

COURSE ASSESSMENT REPORT

**ROY G. PERRY COLLEGE OF ENGINEERING
ELECTRICAL AND COMPUTER ENGINEERING
DEPARTMENT
PRAIRIE VIEW A&M UNIVERSITY**

ASSESSMENT REPORT COVER PAGE

**ELEG 4305-P01 ELECTROMAGNETIC FIELD
THEORY I**

FALL 2021 SEMESTER

NAME OF INSTRUCTOR: Sarhan M. Musa

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Detailed Course Syllabus
(Distributed to Students at the beginning of the Semester)



ELEG 4305-Electromagnetic Field Theory I Fall 2021

General Course Information

Information Item	Information
Instructor:	Sarhan Mahmoud Musa
Section # and CRN:	Section #: P01 and CRN:17882
Office Location:	Electrical Engineering Building (NENGR BLDG), Room 328
Office Phone:	936-261-9860
Email Address:	smmusa@pvamu.edu
Office Hours:	MWF: 11:00 am-12:00 pm; 1:00 pm-2:00 pm (virtual office); and by appointment
Mode of Instruction:	Hybrid
Course Location:	Building 0793 - New Electrical Engr Building, Room 221
Class Days & Times:	MWF-12:00 pm - 12:50 pm
Catalog Description:	ELEG 4305 Electromagnetic Field Theory I: 3 semester hours. Review of relevant mathematics, electricity, and magnetism. Study of dielectrics, Poisson's and Laplace's equations, magnetic flux, magnetic fields, and magnetic boundary conditions, Ampere's Circuital law, time varying fields and Maxwell's.
Prerequisites:	ELEG 2305 and MATH 4317
Co-requisites:	None
Required Text(s):	Matthew N. O. Sadiku, "Elements of Electromagnetics," (7 th edition), Oxford University Press, 2018, ISBN-13: 978-0190698614.
Recommended Text(s):	William Hayt and John Buck, "Engineering Electromagnetics," (9 th edition), McGraw Hil, 2019, ISBN13: 9780078028151.

General Course Information Table

Student Learning Outcomes:

Upon successful completion of this course, students will be able to:	Program Learning Outcome Alignment	Core Curriculum Outcome Alignment
1. Determine the electromagnetic (EM) vector analysis and three-dimensional coordinate systems		
2. Analyze the EM electrostatics and magnetostatics		
3. Evaluate the EM boundary-value problems and dielectric		
4. Analyze the EM time-varying fields and Maxwell's equations problems		
5. Apply the EM theory to design EM systems		
6. Acquire and apply new knowledge as needed, using appropriate learning strategies.	ABET-SO-7	

Student Learning Outcomes Table

ABET PROGRAM OUTCOMES (ABET Criterion 3, Student Outcome 7):

On completion of course the student should have demonstrated an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

ONLINE CLASS PARTICIPATION AND ATTENDANCE:

Daily attendance and participation in online class discussions.

ASSIGNMENTS:

Written assignments designed to supplement and reinforce course material. Problems on the topics discussed in class will be assigned. Assignments should be completed and handed on time. **Late assignments will not be accepted.** Dates will be announced.

PROJECT:

The project is meant to measure an ability to acquire and apply new knowledge as needed, using appropriate learning strategies. It is well known that different people are better learning new things in different ways. The report should include, among other things, identify which type of "Learner" best describe yourself, what is your learning style, why?, how did that help you complete the project.

QUIZZES:

Written quizzes designed to supplement and reinforce course material. Dates will be announced.

EXAMS/TESTS:

Written tests designed to measure knowledge of presented course material. Dates will be announced.

COMPUTER APPLICATION PROBLEMS:

There will be computer applications problems that will involve the use of the MATLAB (The MathWorks, Inc.) and/or LABVIEW (National Instruments Corporation) for solving electromagnetic field theory. Dates will be announced.

