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ABET
Self-Study Report
for the
Computer Engineering Program
at
Prairie View A&M University
Prairie View, Texas

June 28, 2016

CONFIDENTIAL

The information supplied in this Self-Study 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
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Electrical and Computer Engineering Department
Prairie View A&M University
P. O. Box 519, MS 2520
Prairie View, Texas 77446-0519
Telephone: 936-261-9907 (direct)/ 936-261-9907 (department)
Fax: 936-261-9930
Email: phobiomon@pvamu.edu

B. Program History
The Computer Engineering Program was approved summer 2003 and started June 2003. The first graduate of the program, Ms. Kristina Smith, graduated in May 2006. There were 15 students in the program during the fall of 2003 semester. The program grew to 91 students during the fall of 2015 semester. The last general ABET review was in the 2009-2010 cycle. No significant changes have been made to the curriculum. The program faculty is adequate and has a very low attrition rate. The program currently has thirteen tenured faculty members, one tenure-track faculty member, one instructor, two adjunct instructors, two administrative assistants and a technician.

A. Options
The Computer Engineering Program has no program options. However, the students in the program can take technical electives from the following areas: (i) Microelectronics, (ii) Communications and Signal Processing, (iii) Power and Control Systems and (iv) Computer Engineering.

B. Program Delivery Modes
The program is offered during days, evenings with traditional lecture/laboratory courses. There are no off-campus instructions.

C. Program Locations
The Computer Engineering Program is solely located and operated on the Prairie View A&M University campus located in Prairie View, Texas.
D. Public Disclosure
The Program Education Objectives (PEOs), Student Outcomes (SOs), annual student enrollment and graduation data are posted or made accessible to the public at the following URLs:

i) Program Education Objectives (PEOs):
http://www.pvamu.edu/ece/computer-engineering-program-objectives/

ii) Student Outcomes (SOs):
http://www.pvamu.edu/ece/student-outcomes-for-the-computer-engineering-program-2/

iii) Annual student enrollment and graduation data:
https://www.pvamu.edu/include/ece/ce-enrollment-and-degrees-awarded.pdf

The Computer Engineering Program is accredited by the Engineering Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202 – telephone: 410-347-7700.

E. Deficiencies, Weaknesses or Concerns from Previous Evaluation(s) and the Actions Taken to Address Them
There were no deficiencies, weaknesses or concerns from the most recent ABET final statement.
GENERAL CRITERIA

CRITERION 1. STUDENTS

A. Student Admissions
The student admissions information and requirements at Prairie View A&M University is published in the University catalog at http://catalog.pvamu.edu/admissionsinformationandrequirements/undergraduate_information/.

Freshman Admission
Applicants for admission to the freshman class submit their application materials as early as possible in their senior year of high school. All students are required to submit the Apply Texas Application for admission (available www.pvamu.edu/www.applytexas.org and a nonrefundable $25.00 processing fee. Transcripts submitted should include all semesters of high school credits as soon as grades are available. Applicants are requested to furnish final transcripts immediately following graduation from high school. All students are required to have Texas Success Initiative Assessment (TSIA) scores on file prior to registration.

Freshman applicants for college admission are those who have graduated from high school, are nearing completion of high school or have earned a General Equivalency Diploma (GED). Applicants must satisfy the freshman admission requirements. All freshman applicants must submit test results from either the American College Testing (ACT) Examination or the Scholastic Aptitude Test (SAT-I).

Application
Eligibility for admission is determined by evaluation of the completed application and supporting documents. All first time college freshmen must submit the following items to the Office of Undergraduate Admissions:

1. Completed Apply Texas Application for Admission
2. A $25 nonrefundable processing fee which is due for each semester an applicant applies. A fee waiver may be submitted in lieu of the $25 fee by first time freshmen students only.
3. The university accepts only ACT or SAT score reports. An official SAT Reasoning Test or ACT score report is required. Scores must be sent directly from the testing agency. Faxed, e-mailed or scanned reports will not be accepted.
4. An official high school transcript for all previous work showing completion or a GED certificate showing that the equivalent of a diploma has been earned is required.
5. For a freshman to complete the application file and finalize the admission process, a final transcript must be sent directly from the applicant’s high school. It is the responsibility of the student to request that the transcript be sent. The high school transcript must include the graduation date and rank in class. If the transcript(s) submitted as part of the application procedure are final and official, additional transcripts are not required. Faxed, emailed or scanned transcripts will not be accepted.
Types of Undergraduate Admission

**Honors Admission (Apply separately for scholarship assistance)**

Freshman Admission is competitive and by invitation. The Honors Program is a cohort-based program. The applicant’s file is reviewed and includes the applicant’s transcript, SAT or ACT scores, a two-page personal statement, and a letter of recommendation. The requirements are as follows:

1. An official high school transcript including the following:
   - English: 4 credits
   - Mathematics: 4 credits (Algebra I and above)
   - Science: 3 credits (Biology, Chemistry and Physical Science)
   - Foreign Language: 2 credits in a single language
   - Computer Science: 1 credit
2. A high school GPA of 3.5 or higher on a 4.0 scale
3. SAT Reasoning Test-I score of 1200 (Critical Reading/Verbal & Math) an ACT score of 25
4. Passage of any state mandated examination used as a high school exit examination.

**Automatic Unconditional Admission**

Students in the state of Texas who graduate with a grade point average in the top10% of their high school graduating class in one of the two school years prior to the academic year for which the students are applying for admission (TEC 51.803) are eligible for unconditional admission.

**Unconditional Admission**

The requirements for unconditional admission are as follows:

1. An official high school transcript or GED
2. Passage of any state mandated examination used as a high school exit examination
3. High school grade point average that is equal to or greater than a “C+” (2.50 on a 4.00 scale)
4. SAT Reasoning Test-I total score of 820 (Critical Reading & Math) or an ACT score of 17

**Conditional Admission**

The requirements for conditional admission are as follows:

1. An official high school transcript or GED
2. Passage of any state mandated examination used as a high school exit examination
3. High School grade point average of 2.50 on a 4.00 scale
4. SAT Reasoning Test-I total score of 710 - 819 (Critical Reading/Verbal & Math) or an ACT composite score of 15-16.

**Admission to the College of Engineering**

Admission to the Roy G. Perry College of Engineering is based on the University’s undergraduate admissions requirements plus the criteria for the College of Engineering. The admission information and requirements for the Roy G. Perry College of Engineering is published in the University Catalog at [http://catalog.pvamu.edu/academicprogramsanddegreeplans/roygperrycollegeofengineering/#collegerequirements](http://catalog.pvamu.edu/academicprogramsanddegreeplans/roygperrycollegeofengineering/#collegerequirements)
The admission requirements for the Computer Engineering program are published in the University catalog at http://catalog.pvamu.edu/academicprogramsanddegreeplans/roygperrycollgeofengineering/electricalandcomputerengineering/#text.

The first–time freshmen requirements for direct admission to the Computer Engineering Program are shown in Table 1-1. The first–time freshmen requirements for conditional admission to the Computer Engineering Program are shown in Table 1-2.

Table 1-1 First–time Freshmen Requirements for Direct Admission to the Computer Engineering Program

<table>
<thead>
<tr>
<th>Academic Major</th>
<th>Meet PVAMU Admission Standards</th>
<th>High School GPA</th>
<th>SAT/ACT</th>
<th>High School Rank</th>
<th>THEA Passed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer And Electrical Engineering</td>
<td>Yes</td>
<td>3.00</td>
<td>930/19</td>
<td>Top 25%</td>
<td>Yes (All Subjects)</td>
</tr>
</tbody>
</table>

Table 1-2 First –time Freshmen Requirements for Conditional Admission to the Computer Engineering Program

<table>
<thead>
<tr>
<th>Academic Major</th>
<th>Meet PVAMU Admission Standards</th>
<th>High School GPA</th>
<th>SAT/ACT</th>
<th>High School Rank</th>
<th>THEA Passed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer And Electrical Engineering</td>
<td>Yes</td>
<td>2.50</td>
<td>820/17</td>
<td>Top 50%</td>
<td>No</td>
</tr>
</tbody>
</table>

B. Evaluating Student Performance

Grading System

The faculty members follow the university’s grading system to evaluate the students’ performance in their classes. The standard university grading scale is indicated in Table 1-3.
<table>
<thead>
<tr>
<th>Grade</th>
<th>Meaning</th>
<th>Score Range</th>
<th>Grade Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Excellent</td>
<td>90-100</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>Good</td>
<td>80-89</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>Satisfactory</td>
<td>70-79</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>Passing</td>
<td>60-69</td>
<td>1</td>
</tr>
<tr>
<td>F</td>
<td>Failing</td>
<td>0-59</td>
<td>0</td>
</tr>
<tr>
<td>S</td>
<td>Satisfactory</td>
<td>70-100</td>
<td>0</td>
</tr>
<tr>
<td>U</td>
<td>Unsatisfactory</td>
<td>0-69</td>
<td>0</td>
</tr>
<tr>
<td>I</td>
<td>Incomplete</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>W</td>
<td>Withdrawal from a course</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>WV</td>
<td>Withdrawal from the University Voluntarily</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>MW</td>
<td>Military Withdrawal</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

**Incomplete “I” Grade**
An “I,” incomplete, may be granted only when an authorized absence or other cause beyond the student’s control has prevented the student from completing a major course requirement, usually a final examination or major paper due near the end of a course. The student must have a passing average in all work completed at the time the incomplete is given. Incomplete work must be completed and a grade recorded within one calendar year from the close of the term in which the grade was earned. If the incomplete is not removed within the time allotted, the “I” will be changed to “F” by the registrar. This regulation does not apply to thesis problems, research credit courses, internships, or student teaching which may go beyond the end of the semester but does apply to terminal project credit courses.

**Grade Replacement for Repeated Courses**
Effective fall of 2011, undergraduate students have the option to replace up to 12 semester credit hours of courses where a C, D, or F is earned in a course, effective with courses taken during the fall of 2011. Students will have to request to replace the course with the Office of the Registrar with department approval. Grades repeated, but not replaced, will be averaged into the cumulative grade point average.

**Limit on Repetition of Upper Level Course**
Students who accumulate two failures in upper level (3000 or above) courses are required to obtain approval from their academic dean to take the course for a third time.

**Grade Point Average**
The grade point average (GPA) is determined by adding Grade Values multiplied by Credit Hours for all courses completed during a period and dividing that total by the total credit hours attempted during the period. Withdrawal (W), Voluntary Withdrawal (WV), Military Withdrawal (MW), Administrative Withdrawal (WA), and Incomplete (I) will not be included among grades used to compute grade point averages.
**Grade Reports**

Students may acquire their mid-term and final grades via the WEB through [http://panthertracks.pvamu.edu](http://panthertracks.pvamu.edu). Mid-term grades are progress reports and are not recorded on the student’s permanent record. Final grades are recorded on the student’s permanent record at the close of each semester and summer term. If an error in the recording of grades is suspected, the student should report this immediately to the instructor, department head, or dean for verification and correction, if appropriate.

**General University Probation/Suspension Policy**

Failure to maintain minimum standards will cause a student to be placed on probation or suspension. Conditions governing probation and suspension are listed below:

1. Any student whose cumulative grade point average falls below 2.0 is placed on probation.
2. Any student on probation who does not receive a 2.0 semester grade point average is suspended.
3. Any student on probation for three consecutive regular semesters is suspended. (This is possible if the student who has a cumulative grade point average earns a semester grade point average of 2.0 or above but does not raise the cumulative grade point average above 2.0.) However, a student on probation who has earned a 2.0 or better for three consecutive semesters can appeal the suspension to the Committee on Academic Standing before serving the suspension. A decision to continue the student’s probation in lieu of suspension must be approved by the Provost and Vice President for Academic Affairs.
4. If a student’s cumulative GPA drops below 1.00 at the end of any long semester (fall or spring), the student will be suspended.
5. The length of the first suspension is one regular semester. The second suspension is for one year. After a second suspension, a student must meet all academic requirements or be dismissed.
6. Academic probation and suspension will be noted on the student’s permanent record.

Following suspension, a student is on probation for the next semester and thus is governed by the guidelines for students on probation.

**University Graduation Requirements**

Each degree program has established courses, examinations, and other performance requirements students must satisfy in order to be awarded a degree. General graduation requirements include:

1. Satisfactory completion of work in an academic major;
2. Satisfactory completion of the core curriculum requirements;
3. A minimum cumulative grade point average of 2.00;
4. Completion of the residency requirement: A minimum of 36 semester hours of credit toward a degree must be earned in residence at Prairie View A&M University. For the Bachelor of Architecture program, a minimum of 42 semester hours of credit toward the degree must be earned in residence at Prairie View A&M University;
5. Completion of 30 of the final 36 semester hours of credit in residence at Prairie View A&M University.

**College Academic Requirements**

Along with meeting the general requirements of the university, students enrolled in the College of Engineering must maintain the following performance levels in order to satisfy degree requirements:

1. Earn an overall grade point average of 2.0 or better in courses taken outside of the college and earn a grade of C or better in English, mathematics, and science courses.
2. Earn a grade of C or better in each course taken within the college.
3. Earn a grade of C or better in the prerequisite before advancing to the next level course in a sequence for English, mathematics, and science courses.

4. Earn a grade of C or better in prerequisite courses before advancing to the next level course in college courses.

5. Demonstrate professional standards and ethical conduct.

Students who transfer from other colleges and universities must meet the University’s scholastic regulations and additional core curriculum requirements for engineering.

Eligibility To Take Upper Division College Courses

The College of Engineering has an eligibility standard for the students to take upper division college courses. Students in the engineering programs must complete a prescribed set of courses listed in the catalog section outlining specific degree programs and have a minimum Grade Point Average (GPA) of 2.5 to be eligible to enroll in upper division (3000 or 4000 level) courses in the College. Students transferring to the College of Engineering with 60 or more semester hours from another institution will be allowed a period of one semester to comply.

Prerequisites

Each student is assigned to a faculty advisor. Faculty and students have access to PantherTracks or WFS (Web for Students). The Web for Students software gives students access to their records and provide academic services over the Internet. The software is integrated into the Student Information System called Banner. Banner houses all course and student-related data. PantherTracks allows faculty to perform certain functions such as viewing and entering grades for students, performing degree assessments to better advise students and view their class schedules and enrollment. Students have access to their records and can register for courses over the Internet using PantherTracks.

In order for a student to register for courses using PantherTracks, a faculty advisor must provide an Alternate Registration Personal Identification Number (PIN) to the student. Prior to providing the PIN to the student, the faculty advisor reviews the student’s information in PantherTracks and suggests courses to be taken by the student if the prerequisites are met. The student completes a registration form with the suggested courses and the advisor approves it. After approval of the courses, the student is allowed access to PantherTracks to register using the Alternate Registration PIN. PantherTracks interfaces with Banner to ensure that prerequisites are met. A student is not permitted to register for a course unless all prerequisites identified in PantherTracks are met or the advisor approves an override of the system. When prerequisites are not met the student has to consult the advisor for other courses which can be taken. In addition, each instructor teaching an Computer Engineering course is required to verify that all students enrolled in a course have met the prerequisite requirements before the twelfth day of class. Students who do not have prerequisites are notified and dropped from the course.

Graduation Evaluation

An assigned faculty advisor advises Computer Engineering seniors. During the semester prior to graduation, the advisor reviews the senior student’s records and advises the student to take the courses needed to meet the degree requirements. During the final semester of graduation, the faculty advisor and Department Head conduct a final degree audit to ensure that each student applicant for graduation has met all of the degree requirements for the student’s specific catalog year. The Department Head uses a Curriculum, Advising and Program Planning (CAPP) degree audit software tool in PantherTracks to ensure that every student who
graduates from this program accomplished all degree requirements. A Graduation Audit Certification form is prepared by the Department Head for each graduating candidate to certify that all requirements of the degree have been met. The form is signed and approved by the Department Head, the Dean of College of Engineering, and the Registrar of the University.

C. Transfer Students and Transfer Courses

Transfer Credit Policies and Enforcement

Applicants who have earned fewer than 15 transferable semester credit hours (SCH) and have a 2.0 college grade point average (GPA) will be admitted if they satisfy the regular requirements for freshman admissions. (See section on Freshman Admission). This applicant must have graduated high school within the previous (12) months.

A student transferring from community/junior college or another university with 15 or more transferable semester credit hours will be admitted with a cumulative grade point average of 2.00 or higher on a 4.0 scale from the last school attended. Official transcripts of all coursework completed at each institution must be submitted. Remedial and some technical courses in which grades of “D” or “F” were earned will not be accepted. A student on academic probation or suspension from another institution is not in good academic standing and is not eligible for admission. Transfer students must satisfy all Prairie View A&M University requirements for graduation. All courses and grades transferred from other colleges and/or universities are recorded as received on the student’s academic record at Prairie View A&M University. Changes in the evaluation of transfer credit will not be permitted after one (1) year from the student’s initial evaluation at Prairie View A&M University. Grades earned at other institutions may not be used to remove a grade point deficiency acquired in residence at Prairie View A&M University.

Students wishing to transfer must submit the following items to the Office of Undergraduate Admissions:

1. Completed ApplyTexas application for admission.
2. The $25.00 non-refundable application processing fee which is due for each semester an applicant applies.
3. Official college/university transcript(s) from all institutions attended. Faxed, emailed or scanned transcripts will not be accepted. If applicable, a written request to use the Academic Fresh Start Program, prior to admission. Section 51.931 of the Texas Education Code, a Texas resident may apply for admission to the University as an undergraduate student and request that course credits or grades earned 10 or more years be deleted prior to the semester the applicant plans to enroll. Students must submit a written request for “Academic Fresh Start” prior to course registration, to the Office of Undergraduate Admissions.

If a student has successfully completed the 42-semester credit hour core mandated by the state of Texas, the student will have fulfilled the core curriculum requirements for Prairie View A&M University. A student who has not completed the core curriculum elsewhere will be required to complete the University core. A student must meet special program requirements in addition to general core curriculum requirements.

Transfer Credits for Core Curriculum

All degree programs at Prairie View A&M must include a minimum of 42 semester hours of course work from approved areas of study and recognized as the required general education program. The Texas Common Courses for the core curriculum are listed in a table at the link [http://www.pvamu.edu/academicaffairs/academics/core-curriculum-2014/core-curriculum-courses/](http://www.pvamu.edu/academicaffairs/academics/core-curriculum-2014/core-curriculum-courses/). The table shows equivalent courses that may be transferred from Texas community and junior colleges as approved by the
To assist students who transfer to Prairie View A&M University from other public colleges and universities in Texas, the University carefully evaluates course credits presented for acceptance toward fulfillment of degree requirements. In the event the university denies credit for a course a student has taken at another institution, notification of that denial is transmitted to the student and to the institution at which the credit was earned. The procedures for the contest of denial of credit can be obtained from the Office of Student and Enrollment Services or the Provost and Vice President for Academic Affairs.

**Transfer Credits in Major Area**

Transfer credits other than the university core curriculum, including College and Support Area Requirements, Major requirements, and Technical Electives are evaluated in the Electrical and Computer Engineering Department. The Department Head monitors the transfer evaluation process. Before the Department Head conducts the evaluation, the Prairie View A&M Registrar’s Office must have recorded the candidates transfer courses in the PantherTracks/Banner, according to the student’s transcripts from other colleges. The record in PantherTracks/Banner includes course names, grades, credit hours, and college name. The Department Head meets the students to verify the record and builds Transfer Courses in the Computer Engineering Program. During the meeting with the students, the Department Head may ask for course descriptions, syllabi, and other supporting documentation for the transferred courses. At times, the professor who teaches the subject at Prairie View A&M may be asked to review the supporting documentation before a decision of acceptance or rejection is made. A summary of transfer evaluation is generated for each transfer student who requires transfer credits other than the core curriculum.

**D. Advising and Career Guidance**

**Advising Students**

Freshmen and transfer students who have earned less than 30 semester credit hours receive initial advising from the department and registration at the University College.

Each student is assigned to a primary faculty advisor and a supportive faculty advisor. The advisors are shown in Table 1-4 and Table 1-5.
<table>
<thead>
<tr>
<th>LAST NAME OF STUDENT BEGINNING WITH</th>
<th>PRIMARY ADVISORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A – B</td>
<td>Dr. Penrose Cofie – EE Bldg. 348</td>
</tr>
<tr>
<td>C – D</td>
<td>Dr. Matthew Sadiku – EE Bldg. 328</td>
</tr>
<tr>
<td>E – F</td>
<td>Dr. S.T. Koay – EE Bldg. 324</td>
</tr>
<tr>
<td>G – H</td>
<td>Dr. Suxia Cui – EE Bldg. 334</td>
</tr>
<tr>
<td>I – J</td>
<td>Dr. John Fuller – EE Bldg. 344</td>
</tr>
<tr>
<td>K – L</td>
<td>Dr. Lijun Qian – EE Bldg. 332</td>
</tr>
<tr>
<td>M – N</td>
<td>Dr. Xiangfang Li – EE Bldg. 336</td>
</tr>
<tr>
<td>O – P</td>
<td>Dr. Abburi Kumar – EE Bldg. 326</td>
</tr>
<tr>
<td>Q – R</td>
<td>Dr. Warsame Ali – EE Bldg. 315H</td>
</tr>
<tr>
<td>S – T</td>
<td>Dr. Richard Wilkins – EE Bldg. 351</td>
</tr>
<tr>
<td>U – V – W</td>
<td>Dr. C.L. Tolliver – EE Bldg. 320</td>
</tr>
<tr>
<td>X – Y – Z</td>
<td>Dr. A. Annamalai – EE Bldg. 350</td>
</tr>
<tr>
<td>Freshmen Student Advisor</td>
<td>Dr. John Attia – EE Bldg. 342</td>
</tr>
<tr>
<td>Freshmen Student Advisor</td>
<td>Dr. Kelvin Kirby – EE Bldg. 352</td>
</tr>
<tr>
<td>Undergraduate Coordinator</td>
<td>Dr. Warsame Ali – EE Bldg. 315H</td>
</tr>
<tr>
<td>Transfer Student Advisor</td>
<td>Dr. Abburi Kumar – EE Bldg. 326</td>
</tr>
<tr>
<td>Transfer Student Advisor</td>
<td>Dr. John Attia – EE Bldg. 342</td>
</tr>
</tbody>
</table>

When both advisors of a student are not available during the registration period; the student may be advised by another available faculty advisor in the Department or the Department Head.
During pre-registration and regular registration periods, a student completes an advisement/registration form which is reviewed by an assigned faculty advisor. The advisor provides advisement based on the degree requirements in the university catalog, the faculty advisor reviews the performance of the student’s past academic record and counsels the student on course selection that provides the best academic progress for the student.

After the student completes the Advisement/Registration Form, both the advisor and the student sign their names on the form. The advisor then gives the student an Alternate Registration Personal Identification Number (PIN) such that the student can register in PantherTracks. The advisor retains a copy of the signed Advisement/Registration Form for the advisor’s record. The advisor keeps a copy for one year as required by the university. PantherTracks is an all documents computer system which keeps a record of the registration history of the student also.

In addition to advising students on the courses to take during a semester, faculty advisors advise students on career opportunities, the importance of advanced degrees, and career paths that will meet the goals of the students.

**Career Guidance**

In addition to discussing career opportunities, options, and preparation strategies with their assigned departmental advisor or head of department, students may take advantage of the Career Services and Outreach Office, which provides programs and services that assist both graduating and continuing students in obtaining professional employment. The Career Services and Outreach Office provides services for employment, and combinations of recruitment, cooperative education (co-op), and summer intern employment opportunities in the various academic fields offered at the University. In collaboration with each University department and college, Career Services works to inform students about career opportunities available in the marketplace. Career Services offers a variety of seminars and workshops on resume writing, interviewing skills, dressing for success, on-the-job survival, salary negotiation and more.

The Career Services and Outreach Office, hosts several hundred business and industry recruiters annually, and establishes relationships with recruiters throughout the United States and abroad. During each academic year, two University career fairs are sponsored to bring employers and students together to discuss full-time, internship and co-op opportunities. The Career Services and Outreach Office also provides assistance for current and former students seeking information on graduate and professional schools and various fellows programs.

The Computer Engineering Department offers two six-hour internship courses (ELEG 3156 and ELEG 4156). A qualified co-op or internship requires work experience with an approved engineering firm or engineering oriented business agency, planning agency, public service agency, or consulting firm which provides an introduction to the profession.
E. Work in Lieu of Courses

Academic Information and Regulations for Credit from Sources Other Than Prairie View A&M University Courses is published in the University Catalog at http://catalog.pvamu.edu/academicinformationandregulations/#externalcoursestext.

Courses being transferred from an institution outside the territorial United States must be evaluated. Students are required to have their course work evaluated by one of the following or an equivalent recognized service and are to submit the evaluation to the Office of Admissions, Articulation and Transfer Services at least thirty (30) days before the beginning of the semester for which the student wishes to enroll.

The Educational Credential Evaluators, Inc.
P.O. Box 514070
Milwaukee, Wisconsin 53203-3470
414-289-3400

Span Tran Educational Services
7211 Regency Square Blvd. Ste. #205
Houston, Texas 77036
713-266-8805

Correspondence and Extension Courses
Correspondence or extension courses will be treated as transfer courses and not included in the cumulative GPA. All such courses must be approved by the dean of the respective college before they are accepted as transfer credit in a degree program.

Military School Credit
Credit for courses taken at military schools or by correspondence will be evaluated for acceptance by the Office of the Registrar in accordance with American Council on Education guidelines. Credit will be awarded upon a military student’s matriculation as a student at the University’s main campus or approved off-campus sites.

Advanced Placement Testing (AP)
Advanced Placement Tests are developed by the College Board and administered nationally at approved test sites where the Scholastic Aptitude Test is administered. Scores on the national Advanced Placement Test between the levels of 3 and 5 will be acceptable for credit. Credit for advanced placement is subject to the total hour limitation of 30 semester credit hours.

College Level Examination Program (CLEP)
The CLEP is a national testing program offering students the opportunity to earn college credit by examination. The University will accept credit by examination in American Literature, General Biology, General Chemistry, College Composition, English Literature, Foreign Languages, American Government, American History, and Mathematics. The acceptance of credit by the University does not assure the application of this credit to a specific degree or other program.

CLEP tests taken at Prairie View A&M University will normally be counted in the student’s cumulative grade point average (GPA). If a course has been taken and failed at Prairie View A&M University and a CLEP test for that course is subsequently taken and passed, the CLEP grade will not be counted in the cumulative GPA and

16
will not replace the failed grade on the official transcript. It will satisfy the degree requirement. CLEP tests taken through other institutions will not be included in the cumulative GPA. Scores from the general knowledge tests will not be accepted. Only scores from the subject tests will be accepted.

International Baccalaureate Organization (IBO)
Prairie View A&M University (PVAMU) recognizes the International Baccalaureate program for those students who earn the IB diploma, or a specific grade in the IB course. Presently, PVAMU awards credits for IB courses taken at the both the Higher Level (HL), and Standard Level (SL).

IB Limitation
Students who earn an IB diploma may be given credit for at least 24 Semester Credit Hours (SCH) at PVAMU provided that they score at least a 4 on each subject exam. However, it will be the student’s responsibility to request such credit. PVAMU strongly encourages students to meet with their academic advisor to determine how much credit will best serve their degree matriculation. Students who score less than a 4 will not be granted credit for that particular exam. No grade will be awarded; only SCH for specific courses. Credit will not be awarded for an exam if the student is enrolled in the course of has already taken the course.

IB Acceptable Scores and Credit
An official score report must be received from a first-time freshman (or any student who has not received college credit for these exams at another institution) before credit will be awarded. A transfer student, who has received credit for one or more IB exams at another institution, may be granted SCH at PVAMU upon receipt of an official transcript from the other institution as long as the credit awarded at the other institution is transferable to PVAMU.

A student must earn the International Baccalaureate diploma and receive a score of at least a 4 to receive and SCH for the IB exam. Students who take the IB exam without achieving the IB diploma will be evaluated on an individual basis.

F. Graduation Requirements

University Graduation Requirements
Each degree program has established courses, examinations, and other performance requirements students must satisfy in order to be awarded a degree. General graduation requirements include:

(i) satisfactory completion of work in an academic major.
(ii) satisfactory completion of the core curriculum requirements.

College Academic Requirements
Along with meeting the general requirements of the university, students enrolled in the College of Engineering must maintain the following performance levels in order to satisfy degree requirements:

(i) Earn an overall grade point average of 2.0 or better in courses taken outside of the college and earn a grade of C or better in English, mathematics, and science courses.
(ii) Earn a grade of C or better in each course taken within the college.
(iii) Earn a grade of C or better in the prerequisite before advancing to the next level course in a sequence for English, mathematics, and science courses.
(iv) Earn a grade of C or better in prerequisite courses before advancing to the next level course in college courses.
(v) Demonstrate professional standards and ethical conduct.

At the beginning of the student’s final year at the University, the faculty advisor reviews the records of the graduation candidates to make sure all curriculum requirements have been met. During the final semester, the Department Head receives evaluation forms from the Registrar’s Office and does a final compilation of grades and verification of graduation status. After the Department Head’s review, the Dean of the College of Engineering reviews all graduation candidates and presents his evaluation to the Registrar’s Office. The Registrar again reviews all candidates for curriculum requirements. If all requirements are met and the student is in good financial standing with the University, the degree is awarded. The degree awarded is a Bachelor of Science in Computer Engineering.

G. Transcripts of Recent Graduates

The program will provide transcripts from some of the most recent graduates to the visiting team along with any needed explanation of how the transcripts are to be interpreted. The degree to be awarded is a Bachelor of Science in Computer Engineering.
CRITERION 2. PROGRAM EDUCATIONAL OBJECTIVES

A. Mission Statement

Prairie View A&M University is a state-assisted, public, comprehensive land grant institution of higher education. The University was designated in a 1984 amendment to the Texas Constitution as an institution of the first class. It is dedicated to achieving excellence and relevance in teaching, research, and service. It seeks to invest in programs and services that address issues and challenges affecting the diverse ethnic and socioeconomic population of Texas and the larger society including the global arena. The University seeks to provide a high quality educational experience for students who, upon completion of bachelors, masters, or doctorate degrees, possess self-sufficiency and professional competence. The experience is imbued by the institution’s values including, but not limited to, access and quality, accountability, diversity, leadership, relevance, and social responsibility.

The mission of Prairie View A&M University is published in the University catalog at the following URL: http://catalog.pvamu.edu/generaluniversityinformation

B. Program Educational Objectives

The Program Educational Objectives of the Computer Engineering Program are:

1. To produce graduates for successful careers in Computer Engineering and other related fields.
2. To produce graduates who engage in self-development activities through professional study and personal research that will allow them to adapt to evolving technological challenges.
3. To produce graduates who can successfully complete graduate degrees in Computer Engineering or other disciplines that they may choose.

The Program Education Objectives (PEOs) are posted and made accessible to the public at the following URL: http://www.pvamu.edu/ece/computer-engineering-program-objectives/

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

Designated by the Texas Constitution as one of the three institutions of the first class, the primary goal of Prairie View A&M University is to serve Texas, the nation, and the world through high quality undergraduate, graduate, continuing education, and research programs.

In addition to its designation as a statewide general-purpose institution of higher education and its designation as a land-grant institution, Prairie View A&M University is designated as a statewide special purpose institution of higher education for instruction, research, and public service programs dedicated to enabling students of diverse economic, ethnic and cultural backgrounds to realize their full potential.

The Computer Engineering program serves as a value-added unit within the University in its strive to advance the Computer Engineering profession through teaching, research, scholarly work, and service to the engineering profession, our local community, the State of Texas and the nation. The first program objective (to produce graduates for successful careers in Computer Engineering and other related fields) is aligned with the
mission of Prairie View A&M University to provide a high quality educational experience for students who, upon completion of bachelors, masters, or doctorate degrees, possess self-sufficiency and professional competence. The second program objective (to produce graduates who engage in self-development activities through professional study and personal research that will allow them to adapt to evolving technological challenges) is in line with the University goal of investing in programs and services that address issues and challenges affecting the diverse ethnic and socioeconomic population of Texas and the larger society including the global arena. The third objective supports self-development activities through professional study and personal research and pursuing graduate degrees. All objectives are consistent with Prairie View A&M University’s dedication to achieving excellence and relevance in teaching, research, and service and providing a high quality education for students who possess self-sufficiency and professional competence.

The Computer Engineering program educational objectives are consistent with the mission of Prairie View A&M University.

D. Program Constituencies

The constituents of the Computer Engineering Program are:

i. Computer Engineering undergraduate students
ii. Alumni of the Computer Engineering Program
iii. Computer Engineering Program faculty
iv. Employers of the graduates of the Program

The constituencies of the Computer Engineering Program include our students, the alumni, faculty, and employers of the graduates. Each of these constituencies can affect or be affected by the Program Educational Objectives. The engineering students provide feedback for program improvements and are the direct beneficiaries of the program. The faculty in Computer Engineering Program is included because faculty is responsible for the development and education of the students. In addition, the program objectives are accomplished using curricula administered by faculty. Alumni are the products of the academic program. Their careers demonstrate the accomplishment of the PEOs. Employers hire the undergraduate engineering students, and graduates who accomplish all of the PEOs are a clear benefit to their employers.

E. Process for Review of the Program Educational Objectives

Process for Review of the Program Educational Objectives

There are several ways the faculty in the Computer Engineering Program acquires the needs of its constituents.

I. Visits of Alumni to Campus:
During the year, several alumni of the Computer Engineering Program come to campus to recruit or give presentations to students. On those occasions, the faculty takes the opportunity to informally seek through alumni feedback on ways to improve the Computer Engineering Program.

II. Talk to industrial representatives:
Industrial representatives come to campus during the school year. The representative may be on campus to recruit students for an internship or permanent employment. Some representatives come to campus to give technical presentations. The faculty takes these opportunities of campus visits of industrial representatives to get to know the needs of industry. In addition, the Industrial Advisory Board provides information for improving the Computer Engineering curriculum.
III. Meeting with students:
Since Computer Engineering class sizes are relatively small, faculty members are able to have frequent conversations with students. In addition, each student must contact his or her advisor twice each year and frequent interaction with students outside the classroom environment occurs. Graduation seniors have exit interviews with the Head of Department. During the interviews the Department Head solicits opinion of the graduating seniors with respect to ways of improving the Computer Engineering Program.

IV. Faculty:
The inputs of faculty in program improvement are normally made during regular faculty meetings, and also through informal meetings between faculty and program head.

V. Industrial Advisory Board (IAB):
Input is received from the IAB with respect to the Program Educational Objectives.

The Computer Engineering faculty formulated its first Program Educational Objectives (PEOs) spring 2000. Input from the constituents and IAB was obtained. The IAB of the Computer Engineering Program was inaugurated on May 6, 1998. The members meet normally once or twice a year. Over the years, the faculty has consulted the IAB with respect to some of the following:

(I) Curriculum changes
(II) Development of the Graduate Programs (M.S. & Ph.D.)
(III) Use of modern engineering tools in the Computer Engineering Programs
(IV) Review of the assessment data of the Program
(V) Recruitment activities
(VI) Lecture topics on Ethics, Professionalism and topics of general interest to our students
(VII) Industry trends

The last review of the current version of the Program Educational Objectives occurred during the 2015-2016 academic year. The process of approval began the fall of 2015. The PEOs were presented to the Computer Engineering faculty at a meeting in the beginning of the fall 2015 semester. The faculty approved a revision to the program educational objectives. During the fall 2015 IAB meeting, the revised PEOs were reviewed and approved by the members. The Computer Engineering students reviewed and approved the PEOs during the fall of 2015.

The curriculum of the Computer Engineering Program has been designed to ensure the achievement of the educational objectives of the program. Table 2-1 shows the relationship of the Computer Engineering PEOs and the Computer Engineering curriculum.
<table>
<thead>
<tr>
<th>Computer Engineering Course</th>
<th>Program Objectives</th>
<th>#1</th>
<th>#2</th>
<th>#3</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEG 1021 Intro Elect Lab</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>ELEG 2011 Electric Circuit Lab</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELEG 2023 Network Theory I</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>ELEG 3013 Network Theory II</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>ELEG 3021 Logic Circuits Lab</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>ELEG 3023 Signals and Systems</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>ELEG 3033 Physical Princ. Solid State</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>ELEG 3043 Electronics I</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>ELEG 3063 Logic Circuits</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>ELEG 3071 Microproc. Sys. Lab</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>ELEG 3073 Microproc Sys.</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>ELEG 4253 Embedded Systems</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>ELEG 4303 Dig System Design</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>ELEG 4333 Computer Networks</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>ELEG 4393 Comp. Org. Arch</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>ELEG 4472 Senior Design I</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>ELEG 4482 Senior Design II</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

“X” implies the course is used to satisfy the Program Educational Objective.
CRITERION 3. STUDENT OUTCOMES

A. Student Outcomes
The Computer Engineering Program has the following student outcomes that prepare graduates to attain the Program Educational Objectives.

a. an ability to apply knowledge of mathematics, science, and engineering
b. an ability to design and conduct experiments, as well as to analyze and interpret data
c. an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
d. an ability to function on multidisciplinary teams
e. an ability to identify, formulate, and solve engineering problems
f. an understanding of professional and ethical responsibility
g. an ability to communicate effectively
h. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
i. a recognition of the need for, and an ability to engage in lifelong learning
j. a knowledge of contemporary issues
k. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

The Computer Engineering student outcomes are posted and made accessible to the public at the following URL: https://www.pvamu.edu/ece/student-outcomes-for-the-computer-engineering-program-2/.

B. Relationship of Student Outcomes to Program Educational Objectives
The relationships between the Computer Engineering Program Educational Objectives and Student outcomes are shown in Table 3-1. In this table, each outcome is associated with the Program Educational Objectives that it supports. All of the student outcomes are necessary for achieving the Program Educational Objectives.
Table 3-1: Relationships between Program Educational Objectives and Student Outcomes

<table>
<thead>
<tr>
<th>Student Outcomes</th>
<th>Program Educational Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>a</td>
<td>X</td>
</tr>
<tr>
<td>b</td>
<td>X</td>
</tr>
<tr>
<td>c</td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>X</td>
</tr>
<tr>
<td>e</td>
<td></td>
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<tr>
<td>f</td>
<td>X</td>
</tr>
<tr>
<td>g</td>
<td>X</td>
</tr>
<tr>
<td>h</td>
<td>X</td>
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<tr>
<td>i</td>
<td>X</td>
</tr>
<tr>
<td>j</td>
<td></td>
</tr>
<tr>
<td>k</td>
<td>X</td>
</tr>
</tbody>
</table>

The curriculum of the Computer Engineering Program has been designed such that students graduating from the program would have met the student outcomes. Table 3-2 shows the current mapping of Computer Engineering courses to the student outcomes that were used during the 2015-2016 academic year.

