

ASSESSMENT REPORT

ROY G. PERRY COLLEGE OF ENGINEERING

**ELECTRICAL AND COMPUTER ENGINEERING
DEPARTMENT**

PRAIRIE VIEW A&M UNIVERSITY

ASSESSMENT REPORT COVER PAGE

ELEG 4301 ENERGY CONVERSIONS

FALL 2021 SEMESTER

NAME OF INSTRUCTOR: Dr. John Fuller

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Assignments assessing students' ability to recognize the ongoing need for additional knowledge and locate, evaluate, integrate, and apply this knowledge appropriately. (outcome "6")

1- Teach students the fundamental concepts of electrical power and electrical machines (DC and AC machines and transformers)

Anticipated Outcome: Student will have an understanding of electrical power systems and the design and operation of electrical machines

2- To teach students how to analyze different type of machines.

Anticipated Outcome: Student will acquire the ability to select the appropriate machine to be used for a specific operation and how to apply this knowledge on a global level.

3- To teach students the use of modern engineering tools such as Matlab and FPGA programming.

Anticipated Outcome: Student will be able to use modern engineering tools and exhibit a competency in the use of simulation tools.

Detailed Course Syllabus
(Distributed to Students at the beginning of the Semester)
ABET Outcomes measured using course should be
explicitly listed in the syllabus

ELEG 4301 Course Description In ABET Format

Please use the following format for the course syllabi (2 pages maximum in Times New Roman 12 point font)

1.	Course number and name:	ELEG 4301 Section 1 CRN: 17335
2.	Credits and contact hours:	3 credit hours; 3 contact hours * Subject Area: Engineering Science
3.	Instructor's or course coordinator's name:	Dr. John Fuller
4.	Text book: Title:	Electric Machinery and Power systems
	Author:	S. T. Chapman
	Publisher, Year & Edition:	McGraw Hill. N.Y. 2002. ISBN: 978-0-07-229135-3
	a. Other Supplemental material	Electric Machines. S. Sarma 2/ed. West Publishing Co. 1994. Fundamentals of Electric Circuits, Charles Alexander, Matthew Sadiku, McGraw Hill, ISBN 978-0-07-352855-4
5.	Specific course information	
	a. Brief description of the content of the course (catalog description)	ELEG 4301 Electromechanical Energy Conversion: 3 semester hours. Electric and magnetic devices, force and torque measurements, iron core transformers, single phase and poly-phase power circuit analysis. Introduction to per unit system.
	b. Prerequisites or Co-requisites	ELEG 3013 Network theory II ELEG 4173 Advanced Math
	c. ** Indicate whether a required, elective, or selected elective (as per definition provided) course in the program	Required
6.	a. Specific goals for the course specific outcomes of instruction (e.g. The student will be able to explain the significance of current research about a particular topic.) <i>Students will be able to :</i>	b. Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course. <i>The specific goals for the course specific outcomes listed on the left column will address the following student</i>

		<i>learning outcomes:</i>
	1. Students will understand the fundamental concepts of electrical power and electric machines (DC and AC machines and transformers).	Outcome 1 An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
	2. Student will be able to analyze different types of machines.	Outcome 6 An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
	3. Students will be knowledgeable in the use of modern engineering tools such as Matlab and FPGA programming.	Outcome 6 An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7	Brief list of topics to be covered	1. Rotational Motion 2. Magnetic Fields and Circuits. 3. Faraday's and Lenz's 4. Voltage. 5. Force 6. Real, Reactive, and Apparent Power 7. Generation of Three-Phase Voltages 8. Power in Three Phase 9. Three Phase Analysis 10. Ideal Transformers 11. Transformers 12. Equivalent Transformer Circuits 13. Per Unit System 14. Voltage Regulation 15. Rotating Magnetic field 16. Force and Flux 17. Induced Voltage 18. Basic Principles 19. Synchronous Generators 20. Synchronous Motors 21. Starting Synchronous Motors 22. Generator and Motor Principles 23. Basic Induction Motor 24. Equivalent circuit 25. Power and Torque 26. Fundamentals of DC Motors 27. Force, Induced Voltage and Torque 28. Commutation 29. Shunt and Series Motors

- * For all Engineering programs, indicate subject area from the following: **Math, Basic science, Engineering topic or Other**
- ** **Required** courses are required of all students in the program, **elective** courses (often referred to as open or free electives) are optional for students, and **selected elective** courses are those for which students must take one or more courses from a specified group

Please hide all of the row and column lines when done.

Detailed Course Syllabus Fall 2021

ELEG 4301 Energy Conversions

Fall 2021

Course Title: ELECTROMECHANICAL ENERGY CONVERSION

Course Prefix: ELEG Course No.: 4301 Section No.: 01

Department of Electrical and Computer Engr. | Roy G. Perry College of Engr.

