuits 1 (101D4113/40) 1st 2. Advance Chemistry (104D4112/27) 1st 3. Advance Physics (206D4112/27) 1st 4. Electric Circuits 2 (105D4123/40) 2nd 5. Advance Mathematics 2 (210D4123/27) 2nd 6. Electric Circuits Laboratory (108D4121/13) 2nd 7. Electric Power System Analysis (306D4112/27) 2nd 8. Electric Machines Analysis 2 + Laboratory (350D4122/27) 2nd	61	58	0	4	39	38	100%
31	Ida Rachmaniar Sahali	FT	1. Computer Network + Laboratory (325D4112/27) 1st 2. Data Communication (321D4112/27) 1st 3. Industrial Automation + Laboratory (PLC) (337D4112/27) 1st 4. Digital Systems (106D4122/27) 2nd 5. Computer Programming (107D4122/27) 2nd	50	74	17	5	33	21	100%

No	*Faculty Member (name)*	*PT or FT[1]*	*Classes Taught (Course No./Credit Hrs.) Term* and Year***	*Program Activity Distribution (%)[3]*						*% of Time Devoted to the to the Program5*
				Teaching		*Research or Scholarship*		*Other[4]*		
				1st	*2nd*	*1st*	*2nd*	*1st*	*2nd*	
32	Muhammad Anshar	FT	1. Engineering Drawing (103D4112/27) 1st 2. Basic Electronics (204D4112/27) 1st 3. Basic Electronics Laboratory (209D4111/13) 1st 4. Industrial Robotics (331D4112/27) 1st 5. Integrated Electronics (214D4122/27) 2nd 6. Microprocessor Systems and Interfaces (215D4122/27) 2nd 7. Intelligent Control Systems (373D4122/27) 2nd 8. Microprocessor Systems and Interfaces Lab. (219D4121/13) 2nd 9. Embedded Systems Design + Laboratory (380D4123/40) 2nd	45	46	25	23	31	31	100%
33	Merna Baharuddin	FT	1. Basic Telecommunication (Systems) (203D4112/27) 1st 2. Basic Telecommunication Laboratory (208D4111/13) 1st 3. Special Topics in Telecommunication Network (425D4132/27) 1st 4. Telecommunication Transmission Systems (312D4112/27) 1st 5. Basic Multimedia (213D4122/27) 2nd 6. Spread Spectrum (354D4122/27) 2nd 7. Analog and Digital Filters (359D4122/27) 2nd	55	64	17	11	28	25	100%
34	Andini Dani Achmad	FT	1. Logic Circuits (102D4112/27) 1st 2. Basic Telecommunication (Systems) (203D4112/27) 1st 3. Basic Telecommunication Laboratory (208D4111/13) 1st 4. Advance Mathematics 1 (201D4113/40) 1st 5. Telecommunication Transmission Systems (312D4112/27) 1st 6. Digital Systems (106D4122/27) 2nd 7. Computer Programming (107D4122/27) 2nd 8. Telecommunication Network Optimization (433D4132/27) 2nd 9. Advance Mathematics 2 (210D4123/27) 2nd 10. Multmedia (Network) Systems (362D4122/27) 2nd	53	59	16	10	31	31	100%
35	Nadjamuddin Harun	PT	1. Electric Power Generation Systems (309D4112/27) 1st 2. Environmental Science (344D4122/27) 2nd 3. Basic Control Systems (216D4122/27) 2nd	100	100	-	-	-	-	100%
36	Muhammad Tola	PT	1. Advance Physics (206D4112/27) 1st 2. Opto-electronics (404D4132/27) 1st	100	100	-	-	-	-	100%
37	Muhammad Arief	PT	1. High Voltage Engineering + Laboratory (352D4122/27) 2nd	100	100	-	-	-	-	100%