Table 3-2: Mapping of Computer Engineering Courses to the Student Outcomes During 2015-2016 Academic Year

<table>
<thead>
<tr>
<th>Comp. Engineering Courses</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>f</th>
<th>g</th>
<th>h</th>
<th>i</th>
<th>j</th>
<th>k</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEG 1021 Intro Elect Lab</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>ELEG 2011 Electric Circuit Lab</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>ELEG 2023 Network Theory I</td>
<td></td>
<td></td>
<td>X</td>
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<td></td>
<td></td>
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<td>X</td>
</tr>
<tr>
<td>ELEG 3013 Network Theory II</td>
<td>X</td>
<td>X</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>ELEG 3021 Logic Circuits Lab</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>ELEG 3023 Signals and Systems</td>
<td>X</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>ELEG 3033 Physical Princ. Solid State</td>
<td>X</td>
<td></td>
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<td>X</td>
<td>X</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>ELEG 3043 Electronics I</td>
<td>X</td>
<td>X</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td>X</td>
</tr>
<tr>
<td>ELEG 3063 Logic Circuits</td>
<td>X</td>
<td>X</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>ELEG 3071 Microproc. Sys. Lab</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
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<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>ELEG 3073 Microproc Sys.</td>
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<td>X</td>
<td>X</td>
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<td></td>
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<tr>
<td>ELEG 4253 Embedded Systems</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELEG 4303 Dig System Design</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>ELEG 4333 Computer Networks</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>ELEG 4393 Comp. Org. Arch</td>
<td>X</td>
<td>X</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>ELEG 4472 Senior Design I</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
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<td>X</td>
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<td></td>
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</tr>
</tbody>
</table>
CRITERION 4. CONTINUOUS IMPROVEMENT

A. Student Outcomes

Process for Establishing and Revising Student Outcomes

General Description

In this section, we shall elaborate on the assessment process for the student outcomes. The following are the various items that are used for the assessment of the student outcomes of Computer Engineering Program:

1. Primary Method for Assessing Student outcomes by Using Direct Measurement at Course Level by instructors during a Semester
2. Semester Student outcomes Assessment and Improvement Report
3. Annual Student outcomes Assessment and Improvement Report
4. Secondary Annual Assessment of Student outcomes
5. Annual meeting of faculty and IAB members to review student outcome results and recommend areas for improvement.

Each of the above items in the assessment process will now be described.

Primary Method for Assessing Student Outcomes Using Direct Measurement at Course Level by Instructors during each Semester

Instructors for the various courses using the students’ course work perform the primary assessment of student outcomes through direct measurement of student performance. The outcomes that are being measured in a course can be found in Criterion 3 section A. The skills described in each outcome are taught and acquired by students in designated courses. Instructors in these courses cover the designated student outcomes and determine student proficiencies in the outcomes through what we generally call “assignments” consisting of tests, quizzes, various homework, design projects, written reports, oral presentations, case studies, and laboratory work.

Outcomes-Based Grade Books

The instructors prepare grade books that clearly show the students’ performance in each measured outcome. After grading an assignment, the instructor compiles each student’s total score in each outcome. A sample outcomes-based grade book is shown in Table 4-1. The most important items in the grade book for program outcome assessment are the semester class averages for each outcome identified.

Semester Student Outcomes Assessment and Improvement Report

At the end of each semester, the Department Head collects all the end of semester course outcomes assessment reports as shown in Table 4-2. The data from these are used to compile the end of semester student outcomes assessment report for all outcomes assessed in all the courses taught in the semester. A sample end of semester student outcome assessment report is shown in Table 4-3. The average of an outcome from all the courses taught during the semester is compared to an expected average of 70%. If the average of an outcome is below the expected average, the department faculty members take a look at all the courses used to measure that outcome, and identifies why student performance was low, and suggests changes that could be implemented at the program level to help students to improve in the following semester. This is done once a year. Insignificant numbers of courses are offered during the summer semester. If a significant problem is identified in specific
courses, the Department Head meets with faculty members teaching the course or may call a general faculty meeting to address any issues that came out of the study of the Semester Program Assessment Report.

Table 4-1: Grade Sheet showing Students and Class Performance in Student Outcomes for ELEG 3043 Electronics I (Spring 2016) for Computer Engineering Students

<table>
<thead>
<tr>
<th>Stud. #</th>
<th>Outcome A</th>
<th>Outcome C</th>
<th>Outcome K</th>
</tr>
</thead>
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<tr>
<td>1</td>
<td>17</td>
<td>15</td>
<td>71.1</td>
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<tr>
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<td>3</td>
<td>13</td>
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<td>73.3</td>
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</tr>
<tr>
<td>60.4</td>
<td>92.5</td>
<td>74.7</td>
<td>70.0</td>
</tr>
</tbody>
</table>
Table 4-2: End of Semester Course Outcome Assessment Report for ELEG 3043 Electronics I (Spring 2016) for Computer Engineering Students

<table>
<thead>
<tr>
<th>Semester</th>
<th>Analysis Type</th>
<th>Number of Students</th>
<th>Outcome A</th>
<th>Outcome C</th>
<th>Outcome K</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ability to apply mathematics, science and engineering in solving problems</td>
<td>an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability</td>
<td>An ability to use modern engineering tools.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Expeced Class Average</td>
<td>Expected Percent of students at or above average</td>
<td>% Students meeting Expected Average</td>
</tr>
<tr>
<td>Spring 2016</td>
<td>Direct</td>
<td>10</td>
<td>70</td>
<td>70</td>
<td>74. (\bar{7})</td>
</tr>
<tr>
<td>Spring 2015</td>
<td>Direct</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>77. (\bar{2})</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>Direct</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>73. (\bar{8})</td>
</tr>
<tr>
<td>Spring 2011</td>
<td>Direct</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>82. (\bar{4})</td>
</tr>
</tbody>
</table>

**Implementation Summary**

- **Items implemented from previous report or after meeting previous instructor:**
  - During the first week the circuit laws such as KVL, KCL and Ohm’s Law were reviewed.
  - The project given had multiple constraints involving economic, environmental and technical. In addition, the format for writing the design project report was provided to the students to improve their report writing skills.

**Perceived Problems**

- **Perceived problems are directly related to the PC and the sub items under them:**
  - The students had difficulty in solving MOSFET problems involving the use of quadratic equations and checking to determine the mode of operation of the MOSFET.
  - There was no perceived problem in this student learning outcome.
  - There was no perceived problem in this student learning outcome.

**Plans for Addressing Problems**

- **Plans for address specific measures to address PC and their sub:**
  - Do more examples on DC analysis of MOSFET circuits such that the perceived problems can be solved.
  - None, since there were no perceived problems for this outcome.
  - None, since there were no perceived problems for this outcome.
<table>
<thead>
<tr>
<th>Overall Trend over Periods</th>
<th>Ascertain if there were improvements in semesters</th>
<th>There is a slight decrease in this outcome value compared to that obtained in spring 2015.</th>
<th>There is a small decrease in this outcome value compared to those of spring 2015</th>
<th>There is a slight increase in this outcome value compared to that of spring 2015.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Were Expectations Met?</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>


Table 4-3: A Sample of the End of Semester Program Outcomes Assessment Report during the Fall of 2015

<table>
<thead>
<tr>
<th>Comp. Engineering Courses</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>f</th>
<th>g</th>
<th>h</th>
<th>i</th>
<th>j</th>
<th>k</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEG 1021 Intro Elect Lab</td>
<td>92</td>
<td>96</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>85</td>
</tr>
<tr>
<td>ELEG 2011 Electric Circuit Lab</td>
<td>84</td>
<td>100</td>
<td>80</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELEG 2023 Network Theory I</td>
<td>75</td>
<td>76</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>95</td>
</tr>
<tr>
<td>ELEG 3013 Network Theory II</td>
<td>82</td>
<td>88</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>87</td>
</tr>
<tr>
<td>ELEG 3021 Logic Circuits Lab</td>
<td>99</td>
<td>89</td>
<td>93</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELEG 3033 Physical Princ. Solid State</td>
<td>71</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>80</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>ELEG 3063 Logic Circuits</td>
<td>86</td>
<td>91</td>
<td>89</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELEG 4253 Embedded Systems</td>
<td>88</td>
<td>92</td>
<td>88</td>
<td>84</td>
<td>82</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELEG 4303 Dig System Design</td>
<td>86</td>
<td>81</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>92</td>
<td></td>
</tr>
<tr>
<td>ELEG 4472 Senior Design I</td>
<td>90</td>
<td>86</td>
<td>91</td>
<td>89</td>
<td>90</td>
<td>90</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>79</td>
<td>90</td>
<td>89</td>
<td>93</td>
<td>82</td>
<td>91</td>
<td>88</td>
<td>84</td>
<td>86</td>
<td>83</td>
<td>89</td>
</tr>
<tr>
<td>Minimal Acceptable Average</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
</tr>
</tbody>
</table>

Annual Student Outcomes Assessment and Improvement Report

At the end of each academic year, the Department Head uses the data in the end of semester student outcomes reports to compile the “Annual Student outcomes Assessment Report” for all courses taught during the academic year. The annual average of an outcome from all the courses taught during the year is compared to an expected average of 70%. If the annual average is below the expected average, the department faculty members assess all the courses with respect to that outcome, identifies why student performance was low, and suggests changes that could be implemented at the program level to help students to improve in the next year. The annual report is shared with the program constituents, and the input from constituents is sought, analyzed, and a comprehensive plan for solving any identified problems implemented the following year.

To reduce the load on faculty members in assessing student outcomes, the direct assessments were done one semester during the following academic years: 2011-2012 AY, 2012-2013 AY, and 2013-2014 AY. However, the direct assessments were performed during the fall and spring semesters during the following academic years: 2010-2011 AY, 2014-2015 AY, and 2015-2016 AY. This is summarized below:

- Fall 2010 and Spring 2011 semesters (2010-2011 AY)
- Spring 2012 semester (for 2011-2012 AY)
- Fall 2012 semester (for 2012-2013 AY)
- Spring 2014 semester (for 2013-2014 AY)
- Fall 2014 and Spring 2015 semesters (2014-2015 AY)
- Fall 2015 and Spring 2016 semesters (2015-2016 AY)

Achievement of Program Outcomes

Table 4-4 shows for the levels of performance based on the averages for the direct assessment for the interpretation of the levels of achievements of the outcomes.
Table 4-4: Level of Achievement of Program Outcomes

<table>
<thead>
<tr>
<th>Program Outcome</th>
<th>Range of Program Outcome Value</th>
<th>Level of Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Average</td>
<td>90% to 100%</td>
<td>Exceptional Performance</td>
</tr>
<tr>
<td>Annual Average</td>
<td>80% to 89%</td>
<td>Very Good Performance</td>
</tr>
<tr>
<td>Annual Average</td>
<td>70% to 79%</td>
<td>Satisfactory Performance</td>
</tr>
<tr>
<td>Annual Average</td>
<td>60% to 69%</td>
<td>Marginal Performance</td>
</tr>
<tr>
<td>Annual Average</td>
<td>Below 60%</td>
<td>Unsatisfactory Performance</td>
</tr>
</tbody>
</table>

Table 4-5 shows the direct assessment student outcomes data for the Computer Engineering program from 2010-2016. The direct assessment results showed that all averages were 70 and greater. No issues were identified in the program. The level of achievement of each outcome for the results of the direct assessments is described using graphical summaries in Figure 4-1 through Figure 4-11.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcome A</td>
<td>77</td>
<td>70</td>
<td>82</td>
<td>85</td>
<td>81</td>
<td>80</td>
</tr>
<tr>
<td>Outcome B</td>
<td>81</td>
<td>89</td>
<td>88</td>
<td>90</td>
<td>81</td>
<td>90</td>
</tr>
<tr>
<td>Outcome C</td>
<td>86</td>
<td>82</td>
<td>95</td>
<td>96</td>
<td>85</td>
<td>88</td>
</tr>
<tr>
<td>Outcome D</td>
<td>81</td>
<td>92</td>
<td>75</td>
<td>93</td>
<td>86</td>
<td>93</td>
</tr>
<tr>
<td>Outcome E</td>
<td>89</td>
<td>72</td>
<td>73</td>
<td>89</td>
<td>78</td>
<td>82</td>
</tr>
<tr>
<td>Outcome F</td>
<td>81</td>
<td>92</td>
<td>90</td>
<td>89</td>
<td>83</td>
<td>91</td>
</tr>
<tr>
<td>Outcome G</td>
<td>99</td>
<td>92</td>
<td>76</td>
<td>92</td>
<td>89</td>
<td>91</td>
</tr>
<tr>
<td>Outcome H</td>
<td>89</td>
<td>72</td>
<td>92</td>
<td>90</td>
<td>86</td>
<td>90</td>
</tr>
<tr>
<td>Outcome I</td>
<td>86</td>
<td>87</td>
<td>89</td>
<td>90</td>
<td>82</td>
<td>89</td>
</tr>
<tr>
<td>Outcome J</td>
<td>86</td>
<td>90</td>
<td>84</td>
<td>95</td>
<td>84</td>
<td>87</td>
</tr>
<tr>
<td>Outcome K</td>
<td>78</td>
<td>81</td>
<td>83</td>
<td>92</td>
<td>89</td>
<td>90</td>
</tr>
</tbody>
</table>

Figure 4-1: Outcome A Summarized

Data for the direct assessment of outcome “a” are shown in Figure 4-1. The values of outcome “a” were above the expected average of 70 for 2010 – 2011 AY, Fall 2012, Spring 2014, Fall 2014, 2014-2015 AY and 2015-2016 AY. However during the spring of 2012 the average was 70. This indicated that student outcome A had to be addressed. Details of the actions taken are discussed in the Continuous Improvement Section 4B. The assignments, tests, and projects that were used to assess outcome “a” are as follows:
• Ability to manipulate complex numbers
• Use of probability formulating Fermi-Dirac distribution and energy distribution
• Ability to simplify logical operations and convert binary, octal, decimal and hexadecimal numbers
• Applications of simultaneous equations for solving circuit problems.
• Applications of KVL, KVL, and Ohms Law for solving electronic problems
• Application of circuit laws and theorems
• Use linear equations for solving Signal and Systems problems
• Ability to solve quadratic equations in determining the operating point of MOSFETS

![Outcome B](image)

Figure 4-2: Outcome B Summarized

Data for direct assessment of outcome “b” are shown in Figure 4-2. The values of outcome “b” for all assessment periods were above 70. The Computer Engineering program achieved outcome “b”. The assignments, tests, and projects that were used to assess outcome “b” are as follows:

• Design of electric circuits, experimentation, analysis and interpretation of experimental results.
• Design of digital logic circuits, experimentation, analysis and interpretation of experimental results.
• Design of embedded systems, simulation, an analysis and interpretation of results.
Data for direct assessment of outcome “c” are shown in Figure 4-3. The values of outcome “c” for all assessment periods were above 70. The Computer Engineering program achieved outcome “c”. The assignments, tests, and projects that were used to assess outcome “c” are as follows:

- Design a bandpass or band-reject filter
- Design of DC Power Supply
- Design Adder, Multiplier/Comparator circuits using Full Adders and external combinational logic
- Design an embedded system with devices to meet desired needs
- Design an op amp circuit to perform various mathematical operations
- Design of traffic light
- Design a microprocessor based system
- Senior Design Projects
Data for direct assessment of outcome “d” are shown in Figure 4-3. The values of outcome “d” for all assessment periods were above 70. The Computer Engineering program achieved outcome “d”. The assignments, tests, and projects that were used to assess outcome “d” are as follows:

- Basics of group dynamic
- Teamwork in electric circuits lab
- Teamwork and effectiveness in microprocessor system design lab
- Teamwork amongst students working on Senior Design projects

Data for direct assessment of outcome “e” are shown in Figure 4-3. The values of outcome “e” for all assessment periods were above 70. The Computer Engineering program achieved outcome “e”. The assignments, tests, and projects that were used to assess outcome “e” are as follows:

- Using C++ to solve engineering problems
- Solving digital logic problems
- Solving Signal and System problems by use of transfer function approach, time and frequency analysis
- Solving computer network-related problems
- Solving various problems in Senior Design projects
Figure 4-6: Outcome F Summarized

Data for direct assessment of outcome “f” are shown in Figure 4-3. The values of outcome “f” for all assessment periods were above 70. The Computer Engineering program achieved outcome “f”. The assignments, tests, and projects that were used to assess outcome “f” are as follows:

- Ethical case studies
- Code of Ethics and standards for Professional Conduct
- Ethical decision making
- IEEE Code of Ethics
- Participation in Ethic case studies and discussions

Figure 4-7: Outcome G Summarized
Data for direct assessment of outcome “g” are shown in Figure 4-3. The values of outcome “g” for all assessment periods were above 70. The Computer Engineering program achieved outcome “g”. The assignments, tests, and projects that were used to assess outcome “g” are as follows:

- Written communications in electric circuits laboratory
- Written communications in logic circuits laboratory
- Written communications in microprocessor system design laboratory
- Written reports of Senior Design projects
- Series of oral presentations of Senior Design projects

![Outcome H Graph](image)

Figure 4-8: Outcome H Summarized

Data for direct assessment of outcome “h” are shown in Figure 4-3. The values of outcome “h” for all assessment periods were above 70. The Computer Engineering program achieved outcome “h”. The assignments, tests, and projects that were used to assess outcome “h” are as follows:

- Impact of embedded systems designs in global, economic and societal context
- Global and economic impact of embedded GPS in telemedicine
- Global, societal, and economic impact of microprocessors-based motion detection systems
- Impact of Senior Design projects on society and the world
Data for direct assessment of outcome “i” are shown in Figure 4-3. The values of outcome “i” for all assessment periods were above 70. The Computer Engineering program achieved outcome “i”. The assignments, tests, and projects that were used to assess outcome “i” are as follows:

- Search, assimilation, organization of knowledge with regards to “scavenger hunt on carbon non nanotubes
- Discussion on current and future computer networks such as DSL, Ethernet, and FDDI
- Research studies involved in performance of Senior Design projects

Figure 4-9: Outcome I Summarized

Figure 4-10: Outcome J Summarized
Data for direct assessment of outcome “j” are shown in Figure 4-3. The values of outcome “j” for all assessment periods were above 70. The Computer Engineering program achieved outcome “j”. The assignments, tests, and projects that were used to assess outcome “j” are as follows:

- Impact Moore’s Law and device scaling on technological developments
- Applications on nanotechnology in energy production on health care
- Contemporary issues and internet protocol television
- Energy Saving technologies involving embedded systems
- Contemporary issues in various Senior Design projects

![Outcome K Summarized](image)

Figure 4-11: Outcome K Summarized

Data for direct assessment of outcome “k” are shown in Figure 4-3. The values of outcome “k” for all assessment periods were above 70. The Computer Engineering program achieved outcome “k”. The assignments, tests, and projects that were used to assess outcome “k” are as follows:

- Use of NI VAB for engineering application experiments involving DSP chip and PC
- Applications of MATLAB for solving DC and AC problems in electric circuits
- Use of MATLAB for frequency analysis
- Applications of C++ software package for solving engineering problems
- Use of MULTISIM software package for solving engineering problems
- Application of MATLAB for solving Signal and System problems
- Application of PSPICE software package for solving DC, AC and transient analysis problems in electronics

Each semester, students in the Computer Engineering Program are surveyed with respect to their perception that programs outcomes of a particular course they are enrolled in have been met. The survey instrument has questions about the coverage of topics in the course. The survey data
for each course is compiled and a semester qualitative assessment report is generated for each course. The semester student program outcome assessment report is generated from the course assessment report. Table 4-6 summarizes the results of the course assessment through student surveys. All outcomes were above the expected average of 70. The indirect assessment results for the previous assessments were similar. The results indicated that there is no need to address any issues with the outcomes.

Table 4-6: Indirect Assessment of Student Outcomes (Student Survey) During 2015-2016 AY

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Fall 2015</th>
<th>Spring 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>B</td>
<td>91</td>
<td>83</td>
</tr>
<tr>
<td>C</td>
<td>88</td>
<td>90</td>
</tr>
<tr>
<td>D</td>
<td>93</td>
<td>91</td>
</tr>
<tr>
<td>E</td>
<td>76</td>
<td>78</td>
</tr>
<tr>
<td>F</td>
<td>86</td>
<td>91</td>
</tr>
<tr>
<td>G</td>
<td>87</td>
<td>93</td>
</tr>
<tr>
<td>H</td>
<td>83</td>
<td>93</td>
</tr>
<tr>
<td>I</td>
<td>80</td>
<td>91</td>
</tr>
<tr>
<td>J</td>
<td>82</td>
<td>87</td>
</tr>
<tr>
<td>K</td>
<td>88</td>
<td>86</td>
</tr>
</tbody>
</table>

**Annual Review of Assessment Reports**

Once a year, the faculty and the IAB members meets to review the annual program assessment reports. The reports are analyzed and a comprehensive plan for solving any identified problems is implemented during the academic year. If there are issues that need input of our constituents, their inputs are sought before making a comprehensive plan for solving the identified problems.

**B. Continuous Improvement**

**(i) Curriculum Change Due to Issues with Criterion 3 Student Outcome A – Ability to Apply the Knowledge of Mathematics, Science and Engineering**

Assessment results from the Computer Engineering program (see Table 4-5 and Figure 4-1) shows that during the spring of 2012 the Computer Engineering program had a low value of 70 for student outcome A. Similar concern was found in other engineering programs. Since it is a common concern among several programs, the College of Engineering decided to form a "Mathematics Curriculum Review Committee" in 2013 to look into this issue. The committee consisted of five faculty members from four different departments: Dr. Ronald Boyd, committee chair, Dr. Iftekhar Ahmed, Dr. Annamalai Annamalai, Dr. Anil Kumar, and Dr. Sarhan Musa. The College had made two major changes for mathematics education five years ago and the changes are summarized in the following:

(1) Addition of Engineering Applications Labs for Mathematics courses: GNEG 1111, 1121, and 2021. The students in the College of Engineering are required to take the three “Applications
Lab” courses concurrently with three mathematics courses: Algebra & Trigonometry (MATH 1115), Calculus I (MATH 1124) and Calculus II (MATH 2024). These "Applications Lab" courses are used to introduce applications of engineering, engineering technology, and computer science while enhance the students’ mathematics skills. The contents of these courses are designed to (a) apply the same level of mathematics skills as taught in the math courses for problems of engineering, engineering technology, and computer science, and (b) reinforce the students’ learning of mathematics concepts that will help the students be successful in the corresponding math courses.

(2) Replacement of 6 credit-hours of MATH 3023 (Probability and Statistics) and MATH 4173 (Advanced Math for Engineers) by a five-credit-hour course – MATH 3685 (Mathematics for Engineers) with the purpose of reducing the total credit hours in the degree requirements. The committee was charged with the responsibility and authority to review the curriculum changes of these courses that were implemented five years ago to determine the effectiveness of mathematics education in the College. However, the scope of committee’s review for mathematics education is not limited to the review of the above mentioned changes. The committee met diligently and reviewed many curriculum documents including course binders, textbooks, assessment results, etc. The committee also interviewed several key faculty members including the Head of Mathematics Department and faculty members who teach "Engineering Applications Lab" courses, as well as getting the students’ input by some committee members. After receiving the committee’s review results, the Dean and Associate Dean in the College of Engineering had a meeting on mathematics education with the Dean of the College of Arts and Science and the Department Head of Mathematics. The Dean of College of Engineering also met with Department Heads in the College of Engineering and discussed the feedback from the College of Arts and Science. After these discussions, the following changes are implemented in both colleges starting in the fall 2014 semester:

- Uniformity Instruction: Every instructor for the same mathematics course uses the same textbook and follows the same course syllabus.
- Exam Method: Some mathematics instructors used multiple choice exam method in the past that will not be allowed anymore. All the mathematics courses required by engineering students are using problem solving exams that are designed to obtain detailed feedback of student's analytical skill and critical thinking ability.
- Frequent coordination between Mathematics faculty and Engineering faculty. A general meeting is held for mathematics instructors and "Engineering Applications” instructors at least once a semester. After discussing general issues, the meeting would break into subgroup meetings under each particular mathematics subject. During the semester, instructors continually contact their counterparts on a weekly or bi-weekly basis to exchange teaching outlines and student performance in the effort of synchronizing student's learning progress in a mathematics course and its corresponding "Engineering Applications" course.
- Improvement of contents of "Engineering Applications" Lab. The instructors jointly created course binders for the three "Engineering Applications" Lab courses. They have added Matlab and other software to broaden the usage of computer tools in the courses.
- Replacement of the five-credit-hour MATH 3685 (Mathematics for Engineers) by the original requirement of MATH 3023 (Probability and Statistics) and MATH 4173 (Advanced Math for Engineers). Essentially, after discovering that the materials in MATH 3685 were too broad to make one coherent semester course, we revoked the change that we did five years ago.
- Mathematics Department made a commitment to cap mathematics class size to 30 to
improve teaching efficiency.

The changes were made during the fall 2014 semester. The outcome A for the 2014-2015 Academic Year and 2015-2016 Academic Years were 81 and 80, respectively. The data indicates that change in curriculum had effect in improving the student outcome A.

(ii) Course Changes in ELEG 3023 Signals and Systems Due to Issues with Criterion 3
Student Outcome A – Ability to Apply the Knowledge of Mathematics, Science and Engineering
During the spring of 2012 outcome A was 70. The results indicated that student outcome A must be addressed. A summary of outcome A is shown in Figure 4-1 in Section 4A. Table 4-7 shows the courses that contributed to outcome A. The average score of 70 in the spring of 2012 resulted from low student performance in the ELEG 3023, Signal and Systems course. Table 4-7 shows that the average score in ELEG 3023, Signals and Systems, was 57 in the spring of 2012. As a result, changes were made to the Signals and Systems course. The faculty and Industrial Advisory Board recommended a textbook change. A committee was formed in the Department to select a new textbook. The new textbook was implemented in the spring 2013 semester. When the course was assessed again in the spring of 2014, (see Table 4-8), the average score increased to 92.

Table 4-7: Outcome A Quantitatively Assessed During Spring 2012

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
<th>Avg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spr. 2012</td>
<td>ELEG 2023</td>
<td>77</td>
</tr>
<tr>
<td>Spr. 2012</td>
<td>ELEG 3023</td>
<td>57</td>
</tr>
<tr>
<td>Spr. 2012</td>
<td>ELEG 3043</td>
<td>74</td>
</tr>
<tr>
<td>Spr. 2012</td>
<td>ELEG 4073</td>
<td>74</td>
</tr>
</tbody>
</table>

Table 4-8: Outcome A Quantitatively Assessed During Spring 2014

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
<th>Avg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spr. 2014</td>
<td>ELEG 2023</td>
<td>93</td>
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<td>Spr. 2014</td>
<td>ELEG 3023</td>
<td>92</td>
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<tr>
<td>Spr. 2014</td>
<td>ELEG 3043</td>
<td>71</td>
</tr>
</tbody>
</table>

(iii) Additional Improvements in Student Outcomes in Courses Due to Actions Taken by Faculty
Due to actions taken by individual faculty members, some of the student outcomes were improved at the course level. Table 4-9 shows some courses in which student outcomes were improved.
**Table 4-9: Additional Improvements in Student Outcomes**

<table>
<thead>
<tr>
<th>#</th>
<th>Outcome</th>
<th>Course and Semester of Issue</th>
<th>Course and Semester of Improvement</th>
<th>Improvements Made</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>F</td>
<td>ELEG 3063 Logic Circuits Fall 2014 Class Average</td>
<td>ELEG 3063 Logic Circuits Fall 2015 Class Average</td>
<td>Improvements made</td>
</tr>
<tr>
<td></td>
<td></td>
<td>49</td>
<td>79</td>
<td>Assignments were given much earlier in semester and the importance of completing assignment was stressed.</td>
</tr>
<tr>
<td>2</td>
<td>B</td>
<td>ELEG 3021 Logic Circuits Lab Fall 2014 Class Average</td>
<td>ELEG 3021 Logic Circuits Lab Fall 2015 Class Average</td>
<td>Improvements made</td>
</tr>
<tr>
<td></td>
<td></td>
<td>75</td>
<td>95</td>
<td>Extra help/resources were made available to students as need, and students' progress were monitored closely.</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>46</td>
<td>89</td>
<td>Assignments were given much earlier in semester and the importance of completing assignment was stressed.</td>
</tr>
<tr>
<td>3</td>
<td>A</td>
<td>ELEG 3013 Network Theory II Fall 2014 Class Average</td>
<td>ELEG 3013 Network Theory II Fall 2015 Class Average</td>
<td>Improvements made</td>
</tr>
<tr>
<td></td>
<td></td>
<td>86</td>
<td>89</td>
<td>Time was taken to review the main topics in Network Theory I. In addition, more time was devoted to complex numbers manipulation. Furthermore, the students were asked to purchase calculators that can perform complex number manipulations.</td>
</tr>
</tbody>
</table>

(iv) Additional Improvements in Program Due to Inputs from Students, Faculty and Industrial Advisory Board
The following are some changes in the program that were made from 2010 to 2016:

(a) Recitation Sessions
During the fall 2013 semester, recitation sessions were added to the course ELEG 2013 Network Theory I to improve the problem solving skills of our students

(b) Changes in the Course Content in ELEG 1021
During the fall 2014 semester, a pilot program was initiated to use the Electrical Engineering Practicum for the freshman course, ELEG 1021 Introduction to Electrical and Computer Engineering Laboratory. Starting fall 2015, the use of the Infinity Program for ELEG 1021 was discontinued, and the Department of Electrical and Computer Engineering adopted the use of the Electrical Engineering Practicum for its freshman course ELEG 1021. The Electrical Engineering Practicum is a cloud-based book with experiments that uses the Analog Discovery module and electronic parts kit to facilitate hands-on learning and self-exploration by the students. The Analog Discovery module enables students to quickly test real-world functional circuits anywhere and anytime with their own personal computers

(c) Hands-on Learning in Multiple Courses
Hands-on learning is known to make learning experiences more engaging and motivating for students. A portable equipment device that is being used to engage and inspire electrical and computer engineering students at Prairie View A&M University is the Analog Discovery Board (ADB). In the Department, the ADB is used in four courses: (i) ELEG 1021 Introduction to Electrical and Computer Engineering Lab, (ii) ELEG 2011 Electric Circuit Lab, (iii) ELEG 3013 Network Theory II, and (iv) ELEG 3043 Electronics I. ELEG 1021 and ELEG 2011 are laboratory courses, and ADB is used in the laboratory. However, ELEG 3013 and ELEG 3043 are lecture courses, and projects employing ADB are integrated into the lecture courses. All the four courses, mentioned above, are required courses for students with majors in either Electrical Engineering or Computer Engineering. Through multiple exposure to hands-on learning the students are able to master laboratory skills, such as bread-boarding, troubleshooting, and the use of electrical components and electronic devices. In addition, the students became knowledgeable in the use of Network Analyzer and Spectrum Analyzer, equipment that are not commonly used by undergraduate students. Furthermore, the laboratory projects that were integrated in the lecture courses deepened the students’ understanding of frequency response, Fourier series expansion, operational amplifiers and diode rectifiers. Furthermore, their mastery of the use of portable equipment and their enhanced laboratory skills will inspire the students to explore engineering concepts with ADB in future.

(d) Use of FPGAs in Logic Circuit Lab
During the fall of 2014 the Logic Circuit lab, ELEG 3031 was updated to include designing with Field Gate Programmable Arrays (FPGAs). The lab experiments were designed around the Digilent Nexys 2 FPGA board and the Xilinx ISE Design Suite. Students were introduced to FPGA design using schematic layouts as well as how to use Verilog the hardware descriptive programming language to design a simple digital circuit. Students were exposed to the processes used to design and simulate an FPGA configuration as well as compile their design and see it run on an FPGA.

(e) Upgrades in Microprocessor Lab
During the spring of 2015, ELEG 3071, the Microprocessor lab was upgraded to include PIC trainers. The trainer was used to execute experiments. The MPLAB simulator software was introduced.
Copies of any of the assessment instruments or materials referenced in 4.A. and 4.B will be available for review at the time of the visit. Other information such as minutes from meetings where the assessment results were evaluated and where recommendations for action were made will also be included.
CRITERION 5. CURRICULUM

A. Program Curriculum

Evidence for Satisfying the Minimum Credit Hours Distribution.
Table 5-1 describes the plan of study for students in the Computer Engineering Program including information on course offerings recommended schedule by year and term along with the maximum section enrollments for all courses in the last two terms the courses were taught. Prairie View A&M University is on a semester system.

Time and Attention Given to Each Curricular Component Consistent with the Outcomes and Objectives of the Program.
Table 5-1 gives the courses of the Computer Engineering curriculum. In the Criterion 2 section Table 2-1 shows the mapping between Computer Engineering courses and the program educational objectives. In the Criterion 3 section Table 3-1 shows the relationship between the program educational objectives and the student outcomes and Table 3-2 shows the mapping of the Computer Engineering courses to the student outcomes of the program. There is alignment between the Computer Engineering courses, the student outcomes and the program objectives.

Preparation for Professional Career
The curriculum leading to the Bachelor of Science in Computer Engineering includes 34 credit hours of mathematics and basic science, 64 hours of engineering design, 27 credit hours of general education courses, and 2 credit hours of “other” educational courses. Students, in consultation with their advisors, can select one 3 credit hours lecture and one 1 credit hour laboratory of electives to further their professional objectives.

One credit hour corresponds to one lecture (50 minutes) or at least two hours of laboratory time per week. A typical three credit hour lecture consists of 45 lecture hours or equivalent per semester, including final examinations. One academic year represents 30 weeks of classes.

We will describe several issues that pertain to the professional component of the curriculum.
1. major design experience
2. components of the curriculum that treats mathematics and basic science
3. components of the curriculum that treats engineering topics
4. the general education component of the curriculum

Mathematics and Basic Science
The Computer Engineering program contains 34 credit hours in mathematics and basic science. These 34 credit hours exceed the requirement of Criterion 5.

The students are required to complete five courses in mathematics, including MATH 1124 Calculus I, GNEG 1021 Engineering Applications of Math II, MATH 2024 Calculus II, GNEG 2021 Engineering Applications of Mathematics III, MATH 2043 Differential Equations, MATH 2053 Discrete Math, MATH 3023 Probability & Statistics, and ELEG 3023 Signals & Systems. The curriculum also includes a two semester sequence in Physics with laboratories (PHYS 2513 University Physics I, PHYS 2511 General Physics Lab I, PHYS 2523 University Physics II and PHYS 2521 General Physics Lab II). In addition, students are required to complete four credit hours of Chemistry with laboratory (CHEM 1034 Chemistry for Engineers, and CHEM 1021
Inorganic Chemistry Lab II). Computer Engineering students take ELEG 3033 Physical Principles of Solid State Devices as a science course being taught by instructors with degrees in Physics.

The students in the Computer Engineering are required to complete the following courses in Computer Science: COMP 1213 Computer Science I, COMP 1211 Computer Science Laboratory I, COMP 1224 Computer Science II, and COMP 2013 Data Structures.
Table 5-1: Curriculum
Computer Engineering Program

<table>
<thead>
<tr>
<th>Course (Department, Number, Title)</th>
<th>Indicate Whether Course is Required, Elective or a Selected Elective by an R, an E or an SE.</th>
<th>Subject Area (Credit Hours)</th>
<th>Last Two Terms the Course was Offered: Year and, Semester, or Quarter</th>
<th>Maximum Section Enrollment for the Last Two Terms the Course was Offered²</th>
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<tr>
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<td>Subject Area (Credit Hours)</td>
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<td>Course</td>
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<td>Subject Area (Credit Hours)</td>
<td>Last</td>
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</table>

*Add rows as needed to show all courses in the curriculum.*

| TOTALS-ABET BASIC-LEVEL REQUIREMENTS | 34 | 64 | 27 | 2 |
| OVERALL TOTAL CREDIT HOURS FOR COMPLETION OF THE PROGRAM | 127 |

| PERCENT OF TOTAL |
| Minimum Semester Credit Hours | 32 Hours | 48 Hours |
| Minimum Percentage | 25% | 37.5% |
Engineering Science and Design
Computer Engineering students take several courses in Computer Engineering. The curriculum is structured to provide the students with a broad coverage in the Computer Engineering discipline: Network Theory, Electronics, Digital Design, Computer Network, Embedded Systems, and Computer Organization and Design. In addition, the program is structured to provide our students an in-depth coverage of Computer Science, Digital Systems and Network Theory. Design is integrated throughout the curriculum.

During the sophomore year, the student’s curriculum is concentrated in the engineering science area. The student is taught and exposed by laboratory experimentation to scientific laws and the use of mathematics to describe these laws and their applications to problem solving. Beginning with the junior year, the students begin Computer Engineering technical design in the courses Network Theory II, Logic Circuits and Electronics I. These courses take the engineering fundamentals learned in the freshman and sophomore years and apply them to actual design problems. There are 6 hours of design in five courses during the junior year. In addition, in several courses (ELEG 3043 Electronics I and ELEG 3063 Logic Circuits) design oriented open-ended problems are assigned.

The senior year has the heaviest concentration of design. The Digital Design course (ELEG 4303) is a dedicated design course in which the student continues the design of digital circuits started in the junior level Logic Circuits course. There are two courses ELEG 4472 Senior Design & Professionalism I and ELEG 4482 Senior Design & Professionalism II that form a capstone design sequence, in which the student must take a design project from the conceptual stage to a finished product or demonstrable model. The senior project must be formally written and a presentation given prior to graduation. Each project is under the direction of a faculty advisor, and final presentations are evaluated and scored by the faculty and invited guests.

Furthermore, Computer Engineering students take the following non-Computer Engineering courses: MCEG 2013 (Thermodynamics), CVEG 2454 (Statics and Dynamics), CHEG 2003 (Economic Analysis and Technical Applications). These courses strengthen the Computer Engineering curriculum by providing broad coverage of engineering topics and prepare our students for taking the Fundamental in Engineering Examinations.

In MCEG 2013 (Thermodynamics I) students are introduced to the thermodynamics laws; properties of pure substances and P-V-T, heat and work, Otto, Diesel, Brayton and Refrigeration cycles. The CVEG 2454 Statics and Dynamics course develops in the students the ability to predict the behavior of engineering components and systems subjected to forces resulting in equilibrium or dynamic motion. In CHEG 2003 Economic Analysis Technical Applications, the economic factors related to engineering designs are discussed.

One technical elective can be selected from the following list:

Electrical and Computer Engineering Courses:
ELEG 4263 VLSI Circuit Design
ELEG 4053 Digital Signal Processing
ELEG 4273 Analog and Mixed Signal Techniques I
ELEG 4343 Microcontroller Applications
ELEG 4353 Advanced Logic Design
MATH 3073 Linear Algebra
COMP 3113 Object-oriented Analysis and Design
5A.1.3 General Education Component

(a) University Core Curriculum

The general education component of the curriculum is found in the Prairie View A&M University core curriculum. The latter attempts to ensure that all students become aware of their historical and cultural heritage learn to speak and write clearly, expose students to United States Government and Texas Government, appreciation of the humanities and introduction to the Social Sciences.

The goals of the Prairie View A&M University core curriculum are consistent with the objectives of the Computer Engineering program. The core curriculum is comprised of the following requirements:

a). 9 credits in Composition and Speech  
b). 3 credit hours in Mathematics  
c). 6 credit hours in science  
d). 6 credit hours of United States history  
e). 6 credit hours of government  
f). 9 credit hours in Humanities, Behavioral and Social Sciences  
g). 3 credit hours in computing

(b) Oral and Written Communication

Computer Engineering Program requires specific courses to assure competence in written and oral English communications, as well as incorporate demonstration of such skills in technical courses.

Oral skills are learned and developed in COMM 1003, (Fundamentals Speech Communication). This course is required of all Prairie View A&M University students, and consists of lectures on the theory and methods of oral communication, together with several oral presentations by the students on general topics.

Writing skills in English are learned and developed in ENGL 1123 and 1143 (Freshman Composition I and Technical Writing), required of all Prairie View A&M University students. ENGL 1123 and 1143 reinforce the student’s understanding of grammar, sentence structure and clarity, as well as more advanced writing skills, such as purpose, style, and organization. Several writing assignments are required.