Instructor Name: [Dr. John H. Fuller, P.E.](#)
Office Location: [Room 344, ECE BLDG](#)
Office Phone: [\(936\)261-9923](#)
Fax: [\(936\) 261-9930](#)
Email Address: jhfuller@pvamu.edu

U.S. Postal Service Address: Prairie View A&M University
P.O. Box 519
Mail Stop 2520
Prairie View, TX 77446

Office Hours: Fuller MWF 9:00-10:00 am, T 11:10 am – 1:10 pm, R 12:30 – 1:30 pm or by appointment

Mode of Instruction: Face to Face

Course Location: Gilchrist Engineering Bldg Room 104

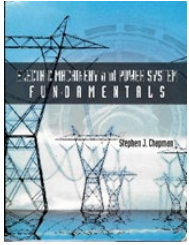
Class Meeting Days & Times: MWF 8:00 am – 8:50 am

Catalog Description: ELEG 4301. Electromechanical Energy Conversion. (3-0) Credit 3 semester hours. Electric and magnetic devices, force and torque measurements, iron core transformers, single phase and polyphase power circuit analysis. Introduction to per unit system.

Prerequisites: ELEG 3013 Network Theory II,
MATH 3685 Math for Engineers or MATH 4173 Advanced Math for Engineers

Co-requisites:

Required Text: Stephen J. Chapman, Electric Machinery and Power System Fundamentals," 1st Edition, McGraw Hill. ISBN: 978-0-07-229135-3



Recommended Text/Readings: Investigations in Electric Power Technology by Wildi T and Devito M. J. 4th Edition, Buck Engineering Co. NJ 1998.

Fundamentals of Electric circuits by Matthew Sadiku, McGraw Hill

Electric Machinery by Fitzgerald, Kingsley and Umans. Mc Graw Hill

Access to Learning Resources:

PVAMU Library: phone: (936) 261-1500;
web: <http://www.tamu.edu/pvamu/library/>
University Bookstore: phone: (936) 261-1990;
web: <https://www.bkstr.com/Home/10001-10734-1?demoKey=d>

Course Goals or Overview:

This course introduces the basic theory of electromechanical energy conversion devices. The course details the characteristics, selection, applications, and practical use limitations of Transformers, motors and power transmission devices. Most of these devices rely on solid-state power electronics in modern applications. The course will therefore survey this aspect of device application. Class lectures, discussions, and problem-solving sessions will provide students taking this course with the knowledge, understanding, and skills necessary to analyze, design and apply these power system devices. Group projects, laboratory demonstrations and other assigned problems will reinforce knowledge gained from class sessions.

Course Outcomes/Objectives

Assignments assessing students' ability to recognize the ongoing need for additional knowledge and locate, evaluate, integrate, and apply this knowledge appropriately. (outcome "6")

1- Teach students the fundamental concepts of electrical power and electrical machines (DC and AC machines and transformers)

Anticipated Outcome: Student will have an understanding of electrical power systems and the design and operation of electrical machines

2- To teach students how to analyze different type of machines.

Anticipated Outcome: Student will acquire the ability to select the appropriate machine to be used for a specific operation and how to apply this knowledge on a global level.

3- To teach students the use of modern engineering tools such as Matlab and FPGA programming.

Anticipated Outcome: Student will be able to use modern engineering tools and exhibit a competency in the use of simulation tools.

Course Requirements & Evaluation Methods

This course will utilize the following instruments to determine student grades and proficiency of the learning outcomes for the course.

Exams – written tests designed to measure knowledge of presented course material

Lab Reports – real hands on laboratory demonstrations to supplement and reinforce course material

Projects – assignments designed to introduce students to various power components and how they are used in industry and consumer usage.

Grading Matrix

Instrument	Value (percentages)
Exams (2 exams)	30%
Midterm Exam	20%
Quizzes/Homework	10 %
Lab reports and Projects	10%
Final Exam (Comprehensive)	30%
Total:	100%

percentages may vary depending on number of assignments and course material

covered

Grade Determination:

A = 90% or better
B = 80 – 89 %
C = 70 – 79 %
D = 60 – 69 %
F = Less than 60%

Course Procedures

Submission of Assignments:

All assignments should be submitted by the due date. Late assignments will not be accepted.

Formatting Documents:

Microsoft Word is the standard word processing tool used at PVAMU. If you're using other word processors, be sure to use the "save as" tool and save the document in either the Microsoft Word, Rich-Text, or plain text format.

Exam Policy

Exams will be given as scheduled. Exams will be announced one week in advance. No makeup examinations

will be allowed except for students on official university leave or documented emergencies (See Student Handbook).

16 WEEK CALENDAR

Week One: Topic	Course overview; Syllabus review, Introduction, review of circuit theory (power)
Week Two: Topic	Magnetic Circuits, Faraday's and Lenz's Law
Week Three: Topic	Voltage on a conductor moving in a magnetic field Force on a conductor carrying current in a magnetic field.
Week Four: Topic	3-phase circuits
Week Five: Topic	Three Phase Analysis
Week Six: Topic	Transformers
Week Seven: Topic	Transformers and Per
Unit	System
	Midterm Exam
Week Eight: Topic	Generators & Motors, Introduction
Week Nine: Topic	AC Machine
Fundamentals Week Ten: Topic	Synchronous
Machines	
Week Eleven: Topic	Induction Motors
Week Twelve: Topic	DC Motors
Week Thirteen: Topic	Power Transmission
Week Fourteen: Topic	Power Applications
Week Fifteen: Topic	Project presentations and review
Week Sixteen: Topic	Final Exam

Detailed Syllabus

ELECTRICAL AND COMPUTER ENGINEERING DEPARTMENT ELECTROMECHANICAL ENERGY CONVERSIONS ELEG-4301 SECTION 1 (8:00 - 8:50) MWF Fall 2021