Major Course Requirements		
Method of Determining Final Course Grade		
Course Grade Requirement	Value	Total
1. Attendance & Participation	5%	5%
2. Assignments	5%	5%
3. Quizzes	20%	20%
4. Project	10%	10%
5. Exams (3 exams; 20% each)	60%	60%
Total:	100%	100%
Course Grade Requirement Table		
Grading Criteria and Conversion:		
A = 90 –100 %		
B = 80 – 89 %		
C = 70 – 79 %		
D = 60 – 69 %		
F = 0 – 59 %		
Detailed Description of Major Assignments:		
Assignment Title or Grade Requirement	Description	
1. Quizzes	Written quizzes designed to supplement and reinforce course material	
2. Project	Written project designed to acquire and apply new knowledge as needed, using appropriate learning strategies	
3. Exams	Written tests designed to measure knowledge of presented course material	
Detailed Description of Major Assignments Table		

Course Procedures or Additional Instructor Policies

Taskstream:

Taskstream is a tool that Prairie View A&M University uses for assessment purposes. One of your assignments may be required to be submitted as an "artifact," an item of coursework that serves as evidence that course objectives are met. If applicable, more information will be provided during the semester by your department, but for general information, you can visit Taskstream via the link in eCourses.

Semester Calendar

Week	Description
Week One: Topic Description	VECTOR ANALYSIS
Readings:	M: Introduction and Syllabus, Chapter 1-section 1.3 W: Chapter 1-sections 1.4 -1.5 F: Chapter 1-sections 1.6 -1.8
Assignment (s):	Assignment will be announced
Week Two: Topic Description	VECTOR ANALYSIS
Readings:	M: Chapter 2-sections 2.2 - 2.5 W: Chapter 3-sections 3.2 - 3.6 F: Chapter 3-sections 3.7 - 3.9
Assignment (s):	Assignment 1
Week Three: Topic Description	ELECTROSTATICS
Readings:	M: Chapter 4-sections 4.2 - 4.5 W: Chapter 4-sections 4.6 - 4.8 F: Chapter 4-sections 4.9 - 4.11
Assignment (s):	Quiz 1
Week Four: Topic Description	ELECTROSTATICS
Readings:	M: Chapter 5-sections 5.2 - 5.5 W: Chapter 5-sections 5.6 - 4.8 F: Chapter 5-sections 5.9 - 5.12
Assignment (s):	Assignment 2
Week Five: Topic Description	ELECTROSTATICS
Readings:	M: Chapter 6-sections 6.2 - 6.4 W: Chapter 6-sections 6.5 - 6.7 F: Chapter 6-sections 6.8 - 6.9
Assignment (s):	Quiz 2
Week Six: Topic Description	MAGNETOSTATICS
Readings:	M: Chapter 7-sections 7.2 – 7.3 W: Chapter 7-section 7.4 F: Chapter 7-section 7.5
Assignment (s):	Exam 1
Week Seven: Topic Description	MAGNETOSTATICS
Readings:	M: Chapter 7-section 7.6 W: Chapter 7-sections 7.7 - 7.8 F: Chapter 7-sections 7.9 - 7.10
Assignment (s):	Assignment 4
Week Eight: Topic Description	MAGNETOSTATICS
Readings:	M: Chapter 8-section 8.2

	W: Chapter 8-section 8.3 F: Chapter 8-section 8.4
Assignment (s):	Quiz 3
Week Nine: Topic Description	MAGNETOSTATICS
Readings:	M: Chapter 8-section 8.5 W: Chapter 8-section 8.6 F: Chapter 8-section 8.7
Assignment (s):	Exam 2
Week Ten: Topic Description	MAGNETOSTATICS
Readings:	M: Chapter 8-section 8.8 W: Chapter 8-section 8.9 F: Chapter 8-section 8.10
Assignment (s):	Assignment 5
Week Eleven: Topic Description	MAGNETOSTATICS
Readings:	M: Chapter 8-section 8.11 W: Chapter 8-section 8.12 F: Chapter 8-section 8.13
Assignment (s):	Quiz 4
Week Twelve: Topic Description	WAVES AND APPLICATIONS
Readings:	M: Chapter 9-section 9.2 W: Chapter 9-section 9.3 F: Chapter 9-section 9.4
Assignment (s):	Assignment will be announced
Week Thirteen: Topic Description	WAVES AND APPLICATIONS
Readings:	M: Chapter 9-section 9.5 W: Chapter 9-section 9.6 F: Chapter 9-sections 9.7 - 9.8
Assignment (s):	Assignment 6
Week Fourteen: Topic Description	WAVES AND APPLICATIONS
Readings:	M: Chapter 9-section 9.9 *W: Thanksgiving Holiday (University Closed) *F: Thanksgiving Holiday (University Closed)
Assignment (s):	Project
Week Fifteen: Topic Description	WAVES AND APPLICATIONS
Readings:	M: Chapter 9-section 9.10 W: Last day *F: Final Exams
Assignment (s):	Assignment 7
Week Sixteen: Topic Description	FINAL EXAMS
Readings:	M: Chapter 9-section 9.10 W: Last day *F: Final Exams
Assignment (s):	Exam 3