In addition to these required courses, communication skills are practiced in many other courses. Nearly all Prairie View A&M University’s humanities and social science courses require significant written and oral assignments. All Computer Engineering laboratory courses required written reports where attention is paid to grammar and written skills. ELEG 4472 and ELEG 4482, Senior Design & Professionalism I and II, also require mid-term and final oral presentations. The last one is in front of invited evaluators.
Students who need help in English skills have two primary avenues sponsored by the University. These are (1) tutoring offered in basic English and speech courses, and (2) assistance offered by professional staff members in the Accelerated Learning Resource Center (ALRC). Students may be self-referred by a faculty member. The student and the ALRC professional work out a specific program for areas which need remediation, for example, structure or use of commas. Any faculty member who refers a student receives a report from the ALRC on progress made until the English deficiency is remedied.

Culminating Major Design Experience
The major design experience in the Computer Engineering program is achieved in two courses ELEG 4472 Senior Design and Professionalism I and ELEG 4482 Senior Design and Professionalism II. The preparation for major design experience is the culmination of a sequence of courses that begin at the freshman year in the course ELEG 1021 Fundamentals of Electrical and Computer Engineering. It draws upon what students have learned in programming course (COMP 1211, COMP 1213, COMP 1224) and Circuit Analysis courses (ELEG 2023, ELEG 3013). It requires the knowledge the students have gained in electronic courses (ELEG 3033, ELEG 3043), Digital Hardware Design courses (ELEG 3063, ELEG 3073, ELEG 4303, ELEG 4253) and Economic Analysis Technical Applications (CHEG 2003). The major design makes use of techniques students have learned in laboratory courses (ELEG 3011, ELEG 3021 and ELEG 3071).

Projects are selected and student teams are formed in the first course of ELEG 4472. Prior to the start of the semester the course instructors with assistance from Department Head and the Dean will solicit, from various industries, possible projects for design consideration. Projects submitted must have design content, with constraints and design limitations. The first class meeting is dedicated to course outline review and presentation of proposed projects. After having a week to review the projects, project teams are formed during the second week. At the third class meeting the students will present their projects, and steps they will use in solving the design with constraints as given. Students are also required to present a Gantt Chart showing their schedule for the fall semester and continuation for the spring semester.

In the senior design course, design is a high priority, but the course also develops the complete engineer, by having guest speakers to give presentations on subjects that are necessary for an engineering career. In both courses of senior projects, the students are required to give a formal midterm and final presentation. Each group is required to give a 20-minute final presentation and to demonstrate their project after completion of presentation. Evaluators of the presentations may be members of Industrial Advisory Board and other invited individuals from industry. Evaluation is based upon the following ten points:

1. Clarity of final goal and milestones to reach the goal
2. Progress of the project to achieve the milestones
3. Efforts of all group members
4. Creativity and originality of design concepts
5. Engineering approaches to attack problems
6. Quality of design/analysis/construction work
7. Conclusion and future plan
8. Quality of visual aids
9. Quality of delivery and professionalism of oral presentation
10. Organization and time management among team
After completion of the presentation of the project, the design teams will make final corrections to their projects and submit a final formal report on their designs. Also each team member must submit an individual report describing his or her contribution to the project.

The constraints considered by students as they engage in their design projects and realistic constraints imposed by such factors as economic constraints, product safety, performance requirements, impact of the product on the environment and constraints imposed by ethics. The product being designed will dictate the particular constraints that are relevant for the design project.

Cooperative education is not used to satisfy curricular requirement. However, the students are encouraged to participate in cooperative education for the industrial experience afforded to the students when they participate in cooperative education.

Additional materials that will be available for review during the visit to demonstrate achievement.

The following materials will be available for review during the visit:
1. Sample Senior Project Reports
2. The College of Engineering Senior Design Project Manual
3. Course Syllabi

Prerequisite Table
Table 5-2 shows the prerequisite structure of the Computer Engineering Program.

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<th>CO-REQUISITES</th>
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**SOPHOMORE FIRST SEMESTER**

**SOPHOMORE SECOND SEMESTER**

**JUNIOR SECOND SEMESTER**
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B. Course Syllabi

Appendix A has the course syllabi of each course used to satisfy the mathematics, science, and discipline-specific requirements required by Criterion 5. Each syllabus includes the following information: Department, course number, and title of course

- Designation as a Required or Elective course
- Course (catalog) description
- Prerequisites
- Textbook(s) and/or other required material
- Course learning outcomes
- Topics covered
- Class/laboratory schedule, i.e., number of sessions each week and duration of each session
- Contribution of course to meeting the requirements of Criterion 5
- Relationship of course to Student outcomes
CRITERION 6. FACULTY

A. Faculty Qualifications

Faculty Competencies
The Department of Electrical and Computer Engineering has seventeen faculty members; nine Professors, four Associate Professors, one Assistant Professor, one Instructor, and two Adjunct Instructors.

The faculty members have a broad range of expertise needed to teach the required courses and elective courses in the Computer Engineering Program. The main curriculum areas in the Computer Engineering department are:

a) Communication & Signal Processing
b) Computer Hardware and Software
c) Microelectronics

Table 6-1 shows the faculty qualifications. Details on the faculty capabilities in these areas are given in the vitas in Appendix B.

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<th>Rank 1</th>
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Table 6-1: Faculty Qualifications
Computer Engineering
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<th>Faculty Name</th>
<th>Highest Degree Earned-Field and Year</th>
<th>Rank 1</th>
<th>Type of Academic Appointment 2</th>
<th>Years of Experience</th>
<th>Professional Registration/ Certification</th>
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<th>Professional Development</th>
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1. Code:  P = Professor   ASC = Associate Professor   AST = Assistant Professor   I = Instructor   A = Adjunct   O = Other
2. Code:  TT = Tenure Track   T = Tenured   NTT = Non Tenure Track
3. At the institution
4. The level of activity, high, medium or low, should reflect an average over the year prior to the visit plus the two previous years.
**B. Faculty Workload**

During the 2015-2016 academic year, there were fifteen full-time faculty members and two part-time faculty in the Electrical and Computer Engineering Department at Prairie View A&M University. With the exception of one part-time instructor, all the faculty members have terminal degrees. All seventeen faculty members were involved in teaching Computer Engineering courses. Table 6-2 shows the faculty workload.

Table 6-2: Faculty Workload Summary

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<tr>
<th>Faculty Member (name)</th>
<th>PT or FT</th>
<th>Classes Taught (Course No./Credit Hrs.) Term and Year</th>
<th>Program Activity Distribution</th>
<th>% of Time Devoted to the Program</th>
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<td>Classes Taught (Course)</td>
<td>Program Activity Distribution³</td>
<td>% of Time Devoted to the...</td>
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<td>ELEG 7016 (6)</td>
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</table>

1. FT = Full Time Faculty or PT = Part Time Faculty, at the institution
2. For the academic year for which the Self-Study Report is being prepared.
3. Program activity distribution should be in percent of effort in the program and should total 100%.
4. Indicate sabbatical leave, etc., under "Other."
5. Out of the total time employed at the institution.

**C. Faculty Size**

Sixteen of the faculty members in the Electrical and Computer Engineering Department were involved in teaching Computer Engineering courses during the 2015-2016 academic year. The faculty of the Computer Engineering Program is adequate in size for the performance of the teaching, research and service goals of the program.

**Levels of Student-Faculty Interaction**

The faculty members in the Computer Engineering department have a high level of interaction with students. Each student in the Computer Engineering Program has been assigned a faculty advisor. Students meet with advisors at least once each semester to discuss the student’s
progress in the program and to register for courses to take during the semester. In addition, students may receive career advisement during their interactions with faculty.

The bulk of the interaction students have with faculty is in instructional mode, both in the classroom and laboratories. Faculty members interact with students during the instructor’s office hours, and also during tutorials that are offered by instructors. There is substantial student-faculty interaction when students are involved in projects and design work. There is significant interaction as students engage in undergraduate research projects, and attend professional societies (IEEE, HKN and Tau Beta Pi) meetings. Two faculty members (Professors Attia and Cui) in the department are advisors to professional societies.

**Student Advising and Counseling**

Each student in the Computer Engineering Program is assigned an academic advisor. As discussed in Section 1C, there are primary and secondary advisors for students in the program. Each student meets with his or her advisor at least twice a year to complete registration and to seek advice concerning his or her program of study and career-related issues. Most students see their advisors much more frequently than that.

**University Service Activities**

The faculty of the Department of Electrical and Computer Engineering are active in service to the department, the College of Engineering and the University. Tables 6-3 and 6-4 show the nature and extent of the service provided by faculty. Table 6-3 shows the departmental committee structure during the period from 2013 to 2016, while Table 6-4 shows the service to the College of Engineering and the University that faculty of the department provided during the period from 2013 to 2016.
<table>
<thead>
<tr>
<th>Committee</th>
<th>Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Engineering Curriculum Committee</td>
<td>S. Koay (Chair), J. Attia, K. Kirby, S. Cui, and X. Li</td>
</tr>
<tr>
<td>ABET Committee</td>
<td>J. Attia (Chair), W. Ali, C. Cui, J. Foreman, and R. Wilkins</td>
</tr>
<tr>
<td>Preliminary Exam Committee</td>
<td>W. Ali, A. Annamalai, J. Attia, P. Cofie, S. Cui, J. Fuller, K. Kirby, S. Koay, A. Kumar, P. Obiomon, L. Qian, M. Sadiku, and R. Wilkins</td>
</tr>
<tr>
<td>Undergraduate Grievance Committee</td>
<td>K. Kirby (Chair), X. Li, and P. Cofie</td>
</tr>
<tr>
<td>Graduate Grievance Committee</td>
<td>L. Qian, J. Attia, J. Fuller and P. Cofie</td>
</tr>
<tr>
<td>Recruiting Committee</td>
<td>Kumar (chair), K. Kirby, and P. Obiomon</td>
</tr>
<tr>
<td>ECE Faculty Search Committee</td>
<td>K. Kirby, L. Qian and J. Fuller</td>
</tr>
<tr>
<td>Search Committee for Chief Scientist &amp; Executive of the Chancellor Research Initiative (CRI) project in Computational Biology</td>
<td>X. Li , L. Qian, and S. Cui</td>
</tr>
<tr>
<td>Tenure &amp; Promotion Committee</td>
<td>Attia (Chair), A. Kumar, and C. Tolliver</td>
</tr>
<tr>
<td>Post Tenure Review Committee</td>
<td>A. Annamalai, A. A. Kumar, and C. Tolliver</td>
</tr>
<tr>
<td>Graduate Admissions</td>
<td>J. Fuller (Chair), R. Wilkins (Chair), M. Sadiku, W. Ali, L. Qian, X. Li, and S. Cui</td>
</tr>
<tr>
<td>Search committee (adjunct faculty)</td>
<td>K. Kirby (Chair), S. Koay and C. Tolliver</td>
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<tr>
<td>Proposal Selection Committee</td>
<td>A. Annamalai (Chair), J. Fuller, and A. A. Kumar</td>
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<tr>
<td>IEEE Advisor:</td>
<td>K. Kirby and S. Cui</td>
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<tr>
<td>Tau Beta Pi Advisor:</td>
<td>J. Attia</td>
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<tr>
<td>Faculty</td>
<td>List of Activities</td>
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<td>---------------------------------------------------------------------------------------------------------------------------------------------------</td>
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</tbody>
</table>
| J. Fuller | College of Engineering Tenure & Promotion Committee  
Member, University Commencement Committee  
Founders Day Convocation Committee 2016 |
| S. Koay   | Member, College of Engineering Curriculum Committee                                                                                               |
| J. Attia  | Co-chair, SACS Committee for Graduate Programs  
Chief Advisor, Tau Beta Pi                                                                                                                              |
| A. Annamalai | Director, Center of Excellence for Communication Systems Technology Research (CECSTR)  
Tenure and Promotion Committee  
Mathematics Curriculum Review Committee                                      |
| R. Wilkins | Director, NASA Center for Applied Radiation Research (CARR)  
Member, College of Engineering Curriculum Committee                                      |
| K. Kirby  | Deputy Director, NASA Center for Applied Radiation Research (CARR)  
Director, NSF STEM Program                                                                                                                               |
| S. Koay   | Tenure and Promotion Committee                                                                                                                         |
Tenure and Promotion Committee  
Mathematics Curriculum Review Committee                                         |
| P. Obiomon | College Hiring Committee - Department Head Mechanical Engr  
College Hiring Committee - Program Director  
College Hiring Committee - Department Head Civil Engr  
Interim Department Head Electrical and Computer Engineering  
College Tenure and Promotion Committee  2013  
Psychology Search Committee 2016  
Founders Day Convocation Committee 2016                                                                                                       |
| W. Ali    | Member, Faculty Senate                                                                                                                                |
| M. Sadiku | Department Graduate admission committee.  
College Assessment committee.  
University Hiring Committee - VP for Research and Dean of Graduate School                                                                                   |
Interaction with Practitioners and Employers

Faculty members of the Computer Engineering faculty maintain active relationships with engineering practitioners and employers in a number of ways. The forms of interaction include:

a) Interactions with the Computer Engineering Advisory Board. The Computer Engineering department has an advisory board whose membership is largely drawn from representatives of corporations that hire many of our graduates. The Advisory Board normally meets normally twice a year. Faculty members interact with the Board members while they are on campus.

b) Interactions with working engineers on Senior Design Projects. Several of the Senior Design projects are sponsored by industry. Engineers from the Sponsoring Companies normally mentor the seniors while performing the Senior Design Projects.

c) Employer interactions
During the fall and spring semesters there are career days where representatives of employers of Prairie View A&M University students visit campus to recruit students for internships, and permanent hires. Faculty members take advantage of the opportunity to interact with industry representatives.

d) Visits to Industry
Occasionally, faculty members are invited to industry to discuss some testing methodologies, to explore partnership or other cooperative activities, or to explore research opportunities with industry.

The above activities do not represent an exhaustive list of interactions faculty have with Industrial representatives and employers; it is representative and provides evidence of pervasive nature of this interaction.

Faculty Curriculum Vitae

The abbreviated curriculum vitae of faculty members can be found in Appendix B.

Faculty Development for Faculty Members

Prairie View A&M University has a number of centers that involve Computer Engineering faculty and provide opportunities for professional development and industrial interactions. These centers include:

- NASA Center for Radiation Engineering and Science for Space Exploration (CRESSE)
- Sprint Center of Excellence for Communication systems Technology Research (CECSTR)
- Center for Battlefield Communications (CEBCOM)
- Center of Excellence in Research and Education for Big Military Data In InTelligence (CREDIT)
**A. Professional Development**

Evidence of the professional development of faculty can be found in their curriculum vitae. Some professional activities of the faculty during the 2013-2016 academic year are shown in Table 6-5.

Table 6-5: Professional Activities of the Computer Engineering Faculty 2013-2016 Academic year

<table>
<thead>
<tr>
<th>Name</th>
<th>Professional Activity</th>
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</table>
3. AFRL design competition, Nashville/Tennessee, April 2014  
4. AFRL design competition, Nashville/Tennessee, April 2016  
5. NAVSEA/San Diego, National Competition, July 19, 2016 |
| Annamalai, Annamalai | 1. IEEE Military Communications Conference, 26-28 October 2015, Tampa, FL: Attended and presented a technical paper as well as a tutorial entitled, ‘Simple and General Parameterization of the Physical Layer Performance of Wireless Networks’.  
3. Wireless Networks’.  
5. Director of Center of Excellence for Communication Systems Technology Research, 2010 – present  
6. National Science Foundation Proposal Review Panelist, 2001 – present  
7. IEEE Global Telecommunications Conference (GLOBECOM’15) Organizing Committee: Workshops Co-Chair 2015  
| Attia, John      | 1. Attended ASEE Conference and Exposition at Indianapolis from June 14 to June 18, 2014. During the conference, I completed a short course on the “Use of MATLAB for Renewable Energy”  
3. Participated in the Experimental Centric Based Engineering Curriculum Workshop that took place at Tuskegee University from December 12 to 14, 2014. |
| Cofie, Penrose | 4. Participated in the FPGA Workshop that took place on the campus of PVAMU from June 30 to July 1, 2014.  
5. Attended the Smart Grid Workshop that took place at TAMU-College Station on April 8, 2014.  
6. Advisor to Texas Kappa Chapter of the Tau Beta Pi Honor Society (1984 to present)  
7. ABET EAC Commissioner (2015 to present)  
9. Member of IEEE Committee on Engineering Accreditation Activities 2011 to 2015  
10. NSF-ECP Workshop/Greensboro, NC, May 2016  
11. ASEE GSW/Fort Worth TX, March 6, 2016 |
|---|---|
| Cui, Suxia | 1. Attended FPGA workshop at Prairie View A&M University 2015  
2. Organized PVAMU summer HPC and big data workshop June 2016 to introduce HPC and big data  
3. Attended and served as a judge of the 6th Annual STEAM Research Symposium of PVAMU (also sent students to participate in poster competition), March 2015  
4. Attended ASEE annual conference at Seattle to present two papers.  
5. Visited Harvard University medical school summer 2015 to seek future collaboration opportunities on fMRI image processing  
6. Attended online summer workshops by University of Oklahoma and later bi-week webinar to learn HPC knowledge  
7. Attended UH computing lecture series to learn parallel programming.  
8. Attended PVAMU grant writing workshop at Northwest center May 2015  
| Fuller, John | 1. Conducted an FPGA Workshop campus of PVAMU from June 30 to July 1, 2014  
3. Presentation for University Consortium as funded by DOE, Virgin Islands, Nov, 2015  
4. Alabama A&M Consortium/Huntsville, April 27, 2014 |
| Kirby, Kelvin | 1. Presentation at NASA University Research Center (URC) Principal |
| Koay, S. T. | 1. Participated in the FPGA Workshop that took place on the campus of PVAMU from June 30 to July 1, 2014  
2. Attended MATLAB/SIMULINK Seminar that was held in the department  
3. Attended LabView Seminar that was held in the department  
4. Attended Rice ECE Annual Affiliates Conference at Rice University in April 2015  
5. Attended Rice ECE Annual Affiliates Conference at Rice University in April 2016  
6. Attended National Instruments Annual Conference at Austin, Texas, August 5 through August 6, 2015.  
7. Attended National Instruments Annual Conference at Austin, Texas, August 4 - 6, 2015 |
|---|---|
| A. Kumar | 1. Attended several speaker sessions organized by Houston APlus Challenge  
2. Explore STEM Practices, San Antonio, March 26, 2014  
3. Math Teachers Conference, Corpus Christi, TX, June 12, 2014  
5. Attended the *grant writing workshop* organized by PVAMU to improve grant writing experience, May 18-22, 2015  
6. Attend Faculty Workshop on teaching methods training by Dr. Michael Prince at NW campus offered by COE of PVAMU, May26-27, 2015  
7. Organized “High Performance Computing with Applications in Big Data” workshop at PVAMU. I gave talk titled “*Big Data application in Computational Systems Biology*” during big data workshop, June 2015, PVAMU  
8. NSF Panel review. I served as a panel reviewer at Computer and Information Science and Engineering (CISE) Cyber-Physical Systems medical panel, July 2015  
9. Attended Discovery on Target conference in Boston. The PI will get |
| Obiomon, Pamela | involved with a rich agenda including conferences and short courses, including, (a) short course #1: Leveraging Data and Analytics for Drug Discovery (b) Conference #1: RNAi for Functional Genomics Screening (c) Conference #2: Quantitative Systems Pharmacology (d) short course #2: Using Mechanistic Physiological Models in Drug Development: A Proven Quantitative Systems Pharmacology (QSP) Approach. Sept. 2015
| --- | --- |
| Qian, Lijun | 1. STEM Conference Women of Color at Texas A&M Organized a workshop entitled: “Food and Safety with FPGA Based Sensors”, Spring 2013
2. Organized a workshop entitled: “Food and Safety with FPGA Based Sensors”, Spring 2013
4. Conference, Panelist - Pathway to Professoriate –“Faculty Roles and Expectations at Different Types of Institutions, 2014
5. Obiomon, P., “PhD Personal: From Decision to Destiny”, TAMUS 10th Annual Symposium, Houston, Texas, Feb 13-14, 2014
| Qian, Lijun | 1. Demonstrated the Wireless Communications Lab to Dr. Richard Alo, Dean of College of Science, Engineering and Technology, Jackson State University; January 29, 2015
2. Attended the NSF PI meeting at Washington DC and present a research poster; Feb 17, 2015
3. Attended the IEEE Texas Workshop on Integrated System Exploration (TexasWISE) 2015 at UT Winedale House, Round Top, Texas, and presented a poster on “Smart Phone Paired Sensors for Environmental Monitoring”; March 27, 2015
4. Attended theCESG Seminar at TAMU titled “Genomic analysis tools for familial and case-control sequencing studies” by Chad Huff, Assistant Professor from MD Anderson Cancer Center; April 7, 2015
5. Attended the Workshop on “Big Data Analytics in CPS: Enabling the Move From IoT to Real-Time Control” at Seattle, WA;
6. Attended the Cyber-Physical Systems (CPS) Week at Seattle, WA; April 13 thru April 16,2015
7. Attended the Microsoft Workshop on Recent Advances in Cyber Physical Systems at Microsoft Research Redmond, WA and |
delivered an invited talk on recent advances and challenges in the CPS area; April 17, 2015
8. Attended the Third Smart Grid Workshop at Texas A&M University and present a research poster; April 21, 2015
9. Participated the CRI 100% design meeting with Dr. Yidong Chen and Dr. Zhao Lai; April 23, 2015
10. Participated the first Industry Day at PVAMU and discussed potential commercialization of the technologies developed by the WiComLab; May 6, 2015
11. Served as a judge for I-SWEEEP, Houston, TX; May 9, 2015
12. Attended the Texas Life Science Forum at Rice University BioScience Research Collaborative (BRC); May 20, 2015
13. Organized “High Performance Computing with Applications in Big Data” workshop at PVAMU; May 6 thru May 10, 2015
14. Participated in the annual international conference on Intelligent Systems for Molecular Biology (ISMB) in Dublin, Ireland. ISMB is the major meeting of the International Society for Computational Biology (ISCB); July 8 thru July 15, 2015
15. Participated the DOD Center of Excellence kickoff meeting in Arlington, VA, and gave a presentation on the CREDIT Center; August 6 thru August 7, 2015
16. Participated the DOD Center of Excellence Technical Exchange meeting in AFRL, Rome, NY, and gave a presentation on the CREDIT Center’s research and education programs; Sept 21 thru Sept 23, 2015
18. Attended the IEEE International Conference on Big Data in Santa Clara, CA; Oct 29 thru Nov 2, 2015
19. Attended the CPRIT Innovations in Cancer Prevention and Research Conference in Austin and presented 2 posters titled “Drug Effects Modeling on Tumor Growth” and “Sensitivity of Kinetic Rate Variables in Signaling Pathways to Drug Responses”; Nov 9 thru Nov 11, 2015
20. Participated in the NSF Big Data Innovation Hub Workshop at GaTech in Atlanta, GA; Dec 7-8, 2015

Served in the following four (4) Technical Program Committee:
1. IEEE International Conference on Communications (ICC 2015).
4. IEEE Global Communications Conference (Globecom 2015).

Review of total twenty-one (21) papers including:
Review of fifteen (15) papers for the following journals:
1. EURASIP Journal on Bioinformatics and Systems Biology
| Sadiku, Matthew | 1. COMSOL Workshop – June 2013  
2. IEEE Southeast Conference - March 2012  
International Conference on Scientific Computing, 201 |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tolliver, Charlie | 1. Participated in the FPGA Workshop that took place on the campus of PVAMU from June 30 to July 1, 2014  
2. Attended LabView Seminar that was held in the department  
3. Attended MATLAB/SIMULINK Seminar that was held in the department |
| Wilkins, Richard | 1. Midwest Symposium on Circuits and Systems, College Station, Texas August 2014  
2. GE Leadership Conference, GE Oil and Gas, Houston, Texas October 2014  
3. GE Student Leadership Conf., GE Water and Power, Houston, Texas October 2014  
4. IEEE Nuclear and Space Radiation Conference, Paris, France, July 12, 2014  
5. Completed IEEE Nuclear and Space Radiation Effects short course in July 2015, Boston, MA  
7. American Nuclear Society Winter 2015 Meeting and visit the Department of Energy  

### B. Authority and Responsibility of Faculty

**Leadership Responsibilities**

Dr. Pamela Obiomon is the Interim Head of Electrical and Computer Engineering Department. She is responsible for leading the Computer Engineering Program and driving its mission, educational objectives and student outcomes by engaging faculty, staff and students to achieve the written goals of the Computer Engineering Program. She represents the Department and interacts with other Departments in the University to achieve the mission and goals of Prairie View A&M University. The Department Head manages the Department affairs, including...
budget, resource allocations, faculty and staff workload, annual evaluation of faculty and staff performance, curriculum, and advising.

**Authority and Responsibility of Faculty**

One of the strengths of the Computer Engineering program is its faculty. The faculty is composed of professors with different specialties that cover all the major areas of computer engineering. The professors are dedicated to their profession and to the objective of having every graduate competent in the field of computer engineering. Professors are often found spending evening hours with the students conducting problem sessions and working with seniors on their project. The faculty also keeps abreast of the latest technology in engineering by conducting research with government agencies and private industry. Furthermore, the turnover rate of computer engineering faculty is very low.

Faculty members are responsible for course creation, modification and evaluation. A faculty member may recommend some changes in the courses. The recommendation will be discussed in Department meeting, and modifications to the recommendations may be made. The recommendations will be submitted to the Dean’s office. The latter office will submit the recommendations to the College of Engineering Curriculum Committee. If the Curriculum committee approves the course creation or modification, then a formal request is submitted to the University Academic Council. The Academic Council is chaired by the Provost or her representative.

Consistency and quality among courses with several sections are maintained by having (i) a person responsible for the course, (ii) using the same course syllabus, (iii) ensuring that all topics are covered in the various sections, and (iv) end-of-semester evaluation of the courses.
CRITERION 7. FACILITIES

A. Offices, Classrooms and Laboratories

The program’s facilities support the attainment of the student outcomes and provide an atmosphere conducive to learning. Table 7-1 shows the offices of the faculty members in the Department of Electrical and Computer Engineering in the New Computer Engineering Building (Administrative, Faculty, Clerical, and Teaching Assistants).

Table 7-1: Offices for Faculty and Staff

<table>
<thead>
<tr>
<th>Office number</th>
<th>Name</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>342 / 315H</td>
<td>Ali, Warsame</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>350</td>
<td>Annamalai, Annamalai</td>
<td>Professor</td>
</tr>
<tr>
<td>318</td>
<td>Attia, John</td>
<td>Professor</td>
</tr>
<tr>
<td>348</td>
<td>Cofie, Penrose</td>
<td>Instructor</td>
</tr>
<tr>
<td>334</td>
<td>Cui, Suxia</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>344</td>
<td>Fuller, John</td>
<td>Professor</td>
</tr>
<tr>
<td>352</td>
<td>Kirby, Kevin</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>322</td>
<td>Koay, Siew</td>
<td>Professor</td>
</tr>
<tr>
<td>316</td>
<td>Kumar, Anil</td>
<td>Professor</td>
</tr>
<tr>
<td>336</td>
<td>Li, Xangfang</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>330 / 315G</td>
<td>Obioman, Pamela</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>332</td>
<td>Qian, Lijun</td>
<td>Professor</td>
</tr>
<tr>
<td>328</td>
<td>Sadiku, Matthew</td>
<td>Professor</td>
</tr>
<tr>
<td>320</td>
<td>Tolliver, Charlie L.</td>
<td>Professor</td>
</tr>
<tr>
<td>340</td>
<td>Wilkins, Richard</td>
<td>Professor</td>
</tr>
<tr>
<td>351</td>
<td>Dwivedi, Ramesh</td>
<td>Adjunct Instructor</td>
</tr>
<tr>
<td>349</td>
<td>Foreman, Justin</td>
<td>Adjunct Instructor</td>
</tr>
<tr>
<td>315C</td>
<td>Beulah Purvis</td>
<td>Administrative Secretary</td>
</tr>
<tr>
<td>315B</td>
<td>Colleen Harris</td>
<td>Administrative Secretary</td>
</tr>
<tr>
<td>124</td>
<td>Kureshi, Riaz</td>
<td>Technician</td>
</tr>
<tr>
<td>371</td>
<td>MS students</td>
<td>Teaching Assistants</td>
</tr>
<tr>
<td>355-370</td>
<td>PhD students</td>
<td>Teaching Assistants</td>
</tr>
<tr>
<td>324, 326, 347, 339</td>
<td>Open Offices</td>
<td></td>
</tr>
</tbody>
</table>

Classrooms

Computer Engineering Program classes are held throughout Prairie View A&M University campus, depending on the class size, scheduling requirements and computer/audio-visual requirements. Most of the classes in the Computer Engineering Program are held in the following classrooms:

- Electrical and Computer Engineering Building, room 115
- Electrical and Computer Engineering Building, room 117
- Electrical and Computer Engineering Building, room 137
- Electrical and Computer Engineering Building, room 139
There are additional classrooms in the College of Engineering facilities. They include:
Gilchrist Engineering Building, Room 104
Gilchrist Engineering Building, Room 109
Wilson Engineering Building, Room 103
Wilson Engineering Building, Room 109k
Collins Engineering Building, Room 224
Collins Engineering Building, Room 331

**Laboratories**
Table 7-2 shows the laboratories that are available in the Electrical and Computer Engineering building. Some courses in Computer Engineering Program are offered by Computer Science department. Table 7-3 lists the laboratories available from S. R. Collins building where Computer Science Department is located.

<table>
<thead>
<tr>
<th>Room Number</th>
<th>Laboratory Name</th>
<th>Laboratory Support the Courses</th>
<th>Square Feet</th>
<th>Purpose (Instructional/Research)</th>
</tr>
</thead>
<tbody>
<tr>
<td>126</td>
<td>Circuits &amp; Electronics</td>
<td>ELEG2011</td>
<td>995</td>
<td>Instructional &amp; Laboratory</td>
</tr>
<tr>
<td>119</td>
<td>Microprocessor Systems and Digital Logic</td>
<td>ELEG 3021 ELEG 3071</td>
<td>1030</td>
<td>Instructional &amp; Laboratory</td>
</tr>
<tr>
<td>221</td>
<td>DSP</td>
<td>ELEG 4053</td>
<td>763</td>
<td>Instructional &amp; Laboratory</td>
</tr>
<tr>
<td>219</td>
<td>FPGA</td>
<td>ELEG4253 ELEG4333</td>
<td>683</td>
<td>Instructional &amp; Laboratory</td>
</tr>
<tr>
<td>125</td>
<td>Computing Laboratory</td>
<td>ELEG 1011 ELEG 1043</td>
<td>1371</td>
<td>Instructional &amp; Computing Laboratory</td>
</tr>
<tr>
<td>223</td>
<td>High Speed Communication</td>
<td></td>
<td>552</td>
<td>Research</td>
</tr>
<tr>
<td>225</td>
<td>Solid State</td>
<td></td>
<td>647</td>
<td>Research</td>
</tr>
<tr>
<td>227</td>
<td>Data Processing</td>
<td></td>
<td>565</td>
<td>Research</td>
</tr>
<tr>
<td>229</td>
<td>Wireless Communications</td>
<td></td>
<td>640</td>
<td>Research</td>
</tr>
<tr>
<td>241</td>
<td>Materials Characterization</td>
<td></td>
<td>600</td>
<td>Research</td>
</tr>
</tbody>
</table>
Table 7-3: Laboratories Outside of Computer Engineering Building

<table>
<thead>
<tr>
<th>Room Number</th>
<th>Laboratory Name</th>
<th>Laboratory Support the Courses</th>
<th>Square Feet</th>
<th>Purpose (Instructional/Research)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S.R.Collins 210</td>
<td>CS Teaching Lab</td>
<td>COMP 3063</td>
<td>648</td>
<td>Instructional</td>
</tr>
<tr>
<td>S.R.Collins 211</td>
<td>CS Teaching Lab</td>
<td>COMP 1213, 1211, 1224</td>
<td>648</td>
<td>Instructional</td>
</tr>
<tr>
<td>S.R.Collins 226</td>
<td>CS Teaching Lab</td>
<td>COMP 1213, 1211, 1224, 3223</td>
<td>648</td>
<td>Instructional</td>
</tr>
<tr>
<td>S.R.Collins 203</td>
<td>CS Teaching Lab</td>
<td>-</td>
<td>648</td>
<td>Open Lab for all computer-related courses</td>
</tr>
<tr>
<td>S.R.Collins 202</td>
<td>Cloud and parallel Computing</td>
<td>-</td>
<td>340</td>
<td>Research</td>
</tr>
<tr>
<td>Gilchrest 213</td>
<td>Human-Computer Interface</td>
<td>-</td>
<td>340</td>
<td>Research</td>
</tr>
<tr>
<td>Gilchrest 216</td>
<td>Virtual Reality and Scientific Visualization</td>
<td>-</td>
<td>648</td>
<td>Research</td>
</tr>
<tr>
<td>Gilchrest 217</td>
<td>Database &amp; Bioinfomatic</td>
<td>-</td>
<td>340</td>
<td>Research</td>
</tr>
</tbody>
</table>

The Computer Engineering Program has offices, classrooms and laboratories adequate for the program.

**B. Computing Resources**

Several computing facilities exist at Prairie View A&M University for students. Table 7-4 shows the computing facilities available to students on campus:

Table 7-4: Computing Facilities in the Electrical and Computer Engineering Building

<table>
<thead>
<tr>
<th>Room</th>
<th>Computer Hardware</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room 119 Digital Logic &amp; Microprocessor</td>
<td>Personal Computers/Printer</td>
<td>20 / 1</td>
</tr>
<tr>
<td>Room 125 Computing Lab</td>
<td>Personal Computers/Printer/scanners</td>
<td>43 / 1 / 3</td>
</tr>
<tr>
<td>Room 126 Circuits &amp; Electronics Lab</td>
<td>Personal Computers/Printer</td>
<td>16 / 1</td>
</tr>
<tr>
<td>Room 221 DSP Lab</td>
<td>Personal Computers/Printer</td>
<td>26 / 1</td>
</tr>
</tbody>
</table>
There are additional computing facilities in the following facilities at Prairie View A&M University:
(i) College of Engineering Computing Laboratories
(ii) John B. Coleman Library
(iii) Accelerated Learning Resource Center

Hardware
Several hardware pieces are available for the Computer Engineering Program. Table 7-5 shows the pieces of hardware available for instructions.

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Computer Engineering Course Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analog Discovery Board</td>
<td>ELEG 1021, ELEG 2011, ELEG 3013 and ELEG 3043</td>
</tr>
<tr>
<td>Oscilloscopes</td>
<td>ELEG2011, ELEG 3043, ELEG 4043, ELEG 3021,</td>
</tr>
<tr>
<td>NI Elvis</td>
<td>ELEG 2011, ELEG 3043, ELEG 4043, ELEG 3021</td>
</tr>
<tr>
<td>Signal Generators</td>
<td>ELEG 2011, ELEG 3043, ELEG 3021</td>
</tr>
<tr>
<td>Multimeters</td>
<td>ELEG 2011, ELEG 3043, ELEG 4043, ELEG 4303</td>
</tr>
<tr>
<td>Power Supplies</td>
<td>ELEG 2011, ELEG 3043, ELEG 4303</td>
</tr>
<tr>
<td>Variac</td>
<td>ELEG 2011, ELEG 3043</td>
</tr>
<tr>
<td>Capacitor/Inductor Analyzer</td>
<td>ELEG 2011, ELEG 3043, ELEG 4011, ELEG 4021</td>
</tr>
<tr>
<td>Logic Analyzer</td>
<td>ELEG 3021, ELEG 3063</td>
</tr>
<tr>
<td>Agilent Spectrum/Network Analyzer</td>
<td>ELEG 3021</td>
</tr>
<tr>
<td>Texas Instruments DSP Kits</td>
<td>ELEG 1021</td>
</tr>
<tr>
<td>Single-Phase Transform Module</td>
<td>ELEG 4021, ELEG 4013</td>
</tr>
<tr>
<td>Capacitor Module</td>
<td>ELEG 4021, ELEG 4013</td>
</tr>
<tr>
<td>Digital Clamp-on Multimeter</td>
<td>ELEG 4021, ELEG 4013</td>
</tr>
<tr>
<td>FPGA Development Systems</td>
<td>ELEG 3063, ELEG 4303, ELEG 3021</td>
</tr>
<tr>
<td>PIC Microprocessor Trainer</td>
<td>ELEG 3071, ELEG 3073</td>
</tr>
<tr>
<td>TI Tiva™ C Series LaunchPad Evaluation Kit</td>
<td>ELEG 4253</td>
</tr>
<tr>
<td>Digilent Orbit BoosterPack</td>
<td></td>
</tr>
<tr>
<td>Digilent Analog Discovery kit</td>
<td>ELEG 3021, ELEG 2011</td>
</tr>
</tbody>
</table>
**Software**

Table 7-6 shows the Computer Engineering software list.

<table>
<thead>
<tr>
<th>Software</th>
<th>Computer Engineering course usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>WaveForms</td>
<td>ELEG 1021, ELEG 2011, ELEG 3013 and ELEG 3043</td>
</tr>
<tr>
<td>MATLAB 2014 A</td>
<td>ELEG 3023, ELEG 4033, ELEG 4053, ELEG 4472, ELEG 4482</td>
</tr>
<tr>
<td>PSPICE 16.6</td>
<td>ELEG 3023, ELEG 3043, ELEG 4263</td>
</tr>
<tr>
<td>LabView/NI Elvis 2015</td>
<td>ELEG 2011, ELEG 3021</td>
</tr>
<tr>
<td>MULTISIM 2015 (Electronic workbench)</td>
<td>ELEG 3063, ELEG 3021, ELEG 3043</td>
</tr>
<tr>
<td>Microsoft Office 2010 (Word, Excel, PowerPoint)</td>
<td>All courses</td>
</tr>
<tr>
<td>Microsoft Visual C++ 2008</td>
<td>ELEG 4472, ELEG 4482</td>
</tr>
<tr>
<td>Xilinx ISE 14.4</td>
<td>ELEG 3021, ELEG 3063, ELEG 4303</td>
</tr>
<tr>
<td>ISE DESIGN SUITE 14.6 CODEWARRIOR IDE V5.0</td>
<td>ELEG 4303, ELEG 4472, ELEG 4482</td>
</tr>
<tr>
<td>Waveform 1</td>
<td>ELEG 1021, ELEG 3013, ELEG 3043</td>
</tr>
<tr>
<td>MPLAB IDE 8.91</td>
<td>ELEG 3073, ELEG 3071</td>
</tr>
<tr>
<td>TI StellarisWare and Code Composer Studio 6.1.1</td>
<td>ELEG 4253</td>
</tr>
<tr>
<td>PCSPIM</td>
<td>ELEG 4393</td>
</tr>
</tbody>
</table>

**C. Guidance**

Each student working in a laboratory must review and sign a safety guideline document. The safety document covers safe work practices and good laboratory practices. Students are provided demonstrations of specific equipment by qualified technical staff or faculty prior to performing laboratory work. Qualified technical staff or faculty must be present on the premises at all times that students are in the laboratory conducting experiments.

**D. Maintenance and Upgrading of Facilities**

**Laboratory Equipment Planning, Acquisition, Maintenance Processes and Their Adequacy**

The faculty members, who are responsible for various laboratories, recommend to the department head the equipment and software that the program needs.

