

COURSE ASSESSMENT BINDER

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

ASSESSMENT REPORT COVER PAGE

**ELEG 4248 SENIOR DESIGN &
PROFESSIONALISM II**

SPRING 2022 SEMESTER

NAME OF INSTRUCTOR: Vewiser Turner & Sarhan Musa

**PRAIRIE VIEW A&M UNIVERSITY
ROY G. PERRY COLLEGE OF ENGINEERING
DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
ELEG 4248- Senior Design & Professionalism II
SPRING 2022**

I. COURSE DESCRIPTION IN ABET FORMAT

II. ASSESSMENT RESULTS FOR CURRENT AND PAST THREE PERIODS

Program Outcomes Assessed in Course

Assessment Summary of Class Semester Averages for Outcomes

End of Semester Course Outcomes Assessment Reports

III. FINAL EXAMS PRESENTATIONS

Summary of Topics covered by Exam

Original Test Questions & Master Solution/grading scheme used

(Summary of topics can be a separate page or include on the assignment itself)

Above Average (Graded original work)

Average (Graded original work)

Below Average (Graded original work)

III. FINAL EXAMS REPORTS

Summary of Topics covered by Quiz

Original Quiz Questions & Master Solution/grading scheme used

Above Average (Graded original work)

Average (Graded original work)

Below Average (Graded original work)

IV. TEAMWORKS

Summary of Topics covered by Homework

Original Homework Questions & Master Solution/grading scheme used

Above Average (Graded original work)

Average (Graded original work)

Below Average (Graded original work)

VI. ETHICS

Summary of Topics Covered by Project

Project Problem Statement and Grading Scheme

Above Average (Graded original work)

Average (Graded original work)

Below Average (Graded original work)

ECE Sr Design Syllabus in ABET Format

1.	Course number and name:	ELEG 4247 (Sr Design - Part I) ELEG 4287 (Sr. Design - Part II)
2.	Credits:	2 credit hours Subject Area: Engineering Topics
3.	Instructor's or course coordinator's name:	Mr. Vewiser J Turner, Jr Dr. Sarhan Musa
4.	Text book: Title:	PVAMU Sr Design Manual
	a. Other Supplemental material	Instructor developed material and topic example
5.	Specific course information	
	a. Brief description of the content of the course (catalog description)	ELEG 4247/4287 Sr Design & Professionalism Part I and Part II: These courses are a two-semester capstone experience involving engineering design of an industrial or advanced team project. Elements of ethics and professionalism in engineering practice will be integrated into the project experience. The project will include application of relevant engineering codes and standards, as well as realistic constraints. Design achievements are demonstrated by written reports, oral presentation, and professional standards and ethics examinations.
	b. Prerequisites or Co-requisites	MCEG 2013, GNEG 3061, CVEG 2454, CHEG 2003, COMM 1003, ELEG 2011, ELEG 3063, ELEG 3043, PHYS 2511, PHYS 2521, GNEG 2021, GNEG 1121, CHEM 1021.
	c. Indicate whether a required, or elective,	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 learning outcomes:</i>
	- Understand the given problem and identify the subject area and concepts involved - Convert the problem into a well labeled sketch or appropriate representation (free body diagram,	Outcome 1 (ELEG 4287 Only) An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

	flow chart, functional block diagram, schematic diagram, etc.) • Formulate the complex engineering problem into an engineering model or design – showing any math or science or technology needed to validate the design • Design a practical solution to address the problem • Identify parts and other needed capability (like coding) to solve the problem or proposal • Deliver a final solution that integrates all aspects of the design from hardware to software	
	• Identify and list the design objectives, customer/marketing requirements and constraints • Develop a project management plan using, Gantt type charts - and break down work into tasks/ subtasks and identify the deliverables for each person. Also, establish milestones to track progress. • Identify and gather the types of information needed for a complete understanding of all aspects of the project	Outcome 2 (ELEG 4287 Only) An ability to (1) apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factor
	• Prepare an executive summary for the report • Prepare the written report in accord with the Senior Projects Report Manual and instructor guidance including all tables, charts, graphs and literature references	Outcome 3A (ELEG 4247 & 4287) An ability to communicate effectively with a range of audiences (Written Technical Communication)
	• Use vocabulary appropriate to technical subject and audience with clarity and confidence • Demonstrate broader impacts of project (where applicable on society, economics, technical, environmental, safety)	Outcome 3B (ELEG 4247 & 4287) An ability to communicate effectively with a range of audiences, orally
	• Demonstrate Understanding Professional Code of Ethics • Identify ethical impact on Safety, Environmental, Technical, Global or Cultural as appropriate	Outcome 4 (ELEG 4247 & 4287) An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments

