

Prairie View A&M University

Quality Without Compromise

**The Strategic Plan Update
for
Fiscal Years 2009-2013**

**Electrical and Computer Engineering
Prepared on May 29, 2009**

Quality Without Compromise – The Strategic Plan Update for Years 2009-2013

A. Executive Summary

Narrative description of the unit's achievements since 2004 or earlier, its aspirations, expectations and its unique challenges. Highlight projected goals for the 2009-2013 periods. Address projected changes in programs/services (eliminations, modifications, additions). Describe how achieving future plans will impact student learning by strengthening learning (applicable to academic and educational support programs and services) or enhance the student learning environment (administrative support units).

Electrical and Computer Engineering has established three new programs since 2002. The programs are Bachelor Degree in Computer Engineering, Master degree in Electrical Engineering, and Ph.D. degree in Electrical Engineering. At present, the Department offers two baccalaureate degrees in Computer Engineering and Electrical Engineering. Electrical Engineering Program is ABET accredited. Computer Engineering is a new program established in 2003, and is scheduled to be reviewed for accreditation in 2010. The ECE has set the following six goals to enhance the student learning environment and to increase research and service production for the next four years:

1. Improve the quality of student's learning by implementing continuous outcome based assessment.
2. Increase funded research projects and quality research publications.
3. Increase student enrollment and improve the retention rate.
4. Promote and maintain safe and healthy environment.
5. Support professional development of faculty, staff, and students.
6. Acquire, maintain and utilize modern technology and facilities.

B. Vision of the Electrical and Computer Engineering

A guiding image of what success looks like. A guide to action that answers the question “what do you wish to become”? By the Year 2013, how will the unit be characterized? Is there a benchmark unit at the University or at another institution that is a model you wish your unit to emulate?

By the year 2013, the unit will be characterized as a department that

- Creates a collaborative environment in which ethical professionals design and manage quality educational programs by using continuous improvement methods,
- Creates an environment where everyone (students, staff and faculty) is valued,
- Fosters communication and trust among students, staff and faculty, and
- Meets and exceeds the needs of our internal and external clients.

C. Mission of the Unit

The reason for its existence. Defines who you are, what you do, why you are doing it and captures your values and beliefs. What is the Purpose of the Unit (e.g. School, College, Accounts Payable, Student Activities, Campus Safety and Security, Cooperative Agriculture Research Center, etc.).

The mission of the Electrical and Computer Engineering Department is multifold:

1. to provide the highest level of quality education to students – to provide the student with the necessary educational skills and fundamental comprehension of the societal demands, so that he/she may enter and grow in a professional career.