No	Faculty Member (name)	PT or FT[1]	Classes Taught (Course No./Credit Hrs.) Term* and Year**	Program Activity Distribution (%)[3]						% of Time Devoted to the to the Program5
				Teaching		Research or Scholarship		Other[4]		
				1st	2nd	1st	2nd	1st	2nd	
38	Sonny Taniadji	PT	1. Electric Power Protection System 1 (308D4112/27) 1st 2. Electric Power Protection System 2 + Laboratory (349D4122/27) 2nd	100	100	-	-	-	-	100%
39	Andreas Vogel	PT	1. Integrated Electronics (214D4122/27) 2nd 2. Digital Systems Laboratory (109D4121/13) 2nd 3. Integrated Electronics Laboratory (218D4121/13) 2nd 4. Embedded Systems Design + Laboratory (380D4123/40) 2nd	100	100	-	-	-	-	100%
40	Tajuddin Waris	FT	N/A	0	0.0	100	100	0	0	N/A
41	Fitriyanti Mayasari	FT	N/A	0	0.0	100	100	0	0	N/A

1. FT = Full Time Faculty or PT = Part Time Faculty, at the institution

Table 6-3 Summary of Professional Development Activities for Faculty Members.

No	Faculty Name	Conference		Workshop		Instructional Training
		Presenter	Attendance	Presenter	Attendance	
1	Ansar Suyuti	9	9	0	3	4
2	Syafruddin Syarif	9	30	6	13	5
3	Andani Achmad	6	7	0	5	3
4	Salama Manjang	10	3	1	3	5
5	Zaenab Muslimin	1	0	0	1	3
6	Sri Mawar Said	1	1	0	1	2
7	Elyas Palantei					
8	Gassing	1	2	2	1	4
9	Zulfajri Basri Hasanuddin	6	6	4	7	2
10	Zahir Zainuddin	5	5	2	2	2
11	Indar Chaerah Gunadin	5	3	3	2	4
12	Yusran	4	2	1	2	2
13	Rhiza Samsoe'oed Sadjad	0	0	0	0	1

No	*Faculty Name*	*Conference*		*Workshop*		*Instructional Training*
		Presenter	*Attendance*	*Presenter*	*Attendance*	
14	Dewiani	4	0	0	2	3
15	Indrabayu	12	8	4	4	8
16	Intan Sari Areni	7	4	1	3	3
17	Syafaruddin	26	3	0	1	2
18	Amil Ahmad Ilham	4	3	0	2	2
19	Wardi	5	3	2	2	2
20	Muhammad Niswar	6	0	1	0	2
21	Faizal Arya Samman	13	2	2	0	2
22	Inggrid Nurtanio	6	8	0	2	3
23	Ejah Umraeni Salam	5	10	0	3	2
24	Ardiaty Arief	14	0	3	0	2
25	Yusri Syam Akil	10	3	0	2	2
26	Ikhlas Kitta	2	4	1	1	1
27	Christoforus Yohannes	3	5	2	1	4
28	Muhammad Bachtiar Nappu	28	0	3	0	3
29	Adnan	1	1	0	2	3
30	Hasniaty A.	5	4	0	6	2
31	Ida Rachmaniar Sahali	1	2	0	2	4
32	Muhammad Anshar	9	0	2	0	0
33	Merna Baharuddin	10	5	0	2	2
34	Andini Dani Achmad	3	5	0	2	0
35	Nadjamuddin Harun					
36	Muhammad Tola					
37	Muhammad Arief					
38	Sonny Taniadji					
39	Andreas Vogel					
40	Tajuddin Waris					
41	Fitriyanti Mayasari					

Table 6-4 Faculty Core Members.