	• Function Effectively on a Team • Able to establish goals and objectives • Able to resolve conflicts	Outcome 5 (ELEG 4247 & 4287) An ability to (1) function effectively on a team whose members together (1) provide leadership, create a collaborative and inclusive environment, (3) establish goals, plan tasks, and meet objectives
7	Brief list of topics to be covered	Topic 1 - Setting the Stage Topic 2 - Forming Teams/Project Selection Topic 3 – Business/Project Identification of Needs Topic 4 – Weekly Progress Report Topic 5 – Matrix and Literature Review Topic 6 – Impact on Society, Safety, etc. Topic 7 – Project Comparison Topic 8 – Project Planning Topic 9 – Ordering of Parts Topic 10 – Design Constraints and Assumptions Topic 11 – Codes and Standards Topic 12 – Executive Summary Topic 13 – Engineering Ethics • Laboratory Time on Thursday's that allow students to work on project design <u>As needed:</u> • In class practice presentations • Periodic Project and or Presentation Checkpoint • Some topics may be repeated to ensure students comprehend the subject <u>Other:</u> Outside Industry speakers (up to 3 per semester) will join the class to talk on various Professionalism topics

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

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

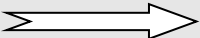
5. Were Expectations Met?

- 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 4248-P01 SENIOR DESIGN & PROFESSIONALISM II / SPRING 2022 SEMESTER
(ELECTRICAL ENGINEERING STUDENTS)

Report Prepared by: VJ Turner & Sarhan Musa

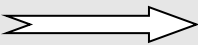
Report Date: MAY 17, 2022

Semester	Analysis Type	Number of Students	Outcome 1 An ability to identify, formulate, and solve complex engineering problems (CEP) by applying principles of engineering, science, and mathematics.			Outcome 2 An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.		
			Expected Average	Class Average	% Students Above Expected Average	Expected Average	Class Average	% Students Above Expected Average
Spring 2019	Direct	30 - EE	80	90	100%	80	84	100%
Spring 2020	Direct	19 - EE	80	93	100%	80	94	100%
Spring 2021	Direct	33 - EE	80	91	100%	80	89	100%
Spring 2022	Direct	26-EE	80	90	100%	80	88	100%
Implementation Summary	Items implemented from previous report or after meeting previous instructor		Each project had an ECE faculty sponsor with helped the successful deliverable for a final design. Each team was able to have a working design project.			Lecture on public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors was held early in the design process to ensure appropriate consideration of these factors.		
Perceived Problems	Perceived problems are directly related to the PC and the sub items under them		Main issue is getting the projects assigned early in the semester and having faculty or graduate assistant available to give timely technical advice and direction.			We want students to have data to back up their findings and for the students to fully grasp, so we had to discuss and give examples on several lectures to them to get it. Some students' teams still do not provide any data or statistics to support their analysis.		
Plans for Addressing Problems	Plans for address specific measures to address PC and their sub areas		Compile project list from faculty and or company sponsors in August so students can have access and decide on projects very early in the semester. In addition, need to have access to budget and procurement card to ensure parts are ordered and delivered in a timely fashion. Goal is to order parts before Thanksgiving break and have on site by January semester start.			We now have good examples from previous classes to show and use in the lecture. We will continue to stress the need for data to support their findings.		
Overall Trend over Periods	Ascertain if there were improvements over previous semesters		We made progress and we will continue in moving in right direction.			We made progress and we will continue in moving in right direction.		
Were Expectations Met?			YES			YES		

END OF SEMESTER COURSE OUTCOME ASSESSMENT REPORT
ELEG 4248-P01 SENIOR DESIGN & PROFESSIONALISM II / SPRING 2022 SEMESTER
(ELECTRICAL ENGINEERING STUDENTS)