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

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 the Office for Student Conduct, studentco

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.

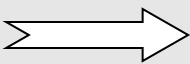
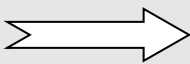
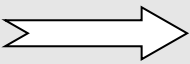
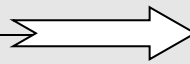
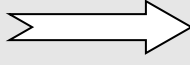
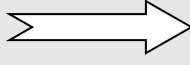
5. Were Expectations Met?

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 **NO.**

END OF SEMESTER COURSE OUTCOME ASSESSMENT REPORT
ELEG 4305-P01 ELECTROMAGNETIC FIELD THEORY I
FALL 2021 SEMESTER

Report Prepared by: Musa

Report Date: December 2021

Semester	Analysis Type	Number of Students	Outcome 7 An ability to acquire and apply new knowledge as needed, using appropriate learning strategies		
			Expected Class Average/	Class Average	% Students meeting Expected Average
Fall 2021	Direct	28	70	82	89
Fall 2020	Direct	22	70	82	84
Fall 2019	Direct	31	70	88.7	100
Implementation Summary			Students used resources available in the library and on the Internet to write a short paper on the long- and short-term effects of electromagnetism and how effects can be minimized. Also, the students need to include what is their learning strategy, how do they use the strategy to tackle the problem and describe how electromagnetic radiation can have detrimental impact.		
Perceived Problems			Students were able to identify adequate information needed for understanding of the aspects of the project and what needed to be done. However, some students did not follow some of the required format/guideline for their report and did not submit the project due to COVID.		
Plans for Addressing Problems			Instructor will emphasis on the importance of the guideline and how not following it can affect their grade.		
Overall Trend over Periods			Overall trends continue to be good, emphasize more on individual practice.		
Were Expectations Met?	 		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**

END OF SEMESTER COURSE OUTCOME ASSESSMENT REPORT
ELEG 4305-P01 ELECTROMAGNETIC FIELD THEORY I
FALL 2021 SEMESTER

Report Prepared by: Musa

Report Date: December 2021

Student	ABET Outcome 7
1	100
2	92
3	86
4	95
5	89
6	99
7	95
8	95
9	87
10	97
11	87
12	85
13	0
14	99
15	89
16	92
17	95
18	88
19	88
20	85
21	97
22	89
23	86
24	0
25	87
26	97
27	90
28	0
Class Average	82%

**OUTCOME SPECIFIC ASSIGNMENTS
USED TO ASSESS OUTCOMES**

ASSIGNMENTS FOR OUTCOME “7”

An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

In this project, a team consisting of about four students, must design and construct a servomechanism /control system (such as Timer controlled traffic light, Automatic water pump controller, Obstacle avoid robot, Integrated control cooling system, or environmental control system) that will meet some design specifications

DEPARTMENT

OUTCOMES SPECIFIC ASSIGNMENT COVER SHEET

ELEG 4305-P01 ELECTROMAGNETIC FIELD THEORY I FALL 2021

Instructor: Sarhan M. Musa

Title of Assignment

EM Project

Outcome Measured Using this Assignment

Outcome 7

An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Check the outcome appropriate characteristics related to this assignment

Ability to Acquire new knowledge using the appropriate learning strategies	
Requires students to:	
x	Be knowledgeable of and use different learning strategies <i>(Instructor may provide information on different learning strategies)</i>
X	Identify and take advantage of learning opportunities available in the library, online resources, seminars, webinars, conferences, workshops, and tutorials.
X	Be aware of the need for and are able to independently acquire additional knowledge and data needed for solving problem using appropriate learning strategies and tools.
Ability to apply new knowledge to solve problems	
Requires students to:	
X	Demonstrate appropriate use of the new knowledge to solve problems.