Instructor: Dr. John Fuller, P.E.
Electrical and Computer Engineering Department
Room 344 Electrical Engineering Building
Phone Number 936-261-9923
Email: jhfuller@pvamu.edu

TOPICS TO BE COVERED

Chapter 1

1. **Rotational Motion**, Newton's Law and Power **2 wks**
2. **Magnetic Fields and Circuits.** Energy losses in a Ferromagnetic Core
3. **Faraday's and Lenz's** Laws.
4. **Voltage** on a conductor moving in a magnetic field.
5. **Force** on a current carrying conductor in a magnetic field.
6. **Real, Reactive, and Apparent Power**

Late Registration/Late Registration Fee Begins Aug 23 –Aug 30

Attendance Reporting: Aug 23 – Sept 1

Attendance Reporting Period (NS/SH) Students who do not attend class during this period will have their courses removed and financial aid reduced or cancelled

FINAL DAY TO DROP/WITHDRAW FROM COURSES WITHOUT ACADEMIC RECORD (A financial record will still exist) Sept 7

Withdrawal from Courses with Academic Record ("W") Begins Sept 8

Drop for Non-Payment of Tuition and Fees @ 5:00 p.m. Sept 14

Chapter 2 **2 wks**

Three-Phase Circuits

7. **Generation of Three-Phase Voltages and Currents**
8. **Power in Three Phase**
9. **Three Phase Analysis**

First Exam

Chapter 3 **2 wks**

Transformers

10. Ideal Transformers

11. Transformers, single phase and three phase, rating, regulation; special types e.g. Current transformers. Problems involving transformer use in power transmission systems. (2 weeks)

12. Equivalent Transformer Circuits

13. Per Unit System

14. Voltage Regulation

FINAL DATE TO APPLY FOR FALL 2021 GRADUATION (Oct 28)

MID- SEMESTER EXAMINATION PERIOD: Oct 14 – Oct 16

Chapter 4

2 wks

AC Machine Fundamentals

15. Rotating Magnetic field

16. Force and Flux

17. Induced Voltage

FINAL DAY TO WITHDRAW FROM COURSES WITH ACADEMIC RECORD 'W' (NOV 1)

Chapter 5

Synchronous Machines

2 ½ wks

18. Basic Principles

19. Synchronous Generators

20. Synchronous Motors

21. Starting Synchronous Motors

22. Generator and Motor Principles-The rectangular rotation loop.

Chapter 7

Induction Motors

1 ½ wks

23. Basic Induction Motor

24. Equivalent circuit

25. Power and Torque

Thanksgiving Holiday (University Closed) Nov 25 – Nov 27

Third Exam

Chapter 8

DC Motors

1 ½

26. Fundamentals of DC Motors

27. Force, Induced Voltage and Torque

28. Commutation

29. Shunt and Series Motors

Power Electronics

1 ½ wks

30. Power Electronics - Introduction. The Diode, Thyristor (PNPN, SCR, GTO etc.)

Converters, Inverters, and Choppers. Use of these in motor drives. (1 week)

LAST CLASS DAY: Tuesday, Dec 1

Final Day to Withdraw from the University (from all courses) for the Fall 2021 16- week session
Dec 1

FINAL EXAM PERIOD: Dec 2 – Dec 8

FINAL GRADES DUE FOR GRADUATION CANDIDATES (12:00 pm)

Dec 8

Student Support and Success

John B. Coleman Library

The John B. Coleman Library's mission is to enhance the scholarly pursuit of knowledge, to foster intellectual curiosity, and to promote life-long learning and research through our innovative services, resources, and cultural programs, which support the Prairie View A&M University's global mission of teaching, service, and research. It maintains library collections and access both on campus, online, and through local agreements to further the educational goals of students and faculty. Website: <https://www.pvamu.edu/library/>; Phone: 936-261-1500

Academic Advising Services

Academic Advising Services offers students a variety of services that contributes to student success and leads towards graduation. We assist students with understanding university policies and procedures that affect academic progress. We support the early alert program to help students get connected to success early in the semester. We help refer students to the appropriate academic support services when they are unsure of the best resource for their needs. Faculty advisors support some students in their respective colleges. Your faculty advisor can be identified in PantherTracks. Advisors with Academic Advising Services are available to all students. We are located across campus. Find your advisor's location by academic major at www.pvamu.edu/advising. Phone: 936-261-5911

The University Tutoring Center

The University Tutoring Center (UTC) offers free tutoring and academic support to all registered PVAMU students. The mission of the UTC is to help provide a solid academic foundation that enables students to

become confident, capable, independent learners. Competent and caring staff and peer tutors guide students in identifying, acquiring, and enhancing the knowledge, skills, and attitudes needed to reach their desired goals. Tutoring and academic support are offered face-to-face in the UTC, in virtual face-to-face sessions (<https://www.pvamu.edu/student-success/sass/university-tutoring-center/>), and through online sessions (<https://www.pvamu.edu/pvplace/>). Other support services available for students include Supplemental Instruction, Study Break, Academic Success Workshops, and Algebra Study Jam. Location: J. B. Coleman Library, Rm. 307; Phone: 936-261-1561; Email: pvtutoring@pvamu.edu; Website: <https://www.pvamu.edu/student-success/sass/university-tutoring-center/>