Funds for acquisition of new equipment, repairs and maintenance of existing equipment come from the following sources:

1. Equipment Access Fee
2. Indirect Cost Funds
3. Laboratory Use Fee
4. Gifts and Grants

Prairie View A&M University is a state supported institution and receives state funds based upon student enrollment. These funds ensure that the laboratories will have necessary operating supplies and a lab technician for maintenance of equipment.
The Department received about $10,331.00 funds from the students’ laboratory use fee this past year. The lab fees are used to purchase supplies for the laboratories. In addition the Department has received donations from various companies. Some of the donations have been used for laboratory enhancement.

The Department receives an indirect cost fund on all the funded research projects in the department. This past year approximately $11,089.00 was received. The amount varies from year to year. The indirect cost funds are used to support instruction, purchase lab supplies, buy equipment and reimburse faculty travel.

The College of Engineering instituted an equipment access fee for all students who take laboratory courses or lecture courses and use computers or laboratory equipment. The Department obtained about $20,142.00 from students taking courses from the Electrical Engineering Department this past year. The funds are used to replace obsolete equipment, upgrade and modernize our laboratories.

Support Personnel Available for Installing, Maintaining and Managing Program Software, Hardware and Networks
The College of Engineering has one computer technician/system analyst who manages the computing resources of the college. Currently, there are two technicians who manage laboratory equipment and facilities in the College of Engineering.

The Department has one technician who is tasked to install, maintain and manage departmental hardware and software. During the fall and spring semesters, two to three undergraduate student workers normally assist the technician to install, maintain and manage the departmental hardware and software.

The College of Engineering has one computer technician/system analyst who manages the computer resources of the Department of Electrical and Computer Engineering and those of the College of Engineering. The technician in the Department of Electrical and Computer Engineering and the Computer Technician in the College of Engineering maintain and manage the departmental networks.

E. Library Services
The mission of the John B. Coleman Library is to provide information, access services, cultural programs and library instruction, in support of the evolving curriculum of Prairie View A&M University. The Library staff provides leadership in the use and retrieval of information, consistent with the University’s mission of teaching, research, and services. The Library evaluates its collections, service delivery, technology, and other activities on a regular basis, in order to continue to meet the challenges of a changing technological and global society. The Library seeks to build and maintain a quality collection by coordinating the active participation of the university community in identifying and acquiring resources.

Technical collection relative to the program and faculty
A number of Computer Engineering related reference books are available at the John B. Coleman library, which also provides electronic access to a variety of Computer Engineering resources including Information Science & Technology and the IEEE digital library. There is also electronic access to the following additional databases which have computer resources: Academic Search Complete, Business Source Complete, Science and Technology Collection, Science Direct, SpringerLink, Cluwer Journals Online, ProQuest Computing, Wiley-InterScience Journals, Business Source Complete, Business Source Premier and others.
If a book or journal is not available in the library, faculty can make a request to the Computer Engineering subject specialist to order or obtain a subscription for the item. Periodically the library also sends out a request to faculty to make recommendations on the technical collection. If a book or article cannot be found in the PVAMU library resources, it can also be borrowed from another library by requesting an Interlibrary Loan. The library has a new electronic system which makes requesting interlibrary loans quicker and faster. ILLIAD is the library’s new interlibrary system. Everyone has their own space to manage requests and documents.

Process of faculty, staff, and students requesting for book orders and subscriptions
PVAMU faculty and staff can also obtain a Texshare or HARLIC card which gives them the ability to check out library material at other participating Houston area libraries including: Houston Public Library Rice University, Texas A&M University Texas Medical Center Libraries, Texas Southern University The University of Houston, The University of Texas Medical Branch at Galveston.

TexShare is a cooperative program designed to improve library service to Texans. TexShare focuses on the efficient sharing of library holdings, with an emphasis on electronic information resources and traditional collections of books and journals. The HARLIC card is a service of the Houston area Research Library Consortium.

Electronic resources
The library has an E-Journal Portal that provides access to more than 500 computer science, engineering, and applied sciences journals. The major e-resources faculty, staff, and students use are IEEE digital library and ACM digital library. The PVAMU subscribes to these two major resources as a unit, therefore all the computers on campus have free access to these two digital libraries.

F. Overall Comments on Facilities
The Prairie View A&M University Compliance office performs annual safety audits of each building and random audits of laboratories and research facilities. The audits include offices, classrooms, laboratories, storage and shipping areas, and building utilities (electricity, water, sewer, heat/ac, elevators, fire, etc.). The Electrical and Computer Engineering Department must maintain records of maintenance and calibration of equipment owned by and used by the program. This includes office equipment (copiers, fax machines, scanners, and printers) and laboratory equipment. The Computer Engineering Program laboratory technician is responsible for maintaining this documentation. Deficiencies found with respect to the building and utilities are the responsibility of the Office of Physical Plant; deficiencies found with respect to program equipment are the responsibility of the program. All deficiencies must be addressed and safety audits are re-scheduled.
CRITERION 8. INSTITUTIONAL SUPPORT

A. Leadership

The Computer Engineering Program is led by the Department Head, who is a 12-month appointment and assigned duties by the Dean. The Department Head is responsible for

- administering department budget
- creating teaching schedule for each of the academic terms
- approving all proposals for curricular changes
- leading all department meetings
- supervising and evaluating faculty and staff annual performance
- serving as the bridge between faculty and Dean

Dr. Pamela Obiomon was appointed as the Interim Department Head on September 1, 2013. The College of Engineering has formed a Search Committee and is currently searching for a permanent Computer Engineering Department Head. The position is expected to be filled by August 2016.

The Department appointed Dr. Warsami Ali as the Computer Engineering Undergraduate Coordinator, and Dr. Richard Wilkins as the Graduate Program Coordinator. These two faculty members receive one-course teaching load release to assist the Department Head in managing the degree programs.

The Head of the Department of Electrical and Computer Engineering encourages the faculty members to submit grant proposals and to participate in scholarly activities. She is very supportive of faculty suggestions to improve academic standards and the classroom environment within the department.

![Organizational Structure Diagram]

Figure 8-1: Electrical and Computer Engineering Department’s Organizational Structure

The Dean of the College of Engineering is very supportive of the Department Head and, especially, of the effort to improve academics and the department’s accreditation status. The Provost and her staff have been
very supportive of the College and Department and, especially, of the department’s curriculum changes and new program proposals.

**Adequacy of Budget**
The budget is adequate for running the programs in the Electrical and Computer Engineering Department.

**Support of Facilities and Equipment**
The Electrical and Computer Engineering Department has several funds to acquire, maintain and operate equipment. The funds include:

(i) State of Texas Funds
(ii) College of Engineering Undergraduate Enhancement for Electrical and Computer Engineering Funds
(iii) Engineering Equipment Fee- Electrical and Computer Engineering Funds
(iv) Grants, and
(v) Donations from Companies and Individuals

**Adequacy of Support Personnel and Institutional Services**
The Electrical and Computer Engineering Department has two administrative assistants, and one technician, who are full-time employees of Prairie View A&M University. In addition, during the fall and spring semesters, we have additional student workers who support the administrative assistants and the technician in their work.

There are additional services in the University that support the program. These include:

(i) Coleman Library
   Acquire and maintain reference materials and computer resources (the library has several databases for students)
(ii) Registrar’s Office
   Performs final audits for graduating students; maintains students’ records.
(iii) Financial Aid Services
   Provides scholarships grants and other financial aid packages to our students
(iv) Fiscal Offices
   Responsible for the budgetary issues, account related matters.

**B. Program Budget and Financial Support**
Yearly, the Senior Vice President of Business Affairs will provide the budget allocation to the Department of Electrical and Computer Engineering. If there are merit increases, the Department will be requested to submit the names of faculty and the merit increases. The submission is reviewed by the Dean of the College of Engineering and the Provost and Vice President for Academic Affairs. The Provost, in consultation with the Dean of the College of Engineering, will recommend additional merit increases to faculty in the Electrical and Computer Engineering Department. Table 8-1 shows the total operating budgets for the Electrical and Computer Engineering Department for the past four years.
### Table 8-1: Institutional Support

<table>
<thead>
<tr>
<th>Year</th>
<th>Acct. 212225</th>
<th>Acct. 112225</th>
<th>Acct 17000/172225</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015-2016</td>
<td>$26,359.00</td>
<td>$662,929.00</td>
<td>$888,452.00</td>
<td>$1,577,740.00</td>
</tr>
<tr>
<td>2014-2015</td>
<td>$26,703.00</td>
<td>$666,588.00</td>
<td>$853,006.00</td>
<td>$1,546,297.00</td>
</tr>
<tr>
<td>2013-2014</td>
<td>$26,220.57</td>
<td>$662,927.17</td>
<td>$855,137.00</td>
<td>$1,544,284.74</td>
</tr>
<tr>
<td>2012-2013</td>
<td>$22,548.21</td>
<td>$672,726.00</td>
<td>$843,929.80</td>
<td>$1,539,204.01</td>
</tr>
</tbody>
</table>

### Sources of Financial Support

The sources of financial support are:

(i) State of Texas E&G Funds; funds are provided for faculty salaries.

(ii) State of Texas “OCR” office of Equal Rights funds provided to the Electrical and Computer Engineering Department for support of the MS and PhD programs in Computer Engineering.

(iii) ADI (Academic Development Initiative) Funds; The funds came from the State of Texas for the support of the M.S. & Ph.D. programs in Computer Engineering.

(iv) College of Engineering Undergraduate Enhancement for Electrical and Computer Engineering Funds; student fee revenue.

(v) Engineering Equipment Fee- Electrical and Computer Engineering; student fee revenue.

(vi) Grants

(a) The Department obtained a MRI grant in the amount of $394,222.00 from the National Science Foundation to purchase equipment for High Performance Computing.

(b) The Department received a grant in the amount of $399,834.00 to Enrich Computing in the Curriculum from the National Science Foundation.

(c) The Department received a grant in the amount of $33,356.00 to Transform the Undergraduate Digital Learning from the Texas A&M Engineering Experiment Station.

(d) The Department received grants in the amounts of $150,742.00 and $75,880.00 to review Hands-On Learning.

(e) The Department received a grant for $8,312.40 from Northrop Grumman to support senior design projects. The Department also received grants from Air Force to support senior design projects.

(f) The Department received a grant in the amount of $3,000.00 for hands on learning using analog devices.

(g) The Department received approximately a grant in the amount of $1,275,000.00 to develop graduate students and purchase equipment for labs from the Department of Energy.
C. Faculty Hiring and Retention

Faculty Team Changes & Retention
The following faculty changes were made:
Summer 2012: Dr. F. Nkansah resigned.
Fall 2013: Dr. Xang Li was hired as a tenure-track Assistant Professor.
Spring 2014: Dr. Olasupo’s contract ended as a tenure-track Associate
Fall 2014: Dr. Vaman, endowed Professor retired.
Fall 2014: Dr. Foreman was hired as an Adjunct Professor.
Summer 2016: A tenure-track Assistant Professor position advertised to be filled this summer

The faculty in the Department is relatively stable. Since the previous ABET visit, one new faculty member
was hired to fill a vacant position and the department is in the process of hiring a new faculty member. The
university and the department strive to provide competitive faculty/staff salary, create a friendly working
environment, and support faculty/staff professional development support, etc. to retain the talented
faculty/staff.

New Hiring
Currently the Department is in the process of hiring a new tenure-track Assistant Professor. The position is
posted and is expected to be filled by the end of summer 2016.

The Department strictly follows the faculty hiring procedures and policy of the University Human Resource
Office. Details of the hiring process can be found at the URL: http://www.pvamu.edu/saia/equal-
opportunity/hiring-process/hiring-process-administration-staff/

D. Support of Faculty Professional Development
The Department supports professional development of faculty. Faculty members are encouraged to develop
professionally. Funds for professional development come from:

(i) State of Texas Funds
(ii) Donations from Industry
(iii) Indirect cost funds of the ECE Department
(iv) Indirect Cost funds of Individual Faculty members
(v) Funds from College of Engineering Office
(vi) Funds from grants

For the past five years, all faculty members who had conference papers accepted obtained the necessary
funds to present their papers.
Program Criteria – B.S. in Computer Engineering

Breadth and Depth
The computer engineering curriculum provides breadth through a combination of its required engineering courses. Breadth in engineering is provided by the following courses:

- MCEG 2013 Thermodynamics I
- CVEG 2454 Statics and Dynamics

The areas of concentration in the Computer Engineering department are:
- Communication & Signal Processing
- Computer Hardware and Software
- Microelectronics
- Embedded Systems
- Computer Networks

Breadth in the computer engineering curriculum is provided by the following required courses:

- Signals and Systems (ELEG 3023)
- Microprocessor System Design (ELEG 3073)
- Logic Circuits (ELEG 3063)
- Computer Architecture and Organization (ELEG 4393)
- Embedded Systems Design (ELEG 4253)
- Digital Design (ELEG 4304)
- Computer Networks (ELEG 4333)

The computer engineering curriculum has been designed to allow each student to have depth of coverage in the following areas:

- Network Theory (ELEG 2023, ELEG 2011, ELEG 3013)
- Electronics (ELEG 3033, ELEG 3043)
- Digital Systems (ELEG 3063, ELEG 3021, ELEG 4303)
- Computer Science (COMP 1211, COMP 1213, COMP 1221, COMP 1223, COMP 2013)
- Computer Networks and Organization (ELEG 4333, ELEG 4393)

In addition to the above courses, computer engineering students are required to take one three hour technical electives to build depth in any of the areas below:

- Communications and Signal Processing
- Computer Hardware
- VLSI Design
- Computer Science

Table 9-1 summarizes the courses that are used to satisfy the program criteria.
Knowledge of Advanced Mathematics and Science

Computer engineering curriculum requires two courses (8 credit hours) sequence in physics (PHYS 2513, PHYS 2511, PHYS 2523 and PHYS 2521) and five chemistry credits (CHEM 1034 and CHEM 1021). Two semesters of calculus (MATH 1024 and MATH 2024) and one semester of differential equations (MATH 2043) are required. In addition, students are required to successfully complete Probability & Statistics (MATH 3023) and Discrete Math (MATH 2053). The latter course covers topics in computational mathematics. Table 9-2 shows courses in which the knowledge of advanced mathematics and science are acquired and used in the curriculum.

<table>
<thead>
<tr>
<th>SUBJECTS</th>
<th>COURSES TAUGHT OR APPLIED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probability and Statistics</td>
<td>MATH 3023 Probability and Statistics</td>
</tr>
<tr>
<td></td>
<td>ELEG 2011 Circuits Laboratory</td>
</tr>
<tr>
<td></td>
<td>ELEG 3033 Physical Electronics</td>
</tr>
<tr>
<td>Knowledge of Mathematics</td>
<td>MATH 1124 Calculus I</td>
</tr>
<tr>
<td></td>
<td>MATH 2024 Calculus II</td>
</tr>
<tr>
<td></td>
<td>MATH 2043 Differential Equations</td>
</tr>
<tr>
<td></td>
<td>MATH 3023 Probability and Statistics</td>
</tr>
<tr>
<td></td>
<td>MATH 2053 Discrete Math</td>
</tr>
<tr>
<td>Basic Sciences</td>
<td>CHEM 1034 Chemistry for Engineers</td>
</tr>
<tr>
<td></td>
<td>CHEM 1021 Inorganic Chemistry Lab II</td>
</tr>
<tr>
<td></td>
<td>PHYS 2513 University Physic I</td>
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<td></td>
<td>PHYS 2511 University Physic Lab I</td>
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<tr>
<td></td>
<td>PHYS 2523 University Physic II</td>
</tr>
<tr>
<td></td>
<td>PHYS 2521 University Physic Lab II</td>
</tr>
<tr>
<td>Software</td>
<td>COMP 1211 Computer Science Lab I</td>
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<td></td>
<td>COMP 1213 Computer Science I</td>
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<tr>
<td></td>
<td>COMP 1221 Computer Science Lab II</td>
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<tr>
<td></td>
<td>COMP 1223 Computer Science II</td>
</tr>
<tr>
<td></td>
<td>COMP 2013 Data Structure</td>
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<tr>
<td>Hardware</td>
<td>ELEG 3063 Logic Circuits</td>
</tr>
<tr>
<td></td>
<td>ELEG 4303 Digital Design</td>
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<tr>
<td></td>
<td>ELEG 4253 Embedded Systems</td>
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<tr>
<td></td>
<td>ELEG 4073 Microprocessor Design</td>
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<td></td>
<td>ELEG 4333 Computer Networks</td>
</tr>
<tr>
<td>Engineering Science</td>
<td>ELEG 2023 Network Theory I</td>
</tr>
<tr>
<td></td>
<td>ELEG 3011 Circuits Laboratory</td>
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<tr>
<td></td>
<td>MCEG 2013 Thermodynamics I</td>
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<td></td>
<td>CVEG 2454 Statics and Dynamics</td>
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<tr>
<td></td>
<td>ELEG 3013 Network Theory II</td>
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<td></td>
<td>ELEG 3033 Physical Electronics</td>
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<td></td>
<td>ELEG 3021 Logic Circuits Laboratory</td>
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<tr>
<td></td>
<td>ELEG 3063 Logic Circuits</td>
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<tr>
<td></td>
<td>ELEG 3023 Signals and Systems</td>
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<tr>
<td></td>
<td>ELEG 3043 Electronics I</td>
</tr>
<tr>
<td></td>
<td>ELEG 4303 Digital Design</td>
</tr>
<tr>
<td></td>
<td>ELEG 4472 Senior Design and</td>
</tr>
<tr>
<td>SUBJECTS</td>
<td>COURSES TAUGHT OR APPLIED</td>
</tr>
<tr>
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<td>---------------------------</td>
</tr>
<tr>
<td>Professionalism I</td>
<td>ELEG 4482 Senior Design and Professionalism II</td>
</tr>
<tr>
<td>Computer Engineering Technical Electives (3 SCH)</td>
<td></td>
</tr>
</tbody>
</table>

Table 9-2: Acquisition and Application of the Knowledge of Advanced Mathematics and Science

<table>
<thead>
<tr>
<th>TOPICS</th>
<th>COURSES TAUGHT OR APPLIED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Differential Equations</td>
<td>MATH 2043 Differential Equations ELEG 2023 Network Theory I ELEG 3013 Network Theory II</td>
</tr>
<tr>
<td>Linear Algebra</td>
<td>ELEG 2023 Network Theory I ELEG 3013 Network Theory II</td>
</tr>
<tr>
<td>Complex Variables</td>
<td>ELEG 3013 Network Theory II ELEG 3023 Signals and Systems</td>
</tr>
<tr>
<td>Discrete Mathematics</td>
<td>ELEG 3023 Signals and Systems ELEG 3063 Logic Circuits MATH 2053 Discrete Math</td>
</tr>
</tbody>
</table>

**Computer Experience**

Beginning at the freshman year, students are taught how to program in C in COMP1211 (Computer Science Lab I), COMP 1213 (Computer Science I), COMP 1221 (Computer Science Lab II), and COMP 1223 Computer Science II. Along with learning C programming language, the student is taught the use of software packages for solving engineering problems.

In ELEG 2011 (Electrical Circuits Lab), NI LabView and Elvis are introduced to students.

In ELEG 3013 (Network Theory II), ELEG 3043 (Electronics I), and ELEG 4263 (VLSI Circuit Design), the students are required to use PSPICE or MULTISIM to solve circuit analysis problems.

In ELEG 3033 (Physical Principles of Semiconductor Devices), a PC based simulation program (ICLAB) is used by students to design the process steps in the fabrication of a MOS devices. Students generate programs to select doping density and gate oxide thickness for a specific threshold voltage.

In ELEG 3023 (Signals and Systems), and ELEG 4053 (Digital Signal Processing), MATLAB is introduced to students. In addition, MATLAB exercises are given to allow students to visualize concepts introduced in the courses.

In ELEG 3071(Microprocessor Systems Design Lab), DEBUG and MASM are used to edit and run Assembly Language programs.

In ELEG 3063 (Logic Circuits Laboratory), the students use MultiSim software package to design digital circuits and to simulate them.

In ELEG 3043 (Electronics I), the students use PSPICE or MultiSim to solve electronic problems.
In ELEG 4303 (Digital Design), students use Verilog to implement and simulate simple designs.

In ELEG4393 (Computer Architecture and Organization), PCSPIM is introduced to simulate the performance of RISC computer architecture.

In ELEG 4253 (Embedded Systems Design), Freescale Code Warrior is introduced to simulate the performance of the system.

Students doing senior projects in ELEG 4472 and ELEG 4482 make extensive use of computers in doing their design projects, writing their research papers and presenting graphical displays.

**Laboratory Experience**

Students begin their laboratory experience in their first semester at Prairie View A&M University. They take Computer Science Lab I (COMP 1211) and Computer Science Lab II (COMP 1221) in their first and second semester respectively. They also take Engineering Application lab II for Math (GNEG 1211) as a co-requisite for Calculus I. Introduction to Electrical and Computer Engineering Lab (ELEG 1021) is in first semester, and General Physics Lab I (PHYS 2511) is suggested in the second semester. Engineering Application Lab III for Math (GNEG 2021) is used as a co-requisite for Calculus II. During the sophomore year, students take one chemistry lab (CHEM 1021), General Physics Lab II (PHYS 2521), and Electrical Circuits Lab (ELEG 2011). In the junior year, students will continue laboratory experience by taking Logic Circuits Laboratory (ELEG 3021), and Microprocessor System Design Lab (ELEG 3071).

Laboratory practice reinforces the lecture courses and allows the student to handle physical devices and monitor the interconnection and characteristics of those devices. The laboratory courses consist of a number of well-defined experiments that represent important engineering or scientific principles. Students are introduced to the operation of basic as well as sophisticated equipment.

All laboratories have experimentation manuals or textbooks that contain all experiments required for the semester. Students are divided into groups of two to four students per laboratory station. In performing experiments, the students will select diodes, transistors, resistors, capacitors, and inductors. The values of the passive elements will vary plus or minus from a nominal values. This leads to each group having to design and implement circuits that will be unique in measured or output results.

Safety procedures are taught in all levels of laboratory courses. At the beginning of each semester, the first laboratory class is dedicated to informing the students of laboratory procedures and safety precautions to be taken in the laboratory. Students are oriented on the equipment that will be used and cautioned on the powering of the equipment. The laboratory instructor monitors and evaluates the student’s experimental procedures to assure that all safety requirements are satisfied.

**Engineering Design Experience**

Beginning with the junior year, the students begin computer engineering technical design in the courses Network Theory II, Logic Circuits and Electronics. These courses take the engineering fundamentals learned in the freshman and sophomore years and apply them to actual design problems. In addition, in several courses (ELEG 3023, ELEG 3033, ELEG 3043, and ELEG 3073) design oriented open-ended problems are assigned.

The senior year has the heaviest concentration of design in six courses. The digital design course (ELEG 4303) is a dedicated design course in which the student continues the design of digital circuits started in the junior level logic circuits course. Students are required to complete three or four design projects and a final
design of a simple computer. Embedded Systems Design (ELEG 4253) also requires students to complete design projects. There are two courses, ELEG 4472 and ELEG 4482, which form a capstone design sequence, in which the student must take a design project from the conceptual stage to a finished product or demonstrable model. The senior project must be formally written and a presentation given prior to graduation. Each project is under the direction of a faculty advisor, and final presentations are evaluated and scored by the faculty and invited guests. Throughout the design process the student must consider economic and safety factors related to their design. To reinforce and give a clear understanding of these factors the student will take a course on Economic Analysis Technology Application (CHEG 2003) during their sophomore year.

Applications of Probability and Statistics
Probability and Statistics are applied throughout the computer engineering curriculum. The list below shows some of the courses that apply probability and statistics to engineering problems:

ELEG 2011 (Electrical Circuits Laboratory)
Students do a laboratory experiment that employs statistics applicable to electric circuits and Ohm’s Law. Students obtain statistical parameters from experimental data. In addition, students obtain correlation between two variables.

ELEG 3033 (Physical Electronics)
Probabilistic concepts are used in the derivation of energy band equations for extrinsic and intrinsic semiconductors. In addition, probability is used to derive equation for the current flowing through a PN junction. Furthermore, probability and statistics are used to explain the density of states concepts.

ELEG 4333 (Computer Networks)
ELEG 4333 covers queuing theory which involves the use of probability. It presents several queuing models such as M/M/1 and M/D/1 queues. Among other things, it finds average delay, average number of customers in a queue, the probability that the server is busy, and the blocking probability.

ELEG 4472 (Senior Design I) and ELEG 4482 (Senior Design II).
The data obtained by our students while performing their capstone designs are analyzed and interpreted using statistical methods.
Course Number and Name:  ELEG 1011 – Introduction to Engineering, Computer Science and Technology
Credits:  1 semester hour, 1 contact hour  (1-0)
Course Coordinator:  Dr. Kelvin Kirby

Specific course information:

a.   Course Description:  Introduction to basic engineering, computer science and technology concepts. Students will become aware of the various disciplines of engineering, computer science and technology, ethical and professional responsibilities in these fields, creativity and design.

b.   Co-requisite:  ELEG 1021 or equivalent course determined by department.

Specific goals for the course:

This course focuses on familiarizing incoming Roy G. Perry College of Engineering students to engineering as a discipline in general. This course will develop the student’s knowledge base to prepare them for studying engineering and becoming successful engineers, computer scientists or technologists in their chosen professions.

b.   The following ABET Outcomes will be assessed:
    (f) an understanding of professional and ethical responsibility
    (g) an ability to communicate effectively

Brief list of topics to be covered:

- Structure of Roy G. Perry College of Engineering and Engineering Departments
- The Engineering Profession – The Engineering Departments Presented
- Chapter 1: Keys to Success in Engineering Study
- Chapter 2: The Engineering Profession
- Chapter 3: Understanding the Teaching / Learning Process
- Chapter 4: Making the Most of How You are Taught
    - Chapter 5: Making the Learning Process Work for You (Communicating Effectively)
- Chapter 6: Personal Growth and Student Development
- Handout: Engineering Ethics – Definitions, Codes and Cases
- Handout: NSPE Code of Ethics

8.   Additional Information

Data Used in Assessing Outcomes in Course
Class Tests /Exams
b. Homework assignments
c. Design Project Report
d. End of Semester Student Survey

Data Used to Show Student Proficiency in Outcomes
Samples of student work in a Binder
Grade sheet showing student performance and class average in outcomes
c. End of Semester Course Assessment Report

Prepared by: Dr. Kelvin Kirby
Date: January 21, 2016
1. Course Number & Name: ELEG 1021 Intro. to Electrical and Computer Engineering Lab.
2. Credits & Contact Hours: 1 credit hours, 2 contact hours
3. Instructor: Dr. John Attia
5. Specific Course Information
   a. 2015-2016 Catalog Description:
      ELEG 1021. Introduction to Electrical and Computer Engineering Lab. (0-2) Credit 1 semester hours. An introduction to the practice of electrical and computer engineering including identifying electronic components, operating electronic test and measurement instruments. Laboratory exercises include signal generators, passive components, and electronic circuits involving diodes, operational amplifiers and sensors.
   b. Prerequisites or Co-requisites
      Prerequisites: None; Co-requisite: ELEG 1011
6. Specific Goals for the Course:
   a. Specific Outcomes of Instruction
      The students will be able to:
      (i) to use the Personal Test Lab instruments;
      (ii) to understand power supplies and electrical power;
      (iii) to recognize and generate different types of dc and time varying waveforms;
      (iv) to understand of resistors and Ohm’s Law;
      (v) to understand simple diode properties including rectification;
      (vi) to understand time constants and capacitor circuit elements;
      (vii) to understand resonance and inductor circuit elements;
      (viii) to build basic electronic circuits and experiments on them
      (ix) to write laboratory reports
      (x) to understand professional and ethical responsibility.
   b. Criterion 3 Outcomes Addressed by Course
      Student outcomes addressed in the course are: (3d) the ability to function in multidisciplinary teams; (3f) the ability to understand professional and ethical responsibility; and (3k) the ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
7. Brief Lists of Topics Covered in the Course
   Introduction to Lab Instruments, Procedures, Personal Test Lab
   Power Supplies and Electrical Power and Signal Generators and Waveforms
   Resistors and Ohm's Law and Diodes and Rectification
   Capacitors and Time Constants and Inductors and Resonance
   Thermal Sensors and Temperature and Accelerometers and Tilt Sensing
   Microphones and Sound Sensing
   Radio Frequencies and Amplitude Modulation
   Amplifiers and Sound Amplification
Course Number & Name: ELEG 2011 Electrical Circuits Laboratory
Credit & Contact Hours: 1 credit, 2.83 contact hours (2 hours, 50 minutes)
Instructor: Dr. Justin Foreman
References: Textbook, handouts and electric circuit books in the library.

Specific Course Information
a. 2015-2016 Catalog Description:

b. Prerequisites or Co-requisites
Pre-requisites: PHYS 2521, ELEG 1011, ELEG 1021, ENGL 1143, ELEG 2023.

Specific Goals for the Course:
a. Specific Outcomes of Instruction:
The student will be able to:
build R, RC and RLC circuits
use the basic electrical instruments
analyze the data gathered from the experiments
Verify important voltage-current relations like Kirchhoff's and Ohm's laws.
use Multisim Workbench for simulation purposes
Use Analog Discovery.

b. ABET Outcome Accessed by Course
[b]: The ability to design and conduct experiments as well as to analyze and interpret data
d[d]: The ability to function on multidisciplinary teams
[g]: The ability to communicate effectively
[l]: Applications of probability and statistics in the EE/CPE programs

List of Topics Covered in the Course
Resistor Color Code & Multimeter Measurements on DC Resistive Circuits
Statistical Applications
Construction of Electrical Circuits and Measuring
Series and Parallel Circuits
Kirchhoff's Laws
Thevenin and Norton’s Theorem
Nodal and Mesh Analysis & Multisim Tutorial
Operational amplifiers
Introduction to Capacitors and Inductors
RC/RL Circuit and Oscilloscope
Final Project
Course Number & Name: ELEG 2023 Network Theory I
Credit & Contact Hours: 3 credit hours, 2.67 contact hours (2 hours, 40 minutes)
Instructor: Dr. Justin Foreman
McGraw Hill

Specific Course Information
2015-2016 Catalog Description:
ELEG 2023 . Study of basic circuit laws and theorems. Study of basic circuit analysis techniques, use of controlled sources, and transient and sinusoidal circuit analysis.

Prerequisites or Co-requisites
Prerequisites: PHYS 2523, MATH 2043, GNEG 1121, GNEG 2021.

Specific Goals for the Course:
Specific Outcomes of Instruction:
The student will be able to:
understand and apply Ohm’s law and Kirchhoff’s laws in resistive networks.
Understand and apply mesh and nodal analysis methods in networks
Understand and apply Thevenin and Norton theorems in network simplification via source transformation techniques
Characterize the behavior of resistors, capacitors, and inductors
Solve electrical engineering circuit problems
Understand and apply RL, RC and RLC transient network analysis
Use PSPICE or MATLAB to solve electric circuit problems

ABET Outcome Accessed by Course
[a]: the ability to apply the knowledge of mathematics, science and engineering
[e]: the ability to identify, formulate and solve engineering problems
[k]: the ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

Brief List of Topics Covered in the Course
Basic Electrical Concepts
Basic Circuit Laws
Methods of Analysis
Circuit Theorems
Operational Amplifiers
First-Order Circuits
Second-Order Circuits

Prepared by: Dr. Justin Foreman
Date: 6/21/16
DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
ELEG 3013 – NETWORK THEORY II

1. Course Number & Name: ELEG 3013 Network Theory II
2. Credits & Contact Hours: 3 credit hours, 3 contact hours
3. Instructor Dr. John Attia

5. Specific Course Information
(a) 2014-2015 Catalog Description:
ELEG 3013. Network Theory II. (3-0) Credit 3 semester hours. Continuation of transient and sinusoidal analysis. Study of average and RMS power, poly-phase circuits, complex frequency, frequency response, and magnetic circuits.

(b) Prerequisites or Co-requisites
Prerequisites: ELEG 2023 and MATH 2043

(c) Course Designation: Required Course

6. Specific Goals for the Course:
(a) Specific Outcomes of Instruction
The students will be:
(i) able to analyze electric circuits in the frequency domain.
(ii) conversant with different types of filters and their characteristics.
(iii) able to analyze three phase circuits
(iv) able to understand the operational characteristics of transformers and two port networks.
(v) able to design, construct, test electric circuit that satisfies multiple constraints.
(vi) able to use PSPICE or MATLAB to solve electric circuit problems.

(b) Criterion 3 Outcomes Addressed by Course
Student outcomes addressed in the course are: (a) the ability to apply the knowledge of mathematics, science and engineering, (c) the ability to design a system to meet desired needs, and (k) the ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

7. Brief Lists of Topics Covered in the Course
Sinusoids and Phasor
AC Steady State Analysis
AC Steady State Power
Three-Phase Circuits
Frequency Response
Magnetically-coupled Circuits
Fourier Series
Two-port Networks

Prepared by: Dr. John O. Attia Date: December 16, 2015
DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
ELEG 3021 LOGIC CIRCUITS LABORATORY

Course Number & Name: ELEG 3021 Logic Circuits Laboratory
Credit & Contact Hours: 1 credit, 2.83 contact hours (2 hours, 50 minutes)
Instructor: Dr. Justin Foreman

Specific Course Information
2015-2016 Catalog Description:
ELEG 3021 . Experimentation in combinational and sequential logic circuitry. Design of counters, adders, digital display circuitry, shift registers, and control logic.
Prerequisites or Co-requisites
Pre-requisites: ELEG 3063

Specific Goals for the Course:
Specific Outcomes of Instruction:
The student will be able to:
Understand the operation and function of basic logic components
Use the logic components in logic circuit design
Understand the detail of steps of the design process including problem formulation, logic optimization, technology mapping to NAND and NOR gates, and verification
Design, simulate and test a sequential logic circuit and analyze and interpret the results, and present in a technical report format
ABET Outcome Accessed by Course
b: The ability to design and conduct experiments as well as to analyze and interpret data
d: The ability to function on multidisciplinary teams
g: The ability to communicate effectively

List of Topics Covered in the Course
Number Systems and Number System Conversions
Boolean Algebra
Karnaugh Map (K-map) Construction
Sum of Products Expression
Product of Sum Expressions
Don’t’ Care Conditions
Exclusive-OR Gates
Parity Generation and Checking
Truth Tables
Combinational Logic Circuit construction, simplification, and simulation
Encoders, Decoders
Field Programmable Gate Array Devices
Multiplexers/Demultiplexers
Binary Adders
Sequential Circuits

Prepared by: Dr. Justin Foreman
Date: 6/21/16
Course Number and Name: ELEG 3023, Signals and Systems

Credits and Contact Hours: 3-credit, 6-contact hours

Instructor: Dr. Matthew N. O. Sadiku


Supplemental Material:

Specific Course Information: Basic discrete and continuous time signals, properties of systems, linear time invariant systems, Fourier Analysis, z-transform, Laplace transform.

Specific Goals for the Course: This course prepares students for upper level courses such as Controls and Communications. Areas covered include convolution, Laplace transform, Fourier series, Fourier transform and z-transform.

Brief List of Topics Covered in the Course:

Introduction to linear systems
Convolution
Laplace transform
Fourier series
Fourier transform
Discrete Fourier transform
Z-transform

Additional information

4 out of 6 quizzes 40%
Project 10%
Midterm Exam 25%
Final Exam 25%
Total 100%

Prepared by: Dr. Matthew N. O. Sadiku, Date: June 15, 2016
DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING  
ELEG 3033 PHYSICAL PRINCIPLES OF SOLID STATE DEVICES

Course number and name: ELEG 3033, Physical Principles of Solid State Devices  
Credits and contact hours: 3 credit hours, 5 contact hours  
Instructor’s or course coordinator’s name: Dr. Richard Wilkins, Professor, Department of Electrical and Computer Engineering.


other supplemental materials: Handouts on atomic order, silicon crystal structure, photoelectric effect, and Moore’s law.

Specific course information
brief description of the content of the course (catalog description): Crystal structure, introduction to quantum concepts and discrete energy levels; atomic bonding, soli-state band theory, Fermi-Dirac statistics, charge carrier transport, and introduction to semiconductor device physics and operation.

prerequisites or co-requisites: PHYS 2523, PHYS 2511, PHYS 2521, GNEG 2021, CHEM 1034, CHEM 1021 and MATH 2043.

Required course.

Specific goals for the course
specific outcomes of instruction: Student should obtain a basic understanding of concepts in semiconductor physics and chemistry, including relevant quantum and statistical concepts. This means:
Students should be able to apply these concepts to describe semiconductor physics phenomena and how these phenomena are related to device operations.
The student should also be familiar with some of the current scientific issues and limitations relevant to device operation and fabrication.
The students will learn about resources that will enable them to maintain a growing knowledge of developments in nano-science and technology.

explicitly indicate which of the student outcomes listed in Criterion 3 (a-k) or any other outcomes are addressed by the course:
(a) an ability to apply knowledge of mathematics, science and engineering.
(i) a recognition of the need for and ability to engage in life-long learning.
(j) a knowledge of contemporary issues.”

Brief list of topics to be covered:
Introduction to Semiconductors and Crystals: Overview of the semester; orientation introduction to microelectronics; introduction to various solid types; general discussion of semiconductor materials; crystal properties, introduction to device fabrication and scaling.

Microscopic concepts: Concept of physical modeling of systems, simple models of atoms and molecules, quantum concepts, energy levels.

Electron Energy Bands: Atomic bonding, energy bands, comparing metals, semiconductors and insulators; direct vs. indirect gap semiconductors.
Charge Carriers & Carrier Concentrations: Electrons and holes, effective mass, intrinsic and extrinsic materials, doping, the Fermi level, the Fermi distribution, carrier concentrations in equilibrium, conductivity and mobility, drift current, temperature effects.

Excess Carriers in Semiconductors: Optical properties, carrier lifetimes, diffusion current, diffusion lengths.