Brief justification of the suitability of assignment for the outcome

Students used resources available in the library and on the Internet to write a short paper on the long- and short-term effects of electromagnetism and how effects can be minimized. Also, the students need to include what is their learning strategy, how do they use the strategy to tackle the problem and describe how electromagnetic radiation can have detrimental impact.



**Department of Electrical and Computer Engineering Electromagnetic Field Theory I /
ELEG 4305-P01 Project- Fall 2021**

Using resources available in the library and on the Internet, write a short report on the long- and short-term effects of electromagnetism and how the effects can be minimized. Your report should include the following:

- (1) What is your learning strategy?
- (2) How do you use the strategy to tackle the problem?
- (3) Describe how electromagnetic radiation can have detrimental impact.
- (4) The report should not be more than 5 pages long.
- (5) The report should contain at least 10 references (journals, conferences, and web links).

Sample topics could be:

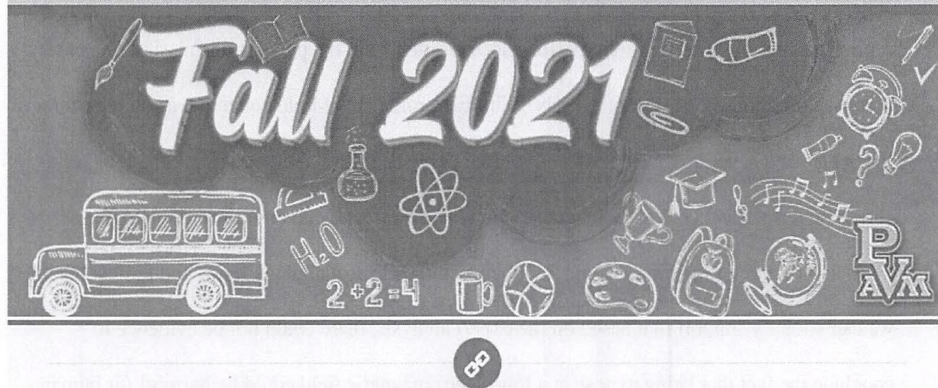
- (a) Effects of mobile-phone electromagnetic fields on human brain.
- (b) Effects of high voltage power transmission lines on human body.
- (c) Effects of cell phone towers on human body.
- (d) Effects of Wi-Fi on human body.
- (e) Effects of smart meters on human body.
- (f) Effects of radiation from air travel on the passengers.
- (g) Electromagnetic interference with aircraft systems.
- (h) Electromagnetic field coupling to buried cables.

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ELECTROMAGNETIC FIELD THEORY I: ELEG 4305

Electromagnetic Field Theory I-ELEG 4305



Class Meeting Dates/Times: MWF-12:00 pm - 12:50 pm

Instructor Name: Sarhan Musa

Instructor Email: smmusa@pvamu.edu

Office Phone #: 936-261-9860

Office Hours: MWF: 11:00 am-12:00 pm; 1:00 pm-2:00 pm (virtual office); and by appointment

Office Location: Building 0793 - New Electrical Engr Building, Room 221

Textbook Information (Required and Supplemental):