Writing Center

The Writing Center provides well-trained peer tutors to assist students with writing assignments at any stage of the writing process. Tutors help students with various writing tasks from understanding assignments, brainstorming, drafting, revising, editing, researching, and integrating sources. Students have free access to Grammarly online writing assistance. Grammarly is an automated proofreading and plagiarism detection tool. Students must register for Grammarly by using their student email address. In addition, students have access to face-to-face and virtual tutoring services either asynchronously via email or synchronously via Zoom. Location: J. B. Coleman Library, Rm. 209; Phone: 936-261-3724; Website: <https://www.pvamu.edu/student-success/writing-center/>; Grammarly Registration: <https://www.grammarly.com/enterprise/signup>

Academic Early Alert

Academic Early Alert is a proactive system of communication and collaboration between faculty, academic advisors, and PVAMU students that is designed to support student success by promptly identifying issues and allowing for intervention. Academic Early Alerts help students by providing a central location to schedule advising appointments, view advisor contact information, and request assistance. Students who recognize that they have a problem that is negatively affecting their academic performance or ability to continue school may self-refer an Academic Early Alert. To do so, students will log in to PV Place and click on Academic Early Alert on the left sidebar. Phone: 936-261-5902; Website: <https://www.pvamu.edu/student-success/early-alert/>

Student Counseling Services

The Student Counseling Services unit offers a range of services and programs to assist students in maximizing their potential for success: short-term individual, couples, and group counseling, as well as crisis intervention, outreach, consultation, and referral services. The staff is licensed by the State of Texas and assists students who are dealing with academic skills concerns, situational crises, adjustment problems, and emotional difficulties. Information shared with the staff is treated confidentially and in accordance with Texas State Law. Location: Hobart Taylor, 2nd floor; Phone: 936-261-3564; Website: <https://www.pvamu.edu/healthservices/student-counseling-services/>

Office of Testing Services

Testing Services serves to create opportunities by offering a suite of exams that aid in the students' academic and professional success. Currently, we administer entrance (HESI A2), college readiness (TSI assessment), Prior Learning (CLEP, DSST), and proctored exams. Location: Wilhelmina Delco, 3rd Floor, Rm. 305; Phone: 936-261-3627; Email: aetesting@pvamu.edu; Website: www.pvamu.edu/testing

Office of Diagnostic Testing and Disability Services

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, contact the Office of Disability Services. As a federally-mandated educational support unit, the Office of Disability Services serves as the repository for confidential disability files for faculty, staff, and students. For persons with a disability, the Office develops individualized ADA letters of request for accommodations. Other services include learning style inventories, awareness workshops, accessibility pathways, webinars, computer laboratory with adapted hard and software, adapted furniture, proctoring non-standardized test administrations, ASL interpreters, ALDs, digital recorders, Livescribe,

and a comprehensive referral network across campus and the broader community. Location: Hobart Taylor, Rm. 1D128; Phone: 936-261-3583; Website: <https://www.pvamu.edu/disabilityservices/>

Center for Instructional Innovation and Technology Services (CIITS)

Distance Learning, also referred to as Distance Education, is the employment of alternative instructional delivery methods to extend programs and services to persons unable to attend college in the traditional manner. The Center for Instructional Innovation and Technology Services (CIITS) supports student learning through online, hybrid, web-assist, and 2-way video course delivery. For more details and contact information, visit:

<https://www.pvamu.edu/dlearning/distance-learning-2-2/students-2/>; Phone: 936-261-3283

Veteran Affairs

Veterans Services works with student veterans, current military and military dependents to support their transition to the college environment and continued persistence to graduation. The Office coordinates and certifies benefits for both the G.I. Bill and the Texas Hazlewood Act. Location: Evans Hall, Rm. 102; Phone: 936-261-3563; Website: <https://www.pvamu.edu/sa/departments/veteranaffairs/>

Office for Student Engagement

The Office for Student Engagement delivers comprehensive programs and services designed to meet the co-curricular needs of students. The Office implements inclusive and accessible programs and services that enhance student development through exposure to and participation in diverse and relevant social, cultural, intellectual, recreational, community service, leadership development, and campus governance. Location: Memorial Student Center, Rm. 221; Phone: 936-261-1340; Website: <https://www.pvamu.edu/studentengagement/>

Career Services

Career Services supports students through professional development, career readiness, and placement and employment assistance. The Office provides one-on-one career coaching, interview preparation, resume and letter writing, and career exploration workshops and seminars. Services are provided for students at the Northwest Houston Center and College of Nursing in the Medical Center twice a month or on a requested basis. Distance Learning students are encouraged to visit the Career Services website for information regarding services provided. Location: Anderson Hall, 2nd floor; Phone: 936-261-3570; Website: <https://www.pvamu.edu/careerservices/>

University Rules and Procedures

Academic Misconduct

Academic dishonesty is defined as any form of cheating or dishonesty that has the effect or intent of interfering with any academic exercise or fair evaluation of a student's performance. The college faculty can provide additional information, particularly related to a specific course, laboratory, or assignment.