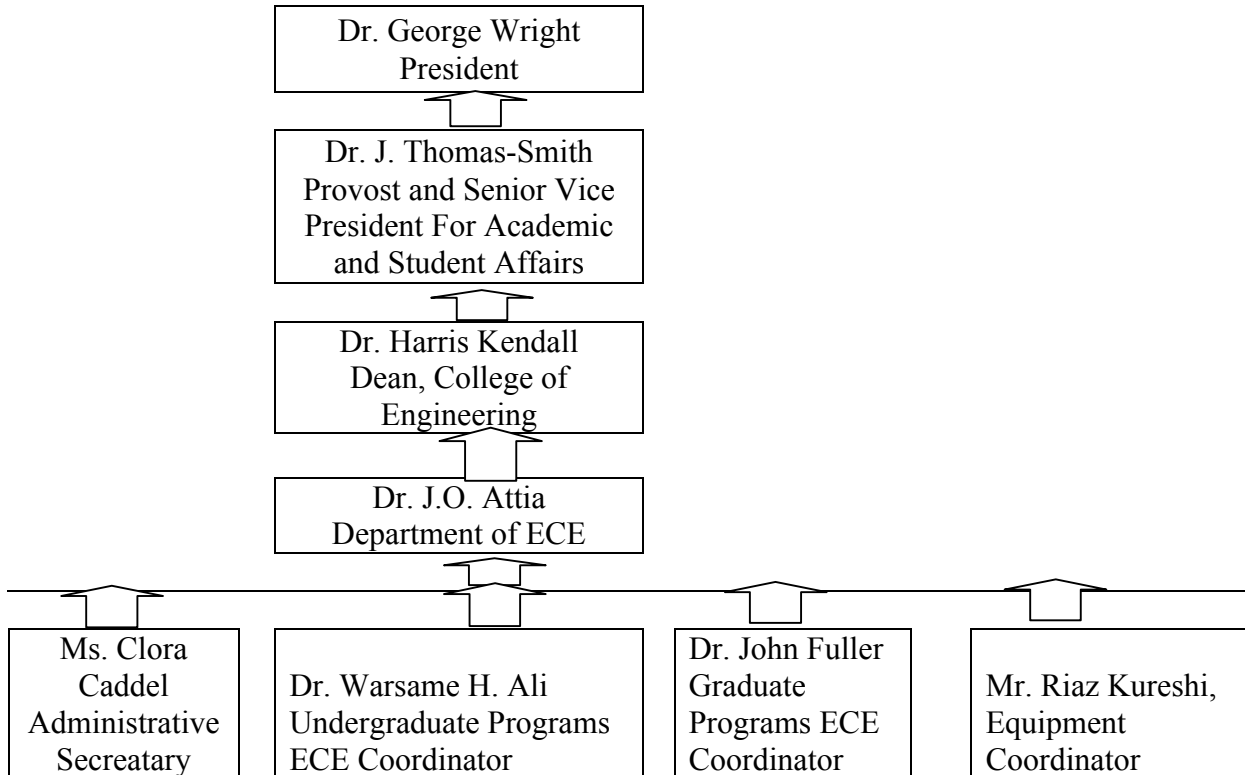
2. to sustain and continually augment an atmosphere conducive for research and scholarly development, not only to produce high quality research and the associated knowledge and technology transfer, but also to attract and retain highly qualified students and faculty into the program.
3. To provide the citizens of the state of Texas and the nation an effective outreach program in technology transfer and continuing education.
4. To pay special attention to the recruitment, retention and education of historically bypassed and underprivileged people.

D. Relationship of the Unit’s Mission to the University’s Mission

How does the Unit’s Mission coincide with the University’s Mission?

University Mission	Electrical and Computer Engineering Mission Statements (#)
1. committed to achieving relevance in teaching, research and service by addressing issues and proposing solutions through programs and services designed to respond to the needs and aspirations of the community	ECE Mission Statements 1,2
2. Preparing undergraduates in a range of careers and advance graduate education	ECE Mission Statement 1
3. Serve the Northwest Houston, Texas Gulf Coast region and beyond	ECE Mission Statements 1,2,3
4. Provide public service to state of Texas (both rural and urban) and extending knowledge through research based experiences in undergraduate and graduate education	ECE Mission Statements 1,2,3,4

E. Current Organizational Structure



F. Electrical and Computer Engineering Support of the University's Core Values

Narrative that certifies commitment to the entire set of core values addresses their appropriateness to fulfilling the University's aim to educate the total student and illustrates the values that are most salient for the unit because of the nature of that unit's functions.

Institutional Core Values	Unit's Support of Core Values Most Applicable to The Unit
<ol style="list-style-type: none">1. Access and Quality2. Diversity3. Relevance4. Leadership5. Social Responsibility6. Accountability	<p>The ECE Department subscribes to all the core values of the university; Access and Quality, Diversity, Relevance, Leadership, Social Responsibilities, and accountability</p>

Quality Without Compromise – The Strategic Plan Update for Years 2009-2013

G-1. The Past: Major Outcome Achievements and Changes Since 2004 (Excluding Degree Program Outcomes Reported on Forms A-1) University Goal # _____ (see Goal List)