Basic Devices & Nanotechnology: Basic operation of the MOS transistor. Physical limitations to device scaling. Introduction to nanotechnology. Some notes and handouts will be included on these topics.
Course Number & Name: ELEG 3041 Microelectronic processing and Characterization
Credits and Contact Hours: 1-Credit Hour, 3-Contact Hours
Instructor or Coordinator: Ramesh C. Dwivedi
Textbook: None

Supplemental Material:
i) Laboratory Handouts

Specific Course Information
2013-14 Catalog Description
(0-2) Credit 1 semester hour. Basic Processes of microelectronic fabrication: doping, oxidation, Photolithography, etching, metallization and clean room practices. Basic materials and device characterization

Pre/Co-requisite: ELEG 3033, Physical Electronics

Course Designation: Elective

Specific Goals for Course
Specific outcomes of Instruction
The student will be able to:
i) understand wafer processing, role of acids, alkali and solvents in wafer processing, understand Material Safety Data Sheets, laboratory safety procedures and clean room attire
ii) use simulation software to implement Photolithography, Mask Design, Chemical Etch, Diffusion, Metallization to design simple semiconductors structures like a p-n diode and MOS capacitor. The software used is ICLAB
iii) use 4-point probe to measure resistivity of wafer material and perform doping calculations
iv) use laboratory equipment to perform I-V (current-voltage) characterization of off-the-shelf devices: diodes, MOSFETS using HP 4145B Parametric Semiconductor Analyzer and ICS (Interactive Characterization Software)
v) understand MOS structure under accumulation, depletion and inversion bias
vi) analyze and interpret data from device characterization

Brief list of topics covered in the course
Introduction to microelectronic processing and characterization.
Wafer Processing: Wafer Identification, Wafer RCA Cleaning, Piranha Cleaning, MSDS, Silicon Run Video
Introduction to ICLAB Simulation Software. Photolithography Processes; Mask Design, Photoresist Spin and Coat, Bake, Exposure, Etch
Simulated Fabrication of p-n Diode using ICLAB simulation software
Simulated Fabrication of MOS Capacitor. Oxide Capacitance Calculation, use ICLAB software
Dry and Wet Oxidation Growth. Time and Temperature effects on Oxide Growth.
Wafer Resistivity and Doping Characterization Using 4-point Probe.
Introduction to Automatic Test Equipment (ATE) HP 4145B, SMUs, DUT
Diode and MOSFET Characterization Using ATE, Troubleshooting

8. Data Used in Evaluation
Class tests/Exams; Quizzes; Post lab Assignments; Lab work and Reports

Prepared by: Mr. Ramesh C. Dwivedi Date: May 1, 2016
1. Course Number & Name: ELEG 3043  Electronics I
2. Credits & Contact Hours: 3 credit hours, 3 contact hours
3. Instructor: Dr. John Attia
5. Specific Course Information
a. 2014-2015 Catalog Description:

b. Prerequisites or Co-requisites
   Prerequisites: ELEG 3013; Co-requisite: ELEG 3033

c. Course Designation: Required Course

6. Specific Goals for the Course:
a. Specific Outcomes of Instruction
   The students will be:
   (i) able to understand the characteristics of operational amplifiers and be able to design electronic circuits by using operational amplifiers.
   (ii) able to understand the operational characteristics of diodes, MOSFETS, and BJTs.
   (iii) conversant with basic electronic circuits such as rectifiers, inverting and non-inverting amplifiers, integrators, differentiators, instrumentation amplifier, clipping and clamping circuits.
   (iv) able to recognize and analyze various MOSFET and BJT amplifier circuits.
   (v) able to design, construct, test electronic circuit that satisfies multiple constraints.
   (vi) able to use PSPICE or MATLAB to solve electronic circuit problems.

b. Criterion 3 Outcomes Addressed by Course
   Student outcomes addressed in the course are: (3a) the ability to apply the knowledge of mathematics, science and engineering, (3c) the ability to design a system to meet desired needs, and (3k) the ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

7. Brief Lists of Topics Covered in the Course
   Introduction to Electronics
   Operational Amplifiers
   Diodes
   MOSFETs
   Bipolar Junction Transistors

Prepared by: Dr. John O. Attia  Date: May 1, 2016
DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
ELEG 3063 LOGIC CIRCUITS

Course Number & Name:  ELEG 3063 Logic Circuits
Credit & Contact Hours:  3 credit hours,  contact hours:  2.67 (2 hours, 40 minutes)
Instructor:  Dr. Justin Foreman

Specific Course Information
2015-2016 Catalog Description:
ELEG 3021. Number systems and codes. Boolean algebra and logic minimization methods. Combinational
and sequential design using logic gates and flip flops. Computer-aided design tools for digital design,
simulation, and testing. Prerequisites: ELEG 2023.
Prerequisites or Co-requisites
Pre-requisites:  ELEG 2023

Specific Goals for the Course:
Specific Outcomes of Instruction:
The student will be able to:
understand the operation and function of basic logic components
use the logic components in logic circuit design.
understand the detail of steps of the design process including problem formulation, logic optimization,
technology mapping to NAND and NOR gates, and verification
design, simulate and test a sequential logic circuit and analyze and interpret the results, and present in a
technical report format.

ABET Outcome Accessed by Course
[a]:  ability to apply knowledge of mathematics, science, and engineering
[c]:  ability to design a system, component or process to meet desired needs
[f]:  understanding of professional and ethical responsibility

List of Topics Covered in the Course
Number Systems and Number System Conversions
Boolean Algebra
Karnaugh Map (K-map) Construction
Sum of Products Expression
Product of Sum Expressions
Don’t’ Care Conditions
Exclusive-OR Gates
Parity Generation and Checking
Truth Tables
Combinational Logic Circuit construction, simplification, and simulation
Encoders, Decoders
Field Programmable Gate Array Devices
Multiplexers/Demultiplexers
Binary Adders
Sequential Circuits
1. Course Number & Name: ELEG 3071 Microprocessor Systems Design Laboratory
2. Credits & Contact Hours: 1 credit hours, 3 contact hours
3. Instructor: Dr. Suxia Cui
4. Textbook: Lab manuel and Instructor's handouts.

5. Specific Course Information
   a. 2015-2016 Catalog Description:
      ELEG 3071. Microprocessor Systems Design Laboratory. (0-3) Credit 1 semester hour. Software and 
      hardware experiments with a microcomputer system. Assembly language and C programming, simple 
      input/output interfacing, and interrupt processing in microcomputer systems.
   b. Prerequisites or Co-requisites ELEG 3073.
   c. Course Designation: Required Course

6. Specific Goals for the Course:
   a. Specific Outcomes of Instruction
      The students will be able to:
      (i) use assembly language to make programs;
      (ii) design hardware and software of a microcomputer system;
      (iii) acquire knowledge for PIC microcontroller.
   b. Criterion 3 Outcomes Addressed by Course
      Student outcomes addressed in the course are: (d) the ability to function on multidisciplinary teams; (g) 
      the ability to communicate effectively; and (k) the ability to use the techniques, skills, and modern 
      engineering tools necessary for engineering practice.

7. Brief Lists of Topics Covered in the Course
   Introduction to trainer and Software Installation
   Header File and MPLAB Compilation Exercises
   PIC Microcontroller Assembly Language Programming and MPLAB Simulation
   PIC Microcontroller Simple I/O
   PIC Microcontroller Simple I/O and WDT (Watch Dog Timer) Controls
   I/O Controls with Interrupts Applications
   I/O Controls with LCD Module Parallel Communications and Table Lookup
   Matrix Keypad Software Scanning, Debouncing & Decoding Design
   Intro to Intel Edison

Prepared by: Dr. Suxia Cui Date: May 18, 2016
1. Course Number & Name: ELEG 3073 Microprocessor Systems Design
2. Credits & Contact Hours: 3 credit hours, 3 contact hours
3. Instructor: Dr. Suxia Cui
5. Specific Course Information
   a. 2015-2016 Catalog Description:
      ELEG 3073. Microprocessor Systems Design. (3-0) Credit 3 semester hours. Introduction to architecture, operation, and application of microprocessors; microprocessor programming; address decoding; system timing; parallel, serial, and analog I/O; interrupts and direct memory access; interfacing to static and dynamic RAM; microcontrollers. Introduction to Microcomputers.
   b. Prerequisites or Co-requisites
      ELEG 1043, ELEG 3063 and ELEG 3061.
   c. Course Designation: Required Course
6. Specific Goals for the Course:
   a. Specific Outcomes of Instruction
      The students will be able to:
      (i) describe the function of the microprocessor and detail its basic operation;
      (ii) write assembly language instruction to accomplish a specific task;
      (iii) acquire knowledge for machine language, I/O system and memory.
   b. Criterion 3 Outcomes Addressed by Course
      Student outcomes addressed in the course are: (c) the ability to design a system, component or process to meet desired needs; (f) the ability to understand professional and ethical responsibility; and (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
7. Brief Lists of Topics Covered in the Course
   Review Number Systems and Logic Gates
   Microcontroller Technology Introduction
   PIC Instructions in Assembly Language Programming
   Register Instruction
   I/O and Subroutines and Time Delay Routines
   PIC Microcontroller Simple I/O and WDT (Watch Dog Timer) Controls
   I/O Controls with Interrupts Applications
   I/O Controls and LCD Module Parallel Communications and Table Lookup
   Matrix Keypad Software Scanning: Debouncing & Decoding Design
   Introduction to High Performance Computing

Prepared by: Dr. Suxia Cui          Date: May 18, 2016
DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING  
ELEG 4021 POWER LABORATORY  

Course Number & Name: ELEG 4021  Power Laboratory  
Credits and Contact Hours: 1-Credit Hour, 2.5 -Contact Hours  
Instructor or Coordinator: Dr. Penrose Cofie  


Specific Course Information  
2013-14 Catalog Description  
ELEG 4021 Power Laboratory (1-0) Credit 1 semester hour. Operational Characteristics of DC and AC machines; Power Circuit Analysis.  

Prerequisite: ELEG 4013  

Course Designation: Elective Course  

Specific Goals for Specific Outcomes of Instruction  
The student will be able to:  
Understand and apply Laboratory Practices and Safety.  
Understand and connect Watt-meters.  
Understand, connect, and operate Single Phase Transformers  
Connect the Autotransformer.  
Understand, connect, and operate the DC Self-excited Generator, DC Series Generator and the DC Compound Generator.  
Understand, connect, and operate the Squirrel Cage Induction Motor  
Understand, connect, and operate the Three Phase Alternator.  

Criterion 3 Outcomes Addressed by Course  
Student outcomes addressed in course:  
Student outcomes a, e, i and j are addressed in this lab course  

Student outcomes assessed in Course:  
Student outcomes a, e, and j are assessed in this lab course  

Brief List of Topics Covered in Course  
Laboratory Practices and Safety  
The Wattmeter  
Single Phase Transformer  
DC Motor drive Part 1  
DC Motor Drive Part 2  
DC Self-excited Generator  
DC Series Generator  
DC Compound Generator  
Squirrel Cage Induction Motor
Three Phase Alternator

Additional Information
Contribution to Professional Component

Mathematics                      0  Credits
Engineering Science                           1  Credits
General Education Requirements  0  Credits
Major design Experience 0  Credits

Data Used in Assessing Outcomes in Course

Exams
Lab Reports
End of Semester student Survey

Data Used to Show Student Proficiency in Outcomes

Samples of student work in a Binder
   Grade sheet showing student performance and class average in outcomes
   End of Semester Course Assessment report

Prepared by:    Dr. Penrose. Cofie       Date:            
May 2016
Course Number & Name: ELEG 4023 Power Systems Engineering  
Credits and Contact Hours: 3-Credit Hour, 5 -Contact Hours  
Instructor or Coordinator: Dr. Penrose Cofie  
Specific Course Information  
  a. Catalog Description  
ELEG 4023 Power Systems Engineering (3-0). Credit 3 semester hours; Elementary synchronous machines; General considerations of power generation, transmission, distribution and utilization; Survey of load flow, faults, stability, and economic power dispatch.  
  b. Prerequisites ELEG 4013  
  c. Course Designation: Elective Course  
  5. Specific Goals for Specific Outcomes of Instruction  
The student will be able to:  
Understand the operation of power systems  
Analyze and design components in power systems  

Criterion 3 Outcomes Addressed by Course  
Student outcomes addressed in course:  
Student outcomes a, e, and j are addressed in this course.  

Student outcomes assessed in Course:  
Student outcomes a, e, and j are assessed in this course.  

6. Brief List of Topics Covered in Course  
  Introduction, Basic AC Circuit Concepts  
  Synchronous  
  Transformers  
  Transmission Lines  
  Power Flow Solutions  
  Economic Dispatch  
  Power System Faults  
  Protection and Stability  
  Exams and Quizzes  

Additional Information  
Contribution to Professional Component  
Mathematics 0 Credits  
Engineering Science 3 Credits
<table>
<thead>
<tr>
<th>General Education Requirements</th>
<th>0 Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major design Experience</td>
<td>0 Credits</td>
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Data Used in Assessing Outcomes in Course
Exams
Quizzes and Project
End of Semester student Survey

Data Used to Show Student Proficiency in Outcomes
- Samples of student work in a Binder
- Grade sheet showing student performance and class average in outcomes
- End of Semester Course Assessment report

Prepared by: Dr. Penrose. Cofie
Date: May 2016.
DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING  
ELEG 4223 ELECTRONIC AND PHOTONIC MATERIALS AND DEVICES

1. Course number and name: ELEG 4223, Electronic and Photonic Materials and Devices
2. Credits and contact hours: 3 credit hours, 5 contact hours
3. Instructor’s or course coordinator’s name: Dr. Richard Wilkins, Professor, Department of Electrical and Computer Engineering.


Other supplemental materials: Handouts on review of ELEG 3033, atomic order, silicon crystal structure, photoelectric effect, Schrodinger’s equation, electromagnetic spectrum, bandgap vs. wavelength, bandgap engineering, LED and laser diode, photoconductors, photodiodes, solar cells, reflection & refraction, fiber optics, nanotechnology, display technology.

Specific course information

Brief description of the content of the course (catalog description): Properties of insulators, conductors, semiconductors, electro-optical and magnetic materials. Basic operation of opto-electronic devices and systems.

Prerequisites or co-requisites: ELEG 3033
Technical elective course.

Specific goals for the course specific outcomes of instruction: A student that completes this class with a passing grade should have a basic understanding of the optical properties of semiconductors, optoelectronic devices, photonic applications, and nano-technology as related to nano-electronics and nano-photonics.

Explicitly indicate which of the student outcomes listed in Criterion 3 (a-k) or any other outcomes are addressed by the course:

(a) an ability to apply knowledge of mathematics, science and engineering.
(i) a recognition of the need for and ability to engage in life-long learning.
(j) a knowledge of contemporary issues.”

Brief list of topics to be covered:
Basic Concepts:
Review of semiconductor concepts: intrinsic and extrinsic materials, carrier concentrations, energy bands, basics of the p-n junction.
Classical concepts: Types of solids, electrons in electric and magnetic fields, the electromagnetic spectrum, laws of reflection and refraction.
Quantum concepts: photons, electrons as a wave, Schrodinger’s Equation, energy levels, quantum nature of atoms and molecules, solids, electron tunneling.

Optical Properties of Semiconductors:
Elemental and compound semiconductors, direct and indirect energy gaps, electron-hole pairs, inter-band transitions and deep-level transitions, energy gap and wavelength, dielectric properties of solids.

Photonic devices:
Photo-detectors, Solar cells, light emitting diodes, laser operating principals, semiconductor laser structure and properties, fiber optics.
Photonic Applications and Systems:
Opto-electronic communications systems.
Display systems.
Renewable energy and “green” lighting.

Nano-technology:
Optical, electronic and other properties of carbon nanotubes and applications. optical interactions with nano-scale solids. Applications of nano-technology. Week 15

Prepared by: Dr. Suxia Cui Date: Dec. 18, 2015
DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
ELEG 4253 – EMBEDDED SYSTEMS DESIGN

1. Course Number & Name: ELEG 4253 Embedded Systems Design
2. Credits & Contact Hours: 3 credit hours, 3 contact hours
3. Instructor: Dr. Suxia Cui

5. Specific Course Information
   a. 2015-2016 Catalog Description:
      ELEG4253 Embedded Systems Design (3-0) Credit 3 semester hours. Microprocessor and Microcomputer structures and applications; programming and design of hardware interfaces; emphasis on student projects.
   b. Prerequisites or Co-requisites
      ELEG 3071 and ELEG3073.
   c. Course Designation: Required Course

6. Specific Goals for the Course:
   a. Specific Outcomes of Instruction
      The students will be able to:
      (i) understand the development procedure of an embedded system;
      (ii) design, program, and test ARM based embedded systems for general purpose and/or special-purpose applications.
   b. Criterion 3 Outcomes Addressed by Course
      Student outcomes addressed in the course are: (b) the ability to design and conduct experiments, as well as to analyze and interpret data; (c) the ability to design a system, component or process to meet desired needs; (e) the ability to identify, formulate, and solve engineering problems; (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context; and (j) a knowledge of contemporary issues.

7. Brief Lists of Topics Covered in the Course
   Introduction to Computer and Electronics
   Introduction to Embedded Systems
   Introduction to the ARM Cortex-M Processor
   Introduction to Input/Output
   Serial and Parallel Port Interfacing
   Interrupt Programming and Real-time Systems
   Analog I/O Interfacing
   Design Projects

Prepared by: Dr. Suxia Cui Date: Dec. 18, 2015
DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
ELEG 4303 – INTRODUCTION TO DIGITAL DESIGN

Course Number & Name: ELEG 4303  Introduction to Digital Design
Credits & Contact Hours:  3 credit hours, 3 contact hours
Instructor    Dr. Justin Foreman

Specific Course Information
a.2015-2016 Catalog Description:
The use of hardware description language and automated synthesis in design. hierarchical and modular
design of digital systems. Control logic, synchronous and asynchronous sequential circuit design.
Programmable logic devices and field programmable gate arrays. Circuit simulation for design verification
and analysis. Timing-oriented design.

b. Prerequisites or Co-requisites
Pre-requisites: ELEG 3063, ELEG 3073.

Specific Goals for the Course:

a. Specific Outcomes of Instruction:
The student will be able to:
Be able to apply design concepts in construction of circuits utilizing components discussed in ELEG 3063
Logic Circuits
Apply fundamental analysis skills to correctly describe the behavior of a given digital logic circuit
Translate system requirements into a practical digital design, making use of modern tools such as Multisim,
Verilog HDL, and logic synthesis programs

b. ABET Outcome Accessed by Course
[c]: ability to design a system, component or process to meet desired needs
[e]: ability to identify, formulate, and solve engineering problems
[i]: a recognition of the need for, and an ability to engage in life-long learning
[j]: a knowledge of contemporary issues

Brief List of Topics Covered in the Course
FPGA Programming Basics
Sequential Logic Circuits
Registers and Counters
Memory and Programmable Logic
Design at Register Transfer Level
Laboratory Experiments
Standard Graphic Symbols
Projects

Prepared by: Dr. Justin Foreman
Date: 6/21/16
Course Number and Name: ELEG 4333, Communication Network Engineering  
Credits and Contact Hours: 3-credit, 6-contact hours  
Instructor: Dr. Matthew N. O. Sadiku  
Specific Course Information: Fundamental concepts, OSI reference model overview, internetworking devices (repeaters, hubs, bridges, routers), Internet-based networks, intranet and extranet, X.25, frame relay, synchronous optical network (SONET), virtual private network, random access networks, controlled access networks, ISDN and BISDN, DSL, passive optical networks wireless networks, personal communication service, satellite communication, and network security.  
Specific Goals for the Course: This course introduces students of local area networks, metropolitan area networks, and wide area networks.  

Brief List of Topics Covered in the Course:  
Introduction and OSI model  
TCP/IP Protocols  
Intranets and Extranets  
X.25 and Frame relay  
SONET and SDH  
ISDN and BISDN  
DSL  
Wireless Networks  
Queuing Theory  
MAC Protocols  

Additional information  
One Project 10%  
Homework 30%  
Midterm Exam 30%  
Final Exam 30%  

Prepared by: Matthew N. O. Sadiku, Date: June 15, 2016
Course Number & Name: ELEG 4393 Computer Organization and Design
Credits and Contact Hours: 3-Credit Hours, 6-Contact Hours
Instructor or Coordinator: Dr. Xiangfang (Lindsey) Li
                       (ii) Lectures, assignments, handouts, and class notes.

Specific Course Information
2013-14 Catalog Description
(3-0) Credit 3 semester hours. An introduction to computer organization using assembly and machine language. Number representation, computer arithmetic, instruction sets, I/O interrupts, and programming interrupts. Projects involve detailed study and use of a specific computer hardware and software system.
Prerequisites: ELEG 3063 Logic Circuits
Course Designation: Required Course

Specific Goals for Course
Specific Outcomes of Instruction
The objective of this course is to teach students (i) basic concepts of computer organization and hardware, (ii) help them understand the relationship between hardware and software and to focus on the concepts that are the basis for current computers, and (iii) recognize the generation change in computing from the PC era to the PostPC era. Materials covered included but not limited to: Instructions executed by a processor and how to use these instructions in simple assembly language programs; how to design the datapath and control for pipelined and non-pipelined processors; data and control hazards; the principles of memory hierarchy; and how processors, memory, and I/O are combined into a computer.

Criterion 3 Outcomes Addressed by Course
The ABET Criteria and Outcomes to be assessed are:
e – ability to identify, formulate and solve engineering problems
f – understanding of professional and ethical responsibility (Special Assignments)
j – a knowledge of contemporary issues (Special Assignment)

Brief List of Topics Covered in Course
Computer Abstractions and technology; Instructions
Language and compute; Arithmetic for computer
The processor; Large and Fast
Exploiting Memory Hierarchy
Parallel processor from client to cloud.

Data Used in Assessing Outcomes in Course
This course will utilize the following instruments to determine student grades and proficiency of the learning outcomes for the course.
Homework – assignments designed to supplement and reinforce course
Projects/Assignment – assignments designed to measure ability to apply presented course material
Tests – 2 tests and a comprehensive final exam will be administered
End of Semester student Survey

Data Used to Show Student Proficiency in Outcomes
Samples of student work in a Binder
Grade sheet showing student performance and class average in outcomes
End of Semester Course Assessment report

Prepared by: Dr. Xiangfang (Lindsey) Li

Date: June 1, 2016
Course Number & Name: ELEG 4472 Senior Design and Professionalism I  
Credits and Contact Hours: 2-Credit Hours, 5 -Contact Hours  
Instructor or Coordinator: Dr. Warsame H. Ali/ Dr. Mathew Sadiku  
Textbook: 
Senior Project Manual” by Prairie View A & M University College of Engineering”.  

5. Specific Course Information  

a. 2013-14 Catalog Description  

ELEG 4472. Senior Design and Professionalism I. (1-3) Credit 2 semester hours. This is the first course of a two semester a capstone experience (ELEG 4482 or sequence must restart with ELEG 4472) involving engineering design of an industrial or advanced team project. Elements of ethics and professionalism in engineering practice will be integrated into the project experience. The project will include application of relevant engineering codes and standards, as well as realistic constraints. Design achievements are demonstrated by written reports, oral presentation, and professional standards and ethics examinations.  
c. Course Designation: Required Course  

Specific Goals for Course:  

Course Objective 1  
Ability to design experiments  
Ability to conduct experiments  
Ability to analyze and interpret experimental data  

Course Objective 2  
To teach students to design systems, components and processes. ABET criteria (c) Anticipated Outcomes  
i. Students will demonstrate ability to research, identify, formulate and solve engineering problems.  
ii. Conduct research on the economical, global impact, ethical and technical aspects of the engineering design.  
iii. Students will use acquired knowledge to optimize engineering solutions and designs in accordance with technical and contemporary constraints.  

Course Objective 3  
To teach students to function in a multidisciplinary design team. ABET criteria (d) Anticipated Outcomes  
Students acquire experience and understanding of diverse engineering systems to produce a final integrated design.  
Demonstrate team work through regular class presentations and a final design presentation.  
Students gain appreciation of the functioning of other engineering disciplines.  
Students gain appreciation of mentoring processes by acquiring Information from industrial and faculty mentors.  

Course Objective 4  
Understanding of professional and ethical responsibility ABET criteria (f) Anticipated Outcomes  
Students will consider their own values with case studies discussed in class
Students will be able to differentiate between ethical and legal issues
Course Objective 5
Student becomes proficient in written, oral and technical communication. ABET criteria (g) Anticipated Outcome
Students will complete a final technical report that includes written description of project, technical schematics of the components, system or processes.
All students will give a formal oral summary presentation on their aspect of the project.
Course Objective 6
Student becomes an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice. ABET criteria (k).
Anticipated Outcomes are:
i- Students demonstrate ability in using modern engineering software tools
ii- Student will acquire knowledge necessary for engineering practices

Brief List of Topics Covered in Course
Course Overview & Introduction to Design
Engineering Design Process (Problem Formulation)
Project Planning
Literature Review (Information Gathering)
Preliminary Design (Concept Generation)
Evaluation Alternatives
Detailed Design (Analysis and Refinement)
Process/Component/System Optimization, Probabilistic Considerations in Design and Risk Assessment
Impact of Engineering Society
Professionalism and Ethics, Codes & Standard and Application to Project
System analysis and layout, Materials Selection, and Application to Project
Additional Economic Analysis Review, Effects of Taxes & Inflation and Professional & Product Liability
Final Phase of Detailed Design
8. Additional Information
Contribution to Professional Component
Mathematics 0 Credits Engineering Science 0 Credits
General Education Requirements 0 Credits Major design Experience 2 Credits
Data Used in Assessing Outcomes in Course
Class Presentations /Exams
Homework assignments
Lab Work and Written Reports

End of Semester Student Survey

Prepared by: Dr. Warsame H. Ali Date: September 25, 2015
1. Course Number & Name:  
   ELEG 4482 Senior Design and Professionalism II
2. Credits and Contact Hours:  
   2-Credit Hours, 5 -Contact Hours
3. Instructor or Coordinator:  
   Dr. Warsame H. Ali/ Dr. Mathew Sadiku
4. Textbook:  
   “Senior Project Manual” by Prairie View A & M University College of Engineering”.
   Supplemental Material:  
5. Specific Course Information
   a. 2013-14 Catalog Description
      ELEG 4482. Senior Design and Professionalism II. (1-3) Credit 2 semester hours. A continuation of ELEG 4472 with required design modifications of the team projects necessary to produce a working prototype of the designs initiated in Senior Design and Professionalism I. Results of the design are presented in a Design project deliverables include an oral presentation, a written report, and a formal, final oral presentation as well as a final report. Elements of professionalism reinforce the importance of professional ethics, corporate culture, life-long learning, and globalization.
   b. Prerequisites: ELEG 4482 must immediately follow ELEG 4472 or a sequence must restart CVEG, or MCEG 4482.
      with ELEG 4472 Course equivalence: CHEG,
   c. Co-requisites: NO
   d. Course Designation: Required Course
6. Specific Goals for Course
   Course Objective 1
   To teach students an ability to design and conduct experiments, as well as to analyze and interpret data. ABET criteria (b). Anticipated Outcomes are:
   i. Ability to design experiments
   ii. Ability to conduct experiments
   iii. Ability to analyze and interpret experimental data
   Course Objective 2
   To teach students to function in a multidisciplinary design team. ABET criteria (d) Anticipated Outcomes are:
   i.. Students acquire experience and understanding of diverse engineering systems to produce a final integrated design.
   ii. Demonstrate team work through regular class presentations and a final design presentation.
   iii. Students gain appreciation of the functioning of other engineering disciplines and gain appreciation of mentoring processes by acquiring Information from industrial and faculty mentors.
   Course Objective 3
   To teach students the ability to identify, formulate, and solve engineering problems. ABET criteria (e). Anticipate Outcomes are:
   i. Identify engineering/technical/computing problems.
   ii. Formulate/analyze engineering/technical/computing problems
   iii. Solve engineering/technical/computing problems
Understanding of professional and ethical responsibility ABET criteria (f). Anticipated Outcomes are:
i. Students will consider their own values with case studies discussed in class
ii. Students will be able to differentiate between ethical and legal issues

Course Objective 5
Student becomes proficient in written, oral and technical communication. ABET criteria (g) Anticipated Outcomes are:
i. Students will complete a final technical report that includes written description of project, technical schematics of the components, system or processes.
   ii. All students will give a formal oral summary presentation on their aspect of the project.

Course Objective 6
Students must receive the broad education necessary to understand the impact of engineering solution in a global and societal context ABET outcome (h). Anticipated Outcomes are:
i. Students are able to investigate a given engineering problem and are able to analyze the short and long term impact (political, economic, environmental, health, safety, cultural) of proposed solutions on society (local, regional or global context).

Course Outcome 7
A recognition of the need for, and ability to engage in life long learning ABET outcome (i).
i. Students are aware of the need for lifelong learning
   ii. Students engage in life-long learning activities

Course Outcome 8
A recognition of contemporary issues ABET outcome (j)
i. Students display knowledge in a variety of contemporary issues or topics

7. Brief List of Topics Covered in Course
Course Overview & Introduction to Design
   Engineering Design Process (Problem Formulation)
   Project Planning Update
   Comprehensive Literature Review
   Review of Preliminary Design and Final Design Modifications and Design Drawings Components Design, and Subsystem Testing
   Detailed Design and Implementation of Application of Codes and Ethical Standards and Professional Issues
   Implementation and Testing Global and Social considerations and Impact of Engineering on Society and Risk Assessment
   Detailed and Prototype Design Preparation Design
   Detailed Design and Implementation, Testing
   Consideration Modern Engineering Tools and Practices, Professional & Product Liability
   Detailed Design and Testing of System

Prepared by: Dr. Warsame H. Ali         Date: September 25, 2015
COMPUTER SCIENCE DEPARTMENT
SYLLABUS --- COMP-1211 COMPUTER SCIENCE I LAB

Credit Hours: 1
Contact Hours: 2
Instructor: Dr. Yonggao Yang, Professor

Textbook Information:
Title: Programming and Problem Solving with C++
Author: Nell Dale
Publisher: Johns and Bartlett
Other supplemental materials:
A Laboratory Course in C++; Nell Dale; 2014; 978-1-284-02590-3

Course Information

Catalog description: Credit 1 semester hour. A laboratory course in programming for computer science or related fields, utilizing the concepts introduced in COMP 1213, including language concepts of input/output, constants, data types, arrays and strings, variables, expressions, statements, iterations and selections.

Co-requisites: COMP-1213

Required, Elective or Selected Elective Course: Required

Goals for the Course

Outcomes of instruction (Learning outcomes)
Put hands on computer to learning C++ programming language. Write C++ code to solve various problems. At the end of this semester, you will know how computer software works, how to write your programs to solve your problems. If you are interested in programming, you can take many other advanced computer science courses in the future.

Student outcomes addressed by this course
Outcome c: An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.
Sub-outcomes
c1. Ability to understand and define requirements of the problem
c2. Ability to design and implement a program to solve the problem

List of Topics to Be Covered

☑ Overview of programming and problem solving; Binary; Computer organization; Boolean; Computer hardware; Software

Chapter 1 & handout: Overview of Programming and Problem Solving
Chapter 2 C++ Syntax and Semantics, and the Program Development Process
Chapter 3 Numeric Types, Expressions, and Output
Chapter 4 Program Input and the Software Design Process
Chapter 5 Conditions, Logical Expressions, and Selection Control Structures
Chapter 6 Looping
Chapter 7 Additional Control Structures
Chapter 8 Functions
Chapter 9 Scope, Lifetime, and More on Functions
COMPUTER SCIENCE DEPARTMENT
SYLLABUS --- COMP-1213 COMPUTER SCIENCE I

Credit Hours: 3
Contact Hours: 3
Instructor: Dr. Yonggao Yang, Professor

Textbook Information:
Title: Programming and Problem Solving with C++
Author: Nell Dale
Publisher: Johns and Bartlett
Other supplemental materials: None

Course Information

Catalog description: Computer Science I. (3-0) Credit 3 semester hours. Introduction to modern problem solving and programming methods. Special emphasis is placed on using critical thinking, effective communication, and empirical and quantitative skills to design and implement robust and easily maintainable programs in a high-level, object-oriented language such as C++ to include external files, control structures, loops, scope, functions, output formatting, inline functions and function templates, enumerated data types, arrays, structures, exception handling.

Co-requisites: (MATH 1115 or MATH 1123) AND COMP 1211

Required, Elective or Selected Elective Course: Required

Goals for the Course

Outcomes of instruction (Learning outcomes)
Learn basic computer organization concepts: digital logic, binary, Boolean, hardware components, and software; Learn computer programming concepts and problem solving approaches. Use critical thinking skills to develop algorithms for the given problem. Learn syntax and semantics of the C++ programming language (first half of C++ language), and how to write C++ program to solve problem; Learn fundamental principles of program specification, design, testing, and system documentation. Use professional communication skills to write program user manual, system testing report, and present system development description; Learn C++ programming development environment: code editing, debugging, compiling, linking, and executing. Use empirical and quantitative skills to manipulate, analyze, and process numerical data.

Student outcomes addressed by this course
Outcome a: Ability to apply knowledge of computing and mathematics appropriate to the discipline.
   a1: students demonstrate knowledge and application of mathematics
   a2: students demonstrate knowledge and application of computing
Outcome b: Ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
   b1: Ability to analyze and define computing problems
   b2: Ability to solve computing problems

List of Topics to Be Covered

- Overview of programming and problem solving; Binary; Computer organization; Boolean; Computer hardware; Software
- Chapter 1 & handout: Overview of Programming and Problem Solving
- Chapter 2 C++ Syntax and Semantics, and the Program Development Process
- Chapter 3 Numeric Types, Expressions, and Output
- Chapter 4 Program Input and the Software Design Process
- Chapter 5 Conditions, Logical Expressions, and Selection Control Structures
- Chapter 6 Looping
- Chapter 7 Additional Control Structures
- Chapter 8 Functions
- Chapter 9 Scope, Lifetime, and More on Function
COMPUTER SCIENCE DEPARTMENT
SYLLABUS --- COMP-1224 INTRODUCTION TO COMPUTER SCIENCE II AND LAB

Credit Hours: 4
Contact Hours: 5
Instructor: Dr. Akhtar Lodgher, Professor

Textbook Information:

Title: Programming and problem solving w/C++
Author: Nell Dale
Publisher: Jones Bartlett

Lab Manual Information:

Title: A Laboratory Course in C++
Author: Dale & Weems
Publisher: Jones Bartlett
Other supplemental materials: None

Course Information

Catalog description: Credit 4 semester hours. Continuation of COMP 1214 with continued emphasis on program development techniques, array based lists, pointers, basic linked lists, classes, abstraction, data hiding, polymorphism, inheritance, stacks and queues. Repeatable up to 3 times.

Prerequisites: COMP 1124 CS 1 + Lab with min. grade of C

Co-requisites: Math 1124 – Calculus I

Required, Elective or Selected Elective Course: Required

Goals for the Course

Outcomes of instruction (Learning outcomes)
1. To learn and implement data abstraction and its usage.
2. To learn and implement the use of simple data structures such as arrays and lists.
3. To learn and implement fundamental concepts of dynamic data (pointers).
4. To learn and implement fundamentals of object-oriented software development,
5. To learn and implement simple recursive solutions.

Student outcomes addressed by this course
Outcome a: An ability to apply knowledge of computing and mathematics appropriate to the discipline
a1: Students demonstrate knowledge and application of mathematics  
a2: Students demonstrate knowledge and application of computing  
Outcome b: An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution  
b1: Ability to analyze and define computing problems  
b2: Ability to solve computing problems  
Outcome c: An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs  
c1. Ability to understand and define requirements of the problem  
c2. Ability to design and implement a program to solve the problem

List of Topics to Be Covered

1. Functions (Revision)  
2. Scope, Lifetime, More on Functions (Revision)  
3. User Defined Data Types a. Typedef  
b. Structs  
4. Arrays  
a. Single and Multi dimensional  
5. Classes and Abstraction a. Abstraction  
b. Header and implementation files  
6. Array-Based Lists  
a. Abstract Data type  
7. Dynamic Data and Linked Lists a. Pointers and Lists  
8. Object-Oriented Design  
a. Problem decomposition using class abstraction  
9. Recursion  
a. Simple recursion
COMPUTER SCIENCE DEPARTMENT
SYLLABUS --- COMP-2013 DATA STRUCTURES

Credit Hours: 3
Contact Hours: 3
Instructor: Dr. Lin Li, Associate Professor

Textbook Information:

Title: C++ plus Data Structures
Author: Nell Dale
Publisher: Jones and Bartlett
Other supplemental materials: None

Course Information

Catalog description: Credit 3 semester hours. Fundamental data structures including binary files, stacks, queues, recursion, advanced linked lists, trees, and graphs with their implementation and applications will be covered. Topics also include heap, priority queue, and sorting techniques.

Prerequisites or Co-requisites: COMP 1023 Computer Science II and Lab

Required, Elective or Selected Elective Course: Required

Goals for the Course

Outcomes of instruction (Learning outcomes)
This course examines basic data structures such as stacks, queues, lists, trees, heaps, and graphs as well as searching and sorting algorithms. It is to have students be able to implement these data structures and algorithms in object-oriented programming languages such as C++. The objectives include: (a) enhance the ability to apply knowledge of computing and/or mathematics appropriate to the discipline; (b) enhance the ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.

Student outcomes addressed by this course
Outcome a: Ability to apply knowledge of computing and mathematics appropriate to the discipline.
a1: students demonstrate knowledge and application of mathematics a2: students demonstrate knowledge and application of computing
Outcome b: Ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
b1: Ability to analyze and define computing problems
DEPARTMENT OF CIVIL & ENVIRONMENTAL ENGINEERING
CVEG 2454 - STATICS & DYNAMICS

CREDIT HOURS 4
CONTACT HOURS 4
INSTRUCTOR/COURSE COORDINATOR Dr. Judy A. Perkins, PE, Civil Engineering

SUPPLEMENTAL MATERIALS None
CATALOG DESCRIPTION Fundamental concepts; equilibrium of particles and rigid bodies, centroids, moments of inertia, friction, and introduction to analysis of structures. Kinematics and kinetics of particles and rigid bodies; equations of motion, work and energy; impulse and momentum.

PREREQUISITES PHYS 2513 [University Physics I]
CO-REQUISITES None
DESIGNATION Required for Chemical Engineering, Computer Engineering, and Electrical Engineering Majors

COURSE LEARNING OUTCOMES/GOALS By the end of CVEG 2454 students will:
Thoroughly understanding of the theory and applications of engineering mechanics;
Analyze engineering mechanics problems using the principles of science and mathematics;
Describe and predict through calculations the conditions of equilibrium of particles, and bodies on application of forces;
Describe and predict through calculations the behavior of bodies subjected to forces resulting in dynamic motion; and
Address Program Outcomes a and e

TOPICS COVERED Particle Equilibrium
Equivalent Force Systems
Rigid Body Equilibrium
Method of Joints and Method of Sections
Centroid and Moment of Inertia
Friction
Kinematics of a Particle
Kinetics of a Particle: Force and Acceleration
Kinetics of a Particle: Work and Energy
Kinetics of a Particle: Impulse and Momentum
Planar Kinetics of a Rigid Body: Force and Acceleration
Planar Kinetics of a Rigid Body: Work and Energy
Planar Kinetics of a Rigid Body: Impulse and Momentum
Course number and name: CHEG 2003 Economical Analysis and Technical Applications

Credits and contact hours: 3-credit hours, 3-contact hours

Instructor’s or course coordinator’s name: Safwat H. Shakir (main), Kazeem Olanrewaju


Specific course information
(3.0) Credit semester hours. Fundamental concepts of economic principles. Evaluation of technical alternatives, economic significance of technical proposals; interest, description, analysis, and forecasting.
Prerequisite: MATH 1124
Required Course

Specific goals for the course
The students will be able to:
Understand the economic principals, and economic terms
Understand the economic and mathematical equations used in the economic analysis.
Understand the economic costs, methodologies of assessing the costs, cost estimation and cost concepts.
Understanding the time value and project cash flow in engineering and economy.
Understand the comparison of alternatives for different projects.
Understand Break Even Analysis, income tax, risk analysis and depreciation.
Understand of Capital investment in the engineering projects.
To provide students with the principles of economics and their applications in Engineering.
Projects alternatives play a crucial role in the areas of production, processing, fabrication and manufacturing of all man made products.
The profitability or cost of the project is a necessary condition for giving the project the green light for funding and execution.
Projects alternatives play a crucial role in the areas of production, processing, fabrication and manufacturing of all man-made products.
The profitability or cost of the project is a necessary condition for giving the project the green light for funding and execution.
The course provides the students with technical and engineering aspects of assessing different projects either in their professional career or in private life.
The course provides the students with core aspects of critical thinking, to develop quantitatively skills, expand students’ knowledge of the human condition and human cultures to economics, and social behavioral aspects in the society in addition to strengthen the students ability of presenting judgment about the economic aspects of engineering projects they are going to deal with in real life.
Student outcomes a, e, g, and h are addressed and assessed in this course.