You are expected to practice academic honesty in every aspect of this course and all other courses. Make sure you are familiar with the *University Administrative Guidelines on Academic Integrity*, which can be found on the [Academic Integrity webpage](#). Students who engage in academic misconduct are subject to university disciplinary procedures. As listed in the *University Administrative Guidelines on Academic Integrity*, the University Online Catalog, and the Student Code of Conduct, the following are examples of prohibited conduct. This list is not designed to be all-inclusive or exhaustive. In addition to academic sanctions, any student found to have committed academic misconduct that is also a violation of criminal law may also be subject to disciplinary review and action by the Office of Student Conduct (as outlined in the Student Code of Conduct).

Forms of Academic Dishonesty:

1. **Cheating:** Deception in which a student misrepresents that he/she has mastered information on an academic exercise that he/she has not learned, giving or receiving aid unauthorized by the instructor on assignments or examinations. Examples: unauthorized use of notes for a test; using a "cheat sheet" on a quiz or exam; any alteration made on a graded test or exam which is then resubmitted to the teacher;

2. Plagiarism: Careless or deliberate use of the work or the ideas of another; representation of another's work, words, ideas, or data as your own without permission or appropriate acknowledgment. Examples: copying another's paper or answers, failure to identify information or essays from the internet and submitting or representing it as your own; submitting an assignment which has been partially or wholly done by another and claiming it as yours; not properly acknowledging a source which has been summarized or paraphrased in your work; failure to acknowledge the use of another's words with quotation marks;
3. Collusion: When more than one student or person contributes to a piece of work that is submitted as the work of an individual;
4. Conspiracy: Agreeing with one or more persons to commit an act of academic/scholastic dishonesty; and
5. Multiple Submission: Submission of work from one course to satisfy a requirement in another course without explicit permission. Example: using a paper prepared and graded for credit in one course to fulfill a requirement and receive credit in a different course.

Nonacademic Misconduct

The university respects the rights of instructors to teach and students to learn. Maintenance of these rights requires campus conditions that do not impede their exercise. Campus behavior that interferes with either (1) the instructor's ability to conduct the class, (2) the inability of other students to profit from the instructional program, or (3) campus behavior that interferes with the rights of others will not be tolerated. An individual engaging in such disruptive behavior may be subject to disciplinary action. The Office of Student Conduct will adjudicate such incidents under nonacademic procedures.

Sexual Misconduct

Sexual harassment of students and employees at Prairie View A&M University is unacceptable and will not be tolerated. Any member of the university community violating the university's sexual harassment policy will be subject to disciplinary action. In accordance with the Texas A&M University System guidelines, your instructor is obligated to report to the Office of Title IX Compliance (titleixteam@pvamu.edu) any instance of sexual misconduct involving a student, which includes sexual assault, stalking, dating violence, domestic violence, and sexual harassment, about which the instructor becomes aware during this course through writing, discussion, or personal disclosure. The faculty and staff of PVAMU actively strive to provide a learning, working, and living environment that promotes respect that is free from sexual misconduct, discrimination, and all forms of violence. If students, faculty, or staff would like assistance or have questions, they may contact the Title IX Coordinator at 936-261-2144 or titleixteam@pvamu.edu. More information can be found at www.pvamu.edu/titleix, including confidential resources available on campus.

Pregnancy, Pregnancy-related, and Parenting Accommodations

Title IX of the Education Amendments of 1972 prohibits sex discrimination, which includes discrimination based on pregnancy, marital status, or parental status. Students seeking accommodations related to pregnancy, pregnancy-related conditions, or parenting (reasonably immediate postpartum period) are encouraged to contact Student Disability Services or the Dean of Students' Office for additional information and to request accommodations.

Non-Discrimination Statement

Prairie View A&M University does not discriminate on the basis of race, color, sex, religion, national origin, age, disability, genetic information, veteran status, sexual orientation, or gender identity in its programs and activities. The University is committed to supporting students and complying with The Texas A&M University System non-discrimination policy. It seeks to establish an environment that is free of bias, discrimination, and harassment. If you experience an incident of discrimination or harassment, we encourage you to report it. If you would like to speak with someone who may be able to afford you privacy or confidentiality, there are individuals who can meet with you. The Director of Equal Opportunity & Diversity has been designated to handle inquiries regarding the non-discrimination policies and can be reached at Harrington Science Building, Suite 109 or by phone at 936-261-1744 or 1792.

Class Attendance Policy (See the University Online Catalog for Full Attendance Policy)

Prairie View A&M University requires regular class attendance. Attending all classes supports the full academic development of each learner, whether classes are taught with the instructor physically present or via distance learning technologies such as interactive video and/or the internet. Excessive absenteeism, whether excused or unexcused, may result in a student's course grade being reduced or in the assignment of a grade of "F." Absences are accumulated beginning with the first day of class during regular semesters and summer terms. Each faculty member will include the University's attendance policy in each course syllabus.

Student Academic Appeals Process

Authority and responsibility for assigning grades to students rest with the faculty. However, in those instances where students believe that miscommunication, errors, or unfairness of any kind may have adversely affected the instructor's assessment of their academic performance, the student has a right to appeal by the procedure listed in the University Online Catalog and by doing so within thirty days of receiving the grade or experiencing any other problematic academic event that prompted the complaint.