Unit Goal	Objective/Outcome	Methods of Assessment and Year	Evidence (Form and Location)	Outcome to be continues in 2009-2013 Cycle Y= Yes N = No
Improve the quality of student's learning by implementing continuous outcome based assessment.	All undergraduate Degree programs in the Department of Electrical and Computer Engineering (ECE) will receive and maintain ABET accreditation	Approve by ABET accreditation agency, 2004	ABET certificates at dean's office / department office, also at the ABET websites	Yes
Increase funded research projects and quality research publications.	The ECE Department will increase it's of funded research projects and publications yearly.	Annual faculty evaluation. Every year	As reported in College of Engineering annual report and cited in OSP, Research Foundation and TEES report	Yes
Increase student enrollment and improve the retention rate.	Increase enrollment and retention through ECE Summer Programs, Science Technology, engineering and Mathematics (NSF – STEM/LSAMP), Mentoring, tutoring and new educational initiatives.	Placement test at the end of program BS/MS Combined Degree Every year	Report in ECE Department's office.	Yes
Promote and maintain safe and healthy	Follow the regulation of environmental safety, TAMUS safety office - PVAMU	Every year report	Report from Department forwarded	Yes

environment.		Hazardous materials report through vice president office forward from each unit and center of College of Engineering	to Provost's office for the administration from College of Engineering	
Encourage professional development of faculty, staff, and students.	Encourage faculties and students attend the conference to present paper. Support students attend the Pathway symposium.	Conference presentation.	From each department and dean's office	Yes
Acquire, maintain and utilize modern technology and facilities.	Updating labs and classrooms with facilities and computers allows students and faculties to deliver presentation for the lectures. Faculties are using the PowerPoint to deliver the lectures.	Every two – four years upgrading the labs and classrooms.	Procurement office to acquire the equipments.	Yes

***For Academic Program Outcome see H-1-1**

***Reproduce this sheet as needed for each applicable Goal**

Quality Without Compromise – The Strategic Plan Update for Years 2009-2013

G-1-1. The Past 2004-2008: Main Student Learning Program Outcomes Assessment Summary (Schools, Colleges, Developmental Education, Under Graduate Medical Academy)

Program Electrical and Computer Engineering

Referring to Form A-1, Describe changes made	Years change made	Document	Documentation contact person
Math application,	Fall 08,	Course Inventory Update	
Freshman classes	Fall 07,	Course Inventory Update	
FE GNEG course	Fall 09	Course Inventory Update	
Reduce curriculum hrs	Fall 08	2008-09 University Catalog	Department heads
ABET accreditation	Fall 2011	Self Study Report	

Quality Without Compromise – The Strategic Plan Update for Years 2009-2013

G-1-2. The Past: 2004-2008 Major Academic Program Destination Outcomes Assessment Summary (Schools, Colleges, Developmental Education, UMA)

Program Electrical and Computer Engineering

Destination of degree /Program completers	Years Assessed	Documentation	Contact person
Graduates are hired by industrial companies	2004-2008	Survey result	Department head, survey report

Referring to Forms A-1, Describe changes made to improve student learning (e.g. curriculum, technology, instructional methods, co-curricular activities, etc.)	Year(s) Change Made	Documentation Supporting Change (e.g. minutes, reports, statistical profiles, test scores, etc.)	Document Contact Person, Location and Form

***Reproduce this sheet as needed for each program**

Quality Without Compromise – The Strategic Plan Update for Years 2009-2013

H. The Past: Unit Outcomes Assessment Summary for Units Without Formal Inclusion in the 2004-2008 Strategic Plan Update (skip all H Section Forms)

List Unit Functions at the Core of its Mission (What would not take place at the University if the Unit Did Not Exist?)	Level of Achievement	Changes Made (e.g. Procedure/Rule change, Process change, Personnel adjustment, Software change, Organizational change)	Year(s)	Document Contact Person, Location and Form