No.	*Faculty Name*	*Field of Study*
1	Salama Manjang (Head of Department)	Electric Power Engineering
4	Ansar Suyuti	Electric Power Engineering
5	Syafaruddin	Electric Power Engineering
6	Sri Mawar Said	Electric Power Engineering
7	Zaenab Muslimin	Electric Power Engineering
8	Tajuddin Waris	Electric Power Engineering
9	Gassing	Electric Power Engineering
10	Indar Chaerah Gunadin	Electric Power Engineering
11	Yusran	Electric Power Engineering
12	Muhammad Bachtiar Nappu	Electric Power Engineering
13	Ikhlas Kitta	Electric Power Engineering
14	Yusri Syam Akil	Electric Power Engineering
15	Hasniaty A.	Electric Power Engineering
16	Fitriyanti Mayasari	Electric Power Engineering
17	Ardiaty Arief	Electric Power Engineering
18	Syafruddin Syarif	Telecommunication Engineering
19	Andani Achmad	Telecommunication Engineering
20	Zulfajri Basri Hasanuddin	Telecommunication Engineering
21	Elyas Palantei	Telecommunication Engineering
22	Dewiani	Telecommunication Engineering
23	Wardi	Telecommunication Engineering
24	Intan Sari Areni	Telecommunication Engineering
25	Merna Baharuddin	Telecommunication Engineering
26	Andini Dani Achmad	Telecommunication Engineering
27	Rhiza Samsoe'oed Sadjad	Electronics, Control and Computer Engineering
28	A. Ejah Umraeni Salam	Electronics, Control and Computer Engineering
29	Faizal Arya Samman	Electronics, Control and Computer Engineering
30	Muhammad Anshar	Electronics, Control and Computer Engineering
31	Ida Rachmaniar Sahali	Electronics, Control and Computer Engineering

CRITERION 7. FACILITIES[1]

Not yet submitted for Readiness Review.

CRITERION 8. INSTITUTIONAL SUPPORT

Not yet submitted for Readiness Review.

The EESP evaluates the aforementioned outcomes regularly using two types of student performance assessments, i.e. direct and indirect assessments. In the direct assessments, each student's is evaluated for certain performance criteria. These assessments are part of the grading of student works in the EESP courses. The direct assessment method includes also the student portfolios enrichment.

The indirect measurements are done through surveys. Upon completing their course, students are asked to take the surveys through the EESP and UNHAS webpages. Graduating students are also asked to take the senior exit survey which is a self-assessments for the student's outcomes. The indirect assessments are also made through Alumni and Employers Surveys.

Both the direct and indirect assessment methods have been described in Criterion 4 (Continuous Improvement), and is illustrated in Figure 9-1. The EESP collects data from the assessment methods and use them to evaluate the expected and the measured (real) student outcomes. The improvements are then made according to the evaluation results. The improvement actions can be made using the following:

1) Improve the quality of course materials
2) Invite international visiting lecturers
3) Organize staff's professional development and/or
4) Reform the curriculum structure

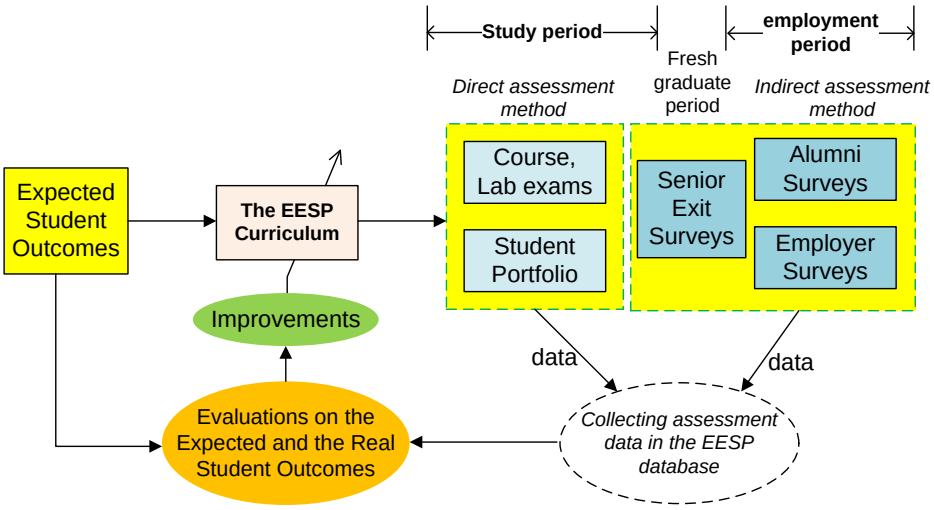

Figure 9-1 Continuous Improvement diagram.

APPENDIX A – COURSE SYLLABI

FOR THIS REPORT, ONLY COURSE SYLLABI FOR THE DISCIPLINE-SPECIFIC COURSES OF THE PROGRAM ARE INCLUDED FOR READINESS REVIEW

The information provided in each syllabus in this report is as follows.