Brief list of topics to be covered
Engineering Economic Decision.
Time value of Money and factors for analysis the value of money and including interest rate.
Development of Project Cash Flow.
Methods of Analysis of the Economic (Worth (Annual Worth- Present Worth, Future worth) and formula for using these methods.
Methods of using Series (i.e. Arithmetic Series and Geometric Series) – Shifting series Analysis.
Rate of Return (ROR),
Financial statements
Cost Concept and Behaviors.
Revenues and Profits optimization
Profitability and productivity.
Global Economic Forces
Present time Economic and Cost Estimation.
Estimation of capital investment.
Economic Potential of Alternatives.
Comparison of Alternative Projects
Break Even Analysis and Sensitivity Analysis
Examples of Usage of Spreadsheets in Economic Analysis and Modeling.
Professional Ethics Depreciation and income tax Risk Analysis and Uncertainty.
MECHANICAL ENGINEERING DEPARTMENT
MCEG 2013 THERMODYNAMICS I

Course Number & Name: MCEG 2013 Thermodynamics I
Credits and Contact Hours: 3-Credit Hours, 4 -Contact Hours
Instructor or Coordinator: Dr. Rambod Rayegan

Specific Course Information
2013-14 Catalog Description
MCEG 2013 Thermodynamics I: First Law, transformation of energy, theoretical limitations, Second Law, absolute temperature, entropy, and available energy, properties of gases, liquids, and vapors, and irreversibility.

Prerequisites: MATH 2024 and PHYS 2513.
Co-requisites: None
Course Designation: Required Course

Specific Goals for Course
Specific Outcomes of Instruction
The student will be able to:
analyze thermal systems using the first, and second laws of thermodynamics as well as perform parametric studies on these systems.

Criterion 3 Outcomes Addressed by Course
Student outcomes assessed in Course:
(a) Knowledge and application of D&I calculus, DE, Prob. & Stats.
(e) Identify /formulate/analyze/solve engineering/technical/computing problems

Brief List of Topics Covered in Course
Introduction, Definitions, Applications, Dimensions and Units (4 hours)
Forms of Energy, Energy Transfer by Heat and Work, 1st Law of Thermodynamics (6 hours)
Pure Substance and its Phases, Phase Change, Property Diagrams, Property Tables (8 hours)
Moving Boundary Work, Energy Balance for Closed Systems, Specific Heats (6 hours)
Cyclic Heat Engines, Refrigerators and heat Pumps, Reversible and Irreversible Processes, The Carnot Cycle and Principles (6 hours)
Entropy, Isentropic Processes, Isentropic Efficiencies, Entropy Balance (8 hours)

Prepared by: Dr. Rambod Rayegan Date: May 24, 2016
Course Number & Name: GNEG 1121 Engineering Lab II for Math
Credits and Contact Hours: 1-Credit Hours, 3 -Contact Hours
Instructor or Coordinator: Dr. Mohan Ketkar
Textbook: None Required
(ii) Lab handouts

Specific Course Information

2013-14 Catalog Description
Credit: 1 semester hour. Practical applications of the 1st level Calculus for problems in engineering, computer science, and technology. The 1st level Calculus concepts will be reinforced through hands-on, physical application in the laboratory.

Prerequisites: MATH1115 Algebra and Trigonometry or equivalent
Co-requisites: MATH 1124 Calculus and Analytic Geometry I

Course Designation: Required Course

Specific Goals for Course
Specific Outcomes of Instruction
The student will be able to:
Focus on familiarizing engineering with concepts learned in the Calculus with real life applications
Do hands on experiments and visual demonstration of mathematical applications

Criterion 3 Outcomes Addressed by Course
Student outcome addressed in the course is:
(a) An ability to apply knowledge of mathematics, science, and engineering

Student outcome addressed in laboratory part of the course is:
(b) An ability to design and conduct experiments, as well as to analyze and interpret data

Brief List of Topics Covered in Course
Introduction, (3 hours)
Vectors (6 hours)
Functions and Models (6 hours)
Limits and rates of change (6 hours)
Tangent, velocity and limits (3 hours)
Derivatives Rules and formulas (6 hours)
Applications of derivatives (6 hours)
Optimization using derivatives (6 Hours)
Course Number & Name: GNEG 2021 Applications Laboratory III for Mathematics
Credits and Contact Hours: 1-Credit Hour, 3-Contact Hours
Instructor or Coordinator: Dr. Michael Gyamerah
Textbook: None

Specific Course Information
2013-14 Catalog Description
GNEG 2021. Engr. Lab III for Math. (1-0) Credit 1 semester hour. Practical applications of the 2nd level Calculus for problems in engineering, computer science, and technology. The 2nd level Calculus concepts will be reinforced through hands-on, physical application in the laboratory
Prerequisites: None
Co-requisites: MATH 2024 Calculus II

Course Designation: Required Course

Specific Goals for Course
a. Specific Outcomes of Instruction
The student will be able to:
Demonstrate the importance and application of integral and differential calculus in engineering, engineering technology and computer science
Demonstrate knowledge in integral and differential calculus concepts that will help the student to be successful in Calculus II
Convert word problems involving physical phenomena into equations by (a) identifying the problem with a sketch and labeling, and (b) formulating the problem using appropriate equations and simplifying assumptions, and then applying knowledge of integral calculus in solving the problem.
Demonstrate knowledge of integral calculus and their applications in finding the areas under the curve, determining pressure-volume work in gas expansion or compression, finding the energy developed in a resistor with an alternating current flowing through it, and finding the volume of a solid of revolution.

b. Criterion 3 Outcomes Addressed by Course
Student outcomes addressed in course:
Student outcome a will be addressed and assessed in this course

Brief List of Topics Covered in Course
Review of Differentiation and Engineering Applications (6 hours)
Antidifferentiation and the indefinite integral (3 hours)
Applications of antidifferentiation (9)
The definite integral (3 Hours)
Applications of integration (9 hours)
Multiple integrals and their applications (6 hours)
Specific Course Information

2014-15 Catalog Description
The textbook for this course, Successful Project Management, was written to equip its users with both – by explaining concepts and techniques by using numerous examples to show how they can be skillfully applied.
Topics include project management life cycle and process; identifying and selecting projects; developing a project proposal; techniques for planning, scheduling, resource assignment, budgeting and controlling project performance; project risk; project manager responsibilities and skills; project team development and effectiveness; project communication and documentation; and project management organizational structures. The concepts in the course support the project management knowledge areas of the Project Management Institute’s A Guide to the Project Management Body of Knowledge (PMBOK Guide).

Specific Goals for Course
Specific Outcomes of Instruction
The student will be able to:
Explain the basic foundations of a project management concepts and vocabulary
Demonstrate knowledge of selecting, planning, performing, and controlling projects
Demonstrate knowledge of project scheduling and budgeting
Demonstrate knowledge of project management skills, teamwork, and the organizational structures in which project management takes place
Exhibit knowledge of applying project management software (MS Project) to a project

Brief List of Topics Covered in Course
Project management life cycle and process
Identifying and selecting projects
Developing a project proposal
Techniques for planning a project
Techniques for scheduling a project
Techniques for resource assignment a project
Techniques for budgeting a project
Techniques for assessing and managing projects risks for a project
Techniques for controlling project performance
Project manager responsibilities and skills
Project team development and effectiveness
Project communication and documentation
Project management organizational structures
1. Course Number & Name: General Inorganic Chemistry II, CHEM 1021
2. Credits and Contact Hours: 1-Credit Hours, 2-Contact Hours
3. Instructor or Coordinator: Dr. Ananda Amarasekara
4. Textbook: Modular Laboratory Program in Chemistry
5. Supplemental Material: None
6. Specific Course Information
   a. 2015-16 Catalog Description
   Chemistry 1021: General Chemistry Laboratory II – (0-4) Credit 2 semester hours. A general laboratory course covering aspects of volumetric and gravimetric analysis, qualitative analysis, determination of chemical and physical properties.
   b. Prerequisites: None
   c. Course Designation: Elective
7. Specific Goals for Course
   a. Specific Outcomes of Instruction
   At the end of this course, the student will understand
   · This course is designed for students that are majors or minors in chemistry. To establish a fundamental understanding of atomic and molecular structure of matter as well as chemical bonding and interactions
   b. Criterion 3 Outcomes Addressed by Course
   Student outcome addressed in the lecture part of the course is :
   (a) Be able to use conversion factors in metric or U.S. units and apply the significant figure concept in stoichiometric calculations,
   (b) Be able to use basic laboratory equipment and oratory equipment as well as the buret, electronic balances
       and the centrifuge.
   (c) Demonstrate the ability to prepare solutions from solids and by dilution and Define chemistry concisely and with clarity from a practical stand point.
   Student outcome addressed in laboratory part of the course is:
   (a) Identify the safety symbols and equipment in a chemistry laboratory and understand their primary use.
8. Brief List of Topics Covered in Course
   Laboratory Techniques, Safety Precautions & Safety Film
   Molar Volume of O2
   Writing Lewis Structure
   Solutions
   · Rate of the reaction
   · Chemical equilibria
   · Lab Report and Acid base indicators
   · Standadizing NaOH
   · Electrochemistry
   · Asprin
   · Completion

Prepared by: Dr. Ananda Amarasekara Date: February 2016
Course Number and Name: CHEM 1034, Chemistry for Engineers
Credits and Contact Hours: 4 credit hours, 4 contact hours per week
Instructor’s or course coordinator’s name: Dr. H. J. Fan
Textbook, title, author and year:
Specific course information:
Brief description of the contents of course (Catalog Description): Chemical principles with applications in engineering. Stoichiometric calculations, properties of gases, properties of liquids and solutions, gas phase chemical equilibrium, ionic equilibrium in aqueous solution, oxidation-reduction reactions, chemical kinetics.
Prerequisite: MATH 1113, Pass the Chemistry Placement Exam and/or CHEM1033.
Required, elective, or selective elective: Required

Specific Goals for the Course
a. Summarize the scientific approach and methods involving making observations and gathering data.
b. Solve stoichiometric-related problems and apply knowledge of chemistry to everyday life and explain the observation and changes.
c. Define the kinetic molecular theory of gases and apply the ideal gas law to simple calculations.
d. Summarize the basic knowledge of the First Law of Thermodynamics and apply to energy balance calculations.
e. Illustrate basic understanding of atomic structure and electronic configurations of elements.
f. Generalize understanding of periodic properties of elements and chemical bonding.

brief list of topics to be covered
Stoichiometry of Formulas and Equations
Three Major Classes of Chemical Reactions
Gases and the Kinetic-Molecular Theory / Thermochemistry: Energy Flow and Chemical Change
Quantum theory and atomic structure / electron configuration and chemical periodicity
Models of chemical bonds / the shapes of molecules
Theories of covalent Bonding / Intermolecular Forces
The properties of solution
Kinetics
Acid-Base Equilibrium
Ionic Equilibria in Aqueous Systems
Thermodynamics
Electrochemistry
COLLEGE OF ARTS AND SCIENSE
DEPARTMENT OF COMMUNICATIONS
FUNDAMENTALS OF SPEECH COMMUNICATIONS, COMM 1003

1. Course Number & Name: Fundamentals of Speech Communication, COMM 1003
2. Credits and Contact Hours: 3-Credit Hours, 3-Contact Hours
3. Instructor or Coordinator: Mr. Jeremy S. Coffman
6. Specific Course Information
   a. 2013-14 Catalog Description: This course is designed to introduce students to fundamental communication theories, principles and practices. Students will develop public speaking skills, interpersonal skills, and practical applications.
   b. Prerequisites: Unconditional Admission OR ENGL 0131
   Co-requisites: Unconditional Admission OR ENGL 0131
   c. Course Designation: Required Course
7. Specific Goals for Course
   a. Specific Outcomes of Instruction: The student will be able to:
      i. Apply communication concepts and theories.
      ii. Communicate ideas effectively and with sensitivity to a variety of audiences.
      iii. Demonstrate effective use of a variety of communication tools and styles.
      iv. Demonstrate communication proficiency appropriate for meeting personal and professional needs.
   b. Criterion 3 Outcomes Addressed by Course
      Student outcome addressed in the lecture part of the course is:
      (a) Write clearly, precisely and in a well-organized manner as well as demonstrate critical thinking, reading and viewing skills on required projects
      (b) Research, develop, evaluate and present arguments grounded in research-based knowledge, apply, analytical, precise and elaborated terms & concepts for talking and writing about communication artifacts and the ways in which they communicate meaning.
      (c) Critically conduct, evaluate and analyze research theories and findings published in various Scholarly source material in the preparation of assignments.
      Student outcome addressed in laboratory part of the course is:
      (a) evaluate various communication artifacts and their effects on audiences and society.
8. Brief List of Topics Covered in Course
   Speaking with Confidence & Presenting your First Speech
   Analyzing Your Audience and Introductory Speeches
   Special Occasion Speaking & Purposes, Developing Your Speech
   Gathering Supporting Material & Speech Organization & Outlining
   Introducing & Concluding Your Speech & Language Style
   Using Words Well: Speaker Language and Style & Special Occasion Speeches
   Delivering Your Speech, Group speeches
   Speaking to Inform & Designing & Using Presentation Aids
   Informative Speeches and Principles of Persuasive Speaking, Informative Speeches & Using Persuasive Speeches Strategies
1. Course Number & Name: Freshman Composition I, ENGL 1123
2. Credits and Contact Hours: 3-Credit Hours, 3-Contact Hours
3. Instructor or Coordinator: T. Banks
4. Textbook: Everything’s an Argument, with Readings, Bedford/St. Martin’s.
5. Supplemental Material: Other course materials are posted on eCourses
6. Specific Course Information
   a. 2013-14 Catalog Description
      A writing course focused on composing strong arguments through critical thinking and analysis of primary and secondary source material. The course emphasizes rhetorical awareness in writing essays for a variety of audiences and purposes. Students will actively participate in peer workshops and demonstrate awareness of general research methods and ethics.
   b. Prerequisites: ENGL 0112 or 0101 “C” or better
      Co-requisites: None
7. Specific Goals for Course
   a. Specific Outcomes of Instruction
      The student will be able to:
      i. compose solid, argument-driven thesis statements directed at a specific audience
      ii. provide logical, appropriate evidence to support an argument
      iii. organize writing assignments clearly
      iv. write in clear, correct, grammatical prose
      v. employ effective teamwork skills with emphasis on listening, responding & creating a positive climate
      vi. cite research correctly according to MLA format, both in the text & in the bibliography
   b. Criterion 3 Outcomes Addressed by Course
      Student outcome addressed in the lecture part of the course is:
      -practice critical thinking, writing & reading skills; refine awareness of different rhetorical modes;
      practice writing as recursive process; produce essays with strong purpose, content & organization;
      -improve proofreading & editing skills; produce critical writing based on analysis of primary & secondary source material; improve sense of audience in reading & writing;
      -start learning techniques for research & documentation in MLA format
8. Brief List of Topics Covered in Course
   - Course introduction
   - Reading Critically
   - Using Sources Responsibly
   - Rhetorical Analysis
   - Rhetorical Analysis (con’t)
   - MLA formatting and The Revision Process
   - Structuring Arguments
   - The Research Process
   - Source Synthesis and Drafting Arguments
   - Revision Workshop

Prepared by: T. Banks  Date: February 2016
Technical Writing, ENGL 1143

Technical Writing. Application of principles of composition and rhetoric to genres of scientific and technical writing including proposals, formal reports, presentations, business and scientific correspondence, manuals, technical articles and reports. Students will undertake a full scale project through proposal and research with formal oral and written presentations of a documented technical project from the student's major field of study.

Prerequisites: “C” or better in ENGL 1123
Co-requisites: None
Course Designation: Required Course

Specific Goals for Course

Student outcome addressed in the lecture part of the course is:
- Analyze ethical and legal situations for technical writers, multimedia and oral presentations
- Conduct detailed research on a single topic
- Demonstrate enhanced communication skills through collaborative, multimedia presentations.

Student outcome addressed in laboratory part of the course is:
- An ability to design and conduct experiments, as well as to analyze and interpret data

Brief List of Topics Covered in Course

Introduction, Introduction to Technical Writing;
Ethics & Legal Considerations on the Job;
Professional correspondence: Letters + Emails
Professionals Correspondence: Memos + Emails
Creating & Handling Graphics
Introduction to Recommendation Reports
Recommendation Reports (Cont’d)
Definitions & Descriptions
Collaboration and Introduction to Project Proposal Reports
Drafting Your Project Reports
21st-Century Presentations
Proposal Report + Presentation
COLLEGE OF ARTS AND SCIENCES
DEPARTMENT OF HISTORY
UNITED STATES HISTORY TO 1877, HIST 1313
1. Course Number & Name: HIST 1313 United States History to 1877
2. Credits and Contact Hours: 3-Credit Hours, 3-Contact Hours
3. Instructor or Coordinator: Dr. Kisha T. Turner
   by James West Davidson, Brian DeLay, Christine Leigh Heyrman,
   Mark Lytl, Michael Stoff
5. Supplemental Material: When I was a Salve: Memoirs from the Slave Narrative
   Collection
   (2002) by Norman R. Yetman
6. Specific Course Information
   a. 2013-14 Catalog Description
   This course covers American development from the era of discovery to the close of the Civil War.
   This course includes modules on the following topics: the colonial era; the young republic; westward
   expansion and sectionalism; and the Civil War and Reconstruction.
   b. Prerequisites: None
   c. Co-requisites: None
7. Specific Goals for Course
   a. Specific Outcomes of Instruction
      The student will be able to:
      i. Learn basic facts of America history.
      ii. able to think cortically, recognize change over time & demonstrate an understanding how
         actions have consequences;
      iii. relate present-day issues & experiences to those of the past, in order to provide a better
         basis for personal responsibilities, appreciating challenges and possibilities of contemporary times
   b. Criterion 3 Outcomes Addressed by Course
      Student outcome addressed in the lecture part of the course is:
      (a) Knowledge of sources and methods of learning American history and develop global
         perspective and social responsibility by recognizing and remarking upon relationships between
         domestic and foreign affairs.
8. Brief List of Topics Covered in Course
   Course Introduction, Pre-course Assessment
   The First Civilizations of North America
   Old Words, New Worlds (Cont’d for two weeks)
   Colonization and Conflict in the South:
   Colonization and Conflict in the North
   Mosaic of Eighteenth-Century America
   Imperial Triumph, Imperial Crisis;
   American People and the American Revolution
   Crisis and Constitution and The Early Republic
   The Opening of America (Cont’d for two weeks)
   The Rise of Democracy
   Book Precis Due: When I was a Slave
   A Fire with Faith and The Old south
   Western Expansion and the Rise of the Slavery Issue
   The Union Broken and Total War and the Republic
   Reconstructing the Union (Cont’d for two weeks)
1. Course Number & Name: History to 1876, HIST 1323
2. Credits and Contact Hours: 3-Credit Hours, 3 Contact Hours
3. Instructor or Coordinator: Dr. Ralph Edward Morales III
5. Supplemental Material: The Jungle (Paperback) by Upton Sinclair With the Old Breed at Peleliu and Okinawa (Paperback) by Eugene Sledge
6. Specific Course Information
   a. 2013-14 Catalog Description
   This course covers American development from the era of discovery to the close of the Civil War. This course includes modules on the following topics: the colonial era; the young republic; westward expansion and sectionalism; and the Civil War and Reconstruction.
   b. Prerequisites: None
   c. Co-requisites: None
7. Specific Goals for Course
   a. Specific Outcomes of Instruction
   The student will be able to: The goal of this course is to contribute to students’ basic understanding of their individual roles and responsibilities in American society. By semester’s end, students should be conversant in myriad social, cultural, economic, and political forces that impacted the contemporary American experience. By the course’s culmination, students must be able to identify key figures, events, organizations, and possess an understanding of a basic historical narrative of contemporary US history. Finally students should possess the insight to discuss the historical antecedents to the struggle and strife that has become a mainstay of American domestic and foreign relations.
   Criterion 3 Outcomes Addressed by Course
   Student outcome addressed in the lecture part of the course is:
   a. Learn and Understand the basic facts of American History
   b. Be able to use critical thinking to understand the consequences of American policies
   c. Understand the links between the past and the present
8. Brief List of Topics Covered in Course
   The Union Reunited: Reconstruction & Recovery, the New South & the Old West;
   The Rise of the Cities & American Industries; American Unrest & Empire;
   The Progressives and American Reform
   The United States and the Great War
   Précis on Sinclair book
   American Prosperity and American Poverty
   The Depression and FDR’s America; American Foreign Policy & the Second World War,
   America and WWII (Cont’d); the Cold War and Post War Prosperity
   The Civil Rights movement and the American Left
   The Vietnam War
   The Rise of American Conservatism and the New Right
   Précis on Sledge Due
   The United States and the Post Cold War World
COLLEGE OF ARTS AND SCIENCES
DEPARTMENT OF MATHEMATICS
CALCULUS I, MATH 1124

1. Course Number & Name: Calculus I, MATH 1124 (with Analytic Geometry I)
2. Credits and Contact Hours: 4-Credit Hours, 4-Contact Hours
3. Instructor or Coordinator: Dr. James Valles, Jr.
4. Textbook: Calculus; Ron Larson & Bruce H. Edwards
5. Supplemental Material: None
6. Specific Course Information
   a. 2013-14 Catalog Description
      Functions and graphs, limits and continuity, derivative of functions, Mean Value Theorem, applications of derivatives. Fundamental Theorem of Calculus and applications of integrals.
   b. Prerequisites: Grade of “C” or higher in both MATH 113 & Math 1123 or Math 1115; equivalently ready (passing the Honors Calculus Preparedness test administered by the Mathematics Department. (MATH2413) Transfer equivalent from Texas Community/Junior Colleges.
   c. Co-requisites: None
7. Specific Goals for Course
   a. Specific Outcomes of Instruction
      The student will be able to:
      i. understand the calculations with analytic geometry equations
      ii. solve problems
      iii. understand the concepts of limits & evaluate & use them
   b. Criterion 3 Outcomes Addressed by Course
      Student outcome addressed in the lecture part of the course is:
      (a) an ability to apply knowledge of mathematics, science, and engineering
      Student outcome addressed in laboratory part of the course is:
      (b) an ability to design and conduct experiments, as well as to analyze and interpret data
8. Brief List of Topics Covered in Course
   Introduction, Understand mathematics of & apply vector algebra to solving physical problems
   Concepts of Limits, Evaluate & use limits in applications
   Define & work with continuous functions
   Compute Derivatives of Analytic, Trigonometric & transcendental functions & solve problems involving higher order implicit differentiation
   Solve optimization & other applied problems
   Investigate functions & sketch the corresponding graphs
   Evaluate certain integrals, know the substitution rule and apply the Fundamental Theorem of Calculus

Syllabus states they are to read the Sections from August 24 through November 23 weekly for their weekly readings and turn-in their assignments weekly per the semester Calendar dictates and will take their tests on 9/28; 10/12; 11/16 and final will be given on Dec 12.

Prepared by: Dr. James Valles, Jr.                      February 2016
1. Course Number & Name: CALCULUS II, MATH 2024-P06 (Calculus with Analytic Geometry II)
2. Credits and Contact Hours: 4-Credit Hours, 4-Contact Hours
3. Instructor or Coordinator: Dr. Dimitar Michev
5. Supplemental Material: None
6. Specific Course Information
   a. 2013-14 Catalog Description
      Applications of integrals, integration techniques, inverse functions, indeterminate forms, improper integrals, parametric equations, polar coordinates, infinite series, power series, Taylor series
   b. Prerequisites: Math 1124 or equivalent
      Co-requisites: None
   c. Course Designation: N/A
7. Specific Goals for Course
   a. Specific Outcomes of Instruction
      The student will be able to:
      i. show mastery in the differential and integral techniques to deal with functions of a single variable; use a variety of techniques to integrate more complex integrals
      ii. apply integral calculus to solving a variety of scientific and applied problems,
      iii. understand the concept and applications of inverse functions
      iv. understand parametric equations of curves and equations of curves in polar coordinates;
      v. analyze sequences and series
      vi. find the interval of convergence of a power series
      vii. find Taylor or Maclaurim series for a functions and solve related applied problems
      viii. use power series to find derivatives & integrals & to solve other applied problems
      ix. apply calculus to solve selected problems that arise in mathematics, science, engineering, computer science, business and economics
   b. Criterion 3 Outcomes Addressed by Course
      Student outcome addressed in the lecture part of the course is:
      (a) an ability to apply knowledge of mathematics, science, and engineering
8. Brief List of Topics Covered in Course
   a. Introduction, Exponential and Other Transcendental Functions
   b. Exponential & Other Transcendental Functions
   c. Integration Techniques (Con't)
   d. Applications of Integration (Con't)
   e. Applications of Integration (Con't)
   f. Integration Techniques (Con't)
   g. Integration Techniques (Con't)
   h. Indeterminate Forms and L’Hopital’s Rule, Improper Integrals
   i. Infinite Series
   j. Conics, Parametric Equations & Polar Coordinates
      Partial Derivatives
      Iterated Integrals & Area in the Plane
      Double integrals & Volume
COLLEGE OF ARTS AND SCIENCES
DIFFERENTIAL EQUATIONS, MATH 2043

1. Course Number & Name: Differential Equations, MATH 2043
2. Credits and Contact Hours: 3-Credit Hours, 3-Contact Hours
3. Instructor or Coordinator: Dr. Manouchehr Misaghian
4. Textbook: Difference & Differential Equations with Applications in Queuing Theory
5. Supplemental Material: None
6. Specific Course Information
   a. 2013-14 Catalog Description
      Ordinary differential equations with emphasis on first-order linear & higher order ordinary differential equations with constant coefficient and some non constant.
   b. Prerequisites: Math 2024, Calculus II **(Math 2320)
      Co-requisites: N/A
   c. Course Designation:
7. Specific Goals for Course
   a. Specific Outcomes of Instruction
      The student will be able to:
      - Identify & distinguish ordinary & partial differential equations.
      - Use computer technology to solve differential equations & systems numerically & visualize & interpret their results
      - Realize that a real-world application problem could only be described well by differential equations which may involve lots of variables
      - Show how to translate real-world problems or problems from the field of work, into the language of differential equations, solve the resulting differential equations subject to given conditions and interpret the solutions obtained.
      - Apply Generating functions Method to solve Difference & Differential-Difference Equations.
   b. Criterion 3 Outcomes Addressed by Course
      Student outcome addressed in the lecture part of the course is:
      (a) an ability to apply knowledge of mathematics, science and engineering
      Student outcome addressed in laboratory part of the course is:
      (b) an ability to design and conduct experiments, as well as to analyze and interpret data
8. Brief List of Topics Covered in Course
   - Basic concepts & Definitions, Existence & Uniqueness
   - Separable Equations, Method of Solving Separable Differential Equations, Linear Differential
   - Equations, Method of Solving a Linear First-Order Differential Equation
   - Exact Differential Equations,
   - Solution of the First ODE by Substitution Method.
   - Reduction to Separation of Variables Applications of the First-Order ODEs
   - Second-Order Homogeneous ODE
   - Solving a Linear Homogeneous Second-Order Differential Equation
   - The Second-Order Non-homogeneous Linear ODE with Constant Coefficients:
     Method of Undetermined Coefficients
   - The Second-Order Non-homogeneous Linear ODE with Constant Coefficients:
     Variation of Parameters Method
   - Differential-Difference Equations and Nonlinear Difference Equations
COLLEGE OF ARTS AND SCIENCES
DEPARTMENT OF MATHEMATICS
DISCRETE MATHEMATICS, MATH 2053

1. Course Number & Name: Discrete Mathematics, MATH 2053
2. Credits and Contact Hours: 3-Credit Hours, 3-Contact Hours
3. Instructor or Coordinator: Dr. Charles Odion

5. Supplemental Material: None
6. Specific Course Information
   a. 2013-14 Catalog Description
      (3-0) 3 Credit hours. Designed to provide bridge between computational mathematics & theoretical mathematics. Topics include induction & recursion, combinatorics, graph theory functions, proofs & logic.
   b. Prerequisites: Math 1124 (Calculus I)
   c. Course Designation: None
7. Specific Goals for Course
   a. Specific Outcomes of Instruction
      The student will be able to:
      i. understand & evaluate the fundamentals of mathematical logic that computer science & Math majors need to grasp & write the background of computer logic & artificial intelligence
      ii. use tools of mathematical logic to solve & present more & more complex problems by learning machine instruction from prime use of flow charts to the writing & expression of complete algorithms for execution by the computer
      iii. have acquired elements of combinational & graph theory to highlight the role mathematics in the development of machine logic, artificial intelligence
   b. Criterion 3 Outcomes Addressed by Course
      Student outcome addressed in the lecture part of the course is:
      (a) an ability to apply knowledge of mathematics, science, and engineering
8. Brief List of Topics Covered in Course
   Introduction, Mathematical Logics; Compound statements &/or implication, Proof in Mathematics: Direct, by contrapositive & by contradiction Student presentations interpret compound statements to class
   The Truth tables: implication, conjunction, disjunction & negation;
   The Algebra of propositions:
   DeMorgan’s Law; Logical arguments Sets;
   Operations on sets; and Binary Relations;
   Student presentations reflect the operations on sets;
   Equivalence Relations; Partial Orders Basic terminology;
   Inverses & Composition;
   One-to-one correspondence & Cardinality of a set; The division Algorithm; Divisibility & Euclidean Algorithm;
   The Prime Numbers; Congruence; Application of Congruence;
   Chinese Remainder Theorem/Cryptography Mathematical Induction;
   Recursively defined sequences Recurrence relations characteristic polynomial;
   Recurrence relations: Generating functions; Student’s presentations
COLLEGE OF ARTS AND SCIENCES
DEPARTMENT OF MATHEMATICS
PROBABILITY & STATICS, MATH 3023

1. Course Number & Name: Probability & Statics, MATH 3023
2. Credits and Contact Hours: 3-Credit Hours, 3-Contact Hours
3. Instructor or Coordinator: Dr. Indika Wickramasinghe
4. Textbook: Advanced Mathematics for Engineers With Applications in Stochastic Processes;
   by A. M. Haghighi, J. Lian and D. P. Mishev

5. Specific Course Information
   a. 2013-14 Catalog Description
      Probably & Statics. (3-Credit semester hours). Descriptive and Inferential Statistics, Counting
      Techniques, Introduction to Probability Theory., Applications of Bayes Theorem, Random Numbers,
      Random Variables, some Discrete and Continuous Random Variables, Mathematical Expectation,
      Measures of Central Tendency, Measures of Variation, Joint Probability Distributions, Covariance,
      Correlation, The Distribution of the Sample Mean and Variance, The Central Limit Theorem, Point
      and Interval Estimation, Hypothesis Testing on a single population, p-value, Hypothesis testing on
      Two Populations, Simple Linear regression.
   b. Prerequisites: Math 2024-Cal II
      Co-requisites: N/A

7. Specific Goals for Course
   a. Specific Outcomes of Instruction
      The student will be able to:
      i. Define sample spaces, probability of an event, bayes’ Theorem and random variable;
      ii. Perform basic data analysis;
      iii. Find moments of a random variable, measures of Central tendency and variation;
      iv. Conduct a chi-square goodness-of-fit test and ANOVA;
      v. Linear Regression and Correlation Between Two Variables.
    b. Criterion 3 Outcomes Addressed by Course
       Student outcome addressed in the lecture part of the course is:
       (a) an ability to apply knowledge of mathematical computation skills in probability and statics
       Student outcome addressed in laboratory part of the course is:
       (b) an ability to write mathematically rigorous proofs/perform advanced mathematical
       computations & distinguish uses of concepts in applied mathematics

8. Brief List of Topics Covered in Course
   Introduction, counting Techniques; Tree Diagrams;
   Conditional Probability & independence
   Law of Total Probability; Discrete Random Variables
   Discrete Probability Distributions;
   Random Vectors
   Conditional Distributions & Independence;
   Discrete Moments; Continuous Random Variable &
   Distributions
   Continuous Random Vectors;
   Functions of Random Variables
   Basic Statistical Concepts and Estimation;
   Testing of Statistical Hypotheses (on one mean & then two means in large and small samples,
proportions & variances)
ANOVA
Linear Regression

Prepared by: Dr. Indika Wickramasinghe  Date: February 2016
1. Course Number & Name: Linear Algebra, MATH 3073
2. Credits and Contact Hours: 3-Credit Hours, 3-Contact Hours
3. Instructor or Coordinator: Dr. Jian-ao Lian
5. Supplemental Material: None
6. Specific Course Information
   a. 2015-16 Catalog Description
      Linear Algebra. (3-0) Credit 3 semester hours. Systems of linear equations, matrices, real vector spaces, linear transformations, change of bases, determinants, eigenvalues and eigenvectors, diagonalization and inner product spaces.
   b. Prerequisites: MATH 2024 with grade of “C” or higher or Approval of the Mathematics Department Head
      Co-requisites: None
6. Specific Course Information
   a. Specific Outcomes of Instruction
      The student will be able to:
      - Solve linear systems of m equation in n unknown; perform basic matrix operations; perform algebraic matrix operations; work with special types of matrices including partitioned; reduce a matrix to Echelon form.; reduce a matrix to Reduce Row Echelon form; compute inverse of a square matrix A; (whenever the inverse exists).
      - Determine equivalent matrices.
      - Identify vector spaces and subspace.
      - Determine whether a set of vectors are linearly independent or linearly dependent.
      - Determine a basis for a vector space.
      - Determine the rank of a matrix.
      - Determine the dimension of a vector space.
      - Determine isomorphic vector spaces.
      - Define the standard inner product spaces; apply the Gram-Schmidt process.
      - Define a linear transformation of a vector space V into a vector space W.
      - Determine the Kernel of a linear transformation.
      - Determine the range of a linear transformation.
      - Determine the matrix of a linear transformation.
      - Define the determinant of a square matrix; apply Cramer’s rule whenever possible.
      - Diagonalize a matrix (whenever possible).
      - Determine eigen values and eigen vectors.
   b. Criterion 3 Outcomes Addressed by Course
      Student outcome addressed in the lecture part of the course is:
      an ability to apply the knowledge of mathematics
6. Specific Course Information
   a. Specific Outcomes of Instruction
      The student will be able to:
   b. Criterion 3 Outcomes Addressed by Course
      Student outcome addressed in the lecture part of the course is:
      an ability to apply the knowledge of mathematics
8. Brief List of Topics Covered in Course
   Systems of Linear Equations and Matrices and Euclidean Vector Spaces
   General Vector Spaces
   Eigenvalues and Eigenvectors
   Inner Product Spaces and Diagonalization and Quadratic Forms
   General Linear Transformations
1. Course Number & Name: MATHEMATICS FOR ENGINEERS, MATH 3685
2. Credits and Contact Hours: 5-Credit Hours, 5-Contact Hours
3. Instructor or Coordinator: Dr. Aliakbar M. Haghighi
4. Textbook: Advanced Mathematics for Engineers with Applications in Stochastic Processes; by Aliakbar m. Haghighi, Jin-ao Lian and Dimitar P. Mishev

5. Specific Course Information
   a. 2013-14 Catalog Description
   b. Prerequisites: MATH 2043, Differential Equations I
      Co-requisites: N/A

6. Specific Goals for Course
   a. Specific Outcomes of Instruction
      The student will be able to:
      i. Solve a multitude of power series, solve equations, linear systems, define inner product of two functions
      ii. Manipulate Fourier expansions; Find partial derivative & solve simple partial differential equations;
      iii. Perform basic data analysis; find moments of a random variable, measures of Central tendency and variations, conduct a chi-square goodness-of-fit test and ANOVA.
   b. Criterion 3 Outcomes Addressed by Course
      Student outcome addressed in the lecture part of the course is:
      an ability to apply knowledge of mathematics, science, and engineering

7. Brief List of Topics Covered in Course
   Introduction, Functions of Several Variables, Partial Derivatives, Gradient & Divergence, Functions of Complex Variables; Power Series & their Convergent Behavior; Real-Valued Taylor Series & McLaurin Series; Power Series Representatives of Analytic Functions; Vector Spaces & Orthogonality; Fourier Series & its Convergent Behavior; Fourier Cosine & Sine Series & Half-Range Expansions; Fourier Series & PDEs; Fourier Transform & Inverse Fourier Transform; Properties of Fourier Transform & Convolution Theorem; Definition of Laplace Transform & Inverse Laplace Transform, First Shifting theorem; Laplace Transform of Derivatives, Solving Initial-Value Problems by Laplace Transform; Heaviside Function & Second Shifting Theorem; Solving Initial-Value Problems w/Discontinuous Inputs; Short Impulse & Dirac's Delta Functions; Solving Initial Value Problem with Impulse Inputs; Application of Laplace Transform to Electric Circuits; Introduction; Counting Techniques; Tree Diagram; Conditional Probability & Independence; Law of Total Probability; Discrete Random Variables; Discrete Probability Distributions, Random Vectors; Conditional Distribution & Independence; Discrete Moments; Continuous Random Variable & Distributions; Continuous Random
Vectors, Functions of Random Variables; Basic Statistical Concepts, Estimation (Point & Interval); Testing of Statistical Hypotheses (on one mean, etc., & on two means, etc.) ANOVA, Analysis of Variance; Statistical Content of Quality Improvement Programs, Reliability, Linear Regression
Prepared by: Dr. Aliakbar M. Haghighi          Date: February 2016
COLLEGE OF ARTS AND SCIENCES  
DEPARTMENT OF MATHEMATICS  
ADVANCED MATH FOR ENGINEERS, MATH 4173

1. Course Number & Name: Advanced Math for Engineers, MATH 4173
2. Credits and Contact Hours: 3-Credit Hours, 3-Contact Hours
3. Instructor or Coordinator: Dr. Manouchehr Misaghian

5. Specific Course Information
   a. 2013-14 Catalog Description
      (3-0) Credit 3 semester hours. Matrices & determinants, vector spaces, systems of linear equations, Eigenvalues & Eigenvectors; power series, Laplace transforms, Fourier series & orthogonal functions, numerical solutions to ordinary differential equations.
   b. Prerequisites: Math 2043 Differential Equations I
      Co-requisites: N/A

6. Specific Goals for Course
   a. Specific Outcomes of Instruction
      The student will be able to:
      i. Appreciate the solution of many types of problems using (systems of) differential equation
      ii. Translate problems into the language of differential equations,
      iii. Understand the relevance of the initial & boundary value conditions imposed on equations.
      iv. Make physical interpretations of the elements of some differential equations or there solutions
   b. Criterion 3 Outcomes Addressed by Course
      Student outcome addressed in the lecture part of the course is:
      (a) the purpose of this course is to extend the idea & methods of ordinary differential equations & there solutions to include systems of equations & to expose students to the techniques of solving problems of the nature usually encountered in the fields of Engineering, Science & Advanced mathematics with the practical applications.

7. Brief List of Topics Covered in Course
   Introduction, Multivariable & the concept of the partial derivative; solution of simple partial differential; Equations; the wave, heat diffusion & Laplace equations. Functions of Complex Variable General power series, Radius & interval of convergence; Taylor Series & Maclaurin Series; Analytic Functions; Line Integral & Cauchy’s Integral Theorem Orthogonal functions; Strum Louisville problems; inner product of two functions; orthogonality of a set; Real-valued functions; norm & square norm of a function; Fourier coefficients & expansions; periodic extension of functions; half-range expansions; Fourier & Cosine series. Fourier series & partial differential Equations (PDE); Definition of Laplace Transform; Transform of the derivative of a function; Inverse Laplace Transform; Solution of initial value problems by Laplace transformation; definition & properties of convolution; The Convolution Theorem; Solving Initial-Value Problems with Discontinuous Inputs; short impulse & Dirac’s Delta Functions; Applications to electric circuits; Difference Equations & Systems of Differential-Difference Equations. First & Second Order Difference; Equations with Constant Coefficient; and Method of Generating Functions.