Quality Without Compromise – The Strategic Plan Update for Years 2009-2013

I. The Future: Unit Profile Changes (as appropriate)

Area of Change	Type of Change A=Add D=Delete M=Modify	Year	Cost or Savings
1. Organization - Increase faculties - Increase staff - Recruit Coordinators – graduate and Transfer-student	A A A	2010 2009 2010	\$75,000 \$32,000 \$33,000
2. Program - Specialization or concentration in Biomedical Engineering the program<Bachelors and Masters>	A	2010	
3. Services - Student Success Center - Provide contract services to Industries - Provide graduate students for tutoring in discipline specific courses	A A A	2009 2010 2009	
4. Policies/Procedures/Rules - Simplify hiring process - Incentives for researcher - Provide in house simplified user friendly workshops for adopted administrative applications<banner, Trueoutcomes> -	M A A	2009 2010 2010	Savings From IDC (No cost to University)

Quality Without Compromise – The Strategic Plan Update for Years 2009-2013

K-1. The Future: Projected Outcome Achievement by TAMUS Imperative and University Goal (Excluding Degree Program Outcomes Reported on Forms A-1)

TAMUS Imperative #1: Openness and Accountability
Related University Goal Number(s): (2) Improve Academic Indicators, (4) Strengthen Environmental Health and Safety Programs on Campus, (9) Increase and Enhance the Visibility and Awareness of the University to The Community at Large/All Stakeholders

Unit Goal	Projected Objectives/Outcomes	Means of Assessment By Year	Strategies Used	Savings or New Cost per Strategy
Univ. 4 =Unit 4	<ol style="list-style-type: none"> 1. Increase use of safety protocols 2. Safety analysis procedures 3. Training and certification, and documentation 	<ol style="list-style-type: none"> 1. Semi-annual laboratory safety review 2. Incident log/reporting 	<ol style="list-style-type: none"> 1. Biannual safety retraining and certification 2. Display of safety awareness and signage 3. Personal Protective Equipment (PPE) 4. Appropriate labeling, storage and disposal of waste 	\$5000 for Training

K-1. The Future: Projected Outcome Achievement by TAMUS Imperative and University Goal

**TAMUS Imperative #2: Excellence through Academics & Extension
 Related University Goal Number(s): (1) Strengthen the Quality of Academic Programs; (7) Promote Programs that Contribute to Student Success; (9) Increase and Enhance the Visibility of the University at Large/All Stakeholders; (10) Strengthen the Quality of the Athletics Program**

Unit Goal	Projected Objectives/Outcomes	Means of Assessment By Year	Strategies Used	Savings or New Cost per Strategy
Univ. 1 = Unit 1	Achieve and demonstrate learning specified learning outcomes	Course assessment reports and binders	The strategies consist of the following steps. <ol style="list-style-type: none"> 1. Assign outcomes to courses 2. Measure performance in outcomes and compare to target 3. Identify problems and suggest potential improvements 4. Implement improvements in the next cycle 5. Repeat from step 2 	Software for implementing continuous assessment e.g., Trueoutcomes

<p>Univ.7 =Unit 5</p>	<ol style="list-style-type: none"> 1. Improving retention 2. Better performance in learning outcomes 	<ol style="list-style-type: none"> 1. Retention numbers 2. GPA analysis 	<ol style="list-style-type: none"> 1. Engineering Success Center 2. Attendance at conferences and symposia 3. Student awards 4. Student research papers and posters participation e.g., TAMUS (Pathways Symposium) 	
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K-1. The Future: Projected Outcome Achievement by TAMUS Imperatives and University Goals

**TAMUS Imperative #3: Research
University Goal Number(s): (3) Increase Applied and Basic Research;
(8) Strengthen University Advancement Programs Including Research**