Technical Considerations

Minimum Recommended Hardware and Software:

- Intel PC or Laptop with Windows 10 or later version; Mac with OS High Sierra*
- Smartphone or iPad/Tablet with Wi-Fi*
- High-speed Internet access
- 8 GB Memory
- Hard drive with 320 GB storage space
- 15" monitor, 800x600, color or 16 bit
- Sound card w/speakers
- Microphone and recording software
- Keyboard & mouse
- Most current version of Google Chrome, Safari, or Firefox

Note: Be sure to enable Java & pop-ups in the Web browser preferences

* Smartphones, Google Chrome books, and Android tablets may not be supported. iPads are the only tablets supported.

Participants should have a basic proficiency of the following computer skills:

- Sending and receiving email
- A working knowledge of the Internet
- Microsoft Word (or a program convertible to Word)
- Acrobat PDF Reader
- Windows or Mac OS
- Video conferencing software

Netiquette (online etiquette)

Students are expected to participate in all discussions and virtual classroom chats as directed. Students are to be respectful and courteous to others on discussion boards. Foul or abusive language will not be tolerated. Do not use ALL CAPS for communicating to others AS IT CAN BE INTERPRETED AS YELLING. Avoid slang terms such as "wassup?" and texting abbreviations such as "u" instead of "you." Limit and possibly avoid the use of emoticons. Be cautious when using humor or sarcasm as tone is sometimes lost in an email or discussion post, and the message might be taken seriously or sound offensive.

Video Conferencing Etiquette

When using Zoom, WebEx, or other video conferencing tools, confirm the visible area is tidy, clear of background clutter, inappropriate or offensive posters, and other distractions. Ensure you dress appropriately and avoid using high traffic or noisy areas. Stay muted when you are not speaking and

avoid eating/drinking during the session. Before the class session begins, test audio, video, and lighting to alleviate technology issues.

Technical Support

Students should go to <https://mypassword.pvamu.edu/> if they have password issues. The page will provide instructions for resetting passwords and contact information if login issues persist. For other technical questions regarding eCourses, call the Center for Instructional Innovation and Technology Services at 936-261-3283 or email ciits@pvamu.edu.

Communication Expectations and Standards

Emails or discussion postings will receive a response from the instructor, usually in less than 48 hours. Urgent emails should be marked as such. Check regularly for responses.

Discussion Requirement

Online courses often require minimal to no face-to-face meetings. However, conversations about the readings, lectures, materials, and other aspects of the course can occur in a seminar fashion. The use of the discussion board will accomplish this. The instructor will determine the exact use of discussion boards.

It is strongly suggested that students type their discussion postings in a word processing application such as Word and save it to their PC or a removable drive before posting to the discussion board. This is important for two reasons: 1) If for some reason your discussion responses are lost in your online course, you will have another copy; 2) Grammatical errors can be greatly minimized by the use of the spell-and-grammar check functions in word processing applications. Once the post(s) have been typed and corrected in the word processing application, copy and paste to the discussion board.

COVID-19 Campus Safety Measures [NOTE: Delete this section when the COVID-19 pandemic is over]

To promote public safety and protect students, faculty, and staff during the coronavirus pandemic, PVAMU has adopted policies and practices to limit virus transmission.

- **Self-monitoring** - Students should follow CDC recommendations for self-monitoring. Students who have a fever or exhibit symptoms of COVID-19 should participate in class remotely and should not participate in face-to-face instruction.
- **Face Coverings** - Face coverings (cloth face covering, surgical mask, etc.) are recommended in classrooms, teaching laboratories, common spaces such as lobbies and hallways, public study spaces, libraries, academic resource, and support offices, and outdoor spaces where 6 feet of physical distancing is challenging to maintain reliably.
- **Physical Distancing** - Physical distancing should be maintained between students, instructors, and others in course and course-related activities where possible.
- **Personal Illness and Quarantine** - Students required to quarantine are to participate in courses and course-related activities remotely and must not attend face-to-face course activities. Students should notify their instructors of the quarantine requirement. Students under quarantine are expected to participate in courses and complete graded work unless they have symptoms that are too severe to participate in course activities. Students experiencing personal injury or illness that is too severe for the student to attend class qualify for an excused absence. To receive an excused absence, students must provide appropriate documentation to the Office for Student Conduct, studentconduct@pvamu.edu.

CLASS ATTENDANCE POLICY

Effective September 1, 1998

Class Attendance

Prairie View A&M University requires regular class attendance. Attending all classes supports full academic development of each learner whether classes are taught with the instructor physically present or via distance learning technologies such as interactive video. Excessive absenteeism, whether EXCUSED or UNEXCUSED, may result in a student's course grade being reduced or in a student's being assigned a grade of "F." Absences are accumulated beginning with the first day of class during regular semesters and summer terms. Each faculty member will include the University's attendance policy in each course syllabus.

Excused Absences

Students are required to attend all class meetings. Absences due to illness, attendance at university approved activities, and family or other emergencies constitute EXCUSED ABSENCES and must be supported by documentation presented to the instructor prior to or immediately upon the student's return to class. Students are responsible for all oral and written examinations as well as all assignments (e.g., projects, papers, reports) whether absence is Excused or Unexcused.

Unexcused Absences

Accumulation of one week of unexcused absences (for the number of clock hours equivalent to the credit for the course) constitutes excessive absenteeism. The instructor is not required to accept assignments as part of the course requirement when the student's absence is unexcused. Each course syllabus will include a clear statement relative to whether late or past due assignments will be accepted toward satisfying the course requirements.