1. Course number and name.

2. Credits and contact hours.

3. Instructor's or course coordinator's name.

4. Text book, (title, author, and year), and other supplemental materials

5. Specific course information
    a. brief description of the content of the course (catalog description)
    b. prerequisites or co-requisites
    c. indicate whether a required, elective, or selected elective (as per Table 5-1) course in the program

6. Specific goals for the course
    a. Specific outcomes of instruction.
    b. Explicit indication of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.

7. Brief list of topics to be covered.

APPENDIX B – FACULTY VITAE

FOR THIS REPORT, ONLY RESUMES FOR THE FACULTY MEMBERS WHO TEACH ENGINEERING COURSES LISTED IN TABLE 5-1 ARE INCLUDED

The information provided in the faculty vitae in this report is as follows.

1. Name
2. Education – degree, discipline, institution, year
3. Academic experience – institution, rank, title (chair, coordinator, etc. if appropriate), timeline, full time or part time
4. Non-academic experience – company or entity, title, brief description of position, timeline, full time or part time
5. Certifications or professional registrations
6. Current membership in professional organizations
7. Honors and awards
8. Service activities (within and outside of the institution)
9. Brief list of the most important publications and presentations from the past five years
10. Brief list of the most recent professional development activities

APPENDIX C – EQUIPMENT

Not yet submitted for Readiness Review.

APPENDIX D – INSTITUTIONAL SUMMARY

1. The Institution

a. Universitas Hasanuddin
Jl. Perintis Kemerdekaan Km. 10, Makassar 90245
Sulwesi Selatan, Indonesia

b. The name of Chief Executive Office of the Institution (Rector):
Prof. Dr. Dwia Aries Tina Pulubuhu, MA.

c. Name and title of the person submitting the Report:
Prastawa Budi, PhD.

d. Universitas Hasanuddin is accredited by National Accreditation Agency for Higher Education (NAAHE), 2017

The Electrical Engineering Study Program (EESP) is accredited by National Accreditation Agency for Higher Education (NAAHE), 2017.

2. Type of Control

The Universitas Hasanuddin is a state university with special status as Autonomous Public University under the Ministry of Research, Technology, and Higher Education (MORTHE or *PTNBH – Perguruan Tinggi Negeri Berbadan Hukum*).

3. Educational Unit

The EESP is under the Department of Electrical Engineering (EE Department). The EE Department is under the Faculty of Engineering, and consist of Bachelor, Master and Doctoral study program, The EESP is the Bachelor study program, which is the educational unit that prepares this ABET Readiness Report. The ESSP is led by a chair of study program. The organizational chart of Hasanuddin University showing the departmental educational unit is presented in Figure D-1.