Unit Goal	Projected Objectives/Outcomes	Means of Assessment By Year	Strategies Used	Savings or New Cost per Strategy
<p>(2) Increase funded research projects and quality publications</p> <ul style="list-style-type: none"> • By 2010 have \$3M (in line with College goals) research • Increase by 10% per year till 2013 	<ol style="list-style-type: none"> 1. Enhance the research environment and 2. Expertise of faculty and staff 3. Recognition 4. Integrated research work with undergraduate senior design projects. 5. Research partnership with federal, private and industrial sectors. 6. Increase graduate students production 7. Increase student enrollment 8. Enhance professional development for 	<ol style="list-style-type: none"> 1. Dollar amount per year 2. Publications 3. Presentations at conferences 4. Refereed Journal Publications 5. Hold seminars and work shops in the field 6. Graduate student enrollment 7. Undergraduate student enrollment 8. Research funding to department 9. Faculty Evaluation 	<ol style="list-style-type: none"> 1. Explore funds aligned university research goals with federal, state and industry needs and goals. 2. System grant collaboration to increase research funded projects 3. Enhance corporate partnerships – proposal funding from industry 4. Increase number of proposals per faculty 5. Increase student funding per proposal 6. Increase release time per faculty 	<p>Cost-</p> <ol style="list-style-type: none"> 1. Release time 2. Need for release time for faculty <p>Savings-</p> <ol style="list-style-type: none"> 1. shared facilities 2. More student supported by research, less need for department support

	<p>faculty staff</p> <p>9. Increase graduate student population by 10% per year</p> <p>10. Increase student enrollment in line with college goals.</p> <p>11. Increase paper production or conference participation by 1/2 year</p>			
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K-1. The Future: Projected Outcome Achievement by TAMUS Imperatives and University Goals

**TAMUS Imperative #4: Resources Optimized and Leveraged
University Goal Number(s): (5) Achieve and Maintain Financial Stability (6) Increase the Efficiency of University Operations**

Unit Goal	Projected Objectives/Outcomes	Means of Assessment By Year	Strategies Used	Savings or New Cost per Strategy
<p>(6) Acquire, maintain and utilize modern technology and facilities</p>	<p>Objective:</p> <ol style="list-style-type: none"> 1. Shared services, centers, and collaboration 2. Leverage information technology 3. Develop infrastructure and Facilities <p>Outcomes:</p> <ol style="list-style-type: none"> 1. Acquire one general use instrument for facility per 2 years 2. Three new collaboration per year (both internal and external) 3. One advanced research software per 	<ol style="list-style-type: none"> 1. Frequency of usage of facility 2. Number of research projects 3. Dollar amount of funding 	<ol style="list-style-type: none"> 1. Communicate the accomplishments of the facilities through publications 2. Enhance corporate relations through industry clustered publications 3. Use technology to communicate the facility accomplishments to a broader audience. 	<p>Savings – reduced research expenditures</p> <p>Cost – Upgrading technology</p>

	year acquired			
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Quality Without Compromise – The Strategic Plan Update for Years 2009-2013

Electrical and Computer Engineering

K. The Future: Assessment Record Report Summary for Academic Degrees/Programs

Degree/Program Name: Electrical and Computer Engineering Programs

Outcomes	Means or Measures	Data Collection Schedule	Data Analysis Schedule	Data Distribution Schedule
<p>Student Learning</p> <p>Improve the quality of student learning in terms of a through k criteria defined by ABET</p> <p>Improve student retention through the establishment of student success center</p>	<p>Direct measurement in class through assignments that may include tests, quizzes, homework, projects,</p> <p>FE Exam</p> <p>Indirect assessment through survey of graduating students</p> <p>4, 5, and 6 year graduation rates</p>	<p>Data collected each semester (Fall and Spring)</p> <p>Annually</p> <p>Data collected in May and August of each year</p>	<p>Data analyzed annually</p> <p>July 30, each year</p> <p>Annually by December 31</p> <p>Data analyzed annually By September 30</p>	<p>Data is distributed annually in August of each year</p> <p>Annually by December 31</p> <p>Annually by October 31</p>
<p>Student Destination</p> <p>Work Force</p>	<p>Survey at time of graduation to determine % entering workforce and graduate school</p>	<p>Data collected every semester</p>	<p>Data analyzed annually by September 30</p>	<p>Annually by October 31</p>

Graduate School	<p>Survey 3-5 years after graduation to determine % still in the workforce and in graduate school</p> <p>S</p>	<p>Data collected once every 3 years</p> <p>Fall 2009, Fall 2012</p>	<p>Data analyzed every 3 years</p> <p>By December 15</p>	<p>Once every 3 years by December 15</p>
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