Prepared by: Dr. Manouchehr Misaghian Date: February 2016
1. Course Number & Name: UNIVERSITY PHYSICS LAB I, PHYS 2511
2. Credits and Contact Hours: 1-Credit Hours, 2-Contact Hours
3. Instructor or Coordinator: Dr. Xiaodong Hu
4. Textbook: PHYS 2511 Laboratory Manual available online
5. Supplemental Material: N/A
6. Specific Course Information
   a. 2013-14 Catalog Description
      This is a calculus-based physics laboratory with experiments on topics from classical mechanics
   b. Prerequisites: N/A
      Co-requisites: N/A

7. Specific Goals for Course
   a. Specific Outcomes of Instruction
      The student will be able to:
      i. will have ‘hands-on’ experiences with the physical laws dealing with mechanics;
      ii. strengthen the student’s skills in the use of a laboratory, performing experiments, following safety
          procedures & reporting results.
   b. Criterion 3 Outcomes Addressed by Course
      Student outcome addressed in the lecture part of the course is:
      (a) an ability to apply knowledge of mathematics, science, and engineering

      Student outcome addressed in laboratory part of the course is:
      (b) an ability to design and conduct experiments, as well as to analyze and interpret data

8. Brief List of Topics Covered in Course

   Introduction,
   Measurement & Calculation of Density
   Vectors on a Force Table
   Free-Fall & Projectile Motion;
   Static & Kinetic Friction;
   Centripetal Force;
   Hooke’s Law & Springs;
   Simple Pendulum;
   Ballistic Pendulum;
   Torque, Equilibrium & the Center of Gravity;
   Rotational Inertia

Prepared by: Dr. Xiaodong Hu February 2016
COLLEGE OF ARTS AND SCIENCES  
DEPARTMENT OF PHYSICS  
UNIVERSITY PHYSICS I, PHYS 2513

1. Course Number & Name: UNIVERSITY PHYSICS I, PHYS I  
2. Credits and Contact Hours: 3-Credit Hours, 3-Contact Hours  
3. Instructor or Coordinator: Dr. M. Clay Hooper  
4. Textbook: Everything’s an Argument, with Readings, Bedford/St.Martin. Other course materials are posted on eCourses  
5. Supplemental Material: N/A  
6. Specific Course Information  
   a. 2013-14 Catalog Description  
      Credit 3 semesters hours. A calculus-based introductory physics course for science & engineering students. Course includes measurement, Newton’s laws of motion statics dynamics, mechanical energy, momentum circular motion and selected topics from torque, modules, Newton universal law and fluid mechanics.  
      b. Prerequisites: Prerequisite: MATH 1124  
      c. Co-requisites: N/A  
7. Specific Goals for Course  
   a. Specific Outcomes of Instruction  
      The student will be able to:  
      -demonstrate knowledge of calculus and solve problems involving differential equations, integral equations and abstract manipulation of variables used to describes the laws of mechanics and motion  
      -develop proficiency in the calculus methods of basic differential operations, derivatives, integral equations and the application of such methods to solving physics problems  
      -develop proficiency in the calculus methods of basic differential operations, derivatives, integral equations and the application of such methods to solving physics problems  
      -demonstrate knowledge by understanding the importance of specifying audience and purpose through the selection of appropriate communication tools  
      -demonstrate knowledge and solve problems dealing with laws of motion and calculus-based techniques using complex interpretation of data and theories  
   b. Criterion 3 Outcomes Addressed by Course  
      Student outcome addressed in the lecture part of the course is:  
      (a) -demonstrate their mastery of physics notions through collecting and analyzing data, computer simulations, class-room discussions and participating effectively in groups with emphasis on reflective thinking.  
8. Brief List of Topics Covered in Course  
   Course Introduction, Overview  
   Motion in a straight line  
   Motion in two and three dimensions  
   Force and Kinetic energy Work and Power  
   Potential energy and energy conservation  
   Gravitation and Momentum and Collisions  
   Circular Motion and Rotation  
   Static Equilibrium  
   Oscillations and Waves  
   Thermodynamics  

Prepared by: Dr. M. Clay Hooper  
Date: February 2016
COLLEGE OF ARTS AND SCIENCES  
DIVISION OF SOCIAL WORK, BEHAVIORAL AND POLITICAL SCIENCES  
TEXAS GOVERNMENT, POSC 1123

Course Number & Name:  Texas Government, POSC 1123  
Credits and Contact Hours:  3-Credit Hours, 3-Contact Hours  
Instructor or Coordinator:  Dr. Nathan K. Mitchell  
Recommended Text:  N/A

Specific Course Information  
2013-14 Catalog Description  
Surveys the origin and development of the Texas Constitution; the structure and powers of Texas government, including the legislative, executive, and judicial branches; local government; areas of political participation and public policy in Texas. (GOVT 2306)  
Prerequisites:  None  
Co-requisites:  None

Specific Goals for Course  
Specific Outcomes of Instruction  
The student will be able to:  

Explain the origin & development of the Texas constitution.  
Describe state & local political systems & their relationship with the federal government  
Separation of powers & checks & balances in both theory & practice in Texas  
Differentiate the structure & powers of the legislative, executive & judicial branches of Texas government  
Assess the role of public opinion, interest groups and political parties in Texas  
Analyze the state & local election process in Texas  
Identify the rights & responsibilities of citizens of Texas

Criterion 3 Outcomes Addressed by Course  
Write a research paper critiquing an important policy issue in Texas  
Write an essay exam on debates & divisions surrounding a key policy issue in Texas  
Properly document a research paper with a reference list and in-text citations.

c. Student outcome addressed in the lecture part of the course is:  
an ability to apply knowledge of Texas government

Brief List of Topics Covered in Course  
Federal Constitution Review  
Texas Political Culture  
Texas Constitution  
The Legislative Process in Texas  
The Executive Branch/Bureaucracy in Texas  
The Governor or Texas  
Texas Justice and the Texas Judiciary  
Public Policy  
Local Government  
Elections, Campaigns, Voting and Political Parties  
Report on an Interest Group in Texas  
EC4 Assignment: Padlet Questions

Prepared by:  Dr. Nathan K. Mitchell  
Date: February 2016
COLLEGE OF ARTS AND SCIENCES
DEPARTMENT OF PHYSICS
UNIVERSITY PHYSICS LAB II, PHYS 2521

1. Course Number & Name: University Physics Lab II, PHYS 2521
2. Credits and Contact Hours: 1-Credit Hours, 2-Contact Hours
3. Instructor or Coordinator: Dr. Gary Erickson
6. Specific Course Information
   a. 2013-14 Catalog Description
      Calculus-based physics laboratory to include experiments on determination of absolute zero, linear expansion, calorimetry, string standing waves, sound resonance, force of static electricity, Ohm's Law, color-coded resistors, resistors in series and parallel. RC-series transient circuit, RLC-series circuit, AC circuits, concave and convex lenses, and diffraction gratings.
   b. Prerequisites: None
   c. Co-requisites: None
7. Specific Goals for Course
   a. Specific Outcomes of Instruction
      The student will be able to:
      i. understand capacitance and resistance in DC circuits and their roles in the storage and dissipation of electrical energy
      ii. demonstrate an RLC circuit and resonance.
      iii. understand the basic wave properties of light: reflection, refraction, interference, and diffraction
      iv. perform group experiments.
      Student outcome addressed in the lecture part of the course is:
      b. understand the relationship among electric force, field, and electric potential and to demonstrate the origin of magnetic field from electrical currents magnetic force, and Faraday’s law of induction and Lenz’s law.
8. Brief List of Topics Covered in Course
   Finding Absolute Zero
   Speed of Sound in Air
   Electric Potential & Field Mapping
   Ohm’s Law & Resistivity
   Series & Potential
   Laboratory work during the entire week
   RC Circuits
   Magnetic Induction
   RLC Circuit
   Reflection and Refraction of Laser Light
   Diffraction Grating

Prepared by: Dr. M. Clay Hooper          Date: February 2016
COLLEGE OF ARTS AND SCIENCES
DEPARTMENT OF PHYSICS
UNIVERSITY PHYSICS, PHYS 2523
1. Course Number & Name:   University Physics, PHYS 2523
2. Credits and Contact Hours:   3-Credit Hours, 3-Contact Hours
3. Instructor or Coordinator:   Dr. Kevin Storr
4. Textbook:   University Physics with Modern Physics by Bauer and Westfall
6. Specific Course Information
   a.  2013-14 Catalog Description
      Credit 3 semester hours. A writing course that emphasizes rhetorical analysis & critical thinking advanced research and documentation & writing extended arguments for academic audiences. Students will actively participate in peer workshops & demonstrate an awareness of academic research methods & ethics.
      Prerequisites: PHYS 2513 and MATH 2024
      Co-requisites: N/A
7. Specific Goals for Course
   a. Specific Outcomes of Instruction
      The student will be able to:
      i. understand the relationship among electric force and field, electric potential, kinetic and potential energy in conductors, insulators, and dielectrics. Students will understand the origin of electromagnetic radiation, or light, from the simultaneous application of Ampere’s and Faraday’s laws.
      ii. demonstrate the origin of magnetic field from electrical currents and be able to apply the Biot-Savart law and Ampere’s law, appropriately, to determine the magnetic field. Students will demonstrate knowledge of Faraday’s law of induction and Lenz’s law and its application to motors, generators, transformers, AC circuits, as well as the generation of eddy currents and understand capacitance and resistance in DC circuits and their roles in the storage and dissipation of electrical energy, understanding of Gauss’s law, its usage & limitation.
   b. Criterion 3 Outcomes Addressed by Course
      Student outcome addressed in the lecture part of the course is:
      a. will be able to describe the forces on and motion of charged particles in the presence of electric and magnetic fields, basic wave properties of light; reflection, refraction, interference & diffraction.
8. Brief List of Topics Covered in Course
   Electrostatics
   Electrostatics (Cont’d)
   Electric Fields & Gauss’s Law
   Electric Fields & Gauss’s Law (Cont’d)
   Capacitors
   Current & Resistance and Direct Current Circuits
   Magnetic Fields of Moving Charges
   Electromagnetic Induction
   Electromagnetic Induction (Cont’d)
   Electromagnetic Waves
   Reflection and Refraction of Light and Wave Optics

Prepared by: Dr. M. Clay Hooper   Date: February 2016
1. Course Number & Name: American Government, POSC 1113
2. Credits and Contact Hours: 3-Credit Hours, 3-Contact Hours
3. Instructor or Coordinator: Dr. Tabitha S. M. Morton
5. Recommended Text: Chemistry, 3rd edition by Gilbert, Kirss, Foster and Davies
6. Specific Course Information
   a. 2013-14 Catalog Description
      Surveys the origin and development of the U.S. Constitution; the structure and powers of the national government including the legislative, executive, and judicial branches; federalism; areas of political participation; the national election process; public policy; civil liberties and civil rights.
   b. Prerequisites: GOVT 2305
      Co-reactquisites: None
7. Specific Goals for Course
   a. Specific Outcomes of Instruction
      The student will be able to:
      i. explain the origin and development of constitutional democracy in the U.S.
      ii. demonstrate knowledge of the federal system
      iii. describe separation of powers & checks & balances in both theory & practice in the U.S.
      iv. differentiate the structure & powers of the legislative, executive & judicial branches of the federal government
      v. assess the role of public opinion, interest groups & political parties in the political system
      vi. analyze the election process in the U.S.
      vii. identify the rights & responsibilities of citizens of the U.S.
      viii. write a research paper on a divisive constitutional issue for the U.S.
      x. good understanding of the electronic configuration of simple atoms, ions and molecules and have an appreciation for how the properties of substances are related to their electronic structure
      xi. able to draw Lewis of typical molecules, and relate these structures to molecular shape, geometry, bond polarity and electro negativity
   b. Criterion 3 Outcomes Addressed by Course
      - write a research paper on a divisive constitutional issue for the U.S.
      - write an essay exam on the debates & divisions surrounding a key policy issue in the U.S.
      - properly document a research paper with a reference list & in-text citations
   Student outcome addressed in the lecture part of the course is:
      (a) an ability to apply knowledge of American Government
8. Brief List of Topics Covered in Course
   Course Interlocution: the US Constitution
   Federalism and The Legislative Branch – Congress
   Civil Liberties and Civil Rights
   Political Socialization & Public Opinion; Interest Groups
   The Presidency & the Federal Bureaucracy and the Federal Judiciary
   Political Parties; Elections, Campaigns & Voting and Domestic Policy
   Foreign Policy & National Security

Prepared by: Dr. Tabitha S. M. Morton            Date: February 2016
1. Course Number & Name: Texas Government, POSC 1123
2. Credits and Contact Hours: 3-Credit Hours, 3-Contact Hours
3. Instructor or Coordinator: Dr. Nathan K. Mitchell
5. Recommended Text: N/A
6. Specific Course Information
   a. 2013-14 Catalog Description
      Surveys the origin and development of the Texas Constitution; the structure and powers of Texas
government, including the legislative, executive, and judicial branches; local government; areas of
political participation and public policy in Texas. (GOVT 2306)
      Prerequisites: None
      Co-requisites: None
7. Specific Goals for Course
   a. Specific Outcomes of Instruction
      The student will be able to:
      i. Explain the origin & development of the Texas constitution.
      ii. Describe state & local political systems & their relationship with the federal government
      iii. Separation of powers & checks & balances in both theory & practice in Texas
      iv. Differentiate the structure & powers of the legislative, executive & judicial branches of
          Texas government
      v. Assess the role of public opinion, interest groups and political parties in Texas
      vi. Analyze the state & local election process in Texas
      vii. Identify the rights & responsibilities of citizens of Texas
   b. Criterion 3 Outcomes Addressed by Course
      - Write a research paper critiquing an important policy issue in Texas
      - Write an essay exam on debates & divisions surrounding a key policy issue in Texas
      - Properly document a research paper with a reference list and in-text citations.
   c. Student outcome addressed in the lecture part of the course is:
an ability to apply knowledge of Texas government
8. Brief List of Topics Covered in Course
Federal Constitution Review
Texas Political Culture
Texas Constitution
The Legislative Process in Texas
The Executive Branch/Bureaucracy in Texas
The Governor or Texas
Texas Justice and the Texas Judiciary
Public Policy and Local Government
Elections, Campaigns, Voting and Political Parties
Report on an Interest Group in Texas
EC4 Assignment: Padlet Questions

Prepared by: Dr. Nathan K. Mitchell          Date: February 2016
APPENDIX B – Curriculum Vitae

CURRICULUM VITAE

1. Name: Warsame H. Ali
   Academic Rank: Associate Professor (Full Time)

   M.S. General Engineering, 1988, Prairie View A&M University, Prairie View, TX
   B.Sc. Electrical Engineering, 1986, King Saud University, Riyadh, Saudi Arabia

3. Academic Experience:
   2011-Present Associate Professor
   1/04-6/11 Program Coordinator of the Electrical Engineering
   9/08-Present Director, Summer Engineering Education Camp.
   6/06-8/06 Faculty Fellow, Texas Instrument
   6/05-8/05 Faculty Fellow, NASA at Glenn Research Center

4. Non-Academic Experience:
   1986 Saudi Consulting House
   6/06-8/06 NASA at Glenn Research Center
   6/06-8/06 Texas Instrument

5. Certification and professional registration: Eagle Tester Certification

6. Current Membership in Professional Organizations:
   (a) Member of IEEE, (b) Member of ASEE, (c) Member Sigma/XI

7. Honors & Awards
   Certificate of Appreciation SEEC 2014
   Certificate of Appreciation Math and Science workshop 2014
   Certificate of Appreciation from NTA Research Program 1989
   Certificate of outstanding research coordinator summer 1998
   Deans award of teaching of teaching Computer Application 1997
   Prairie View A&M University Competitive Award for outstanding student 1986
   Certificate of being an Outstanding Graduate Student at PVAMU 1988
   Certificate of Appreciation from NTA Research Program 1989

8. Service Activities (within and outside of the institution)
   • Graduate Admission Committee (2009-2014). Auditing of Graduating Seniors
   • Undergraduate Students Coordinator (2007-Present)
   • Advising and Evaluating Transfer Students
   • A member of Administrative Staff Search Committee in hiring of Secretary (2008)
   • Department Scholarship Committee (Chair)(2004-2010)
   • CECSTR Scholarship Committee (2002-2010)
   • PHD Program Review for ECE Committee (2009-2014)
   • Lab Improvement Committee (2008-2014)
9. Publications and Presentations from the Last Five Years


ii. Zhang, Jian; Ali, Warsame; Fuller, John; Leang-San Shieh, "Digital Controller Design for Time-delayed Bouc-Wen Hysteretic Systems”.


10. Professional Development Activities


CURRICULUM VITAE

1. Name: Annamalai Annamalai Jr.
   Academic Rank: Professor (Full-Time)

2. Education:
   Ph.D., University of Victoria, British Columbia, 1999
   M.A.Sc., University of Victoria, British Columbia, 1997
   B.S.E.E., Science University of Malaysia, 1993

3. Academic Experience:
   09/2013 - Present Prairie View A&M University, Professor, Dept. of Electrical and Computer Engineering, full-time
   06/2010 - Present Prairie View A&M University, Director of CECSTR, full time
   08/2006 - 08/2013 Prairie View A&M University, Associate Professor, Dept. of Electrical and Computer Engineering, full-time
   09/2006 – 08/2008 Virginia Tech, Adjunct Professor
   01/2000 – 08/2006 Virginia Tech, Assistant Professor and Associate Director of MPRG, Bradley Dept. of Electrical and Computer Engineering, full-time
   01/1999 - 12/1999 University of Victoria, Post-Doctoral Research Fellow, full-time

4. Non-academic Experience
   05/2009 - 07/2009 Air Force Research Laboratory (Rome, NY), Visiting Research Faculty
   05/2008 - 08/2008 Air Force Research Laboratory (Rome, NY), ASEE/AFOSR Faculty Fellow
   05/1993 - 04/1995 Motorola (Land Mobile Products Sector), RF Design Engineer, full-time

5. Current Membership in Professional Organizations
   Chief Faculty Advisor of Tau Beta Pi Engineering Honor Society (Texas Kappa Chapter)
   Member of the IEEE and the ACM Professional Societies

6. Honors & Awards
   Best Paper Award at the Malaysia International Conference on Communications, 2015
   Roy G. Perry College of Engineering Outstanding Faculty Researcher of the Year Award, 2011
   Air Force Research Laboratory Information Directorate Faculty Fellow, 2009
   ASEE/AFOSR Faculty Fellow, 2009
   IEEE Leon Kirchmayer Prize Paper Award, 2001

7. Service Activities (within and outside of the institution)
   • Editor-in-Chief: International Journal of Wireless & Mobile Networks, 2013 - present
   • Editorial Board Member: Hidawi Journal of Computer Networks and Communications,
   • Director of Center of Excellence for Communication Systems Technology Research, 2010 – present
   • Chief Faculty Advisor of Tau Beta Pi Engineering Honor Society (Texas Kappa Chapter), 2009 - present
   • National Science Foundation Proposal Review Panelist, 2001 – present
   • 2015 IEEE Global Telecommunications Conference (GLOBECOM’15) Organizing Committee: Workshops Co-Chair
• International Advisory Committee: Journal of Emerging Trends in Signal Processing
• Judge, International Sustainable World (Energy, Engineering & Environment) Project Olympiad, 2008 – present

8. Selected Publications and Presentations from the Last Five Years

9. Selected Professional Development Activities
   • IEEE Military Communications Conference, 26-28 October 2015, Tampa, FL: Attended and presented a technical paper as well as a tutorial entitled, ‘Simple and General Parameterization of the Physical Layer Performance of Wireless Networks’.
   • IEEE Malaysia International Conference on Communications, 23-26 November 2015, Kuching, Sarawak, Malaysia: Attended and presented two technical papers as well as a tutorial entitled, ‘Cross-Layer Design of Cooperative Wireless Networks’.
   • IEEE Military Communications Conference, October 2014, Baltimore, MD: Attended and presented three technical papers as well as a tutorial entitled, ‘Cross-Layer Design of Cooperative Wireless Networks’.
CURRICULUM VITAE

1. Name: John Okyere Attia
   Academic Rank: Professor (Full-time)

2. Education:
   M.S. (Electrical Engineering) University of Toronto, Canada, 1978.
   B.S. (Electrical Engineering) University of Science and Technology, Ghana, 1974.

3. Academic Experience:

   TEACHING
   1997- present  Professor of Electrical and Computer Engineering
   1988-1997  Associate Professor of Electrical and Computer Engineering
   1984-1988  Assistant Professor of Electrical and Computer Engineering
   1999- 2003  Adjunct Prof., Department of Electrical Engineering, Texas A&M University

   ADMINISTRATION
   1997-2013  Head of Electrical and Computer Engineering Department
   1995-1997  Interim Head of Electrical and Computer Engineering Department
   1995-2000  Associate Director, Center of Applied Radiation Research (CARR)

4. Non-academic Experience
   3M TelComm Product Division, Austin, June 1988 to August 1988
   AT&T Bell Laboratory, Allentown, June 1986 to August 1986
   AT&T Bell Laboratory, Allentown, June 1985 to August 1985.

5. Certification and professional registration: PE (Texas #66109)

6. Current Membership in Professional Organizations:
   (a) Senior Member of IEEE, (b) Member of ASEE,

7. Honors & Awards
   Torch Bearer - Exemplary University Achiever (1995)
   Prairie View A&M University Leader Award (1992)
   Prairie View A&M University New Achiever Award (1991)
   Excellence in Teaching Award (1984 and 1990)
   Member of Sigma Xi, The Scientific Research Honor Society
   Member Eta Kappa Nu, Electrical Engineering Honor Society
   Member of Tau Beta Pi, National Engineering Honor Society
   Member of Phi Kappa Phi, National Honor Society

8. Service Activities (within and outside of the institution)
   Advisor to Texas Kappa Chapter of the Tau Beta Pi Honor Society (1984 to present)
   ABET EAC Commissioner (2015 to present)
   Member of IEEE Committee on Engineering Accreditation Activities (2011 to 2015)
   Chair, MS Thesis and PhD Dissertation Manual (2012 to 2013)
9. Publications and Presentations from the Last Five Years

BOOKS (Authored 6 books and 4 book chapters). The recent books/book chapters are:


OTHER PUBLICATIONS


J. Kamto, L. Qian, J. Fuller, J. Attia, Light–Weight Key Distribution and Management for Advanced Metering Infrastructure, in Proceedings of IEEE International Workshop on Communications Technologies for Secure, Reliable, and Sustainable Smart Grids, Dec. 2011, Houston, TX, USA


10. Professional Development Activities

Briefly list the most recent professional development activities

Attended ASEE Conference and Exposition at Indianapolis from June 14 to June 18, 2014. During the conference, I completed a short course on the “Use of MATLAB for Renewable Energy”

Attended NSF/ONR/DOE Electric Energy Systems Curriculum Workshop that took place at Napa, CA, from February 6 to 9, 2014.

Participated in the Experimental Centric Based Engineering Curriculum Workshop that took place at Tuskegee University from December 12 to 14, 2014.

Participated in the FPGA Workshop that took place on the campus of PVAMU from June 30 to July 1, 2014.

Attended the Smart Grid Workshop that took place at TAMU-College Station on April 8, 2014.
CURRICULUM VITAE

1. Name: Penrose Cofie
   Academic Rank: Instructor

2. Education: Ph.D. (Electrical Engineering), University of Houston, 2010.
   M.S.E.E, Texas A&M University, College Station, 1983.
   Diploma E.E., University of Essen, West German, 1978.
   B.S.E.E, University of Science and Technology, Ghana, 1971.

3. Academic Experience:
   1987 - Present Prairie View A&M University, Instructor of Electrical Engineering-
   Teaching and research.
   1983 - 1988, Texas A&M University, teaching assistant.

4. Non-academic Experience:
   1993 - 1993 Texas Instruments, Dallas; Researching on Integrated Circuit Chips
   and electrostatic Discharge
   Electr Engnr responsible for design and supervision of electrical.
   projects.
   1976 -1978 Steag. AG., Essen, Germany; Electrical. Distribution Engineer
   1976 -1971 Ghana Electricity Corporation; Electrical Distribution Engineer.

5: Certification and professional registration: PE (Texas), Certified TABE Administrator

6: Current Membership in Professional Organizations: 
   Member IEEE, Member Sigma Xi, Member Researchgate
   Member the National Scholars Honors Society

7. Honors & Awards
   1990/91- Outstanding Electrical Engineering Faculty
   1991/92- Outstanding Electrical Engineering Faculty
   1991/92- Outstanding Overall Faculty, College of Engineering & Arch
   d. 1993/94- Outstanding Electrical Engineering Faculty
   1993/94- Lockheed Fort Worth Co. Award for Excellence in Teaching
   1994- Leader and Distinguished Service to Higher Education
   1996- National Institute for Staff and Organizational Development,
   (NISOD) Award of Excellence in teaching
   2001-National Engineers Week Award for Outstanding contribution on Solar Car Project
   2001-Thermal Science Research Center Award of Excellence, in Recognition of contributions
   towards the design and enhancement of Center's research facilities, 2001.
   2002- Outstanding Electrical Engineering Faculty, Prairie View A&M University.

8. Service Activities (within and outside of the institution)
   • IEEE local counselor
   • Houston Community College Adult Educator
   • IEEE, Control System Technology and Wiley Optimal Control Journals reviewer

9. Publications from Last Five Years
   Controller Design for MIMO Analog Systems with Multiple Delays in States, Input and

10. Professional Development Activities
- Midwest Symposium on Circuits and Systems, College Station, Texas August 2014.
- GE Leadership Conference, GE Oil and Gas, Houston, Texas October 2014
- GE Student Leadership Conf., GE Water and Power, Houston, Texas October 2014
- ASEE-GSW Annual Conference, UTPA – June 2010
CURRICULUM VITAE

1. Name: Suxia Cui
   Academic Rank: Associate Professor (Full-time)

2. Education: B.S.E.E., Beijing University of Technology, Beijing, China, June 1996.
   M.S.E.E., Beijing University of Technology, Beijing, China, June 1999.
   Ph.D., Computer Engineering, Mississippi State University, August 2003.

3. Academic Experience:
   Sept. 2012– presentAssociate Professor – Department of Electrical & Computer Engineering, Prairie View A&M University,
   Jan. 2009 – Aug. 2012 Assistant Professor – Department of Electrical & Computer Engineering, Prairie View A&M University,
   Aug. 2003 – Dec. 2008 Assistant Professor – Department of Engineering Technology, Prairie View A&M University,

4. Current Membership in Professional Organizations:
   (a) Senior Member of IEEE, (b) Member of ASEE, (c) Member of HKN

5. Publications
   • S. Cui, Y. Wang, and A. Kumar, “Introduce Computer Engineering to Middle School Students through a Science Project,” in Proceedings of ASEE 120th Annual Conference & Exposition, Atlanta, Georgia, June 23-26, 2013.


6. Grants and Contracts


• PI, “Establish an Intelligent Equipment Lab for Precision Agriculture at Prairie View A&M University,” Department of Agriculture, $299,974, September 2012—August 2015.


• PI, “Enhance Image and Video Coding Research at Prairie View A&M University”, NSF ADVANCED-PAID SEED grant, $10,000, June 2011—May 2012.


1. Name: (Mr.) Ramesh C Dwivedi, P. E. (Inactive)  
   Academic Rank: Part time Adjunct Instructor  

2. Education:  
   Bachelor’s degree in Electrical Engineering, May 1968  
   Indian Institute of Technology Kanpur, India  
   Masters in Engineering Science, Dec 1971  
   Lamar University, Beaumont Texas 1971  
   Graduate Courses University 1985  
   Sampled Data Controls, Advanced Digital Logic,  
   Microprocessor Interfacing  
   University of Houston  

3. Academic experience:  
   Assistant Professor-Non Tenure Track 1984-1989  
   College of Technology, Main Campus, University of Houston  
   Assistant Professor, Tenure-Track, 1989-1996  
   Engineering Technology Department  
   Prairie View A&M University  
   Research Specialist, 1996-2013  
   (NASA) Center for Applied Radiation Research (CARR & CRESSE)  
   Prairie View A&M University  
   Sandia National Laboratory, Albuquerque, New Mexico  

4. Non-academic experience:  
   Senior Control Systems Engineer 1982-1984  
   Bechtel Power Corporation STP Nuclear Plant  
   Brown & Root Inc. 1980-1982  
   Control Systems Engineer, STP Nuclear Plant  
   Teledyne Exploration, Inc. 1974-19980  
   Project Engineer  
   Houston, Texas  
   Durham Technical College 1972-1974  
   Electronic Instructor  

5. Current membership in professional organizations:  
   Member IEEE  
   Registered Professional Engineer (PE) state of Texas
6. Honors and awards:
U. S. Patent: #4,040,000

Solid State High Energy Electrical Switch for under Sea Water Electric Discharge Seismic Generator

7. Publications and Presentations from the past five years:
   Publications:
   1. Proton radiation hardness of single-nanowire transistors using robust organic gate Nano dielectrics
      Sanghyun Ju, Kangho Lee, David B. Janes, Ramesh C. Dwivedi, Habibah Baffour-Awuah, R. Wilkins, Myung-Han Yoon, Antonio Facchetti, and Tobin J. Mark
   2. Automated Parametric Tests for Novel Semiconductor Materials and Devices
      Sabino Torres (Senior), Jonathan Miller, Ramesh C. Dwivedi, Padmini Periaswamy, Mohan Ketkar, R. Wilkins, and R.K. Pandey
      Proceedings of the 2006 ASEE Gulf-Southwest Conference
      Southern University and A&M College
      Copy © 2006, American Society of Engineering Education
   3. Effects of high-dose 40 MeV proton irradiation on the electroluminescent and electrical performance of InGaN light-emitting diodes
      Rohit Khanna, K. K. Allums, C. R. Abernathy, S. J. Pearton, Jihyun Kim, F. Ren, R. Dwivedi, T. N. Fogarty, and R. Wilkins

8. Professional Development Activities:
   Attended FPGA workshop at Prairie View A&M University 2015
CURRICULUM VITAE

1. Name: Justin Foreman
   Academic Rank: Professor (Adjunct)

2. Education: B.Sc., EE., Prairie View A&M University, May 1995
   M.S., EE., University of Wisconsin, Madison, August 1997.

3. Academic Experience:
   9/2014-Present Prairie View A&M University, Adjunct Instructor, Electrical Engineering
   3/2014-8/2014 ITT Technical Institute, Adjunct Instructor, Electronics
   7/2013- Present Lone Star College, North Harris, Adjunct Instructor, Electronics

4. Non-academic Experience:
   12/2006-3/2009 GeoControl Systems/Jacobs Technology ESCG Contract/ NASA Johnson Space Center, Houston, TX, Systems Engineer, Test Engineer, Test Director, Electrical/Facilities Engineer

5. Certification and professional registration: C++Programming Certification- Lone Star College

6. Honors & Awards: Johnson Space Center Team Member Award-2009

7. Service Activities:
   - Participation in Video Production Team in Religious Organization
   - Tutored young adults in math/science
   - Mentored undergrad and High School student in doctoral research

8. Professional Development Activities: Attended workshops related to effective classroom management and teaching effectiveness
CURRICULUM VITAE

1. Name:    Dr. John H. Fuller
   Academic Rank:  Professor (Full-time)
2. Education:  Ph.D. in Electrical Engineering, University of Missouri, Columbia, 1977
   M.S. in Electrical Engineering, University of Missouri, Columbia, 1974
   B.S. in Electrical Engineering, Prairie View A&M University, 1969
3. Academic Experience:  
   Dept. Head and Assoc. Prof. of Elec. Engr., Prairie View A&M University, 1977-1995
   Interim Dean, College of Engineering, Prairie View A&M University, 1995-1997
   Professor of Electrical Engineering, Prairie View A&M University, 1995-Present
   Acting Head of Civil Engineering (Jan-July, 2004)
   Fulbright Faculty Fellow (China – Summer 2005)
   Teaching assistant in the Elec. Engr. Depart. at the Univ. of Missouri-Columbia (1773 – 1974)
4. Non-academic Experience
   Engineering Consultant – Bell Telephone Laboratories, Holmdel, New Jersey (Summer 1981)
   Proposal Reviewer for National Science Foundation
5. Certification and professional registration:  
   Registered Professional Engineer in the State of Texas
6. Current Membership in Professional Organizations:
   Member  of IEEE
   Tau Beta Pi (Engineering Honor Society)
   Eta Kappa Nu (National Electrical Engineering Honor society)
   Sigma Xi  (Scientific Research Society)
   National Society of Professional Engineers
   Texas Society of Professional Engineers
7. Honors & Awards
   Recognized by the College of Engineering for outstanding contribution to the Solar car project at Prairie View A&M University. Fall 2000
   Excellence in Service Award for the 2011-2012 academic year, presented by the Roy G. Perry College of Engineering, Prairie View A&M University, February 18, 2013.
   Excellence in Research Award for the 2011-2012 academic year, presented by the Roy G. Perry College of Engineering, Prairie View A&M University, February 18, 2013.
   General Dynamics Excellence in Teaching Award for the 1981-82 academic year.
   Outstanding Administrator, College of Engineering and Architecture, 1994-95.
8. Service Activities (within and outside of the institution)
   Graduate Coordinator, ECE Department (Sept. 2008 – 2015)
   Director of Solar Car Competition (1997 – 2000)
   Judge at the I-SWEEP international competition in Houston, Texas
9. Publications and Presentations from the Last Five Years
   • Augustine Ajuzie, John Fuller, Yangpeng Zhang, Warsame Ali, Jian Zhang, “Network-Induced Delay Compensation with Digital Redesigned PAM/PWM Controller”, 2012 International


- Joseph Kampto, Lijun Qian, John Fuller, John Attia, Yi Qian ,” Key Distribution and Management for Power Aggregation and Accountability in Advance Metering Infrastructure”, IEEE SmartGridComm 2012 Symposium-Security, November 5-8 2012, Tainan City, Taiwan.


10. Professional Development Activities

Briefly list the most recent professional development activities

ONR-EPRI-AEP one week faculty workshop at Oregon State Univ., summer of 2009.
University Industry Technical Interchange, Salt Lake City, Utah on December 2 – 4, 2008
How to Recruit Graduate Students: Getting the Results You Want. A two day seminar given to graduate and professional school personnel. Sponsored by Graduate and Professional School Enrollment Management Corporation located in Franklin, Tennessee
CURRICULUM VITAE

1. Name: Kelvin Kirby
   Academic Rank: Associate Professor (Full Time)
2. Education:
   Doctor of Engineering, Engineering, Texas A&M University (1998)
   Master of Engineering, Electrical-Computer Engineering, Texas A&M University (1987)
   Bachelor of Science, Electrical Engineering, Prairie View A&M University (PVAMU - 1978)
   Combined Arms Services Staff School (9 weeks), U. S. Army Command and General Staff College (1989)
   Materiel Acquisition Management Course (20 weeks), U. S. Army Logistics Management College (1988)
   Teleprocessing Operations Officer Course (Two Quarters), U. S. Air Force Institute of Technology (1985)
   Communications Electronics Officer Advance Course (20 weeks), U. S. Army Communications School (1985)
   Communications Electronics Officer Basic Course (20 weeks), U. S. Army Communications School (1979)
3. Academic Experience:
   September 2004 - Present        Associate Professor, Electrical & Computer Engineering
   July 2010 - August 2011         Interim Department Head, Engineering Technology
   September 2007 - February 2009  Interim Assistant Dean, College of Engineering, PVAMU
   August 2005 - August 2007       Associate Vice President for Student Affairs, PVAMU
4. Non-Academic Experience:
   October 1999 - August 2010      Program Manager, STEM Enhancement Program, PVAMU
   June 1998 - Present             Deputy and Managing Director, NASA Center for Applied Radiation Research (CARR) and Center for Radiation Engineering and Science for Space Exploration (CRESSE), PVAMU
5. Certification and professional registration: None
6. Current Membership in Professional Organizations:
   (a) Member of IEEE   (b) Member of ASEE
7. Honors & Awards
   November 2013  Collegiate 100 Men and Women, Leadership, Service and Education Award
   February 2012  Outstanding Faculty Service Award for the Roy G. Perry College of Engineering
   November 2011  NSBE Vanguard Award for Region V Fall Regional Conference
   November 2010  Omega Psi Phi Fraternity, Heritage Award for Military & Educational Service
   June 2009      Houston Area Urban League Heritage Award
   July 2007      Prairie View A&M University National Alumni Association Outstanding Faculty/Staff Award at the 33rd National Convention
8. Service Activities (within and outside of the institution)
   • PhD Preliminary Exam Committee (2013-2016)
   • Committee Chair for hiring Adjunct Faculty (2014-2015)
   • Committee Chair for hiring Assistant Professor (2014-2015)
   • A member of University College, Faculty Advisement Coordinators (FAC) (2014-2016)
   • Department Student Grievance Committee – Chair (2015-2016)
• Freshman Advisor, ECE Department (2013-2016)
• Computer Engineering Curriculum Committee (2014-2016)
• University Faculty Pre-termination Hearing Committee – Chair (2014-2015)
• Board Member, Citizens Against the Landfill in Hempstead (CALH), (2013-2016)
• Board of Trustees, Mount Corinth Missionary Baptist Church, Hempstead, Texas

9. Publications and Presentations from the Last Five Years
i. “ASEE First-Year Program Division Workshop: Improving First-Year Engineering Student Retention, Success and Time to Graduation”, 122nd ASEE Annual Conference & Exposition, Seattle, Washington, Sunday June 14, 2015, 9:00am to 12:00pm, Steffen Peuker, Raymond Landis, Kelvin Kirby, and Nova Alexandria Glinski Schauss.


iii. “Improving the Transition for High School and Transfer Students to the First Semester Engineering Course Experience” 6th Annual First Year Engineering Experience, Texas A&M University, August 2014.