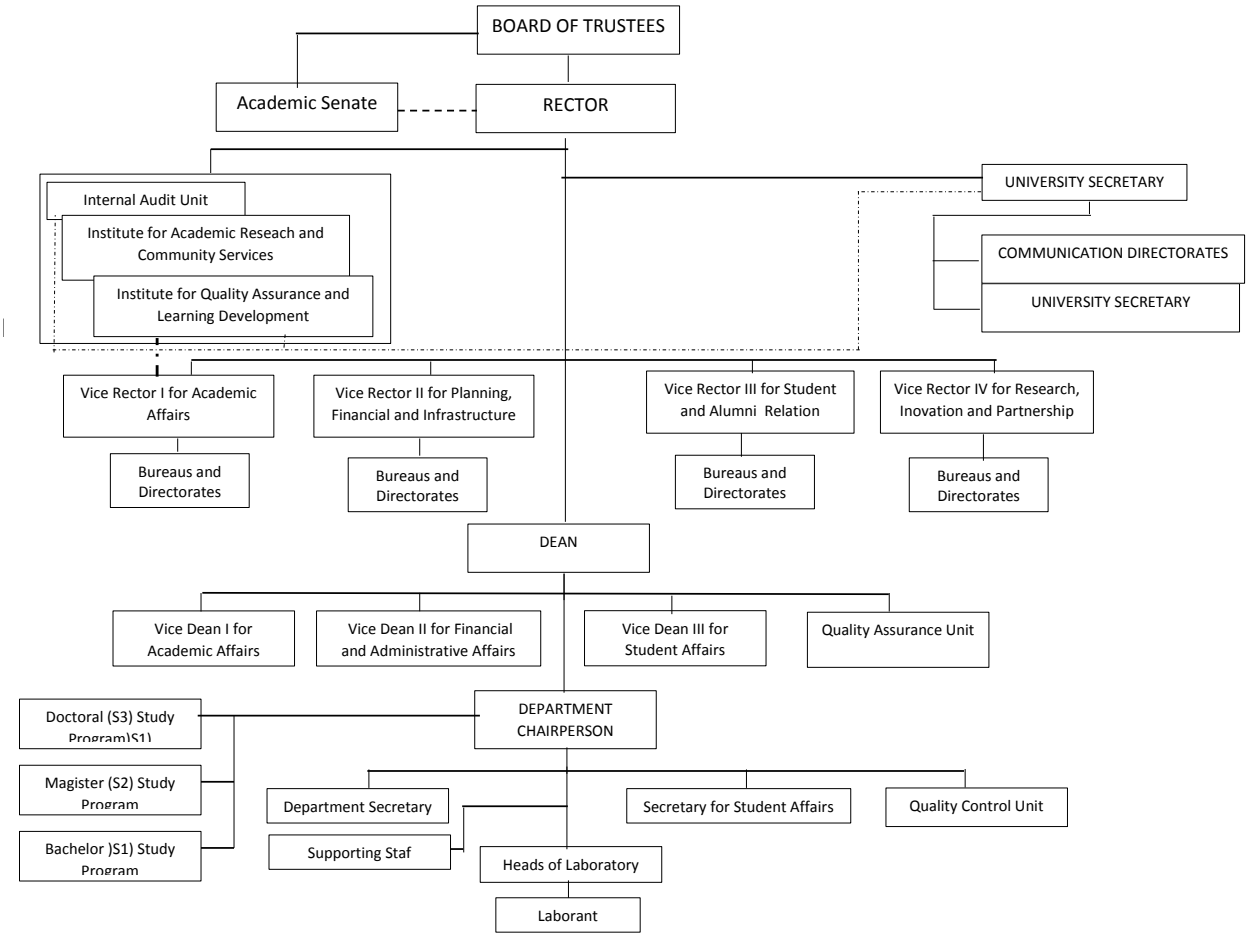

Figure D-1 Organization Chart of Hasanuddin University.

4. Academic Support Units

The following table lists the names and titles of the individuals responsible for each of the units that teach courses required by the program being evaluated for readiness, e.g., mathematics, physics, etc.

No.	***Name of academic staff***	***Academic Support Courses***
1	Dr. Syahruddin Kasim, SSi, MSi	Concept of Science and Technology
2	Dr.Ir, Muhammad Agung MP	Concept of Science and Technology
3	Dr.A.Baharuddin SH	Citizenship Education
4	Abdul Azis STP.M.Si	Citizenship Education
5	Abdur Rahman arif S.Si.,M.Si	Advanced Chemistry
6	Dr. Syahruddin Kasim, SSi, MSi	Advanced Chemistry
7	Dr.Paulus Lobo G M.Sc	Basic Physics
8	Prof.Dr.Syamsir Dewang MS	Basic Physics
9	Dr Munira Hasyim S.S.M.Hun	Bahasa Indonesia
10	Dr.Asriani Abbas m.Hum	Bahasa Indonesia
11	Dr.Firman, S.Si.,M.Si	Basic Mathematics
12	Andi Galsan Mahie, S.Si.,M.Si	Basic Mathematics

5. Non-academic Support Units

The names and titles of the individuals responsible for each of the units that provide non-academic support to the program, e.g. library, computing facilities, placement, tutoring are listed below.

No.	*Name of Non-academic Staff*	*Non-academic Support Units*
1	Junaid	Head of Administrative Staff
2	Salmiati	Administrative Staff
3	Aris	Administrative Staff
4	Budi	Laborant
5	Mustakim, ST	Laborant
6	Amsal Salim, ST	Laborant
7	Nompo	Laborant
8	Rimba	Office Boy

6. Credit Unit

Using the 16-week semester, the semester credit hour, and the 50-minute class hour, Hasanuddin University course offerings are measured under the following guidelines.