A student who believes that the penalty received following violation of this attendance policy is unjust may first confer with his/her academic advisor. If necessary, the matter may be appealed in writing to the course instructor, the instructor's department head, and finally, to the

instructor's dean who must refer the matter to the Chair, Admissions and Academic Standards Committee if it cannot be resolved within the college offering the course.

Absences on Religious Holy Days

In accordance with Texas Education Code, Section 61.003, subdivision (7), a student may be absent from classes for the observance of a religious holy day and will be permitted to take missed examinations and complete missed assignments provided the student has notified the instructor of the planned absence in writing and receipt of that notice has been acknowledged by the instructor in writing. "A religious holy day means a holy day observed by a religion whose place of worship is exempt from property taxation under the Texas Tax Code, Section 11.20."

End of Semester Course Assessment Report

This summary contains the following Information

1. Performance Statistics

- Total number of students in class
- The class average performance **(stated as %)** in each course outcome assessed in this class and the **two previous times course was assessed.**
- The acceptable class average for the class in each outcome area as set by your Department. **You cannot use any number of your choice**
- Percentage of students who scored below the expected average in each outcome.

2. Implementation Summary

- Brief summary of plans implemented during the semester based on last assessment report

3. Perceived Problems

- Instructor's **critical evaluation** of perceived problems that affected students' performance. **Realistic problems should be identified throughout the semester and summarized in this section of the report.**

4. New Plans for Addressing Problems

- Instructor's plans for addressing the perceived problems the next time the class is taught. **These should be specific enough for another instructor to implement. Most of these should be things that, you, the instructor can implement to help students to improve. Be creative.**

5. Overall Trend over last three assessment periods

- Instructors summary of overall performance trend for each outcome measured over the last three periods.

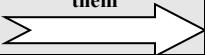
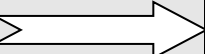
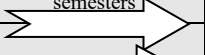
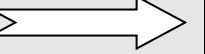
5. Were Expectations Met?

- Answer **YES** if the **class average was above the expected average** and the **stated percentage of students** scored at or above the expected average, else answer **NO.**

END OF SEMESTER COURSE OUTCOME ASSESSMENT REPORT
ELEG 4301-001 ENERGY CONVERSIONS
Fall 2021 SEMESTER

Report Prepared by: Dr. John Fuller

Report Date: December 24, 2021

Semester	Analysis Type	Number of Students	Sub-Outcome 6.1 Teach students the fundamental concepts of electrical power and electrical machines (DC and AC machines and transformers)				Sub-Outcome 6.2 To teach students how to analyze different type of machines				Sub-Outcome 6.3 To teach students the use of modern engineering tools such as Matlab and FPGA programming			
			Expected Class Average /	Expected Percent of students at or above average	Class Average	% Students meeting Expected Average	Expected Class Average /	Expected Percent of students at or above average	Class Average	% Students meeting Expected Average	Expected Class Average /	Expected Percent of students at or above average	Class Average	% Students meeting Expected Average
Fall 2021	Direct	24	75	70	55	38	75	70	64	33	75	70	100	96
Spring 2021	direct	6	75	70	75	83	75	70	67	25	75	70	90	80
Fall 2020	Direct	24	75	70	81	75	75	70	93	96	75	70	91	75
Fall 2019	Direct	9	75	70	84.8	100	75	70	69.7	0	75	70	68.9	45
Perceived Problems	Perceived problems are directly related to the PC and the sub items under them 		The course was taught face to face for the fall 2021 semester. Students did not meet the expected class average and 38% of the students were above the expected average of 70%.				Class average was below expected level and only 33% of students were above the expected class average.				No perceived problem with Students using engineering tools such as Matlab.			
Plans for Addressing Problems	Plans for address specific measures to address PC and their sub areas 		Face to Face instruction and test taking has eliminated students relying on notes and/or distributed material. Once students become acclimated to in class test taking the average should increase.				The following is comments for Spring 2021: Students will return to online instruction in the Fall of 2021 and will be able to counsel with Professor during given office hours. For Fall 2021 tit will take time for students to readjust to classroom instruction.				Fall of 2021 lecture was face to face and students were able to use the university computers located in the Electrical and Computer Engineering building. Required programming Software is already loaded on the computers			
Overall Trend over Periods	Ascertain if there were improvements over previous semesters 		Online instruction started a downward trend in the class average and the Fall 2021 semester had the greatest decrease.				The average for outcome 6.2 has been low for online instruction and for face to face in the Fall of 2021.				Directly following the use of computers for online instruction and at home software use, the students are well acclimated to software usage, and had no problem solving assigned problems.			
Were Expectations Met?			NO				NO				YES			

**Grade Sheet Showing
Student and Class Performance in Outcomes
The computed semester average in each outcome
as stated in the Assessment report are
highlighted in boldface**