10. Professional Development Activities
• Microprocessor Workshop - ARM, University of Houston
• Participation in ASEE Workshops and IEEE Activities
• Workshop: Getting Students to Focus on Learning Instead of Grades. PVAMU Center for Teaching Excellence
• National Conference: NSF Louis Stokes Alliance for Minority Participation
• Workshops and Conferences concerning First Year Engineering Students
• Proposal and Grant Writing
CURRICULUM VITAE

Name:  Siew T. Koay

Academic Rank:  Professor of Electrical and Computer Engineering, Prairie View A&M University, Prairie View, TX 77446

Education:
Ph.D., Statistics, University of California at Berkeley, California; May 1971
  (Advisor: Prof. David Blackwell)
M.S.E.E., University of Toledo, Toledo, Ohio; May 1964
B.S.E.E., University of Toronto, Toronto, Canada; May 1963

Academic Experience:
9/99 – Present: Professor of Electrical Engineering, Prairie View A&M University
9/84 – 8/99: Associate Professor of Electrical Engineering, Prairie View A&M University
9/85 - 5/87: Director of Computer Science Program, Joint Appointment as Associate Professor of Electrical Engineering and Computer Science, Prairie View A&M University
9/76 - 8/84: Associate Professor, Department of Mathematical Sciences, University of Arkansas
9/71 - 8/76: Assistant Professor, Department of Mathematics, Mississippi Valley State University
5/65 - 9/69: Research Assistant, University of California at Berkeley

Non-academic Experience:
6/81 - 8/81: NASA-ASEE Faculty Research Fellow, Goddard Space Flight Center
  Research Topic: “Computer Science: Key to a Space Program Renaissance”
6/80 - 8/80: Faculty Research Fellow, Lawrence Livermore National Laboratory
6/79 - 8/79: NASA-ASEE Faculty Research Fellow, Langley Research Center
6/78 - 8/78: NASA-ASEE Faculty Research Fellow, Langley Research Center
  Research Topic: “Air Cargo: An Integrated Systems View”
6/77 - 8/77: NASA-ASEE Faculty Research Fellow, Marshall Space Flight Center
  Research Topic: “Planning for Materials Processing in Space”
6/64 - 1/65: Electrical Engineer, Haughton Elevator Company, Toledo, Ohio
5/63 - 9/63: Electronics Engineer, De Havilland Aircraft of Canada, Ontario, Canada

Publications in the Last five Years:
Most Related Publication:

Current Research Interests:
Real Time 3-D Tracking of Mobile Objects and Transform Coding in Communication.
Ph.D. Research Advisor:
Dr. Sharmistha Khan completed her Ph.D. degree requirement in May, 2015.
Dissertation Title: Highly Reliable Multi-Service Provisioning Using Sequential Prediction of Zone and PL&T Tracking of Nodes in Mobile Networks"
Dr. Prebesh Dongol completed his Ph.D. degree requirement in May, 2015.
Dissertation Title: End-to-End Quality of Service Assurance for Multi-Service Provisioning.
Honors & awards:
Awarded, “Excellence in Service”, College of Engineering, Prairie View A&M University, December 2001

Major funded research projects:
(As Co-PI, PI: Dr. D. R. Vaman )

Current funded research project
(As Co-PI, PI: Dr. Cajetan M. Akujuobi)
Received TAMU Chancellor's Research Initiative award in the amount of four million dollars for three years for a research project to establish an Advanced Telecommunications and Cyber Security Institute which will be joined by three highly visible researchers: Dr. Victor Lawrence from Stevens Institute and two others, forming a formidable team to articulate and enhance research areas and lead the institute to a preeminent center.

Professional Development Activities in the Last Five Years
Ongoing research collaboration with colleagues on
a. Koay-Vaman Transform coding
b. Analytical modeling for spatial tracking of mobile objects for real time applications

Institutional and Professional Service in the Last Five Years
Served as Assistant to Dr. John Attia, Head of ECE Department
Served as Computer Engineering Program Coordinator
Served as Computer Engineering Curriculum Coordinator
Served as Undergraduate and Graduate Advisor
Served as Chair of Computer Engineering Curriculum Committee
Served on ECE Faculty Search Committee
Served on ECE Board of Examiners for Ph.D. Preliminary Examinations
Served on Ph.D. Dissertation Advisory Committees
Serve on M.S. Thesis Advisory Committees
Served on ECE and COE Tenure and Promotion Committees for Associate Professor Rank
Served on ECE and COE Promotion Committees for Professor Rank
Served on ECE and COE Post-Tenure Review Committees
Served on COE Curriculum Committee
CURRICULUM VITAE

1. Name: A. Anil Kumar
   Academic Rank: Professor (Full Time)

2. Education:
   Osmania University, Hyderabad, India  Physics  B.Sc. 1971
   Indian Institute of Technology, New Delhi  Physics  M.Sc. 1973
   Indian Institute of Science, Bangalore  Physics  Ph.D.1978

3. Academic Experience:
   1996-present  Professor, Department of ECE, Prairie View A&M University
   2001-2011  Department Head, Physics
   2001-2003  Associate Dean, College of Arts & Sciences
   1998-2001  Director of Research & Special Assistant to the President for Science & Technology
   1997-1998  Associate Dean for Research, College of Engineering
   1989-1996  Associate Professor, Electrical Engineering
   1986-1989  Assistant Professor, Electrical Engineering
   1985-1986  Visiting Lecturer, Electrical Engineering
   9/83-8/85  Visiting Assistant Professor - Texas A&M University,
      2/78-5/79  Research Fellow, University of Warwick, England, Physics
   5/79-10/79  Visiting Research Fellow, ESIS Program, University de Liege, Belgium
   10/79-8/81  Research Associate, Simon Fraser University, Canada
   9/81-8/83  Professional Associate, University of Manitoba, Canada

4. Non-Academic Experience: None.

5. Certification and Professional Registration: None.

6. Current Membership in Professional Organizations:
   Member, AAAS (American Association for the Advancement of Science)

7. Honors and Awards (selected list):
   One of five faculty members in the TAMU System to have received the Distinguished Achievement Award from the Board of Regents (2004)
   Recipient of the Thurgood Marshall College Fund’s Outstanding Achievement Award for School Reform (2009)
   2012 Harmony Public Schools Public Servant Award
   General Dynamics Award for Excellence in Teaching, 1988
   IEEE Regional Branch Award for Outstanding Service to a Student Organization, 1992
   General Dynamics Award for Excellence in Teaching, 1992

8. Service Activities (within and outside of the institution)
   • Member, NSF Review Panels (frequent)
   • Member, international delegation of the Thurgood Marshall College Fund
   • Member, Physics EOC (End Of Course) Standards Panel, Texas Education Agency
   • Judge, I-SWEEEP (International Sustainable World Project Olympiad (Energy, Engineering & Environment)
• Reviewer, Presidential Awards for Excellence in Mathematics and Science Teaching (PAEMST) Science Review Committee (2014)

9. Publications and Presentations from the Last Five Years
A.A. Kumar and D. Choe, Developing Creating and Critical Thinking Skills Through Enhancing Fluid Intelligence, Presentation at the ME by SEA Conference, TAMU-Corpus Christi, June 2016
A.A. Kumar and D. Choe, Developing Creating and Critical Thinking Skills Through Changing Paradigms: Practices in Student Preparation in STEAM Disciplines – Presentation at Annual TMCF MUPI, Atlanta, April 2014. (with Dr. Doeun Choe)
A.A. Kumar and D. Choe, Developing Creating and Critical Thinking Skills Through , Future Shock Recurring? Or How Do We Prepare Our Students For The Future? - Presentation at Annual TMCF MUPI, New Orleans, March 2013
A.A. Kumar, Developing Creating and Critical Thinking Skills Through Project Based Learning: Levels of Cognition and Rigor: Practices in Student Preparation in STEM Disciplines, Presentation at the ME by SEA Conference, TAMU-Corpus Christi, June 2014.
Ordinary Problems, Extraordinary Solutions, presented at the Math and Science Collaborative Meeting, Grapevine, Texas, November 2011.

Software/Hardware Systems Under Development (Under Consideration for Technology Transfer):
CSPIFF - Circuit Simulation Program In the Presence of Fatal Faults for reliability and fault-tolerance of large scale electronic systems
CSIM - Communication Systems Simulator for simulation of arbitrary communication systems

10. Professional Development Activities: Travelled to China, Malaysia and Singapore as a member of the Thurgood Marshall College Fund Delegation
CURRICULUM VITAE

1. Name: Xiangfang (Lindsey) Li, Ph.D
   Academic Rank: Assistant Professor (Full-time)

2. Education:
   University                  Degree Area                        Graduation Year
   Beihang University         B.E., with highest honor            1993
   Beihang University         M.E., Electrical Engineering       1996
   Rutgers University         M.S., Electrical and Computer Eng. 2003
   Rutgers University         Ph.D., Electrical and Computer Eng. 2007

3. Academic Experience:
   2013-present: Assistant Professor, Department of Electrical & Computer Engineering, Roy G. Perry College of Engineering, Prairie View A&M University
   2009-2012: Associate Research Scientist, Bioinformatics Training Program supported by NIH, Department of Electrical & Computer Engineering, Texas A&M University.
   2008-2009: Adjunct Professor of the Department of Electrical & Computer Engineering at Prairie View A&M University.

4. Non-academic Experience
   1996-2000: Member of Technical Staff, Civil Aviation Computer Information Center of China.

5. Certification and professional registration: MCP & MCP+I & MCSE: Microsoft Certified Professional Systems Engineer, Certified since 1999, MCP ID#1602398

6. Current Membership in Professional Organizations:
   (a) Member of IEEE, (b) Member of AACR

7. Honors & Awards
   – Aug. 2009 – Aug. 2012 NCI Postdoctoral Bioinformatics Training Grant
   – Sep. 2001 - Sep. 2003 Primary Research Assistant supported by NSF funding
   – 2002 Student travel award to Allerton conference
   – Sep. 1989 - Jul. 1992 “People Scholarship” for three consecutive years, awarded by Beihang University

8. Service Activities (within and outside of the institution)
   – Associate editor for Eurasip Journal on Bioinformatics and Systems Biology
   – Reviewers of many conferences and journals
   – Served at more than 16 committees since joined PVAMU

9. Publications and Presentations from the Last Five Years
   Journal Papers & Book Chapters

4. Conference Papers (recent)

10. Professional Development Activities – Funding and Grants
1. Title: Computational Biology and Bioengineering Research Lab at Prairie View A&M University : Role: Co-Principal Investigator
2. Funding Agency: Texas A&M University System Chancellor’s Research Initiative (CRI)
3. Amount of Grant: $6,900,000; Time Period: Aug.2015 - Aug.2018
4. Title: Center of Excellence in Research and Education for Big Military Data Intelligence (CREDIT); Role: Co- Principal Investigator; Funding Agency: Department of Defense
5. Amount of Grant: $5,000,000; Time Period: 2015 – 2020
6. Title: CRII: SCH: Modeling and Analysis of Genetic Regulatory Networks under Drug Perturbation; Role: Principal Investigator (PI)
7. Funding Agency: U.S. National Science Foundation (NSF)
8. Amount of Grant: $175,000; Time Period: Aug.2015 - Aug.2017
CURRICULUM VITAE

1. Name: Pamela Obiomon

2. Education:
   - University of Texas at Arlington  B.S. Electrical Engineering  1990
   - Prairie View A & M University  M.S. Engineering  1993
   - Texas A & M University  Ph.D Electrical Engineering  2003

3. Academic experience:
   - 2016-present  Department Head Electrical and Computer Engineering Department
   - 2016-present  Full Professor, Prairie View A&M University
   - 2013-2016  Interim Department Head Electrical and Computer Engineering Department
   - 2009-2016  Associate Professor, Prairie View A&M University
   - 2004-2010  Wireless Integrated Microsystems (WIMS) Engineering Research Center
   - 2003-2009  Assistant Professor, Prairie View A&M University
   - 1998-1999  Adjunct Professor, Rochester Institute of Technology

4. Non-academic experience:
   - 2000-  Lead Data Processing System Hardware Engineer, Shuttle Avionics Integration Lab, United Space Alliance, Johnson Space Center
   - 1994  Software Evaluator, Texas Engineering Experiment Station

5. Current membership in professional organizations:
   - Member Eta Kappa Nu, Electrical Engineering Honor Society
   - Member of the Texas State Board of Education Tuning Committee Co-Chairman of the Electrical Engineering Committee
   - Member Institute of Electrical and Electronic Engineers (IEEE) – (Advisor) Prairie View Chapter
   - Member IEEE Women in Engineering,
   - Member National Society of Black Engineers (NSBE)
   - Member Women in Engineering Programs and Advocates Network (WEPAN)
   - Member Society of Women Engineers (SWE) – Prairie View Chapter Advise
   - Member National Academic Advising Association (NACADA)

6. Honors and awards:
   - 2013-  Electrical Engineering Advisory Board Member - Galveston Community College
   - 2011-  Epsilon Gamma Iota Award: Most Outstanding Electrical Engineering Professor
   - 2010-  Epsilon Gamma Iota Award: Outstanding Professor of the Year
   - 2007  Teacher of the Year Award for the College of Engineering
   - 2002  United Space Alliance Monthly Award for Team Work, Johnson Space Center
   - 2001  Quest for Excellence Award, United Space Alliance, Johnson Space Center

7. Service activities:

201
2013-2016  Interim Department Head Electrical and Computer Engineering
2014  Working on an Articulation Agreement Richland Community College
2014  College Hiring Committee - Department Head Mechanical Engr
2014  College Hiring Committee - Program Director
2014  Tulane University, Panel - You’re Racing a Robot,
2014  AEGP Conference, Panelist - Pathway to Professoriate –“Faculty Roles and Expectations at Different Types of Institutions
2014  Obiomon, P., “PhD Personals: From Decision to Destiny”, TAMUS 10th Annual Symposium, Houston, Texas, Feb 13-14,
2013  College Hiring Committee - Department Head Civil Engr
2013  College Tenure and Promotion Committee
2012  STEM Tenure Committee
2009-2013  Freshman Advisor

8. Briefly list the most important publications and presentations from the past five years:
   Publications:
   i. Suxia Cui, Pamela Obiomon, Development of a Decision Support System for Precision Agriculture, IJERT, Volume 4, Issue 10, Oct 2015
   Presentations
   i. Obiomon, P., “Rapid Prototyping with FPGAs”, High School Teacher Counselor Workshop, Prairie View A&M University, July 2014

9. Briefly list the most recent professional development activities:
2014  Google, “Women Techmakers”, Mountain View, California
2012  XILINX FPGA design course Dallas, Texas
2011  Software training from L3 Communications using NASA developed software (TRICK) at NASA
CURRICULUM VITAE

1. Name: Lijun Qian
   Academic Rank: Professor (Full-time)

2. Education:

   Tsinghua University, Beijing, China  Electrical Engr.  B.E., 1993
   The Technion - Israel Institute of Tech, Israel  Electrical Engr.  M.S.E.E., 1996
   Rutgers - The State University of New Jersey, USA  Electrical Engr.  Ph.D., 2001

3. Academic Experience:
   Sep. 2013 - present  Professor, Department of ECE, Prairie View A&M University
   Apr. 2015 - present  PI and Director, Center of Excellence in Research and Education for Big
                        Military Data Intelligence (CREDIT Center)
   2013 - present  Guest Professor, University of JiNan, P.R. China.
   Sep. 2009 - Aug. 2013  Associate Professor, Department of ECE, Prairie View A&M University
   Summer 2010  Visiting Professor, Aalto University, Finland
   Aug. 2003 - Aug. 2009  Assistant Professor, Department of ECE, Prairie View A&M University

4. Non-academic Experience
   Jan. 2001 - Aug. 2003  MTS, Bell-Labs, Networks and Systems Research Department

5. Certification and professional registration:
   LabVIEW Training Certificate

6. Current Membership in Professional Organizations:
   Senior Member of IEEE

7. Honors & Awards
   2008 Outstanding Teacher of the Year, College of Engineering, PVAMU.
   Central Bell-Labs Teamwork Award, June 2003

8. Service Activities (within and outside of the institution)
   Organizer & TPC Chair, 1st Workshop on Mission-Critical Big Data Analytics;
   Organizer & Publication Chair, CPS Week 2015;
   Poster Chair, IEEE Sarnoff Symposium 2015,
   TPC co-Chair, Crowncom 2012;
   Organizing Committee, QShine 2010;
   Organizer & Chair of Special Session on Cognitive Radio Networks and Tech., IEEE SMC 2009.
   Proposal Review Panel for NSF, ARO, NSERC.
   TPC member of many conferences and Reviewer for numerous journals and conferences.
9. Publications and Presentations from the Last Five Years

10. Professional Development
   ii. Invited Talk “A Community Sensing Framework for Threat Detection in Metropolitan Area”, Center for Emergency Informatics, Texas A&M University, College Station, TX, USA, Feb 28 2014.
CURRICULUM VITAE

1. NAME AND ACADEMIC RANK: Matthew N. O. Sadiku, Full Professor

2. EDUCATION:
   a. Ph.D (Electrical Engineering), Tennessee Technological University, 1984
   b. M.S. (Electrical Engineering), Tennessee Technological University, 1982
   c. B.S. (Electrical Engineering), Ahmadu Bello University, 1978.

3. ACADEMIC EXPERIENCE:
   2002- Present – Professor, Prairie View A&M University
   1988- 2000  -   Asst. Assoc. and full Professor in Electrical Engr., Temple Univ.

4. NON-ACADEMIC EXPERIENCE:
   2000-2001  Senior Engineer, Lucent/Avaya
   2001-2002  Senior Scientist, Boeing Satellite Systems

5. CERTIFICATION AND PROFESSIONAL REGISTRATION:  PE (Florida)

6. CURRENT MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS
   (a) Fellow, IEEE, (b) Member of ACM,  (c) Member of ASEE

7. HONORS AND AWARDS
   Awards:
     2000 McGraw-Hill/Jacob Millman Award
     2003 IEEE Fellow
     2014 Regents Professor

8. SERVICE ACTIVITIES (WITHIN AND OUTSIDE THE INSTITUTION)
   - Member of Doctoral Exam Committee
   - Member of the Search Committee for Vice President for Research
   - Writing undergraduate and graduate textbooks
   - Reviewer for IEEE Transactions and CRC Press

9. PRINCIPAL PUBLICATIONS OF LAST FIVE YEARS


10. PROFESSIONAL DEVELOPMENT ACTIVITIES
   • COMSOL Workshop – June 2013
   • IEEE Southeast Conference - March 2012.
   • International Conference on Scientific Computing, 2014
CURRICULUM VITAE

1. Name: Charlie L. Tolliver
   Academic Rank: Professor (Full Time)

2. Education: Ph.D. Electrical Engineering, 1976, Iowa State University, Iowa.
   M.S. General Engineering, 1970, Purdue University, Indiana
   B.Sc. Electrical Engineering, 1963 Southern University, Louisiana

3. Academic Experience:
   1976 - 81 University of Arkansas Associate Prof of EE, Arkansas
   1981- 83 P V AM Professor of EE, Texas
   1983-198 Vice President of Student Affairs PVAMU, Texas
   1984-Present Professor of EE PVAMU, Texas

4. Non-Academic Experience:
   1987 Johnson Space Center

5. Certification and professional registration: Professional License of Arkansas

6. Current Membership in Professional Organizations:
   (a) Member of IEEE, (b) Member of ASEE, (c) Member Sigma/XI

7. Honors & Awards
   Certificate of Appreciation MLK Birth Day, Observance, Air Force, San anti 1987
   Certificate of Appreciation NSBE, 1991
   Certificate of Appreciation NASA 1995

8. Service Activities within and outside of the institution)
   • CECSTR Scholarship Committee (2002-2010)
   • PHD Program Review for ECE Committee (2009-2014)
   • Lab Improvement Committee (2008-2014)
   • Preliminary examination Committee for PHD students (2008-2014)

9. Publications and Presentations from the Last Five Years
   • Emmanuel S. Kolawole; Warsame H. Ali, Penrose Cofie, John Fuller, C.Tolliver, “
     Design and implementation of Low-Pass, High-Pass and Band-Pass Finite Impulse
     response (FIR) Filters Using FPGA”, Scientific Research publishing, February 2015, 30-48
     Pages.
   • C.Tolliver, Obiomon, “On the impact of Channel Doping Density on Nano-scale
MOSFET Devices

- C.Tolliver, Obiomon, “Temperature Dependence of MOSFET Threshold Voltage”
- C.Tolliver, Obiomon “The Electrical Characterization of the Temperature Dependence of MOSFET Threshold Voltage”.

10. Professional Development Activities

(2002-Pres) Z-Ray Homeland Security
(2002-Pres) Police Probe Homeland Security
(2001-2009) Army Research Laboratory – Collaborate Technical Alliance
(2001-Sum) Army Research Laboratory – Collaborate Technical Alliance
   Development and Demonstration of a highly efficient hybrid vehicle with better than zero emissions.


CURRICULUM VITAE

1. Name: Richard Wilkins, Professor, Department of Electrical and Computer Engineering.

2. Education: B.S., Physics, University of Pittsburgh, 1984; Ph.D., Physics, University of Michigan, 1991.

3. Academic experience:
   - 9/10-present: Professor (with tenure): Department of Electrical and Computer Engineering, Prairie View A&M University.
   - 9/03-8/10: Associate Professor (with tenure): Department of Electrical Engineering, Prairie View A&M University.
   - 9/97-8/03: Assistant Professor: Department of Electrical Engineering, Prairie View A&M University.
   - 10/08-present: Director: NASA Center for Radiation Engineering and Science for Space Exploration (CRESSE).

4. Non-academic experience: Visiting Graduate Student at Ford Motor Co., Scientific Laboratory, Dearborn, MI, 5/87-12/90. Designed, built, and used cryogenic scanning tunneling microscope (CSTM) for experiments on single electron tunneling nano-scale metal droplets and high-$T_c$ superconductors.

5. Certifications or professional registrations: N/A

6. Current membership in professional organizations: IEEE

7. Honors and awards:
   - 2014: NASA Group Achievement Award, University Research-1 Team (payload to the International Space Station), NASA Johnson Space Center, September 2014.
   - 2014: NASA Group Achievement Award, Studies of Emission and Atmospheric Composition, clouds, and Climate Coupling by Regional Survey (SEAC4RS), NASA Headquarters, August 2014.

8. Service activities (within and outside of the institution):
   - “Space Exploration” merit badge advisor at Merit Badge University, Texas A&M University, for Boy Scouts of America, March 2010, February 2011, April 2012.
   - Search Committee, Associate Professor for ECE Department, June 2013.
   - Tenure Review Committee, committee chair, ECE Department, January 2013.
   - Tenure and Promotion Committee, ECE Department, September 2012.
   - Search Committee, Assistant Professor for Computer Science, November 2014 – present.
• Proposal Evaluator, Department of Energy, Office of Nuclear Physics, Small Business Innovative Research, November 2013.

9. Publications and presentations from the past five years:

10. Briefly list the most recent professional development activities:
## APPENDIX C – Equipment

### Instructional and Laboratory Equipment

<table>
<thead>
<tr>
<th>Laboratory</th>
<th>Equipment</th>
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<tbody>
<tr>
<td>Circuits &amp; Electronics Laboratory</td>
<td>Oscilloscopes</td>
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<td>NI ELVIS</td>
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<td></td>
<td>Signal Generators</td>
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<td>Multimeters</td>
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<td>Power Supplies</td>
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<td>Variac</td>
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<td></td>
<td>Capacitor/Inductor Analyzer</td>
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<td>Transistor Curve Tracer</td>
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<td></td>
<td>15 Personal Computers &amp; 1 Printer</td>
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<tr>
<td></td>
<td>Assortment of Resistors, Capacitors, Inductor</td>
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<td></td>
<td>Breadboard</td>
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<td></td>
<td>Software Packages (LabView, Ni-Multisim 10.0)</td>
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<tr>
<td>Microprocessor Systems and Digital Logic Lab</td>
<td>20 Personal Computers</td>
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<td></td>
<td>1 Printer</td>
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<td></td>
<td>Protoboard design station</td>
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<td>Logic Analyzers</td>
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<td>IC Tester</td>
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<td></td>
<td>Software Packages (MATLAB 2010B, Labview 8.5, Ni-Multisim 10.0, Modelsim 11.0, Xilinx 8.5)</td>
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<td>20 PIC Trainers</td>
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<tr>
<td>FPGA Lab</td>
<td>Personal Computer</td>
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<td>Agilent 4-channel oscilloscope</td>
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<td>Agilent 15-MHZ Function Generator</td>
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<td>Agilent Digital Multimeter</td>
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<td>Agilent Triple output DC Supply</td>
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<td>Xilinx</td>
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<td>Digilent Basys 2</td>
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<td>Digilent Nexys 2</td>
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<td></td>
<td>TI Tiva™ C Series LaunchPad Evaluation Kit</td>
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<td>Digilent Orbit BoosterPack</td>
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<td>DSP Lab</td>
<td>24 Personal Computers</td>
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<td>Microphones</td>
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<td>Loudspeakers</td>
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<td>Texas Instrument DSP Kits</td>
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<td>LabVIEW</td>
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<td>NI MyDAQ</td>
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<td>Printer</td>
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<td>Power Labs</td>
<td>Single-phase transformer module (Lab Volt)</td>
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<td>Capacitance modules (Lab Volt)</td>
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<td>Inductance module (Lab Volt)</td>
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<td>Digital Multimeter</td>
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<td>Digital Clamp-on Multimeter</td>
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<td></td>
<td>Motors</td>
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<td></td>
<td>Generators</td>
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<td></td>
<td>Transformers</td>
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<td></td>
<td>Lab-Volt Experimental Units</td>
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<tr>
<td>Controls Lab</td>
<td>13 Computers</td>
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<td></td>
<td>1 Printer</td>
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<td></td>
<td>4 DYNO-KIT (Motor controller)</td>
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<td>4 D SPACE</td>
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<td></td>
<td>2 FPGA DSP Kit</td>
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<td>2 ALLEN BRADLEY PLC</td>
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APPENDIX D – Institutional Summary

1. The Institution

a. Name and Address of the Institution
Prairie View A&M University
P.O. Box 519, MS 1001
Prairie View, Texas 77446
http://www.pvamu.edu

b. Name and Title of the Chief Executive Officer of Prairie View A&M University:
Dr. George C. Wright, President

c. Name and title of the person submitting the Self-Study Report:
Dr. Kendall T. Harris, Dean of Roy G. Perry College of Engineering

d. Name the organizations by which the institution is now accredited, and the dates of the initial and most recent accreditation evaluations:
Accreditation organization for Prairie View A&M University is the Commission on Colleges of the Southern Association of Colleges and Schools. The initial accreditation was received in 1958; and the most recent accreditation was in 2010.

2. Type of Control
The type of managerial control of the institution is public-state in the State of Texas.

3. Educational Unit
Prairie View A&M University is governed by the Board of Regents of the Texas A&M University System through the System Chancellor, Mr. John Sharp. The President of Prairie View A&M University, Dr. George C. Wright, reports to Chancellor Sharp. There are six vice presidents and other special assistants who work directly under President Wright. Dr. Felecia N. Nave, the Provost and Senior Vice President of Academic Affairs, oversees the operations of all academic units in the institution. The Organizational Chart of the Office of the President is illustrated in Figure D-1.

The Dean of the Roy G. Perry College of Engineering, Dr. Kendall T. Harris, is the Chief Officer within the College who reports directly to the Provost and Senior Vice President for Academic Affairs, Dr. Felecia M. Nave. Dean Harris assumes ultimate responsibility for all activities relating to the delivery of quality educational programs and services for the College. These duties include: supervision of the department heads for the six academic departments, the development and maintenance of a highly competent instructional faculty, and the planning, development, and evaluation of instructional programs for the college. The Dean reviews and recommends employment, promotion, tenure, and termination of all faculty and support staff in the College. The Organizational Chart of the Roy G. Perry College of Engineering is illustrated in Figure D-2.

The Department Heads - Dr. Irvin W. Osborne-Lee, (Chemical Engineering), Dr. Emmanuel Nzewi (Civil and Environmental Engineering), Dr. Yonggao Yang (Computer Science), Dr. Pamela Obiomon (Electrical and Computer Engineering), Dr. Paul Potier (Engineering Technology) and Dr. Jianren Zhou (Mechanical Engineering), serve as instructional officers and are appointed by the President upon
the recommendation of the College Dean and the Provost & Senior Vice President for Academic Affairs. Each department head is a faculty member who is released part-time (50%) from instructional duties to organize and lead the faculty in the development, implementation, and evaluation of academic and student programs and procedures that are assigned to and/or affect that department. The associate dean, Dr. Shield Lin, who is released 75% from instructional duties, serves under direct supervision of the Dean in the Dean's office. Dr. Lin coordinates administrative, curricula, and research activities in the College by working closely with the department heads. Each department head reports to the administration through the Dean of the College. It is the department head’s responsibility to oversee that the functions of the faculty are executed efficiently. As a member and significant representative of the department faculty, the department head provides leadership in developing and articulating departmental aspirations, standards, and points of view. The department head is responsible for maintaining faculty and student morale as well as promoting cooperation and rapport among faculty and students along with the college and university administration.
Figure D-1. Organizational Chart of Office of the President
Figure D-2. Organizational Chart of Roy G. Perry College of Engineering
4. Academic Support Units
The major academic supporting units include Department of Mathematics, Department of Physics, and Department of Chemistry, and Department of Languages and Communication. The responsible persons and description of these departments are shown below:

**Department of Mathematics**
Department Head: Dr. Aliakbar M. Haghighi
The Department of Mathematics has 14 full-time faculty members and 10 adjunct faculty members. The department offers a Bachelor of Science degree in Mathematics. The purposes of the Department of Mathematics are as follows:

1. To provide quality instruction, research and outreach programs in mathematics that produce independent learners equipped with approaches to problem solving and decision-making techniques necessary to meet the challenges of their chosen careers and function in the mainstream of the communities in which they live.

2. To train competent mathematics teachers and prospective mathematicians, engineers, scientists, and other mathematics based and/or related professionals with the knowledge-base necessary to perform successfully in graduate and professional schools and in the world of work.

**Physics Program**
Program Coordinator: Dr. Premkumar Saganti
The Physics Program offers a Bachelor of Science degree in Physics. The program aims to provide a broad and solid background in fundamental physics from introductory to advanced coursework, including astronomy, and then to provide specialized educational preparation and training in several disciplines. In addition to offering a diversified program for physics majors, the program also serves a large number of students from engineering, sciences, and pre-medical programs, and other undergraduates including all other non-science majors seeking curriculum requirements in science. The program has fully equipped state-of-the-art laboratories, including the Physics Learning Center (for undergraduates), and the Science Education Center (for middle and high school students and teachers), which provide technology-based learning environments. Other research laboratories for undergraduate students include a Computational Physics Laboratory, a Medical Imaging Laboratory and a Magnetic Field Laboratory and several research students are supported through NSF, NIH, DOD, and DOE research grants. With the recently initiated Chancellor's Research Initiative (CRI) opportunity, the physics program will also benefit with the expanding state-of-the art advanced radiation biology laboratories and computing clusters for modeling and visualization capabilities.

**Department of Chemistry**
Department Head: Dr. Aderemi Oki
The Department of Chemistry has nine full-time faculty members. The Department of Chemistry is concerned with facilitating learning through the analysis and synthesis of data as it relates to the chemical world. The B.S. program in Chemistry is designed to provide deep understanding of scientific processes and principles, which will enable students to develop intellectually, culturally, socially and morally. It is further intended to provide a comprehensive foundation in all the major areas of Chemistry, while offering a good measure of flexibility. Through the
execution of its functions, the department prepares students for careers in teaching, research, industry, and pre-professional training in Medicine, Dentistry and Allied health professions.

**Department of Languages and Communications**  
Interim Department Head: Dr. Ymitri Mathison

The Department of Languages and Communication has 27 faculty members. The Department offers its students a liberal arts education emphasizing the acquisition of language and communication skills and the mastery of media techniques. The program’s objective is to prepare students for a broad range of careers in language, literary specialties, interpersonal and mediated communication; to equip students with the skills and knowledge required for graduate and professional schools; and to provide communication services as a public service. Programs offered by the department are communication, English, and foreign languages, including a minor in Spanish and course offerings in Chinese and Arabic.

5. Non-academic Support Units

The university library, computing facility, career services, and tutorial services and names and titles of the individuals responsible for these units are described in the following:

**Library**  
Director, University Library Services: Dr. Rosie L. Albritton

The John B. Coleman Library holds over 350,000 volumes, including more than 800 print periodical titles with access to several thousand electronic full-text scholarly journals. The library is also a participating member of a statewide database-sharing program known as TexShare, and a member of the Houston Area Research Libraries Consortium (HARLIC). These multi-type library consortia provide online resource-sharing and reciprocal borrowing privileges. Information is provided at several public service contact-points in the library, including the Reference Desk, Circulation Desk, the Current Periodicals Desk, and the Information Desk. The library is fully automated with terminals available for public use, and maintains a fully integrated library technology system to support all library operations and technical services. Reserve materials, audio-visual media, and equipment are available at the Circulation Desk. The Special Collections Department on the 5th floor houses a number of unique collections, including the University Archives, and a rare book collection. The Delco and African American Art Gallery occupies the 4th floor of the library. The University Library is also responsible for providing Distance Library Services for the Nursing Program located in the Houston Medical Center, and for the Graduate Programs offered at the Northwest Center, in Spring, Texas.

The most valuable resource is the dedicated and talented library staff. Together they work to assist students and faculty with their research and information needs. They strive to ensure that our students, faculty, staff, and other members of the university community have the necessary resources and materials. With a variety of print collections and a growing list of comprehensive online resources, the John B. Coleman Library is experiencing a vital stage of “transformation.” The library continues to develop a quality balanced collection from the ever growing world of print, while also maintaining a steady response to the technology of a rapidly changing world of networks, databases, and global Internet access.
Computing Facilities
(a) University’s General Computing Facilities - Student Computer Center Labs
Information Technology Services currently supports five state-of-the-art technology and collaboration facilities on three Prairie View A&M university campuses. The Student Computer Center Labs are designed to support the academic and research goals of the entire campus community.

Students are invited to conduct research or review online material in one of five general computer labs that together hold almost 500 high-speed computers. Library users may access the digital library, write a paper, check e-mail, or just surf the Web. Several work and study spaces designed for comfort, flexibility, and easy collaboration are also available. Students can work alone or with a study group. The Student Computer Centers provide flexible hours of operation, including extended weekday hours and support for weekend access.

Student Portal – Panthertracks is designed for student registration for classes, view and pay fees, view financial aid status, tracking documents, transcript request, and for prospective students’ access to general information. Outlook Web Access is the e-mail system provided to the students.

The campus wireless network is available to the students, faculty, and staff, and offers fast and reliable data connection speed. The Help Desk has been implemented to deliver convenient computer, network and applications technical support services. This service includes a professionally staffed call center with computer technicians and a proprietary, full-featured technical support problem tracking and reporting system.

(b) Computing Facilities in College of Engineering
Within the Roy G. Perry College of Engineering, the Engineering Student Success Center located in Wilson Engineering building has 40 computer workstations that provide main software for all majors in the college. Every department has its own computer laboratories. The departmental computer laboratories are equipped with software and hardware to sufficiently support courses offered and student usage. The Student Success Center and departmental computer laboratories are open for the students through extended weekday hours and weekend hours.
Career Services
Director, Career Services: Mrs. Glenda Jones
The Prairie View A&M University Career Services Office located in room 210 on the second
floor of Evans Hall is a centralized office helping students and alumni of Prairie View A&M
University in career exploration, career development, graduate/professional school application,
and intern or co-op employment, as well as professional employment upon graduation. The
Office offers many unique services, such as career workshops, on-campus interviewing,
experiential education and internship programs.

More than 100 companies are attracted to the Prairie View A&M campus for the Fall Career Fair
and the Spring Career Fair. Students are encouraged to register with Career and Outreach
Services Office to participate in the Career Fairs. Through the Website, the students can submit
resumes, letters of interest, and schedule campus interviews. Many students receive temporary
or permanent job offers through the Career Services.

Tutoring, Mentoring, and Support for Students at University
The university's Student Academic Success Center (SASC) identifies academic and social
roadblocks that interfere with persistence and timely graduation of PVAMU students. SASC
retention initiatives are administered through the services provided by the Center for the
Oversight and Management of Personalized Academic Student Success (COMPASS) and by the
Panther Pride Summer Bridge Program. COMPASS builds on leading retention data and
recognized “best practice” research, COMPASS is designed to help Prairie View students
navigate toward graduation by providing the following services: Academic Advisement,
Targeted Tutorials, Campus-Wide Referrals, and Academic & Social Workshops.

Tutorial, Supplemental Instruction and Recitation Services in College of Engineering
The College of Engineering provides a variety of services to assist the students academically.
Engineering Student Success Center was established in the college in 2010. It has provided
additional tutorial and other services to the students. The college employs upper-class students
to offer supplemental instructions to key courses in the first two years of the undergraduate
degree programs in the college. To service the upperclassmen, the Center offers peer to peer
supplemental instruction for these students by allowing an individual student to form small
supplemental instruction groups that will enhance the understanding of peers. Faculty also adds
an extra recitation hour to their class schedules to these key courses in each degree program. A
typical recitation hour is scheduled in the late afternoon after 5 p.m. to avoid conflicts with other
schedules students have. Attendance at the recitation hour is mandatory for all students in the
class. The extra hour has been used for problem solving, reciting difficult concepts in subjects,
and group discussions.

6. Credit Unit
All programs are based on semester units which are defined as one half year in the evaluation of
the engineering program. One academic year represents 30 weeks of classes. A full-time one
half year of study approximates to 16 semester credit hours. One semester credit hour of class
work is defined as 1 hour (fifty minutes) of lecture session or 2 to 3 hours laboratory session per
week for 15 weeks.
7. Tables
Table D1 summarizes enrollment and degree awarded data and Table D2 summarizes personnel data in the Electrical Engineering program.
Table D-1: Program Enrollment and Degree Data
Computer Engineering Program

<table>
<thead>
<tr>
<th>Academic Year</th>
<th>Enrollment Year</th>
<th>Total Undergrad</th>
<th>Total Grad</th>
<th>Degrees Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st</td>
<td>2nd</td>
<td>3rd</td>
<td>4th</td>
</tr>
<tr>
<td>Current 2015-16</td>
<td>FT</td>
<td>30</td>
<td>16</td>
<td>10</td>
</tr>
<tr>
<td>Year</td>
<td>PT</td>
<td>1</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>1 2014-15</td>
<td>FT</td>
<td>40</td>
<td>12</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>PT</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2 2013-14</td>
<td>FT</td>
<td>24</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>PT</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>3 2012-13</td>
<td>FT</td>
<td>45</td>
<td>24</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>PT</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>4 2011-12</td>
<td>FT</td>
<td>43</td>
<td>18</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>PT</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Give official fall term enrollment figures (head count) for the current and preceding four academic years and undergraduate and graduate degrees conferred during each of those years. The "current" year means the academic year preceding the on-site visit. * to be obtained by the end of the 2015-16 academic year.

FT--full time, PT--part time
Table D-2: Personnel  
Computer Engineering

Year¹:  **Fall 2015**

<table>
<thead>
<tr>
<th></th>
<th>HEAD COUNT</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FT</td>
<td>PT</td>
<td></td>
</tr>
<tr>
<td>Administrative²</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty (tenure-track)³</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Other Faculty (excluding student Assistants)</td>
<td>14</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Student Teaching Assistants⁴</td>
<td>8</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Technicians/Specialists</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office/Clerical Employees</td>
<td>2</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Others⁵ (undergraduate student)</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

Report data for the program being evaluated.

1. Data on this table should be for the fall term immediately preceding the visit. Updated tables for the fall term when the ABET team is visiting are to be prepared and presented to the team when they arrive.

2. Persons holding joint administrative/faculty positions or other combined assignments should be allocated to each category according to the fraction of the appointment assigned to that category.

3. For faculty members, 1 FTE equals what your institution defines as a full-time load.

4. For student teaching assistants, 1 FTE equals 20 hours per week of work (or service). For undergraduate and graduate students, 1 FTE equals 15 semester credit-hours (or 24 quarter credit-hours) per term of institutional course work, meaning all courses — science, humanities and social sciences, etc.

5. Specify any other category considered appropriate, or leave blank.

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¹ Corresponds to the academic year immediately preceding the visit by the ABET team.

² FTE: Full-Time Equivalent

³ Tenure-track faculty include those with tenure, tenure-track, or comparable appointments.

⁴ Student Teaching Assistants include those serving in roles such as teaching assistants, teaching fellows, or teaching associates.

⁵ Others include undergraduate student assistants, research assistants, and others as defined by the institution.
Signature Attesting to Compliance

By signing below, I attest to the following:

That Computer Engineering Program has conducted an honest assessment of compliance and has provided a complete and accurate disclosure of timely information regarding compliance with ABET’s Criteria for Accrediting Engineering Programs to include the General Criteria and any applicable Program Criteria, and the ABET Accreditation Policy and Procedure Manual.

________________________________
Dean’s Name (As indicated on the RFE)

________________________________  _______________________
Signature      Date