Credit Guidelines

One semester credit hour is assigned in the following ratio of component hours per week devoted to the course of study:

Non-Laboratory Instruction

Lecture, Recitation – Normally, one credit hour is associated with a class meeting for 50 minutes per week for an entire semester (or the equivalent 750 semester-minutes, excluding final exams). Another widely repeated standard states that each in-class hour of college work should require two hours of preparation or other outside work.

Presentation – 1/2 credit hour is associated with a class meeting for 50 minutes per week for an entire semester (or the equivalent 750 semester-minutes, excluding final exam).

Laboratory Class Instruction

Laboratory – Normally, one credit hour is associated with a class meeting for 180 minutes per week for an entire semester (or the equivalent 2700 semester-minutes, excluding final exam, in other meeting formats).

Lab Prep – One semester credit hour is associated with a class meeting 180 minutes per week over the semester.

Studio – One semester credit hour is associated with a class meeting 180 minutes per week over the semester.

Independent Study
Experiential, Research, Individual Study –Credit hours associated with this type of instruction will be assigned credit depending upon the amount of activity associated with the course, faculty supervision, and students outside work activity.

Non-Directed Study
Practice/Study/Observation –No credit hours or staff effort are directly associated with these learning situations.

Types of Credit Awarded in the Hasanuddin University System

Regular Credit: Credit earned for regularly offered collegiate courses of instruction that meet the requirements of a degree program.

It is assumed that one semester or quarter credit normally represents one class hour or three laboratory hours per week. One academic year normally represents at least 28 weeks of classes, exclusive of final examinations. If other standards are used for this program, the differences should be indicated.

Thesis Credit: Credit awarded to students for research toward completion of a research project, or a degree thesis or dissertation. This credit allows measure of the expected amount of work and the resources used, while the student actually earns zero-degree credit hours. The benefit obtained is primarily to account for the resources provided, to use in reporting to governments, and in maintaining the students' financial aid position. Example: Senior Research Project, Master's Thesis, Doctoral Dissertation.

Equivalent Credit: Hours are assigned to courses to reflect the value of resources used to provide the class, such as rooms, instructors, equipment, etc. Equivalent hours are used in the registration process but revert to zero when posted to the student's academic history.

Example:
A seminar with a visiting professor, over and above existing degree requirements. The benefit obtained is primarily to account for the resources provided, to use in reporting to governments, and in maintaining the students' financial aid position.

Procedure for Exceptions
Many situations and new developments may cause a given department or faculty member to vary from the guidelines listed above in the assigning of credit.

7. Tables

The following tables are completed for the program undergoing the Readiness Review.

Table D-1. Program Enrollment and Degree Data

Electrical Enginering Studi Program (EESP)

	Academic Year		Enrollment Year					Total Undergrad	Total Grad	Degrees Awarded			
			1st	2nd	3rd	4th	5th			Associates	Bachelors	Masters	Doctorates
Current Year	2018-2019	FT	110	84	66	82	75	372**	72	N/A	S.T. (Sarjana Teknik)	N/A	N/A
		PT	0	0	0	0	0	0	0				

*Data provided until September 2018.
**Data include the 6th and 7th year students

Table D-2. Personnel

Electrical Enginering Studi Program (EESP)

Year[1]: 2018/2019

	HEAD COUNT		FTE
	FT	PT	
Administrative[2]	2	0	4
Faculty (tenure-track)[3]	48	0	48
Other Faculty (excluding student Assistants)	0	10	2,5
Student Teaching Assistants[4]	0	20	2
Technicians/Specialists[2]	4	0	8
Office/Clerical Employees[2]	1	0	2
Others[2] (Office Boy)	1	0	2

2) Administrative/Technicians/Specialists Staff FTE, 1 FTE = 20 hours/week
3) Faculty FTE, 1 FTE = 16 x 150 minutes/week = 40 hours/week
4) Student FTE, 1 FTE = 10 hours/week

Signature Attesting to Compliance

Do **not** submit for Readiness Review.