Semester Fall 2021

1- Introduction

The debate regarding the effects of electromagnetic fields on human body have long time been considered as one important subject on the table and specially for those who are living close the high voltage power line, even the research seems to indicate that those who are living close to the high voltage are not facing a large risk. The probability of a relatively small risk can still be considered and cannot be evacuated. Many studies have proved that people who have been exposure to electromagnetic field (EMF) have seen themselves through various effect such as central nervous system, cognitive performance emitted from the power transmission line close to these specific houses [1,4]. In the early 1970, Electromagnetic field concern was on the center of the debate and several article, news and journal published were about regarding the long term and short-term effects of electromagnetic and how the effect can be minimized. [1] After extensive research regarding an approach between the electromagnetic fields and human health, we can strongly support that based on the expert analysis, there could not be evidence to conclude the fact that being expose at a low electromagnetic field could be harmful for human body. At the same time, the international research is working to find out the possibility between the cancer, electromagnetic. [2,7]

2- Electromagnetic Radiation Impact

Electromagnetic radiation such as infrared radiation which is felt as heat and can cause a serious damage on human skin, and X-rays well known as causing mutation which can be the origin of cancer. For instance, electromagnetic field impact on human body is very dangerous and harmful this can justify the fact that doctor and dentist mostly are standing behind a protective screen whenever they are working or taking lot of X-rays [4]. Also, we all agree the fact that human body temperature can be found raising up or down according to the person body

because different people will probably have different body temperature, this explain the fact that someone could death if that person is exposed to a high dosage of RF radiation and it's not excluded that RF radiation can also be responsible of skin burning and attacking our central nervous. [7]

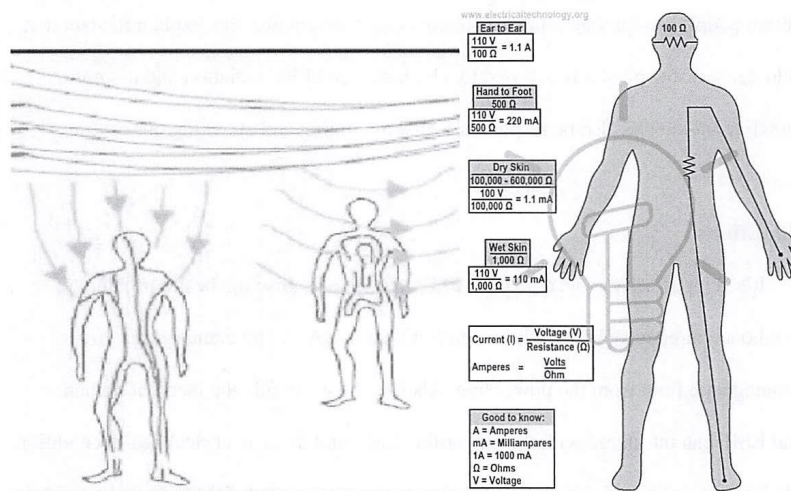
3- Health Effects

It's scientifically proved that the EMF may help to arise the health problem of those who are already sick. In addition, each human DNA can be damaged due to the electromagnetic field from the power line. Also, without exclude the fact that human natural EMF can interfered with the power line EMF and those in critical health condition should be more impacted. Some scientific have demonstrate that if there could be a risk of getting cancer because of power line, it's then necessary to underline that these risks are very small.[5,6]

4- Short-term effect

Being exposure to an electric field which is produced by an alternative current (AC) transmission line can create a serious damage on people and the most common effect of exposure to electric field of AC transmission lines such as: spark discharge, steady-state AC currents.

Respectively and according to the studies, these effects can be explained by the fact that a transient current through a human body might appears at the breaking down of an AC transmission lines and the presence of air gap between the subject and conductivity object or the ground will create that transient current harmful for human body. In addition, we also agree that human body creates a natural electric field which can also exert a force on the hair and being responsible of hair stimulation. [10]

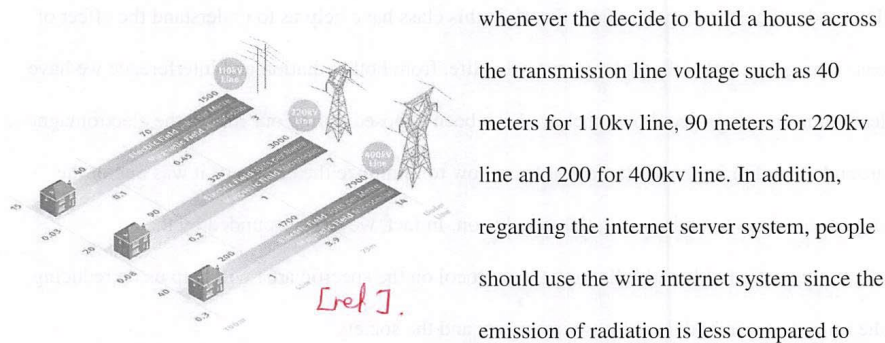


Minimized Effect or Measure preventive [R4]