COURSE ASESMENT

ELEG 4301 ENERGY CONVERSIONS

Fall 2021 Dr. John Fuller Instructor

ELEG 4301- PO1 Fall 2021	Midterm Exam 90 points	First Exam 50 points	Avg. % ?/140	Third Quiz 100 points	Final Exam 150	Avg. % ?/250	Matlab Program ?/30
Student			Outcome 1 Outcome 6.1			Outcome 6.2	Outcome 6.3
1	31	30	44	93	113	82	30
2	50	18	49	77	76	61	28
3	83	48	94	97	148	98	32
4	25	34	42	67	75	57	30
5	48	0	34	79	99	71	30
6	19	18	26	20	40	24	29
7	87	42	92	68	109	71	30
8	0	15	11	35	13	19	0
9	80	33	81	80	116	78	28
10	42	0	30	56	52	43	30
11	57	49	76	100	100	80	31
12	100	40	100	86	140	90	32
13	0	27	19	70	85	62	30
14	34	27	44	80	68	59	30
15	100	50	100	86	138	90	31
16	15	22	26	70	30	40	30
17	20	19	28	67	51	47	30
18	43	27	50	73	88	64	33
19	90	50	100	86	128	86	30
20	30	26	40	76	65	56	30
21	36	19	46	69	71	56	30
22	39	18	41	68	54	49	30
23	73	33	76	79	95	70	30
24	64	48	80	98	93	76	30
Overall Avg. %			55%			64%	100%

**OUTCOME SPECIFIC ASSIGNMENTS
USED TO ASSESS OUTCOMES**

**(Provide at least two assignments used to specifically
measure each outcome and justify the suitability of the
assignments for the outcome being measured)**

**ELECTRICAL AND COMPUTER ENGINEERING
DEPARTMENT
OUTCOMES SPECIFIC ASSIGNMENT COVER SHEET
ENERGY CONVERSIONS
Fall 2021
Instructor: Dr. John Fuller**

Title of Assignment

First Quiz

Outcome Measured Using this Assignment

Outcome 1

An ability to identify, formulate, and solve **complex engineering problems** by applying principles of engineering, science, and mathematic.

Check the complex engineering problem characteristics related to this assignment

Assignment problem	
	involves wide-ranging or conflicting technical issues,
	has no obvious solution
	Addresses problems not encompassed by current standards and codes
	involves diverse groups of stakeholders
X	includes many component parts or sub-problems
	involves multiple disciplines
X	has significant consequences in a range of contexts
Assignment problem involves the application of the principles of	
X	engineering
	science
X	mathematics

Brief justification of why this assignment is suitable for this outcome

The questions on this first exam tests the student's ability to identify relevant laws and equations, formulate the solution methodology, and solve the resulting engineering equations in power systems.

First exam

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ASSIGNMENTS FOR OUTCOME 6.1

Teach students the fundamental concepts of electrical power and electric machines (DC and AC machines and transformers)

**ELECTRICAL AND COMPUTER ENGINEERING
DEPARTMENT
OUTCOMES SPECIFIC ASSIGNMENT COVER SHEET
ENERGY CONVERSIONS**

Fall 2021

Instructor: Dr. John Fuller

Title of Assignment

Midterm Exam

Outcome Measured Using this Assignment

Outcome 6.1

Teach students the fundamental concepts of electrical power and electric machines (DC and AC machines and transformers)

Check the complex engineering problem characteristics related to this assignment

Assignment problem	
	involves wide-ranging or conflicting technical issues,
	has no obvious solution
	Addresses problems not encompassed by current standards and codes
	involves diverse groups of stakeholders
X	includes many component parts or sub-problems
	involves multiple disciplines
	has significant consequences in a range of contexts
Assignment problem involves the application of the principles of	
X	engineering
X	science
X	mathematics

Brief justification of why this assignment is suitable for this outcome

The questions on the midterm exam test the students ability to identify relevant laws and equations, formulate the solution methodology, and solve the resulting engineering equations in power circuits.

**Midterm Exam as given on Canvas and
Sample student work**

ASSIGNMENTS FOR OUTCOME 6.2

To teach students how to analyze different type of machines

**ELECTRICAL AND COMPUTER ENGINEERING
DEPARTMENT
OUTCOMES SPECIFIC ASSIGNMENT COVER SHEET
ENERGY CONVERSIONS
Fall 2021
Instructor: Dr. John Fuller**

Title of Assignment

Final Exam

Outcome Measured Using this Assignment

Outcome 6.2

To teach students how to analyze different type of machines

Brief justification of why this assignment is suitable for this outcome

To give the students the knowledge of the fundamental operation of various AC and DC machines and their operation in various situations.

ASSIGNMENTS FOR OUTCOME 6.3

**To teach students the use of modern engineering tools such as Matlab
and FPGA programming**

**ELECTRICAL AND COMPUTER ENGINEERING
DEPARTMENT
OUTCOMES SPECIFIC ASSIGNMENT COVER SHEET
ENERGY CONVERSIONS**

Fall 2021

Instructor: Dr. John Fuller

Title of Assignment

**Matlab Program on development of motor stator generated
magnetic rotating field**

Outcome Measured Using this Assignment

Outcome 6.3

**An ability to develop and conduct appropriate experimentation, analyze
and interpret data, and use engineering judgment to draw conclusions**

Check the communication problem characteristics related to this assignment

Brief justification of why this assignment is suitable for this outcome

Computer programming of rotating magnetic field as generated by the stator winding. The rotating field is fundamental to motor operation and the understanding of permanent magnet motors as presently used in automobiles. This project involves the mathematics to set up a rotating field and the simulation of that field using computer programming

