PROGRAM SELF-STUDY REPORT

for the

BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

In preparation for a visit by the
Engineering Accreditation Commission
of
The Accreditation Board for Engineering and Technology

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Table of Contents

List of Figures ................................................................. iii
List of Tables ................................................................. iv
Executive Summary .......................................................... v

A. Background Information ..............................................
   1. Introduction ............................................................
   2. Degree Titles ...........................................................
   3. Program Modes .......................................................
   4. Actions to Address Previous Concerns ..........................
   5. Contact Information .................................................

B. Accreditation Summary ................................................
   1. Criterion 1 – Students ..............................................
   2. Criterion 2 – Program Educational Objectives ..............
   3. Criterion 3 – Program Outcomes and Assessment ...........
   4. Criterion 4 – Professional Component ........................
   5. Criterion 5 – Faculty ................................................
   6. Criterion 6 – Facilities .............................................
   7. Criterion 7 – Institutional Support and Financial Resources 
   8. Criterion 8 – Program Criteria ....................................
List of Figures
List of Tables
Executive Summary

Lamar University is a component of the Texas State University System, a nine member, state supported system of higher education with a total enrollment of approximately 70K students, and an operating budget of $670 million. Lamar University currently has an enrollment of approximately ten thousand students with over ten percent of them in an engineering program. The University is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools, SACS. and awards degrees at the associate, baccalaureate, master's and doctoral levels. In addition, Lamar is approved by the Texas Education Agency.

The College of Engineering, one of five at the university, consists of five departments: Chemical, Civil, Electrical, Industrial and Mechanical Engineering and all are ABET accredited.

This self-study report presents every element of the undergraduate program in the Electrical Engineering Department to include data and discussion of students, faculty, curriculum, institutional support, and financial resources. The processes by which constituent groups of the program, the educational objectives, and measurable program outcomes are determined is described. Strategies to achieve program outcomes are also defined and explained. We also exhibit several changes we have implemented to our curriculum based on the inputs from our constituents.
Section A. Background Information

1. Introduction
The Lamar University Electrical Engineering Department (LUEE) began graduating students with the BSEE in 1953, two years after Lamar State College of Technology became a four-year university. The school was renamed to Lamar University in 1971. A Master of Engineering Science (with thesis) degree was first offered in 1962 and a Master of Engineering (non-thesis) was approved in 1968. In 1973 the College of Engineering awarded the first Doctor of Engineering degree. The department is currently in the process of developing a Ph.D. program.

The Engineers Council for Professional Development granted accreditation for the BSEE at Lamar on November 8, 1958 and the department has retained accreditation since then. The present location of the department is in the 90,000 square foot Cherry Engineering Building on the Lamar University main campus in Beaumont Texas. The EE department administrative, office and laboratories occupy 14,000 square feet of that space, which we share with the departments of Civil, Mechanical, and Industrial engineering as well as the dean of engineering offices and the campus computer systems.

There are six faculty in the department, three full professors, one associate professor and two assistant professors. Of these faculty, one is an endowed chair. LUEE has always maintained a strong commitment to instructional excellence and an unofficial department motto is the well-known saw: research is inseparable from informed teaching. Since our last ABET visit we have attracted two new full-time, tenure track faculty members and have added a joint appointment member from physics.

2. Degree Titles
LUEE offers the Bachelor of Science in Electrical Engineering, the Master of Science and Doctor of Engineering degrees in Electrical Engineering. At this time the department has applied for a Ph.D. program in Electrical Engineering.

3. Program Modes
The Bachelor of Science Program in Electrical Engineering is a day program. The LU academic calendar comprises two 16-week semesters during a standard academic year; typically students take five to six courses per semester. All undergraduate courses are offered during the
day; however, students may choose cross-listed graduate courses as electives that may be offered in the evening hours.

4. Actions to Address Previous Concerns

The report on our program from our 2000 ABET visit is shown below. A discussion of our responses to expressed concerns and suggestions follow.

4.1 Report from 2000 ABET visit

Program Strengths

1. A registered professional engineer with industry experience directs the senior capstone design course.

2. The dedicated faculty has exceptionally close ties with the students. As a group they maintain flexible office hours and provide substantive career and professional guidance.

3. The department is to be commended for its teaching and for imparting professional responsibilities to the engineering student in its excellent first year introductory course.

4. The computer science faculty maintains a very good rapport with the electrical engineering faculty. They depend on each other for support in key areas such as complimentary courses and laboratory facilities. The department has recognized computer science as integral to the new wave of enabling technologies.

5. An active corporate and professional advisory board has been formed as one of the “constituents” in anticipation of complying with EC2000 requirements.

Program Weakness

- **14-day response:** A Fully documented, comprehensive laboratory plan was submitted during the 14-day response period.

- This weakness has been resolved

**Program Concern**

1. **Criterion I.C.7.b: Institutional Commitment** There is concern over whether a sound fiscal policy is ensured which will provide sufficient funds for the acquisition, retention, and continued professional development of a well-qualified faculty.

- This concern remains unresolved

**Program Observations**

1. Not all of the faculty members appear to participate in professional development programs or activities. Students interviewed voiced their desire that all the faculty maintain close ties with industry to ensure current relevance.

2. There appears to be difficulty in filling the several openings for tenure-track positions in the electrical engineering program due to immense competition with industry.

**4.2 Actions taken**

- Dr. Ruhai Wang (New Mexico State) was hired in 2002 to support computer engineering instruction in the undergraduate program.

- Dr. Selahattin Sayil (Vanderbilt) was hired in 2003 to support circuits and systems, specifically electronics, instruction in the undergraduate program.

- Faculty members are active in IEEE activities (Beaumont Section) and in college initiatives that provide regular interaction with local industry. The Industrial Advisory Board of the department along with our department level alumni initiatives also provide a venue for faculty-industry interaction.

- A grant from the Texas Workforce Development (TWD) program was used to update the undergraduate circuits and
electronics laboratory with new equipment and instructional capability.

5. Contact Information

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