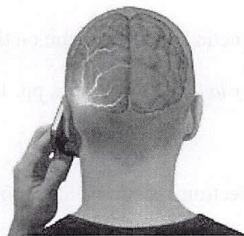
The advanced of the technologies have been made to provide future significant value but

→ make references for figures

People must be careful about their today devices and the ways of using them. The effects of mobile-phone electromagnetic field on human brain can create a cancer so according to international agency of research on cancer (IACR), we should no longer spent too much time on the phone and the using of the speaker mode and headphone will help us to reduce the fact of being expose to the radio frequency (RF). [10] Regarding the minimized effect from the high voltage power line transmission, people should respect the electric filed voltage per meter



those wireless counterparts.[9] The using of LED in the houses which do contain a mercury instead of incandescence will help to reduce the effect electromagnetic and also good for our skin because the LED do not contain an ultraviolet ray.



make references at the end
of the sentence before the
period.

4-1. Learning strategy and how to use it. I always use a microlearning such as breaking down some complex problem into easier way to understand it. Interactive with other students and set up a study group. Mostly, to tackle the problem, I will always go over all the exercises that were done in class by the professor and make sure that I do understand the concept and the application of the material to prepare myself for the coming exam session.

5- Conclusion

The study of electromagnetic field theory in this class have help us to understand the effect of electromagnetic fields through our everyday life, from both radiation and interference we have learned from this project how much we have been exposed during our life on the electromagnetic around of us. For instance, the fact of learn how to minimize the effects of it was one of the important things to underline in this conclusion. In fact, we are surrounded by the electromagnetic fields and following the protocol on the specific area will help us on reducing the impact of it in both healthy environments and the society.

Bold it → Reference

- 1- Environmental Health Criteria 35: Extremely low frequency (ELF) fields. WHO, Geneva, 1984.
- 2- Public health and safety at work. Non-ionizing radiation. Sources, exposure, and health effects. EC, Brussels, 1996
- 3- E. Kivrak, G. Altun, K. Yurt, "Effects of Electromagnetic Fields Exposure on the Antioxidant Defense System," *Journal of Microscopy and Ultrastructure*, pp. 167-168, October 2017.
- 4- A. Goldsworthy, "The Biological Effects of Weak Electromagnetic Fields Problems and Solutions," pp. 4-10, March 2012.

- 5- N. Kapoor, S. Singh, "Health Implications of Electromagnetic Fields, Mechanisms of Action, and Research Needs," *Hindawi Publishing Corporation*, pp. 1-5, September 2014.
- 6- A. Żak, B. Lewczuk, G. Redlarski, et al, "Influence of Electric, Magnetic, and Electromagnetic Fields on the Circadian System: Current Stage of Knowledge," *Hindawi Publishing Corporation*, pp. 1-7, July, 2014.
- 7- C. Lentino, P.A. Deuster, R.B. Costello, "The Effectiveness of Melatonin for Promoting Healthy Sleep: A Rapid Evidence Assessment of the Literature," *Nutrition Journal*, vol.
- 8- "Assessment of the Possible Health Effects of Ground Wave Emergency Network," *Committee on Assessment of the Possible Health Effects of Ground Wave Emergency Network (GWEN)*, pp. 25-26, 1993.
- 9- <https://www.cancer.gov/about-cancer/causes-prevention/risk/radiation/cell-phones-fact-sheet> and vesttech.com/how-cell-phone-radiation
- 10- s.healthwell.com/serp?q=electromagnetic+radiation+and+health&sc=3agW19Lxzzkv1