Report Prepared by: VJ Turner & Sarhan Musa

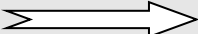
Report Date: MAY 17, 2022

Semester	Analysis Type	Number of Students	Outcome 3 An ability to communicate effectively with a range of audiences (Oral Communication)			Outcome 3 An ability to communicate effectively with a range of audiences (Written Communication)		
			Expected Average	Class Average	% Students Above Expected Average	Expected Average	Class Average	% Students Above Expected Average
Spring 2019	Direct	30 - EE	80	93	100%	80	93	100%
Spring 2020	Direct	19- EE	80	92	100%	80	93	100%
Spring 2021	Direct	33 - EE	80	94	100%	80	90	100%
Spring 2022	Direct	26-EE	80	91	100%	80	88	100%
Implementation Summary	Items implemented from previous report or after meeting previous instructor		We had several interim oral presentations before mid-term and finals oral presentation which provided tips and adjustments to ensure students had training.			We follow the standard COE outline for the written final report. We had provided feedback and examples for written presentations so teams can see examples of higher quality products from previous classes.		
Perceived Problems	Perceived problems are directly related to the PC and the sub items under them		We got good feedback from industrial attendees about this year presentations. Not all students are comfortable on public speaking.			Overall, the final reports are pretty good. However, some students do not understand Gantt charts and struggle to make details project timeline. Primary reason for minor change in class average is that two teams turned in their assignments late which automatically reduce their scores.		
Plans for Addressing Problems	Plans for address specific measures to address PC and their sub areas		We will continue to hold oral practice sessions for students who are uncomfortable speaking. Also, we will stress the professional importance of turning assignments on time.			We now have good writing examples from previous classes to show and use in the lecture. This will speed up the understanding. Also, we may start giving lectures sooner on the final product so students can start to see earlier in the semester what the expectations are for a final written report. We will show more examples of Gantt chart.		
Overall Trend over Periods	Ascertain if there were improvements over previous semesters		We got good feedback from the industry attendees about the quality of our projects and the oral presentations.			The students are getting accustom and more comfortable and we will continue in moving in right direction.		
Were Expectations Met?			YES			YES		

END OF SEMESTER COURSE OUTCOME ASSESSMENT REPORT
ELEG 4248-P01 SENIOR DESIGN & PROFESSIONALISM II / SPRING 2022 SEMESTER
(ELECTRICAL ENGINEERING STUDENTS)

Report Prepared by: VJ Turner & Sarhan Musa

Report Date: MAY 17, 2022

Semester	Analysis Type	Number of Students	Outcome 4 An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts			Outcome 5 An ability to (1) function effectively on a team whose members together (2) provide leadership, create a collaborative and inclusive environment, (3) establish goals, plan tasks, and meet objectives		
			Expected Average	Class Average	% Students Above Expected Average	Expected Average	Class Average	% Students Above Expected Average
Spring 2019	Direct	30 - EE	80	89	100%	80	83	100%
Spring 2020	Direct	19- EE	80	94	100%	80	92	100%
Spring 2021	Direct	33 - EE	80	96	100%	80	90	100%
Spring 2022	Direct	26-EE	80	96	100%	80	90	100%
Implementation Summary	Items implemented from previous report or after meeting previous instructor		In the Spring 2022, each team was given a real Ethics scenario that they presented results, observations etc. in class. By presenting the scenario to the whole class we were able to have classroom learning about each scenario.			For this outcome, we leverage Team Contracts and Weekly Team Progress. Students pick their own teams – we do not force them into a team.		
Perceived Problems	Perceived problems are directly related to the PC and the sub items under them		We do not see any major problem with this topic, all seems to understand the values and importance of ethics.			We like to see students have more details experience with GANTT type charts before coming to senior design.		
Plans for Addressing Problems	Plans for address specific measures to address PC and their sub areas		We will continue to do more classroom discussion on ethics and may be have outside industry speaker on this topic.			Will have to give students good GANTT charts examples of previous teams to ensure we can meet this outcome for project task planning.		
Overall Trend over Periods	Ascertain if there were improvements over previous semesters		Classroom presentation is good for group learning.			We made progress using the weekly progress report.		
Were Expectations Met?			YES			YES		

Grade Sheet Showing
(FOR ELECTRICAL ENGINEERING STUDENTS)

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

Grade Sheet Showing Student and Class Performance in Course Outcomes
ELEG 4248-P01- Senior Design & Professionalism II Spring 2022
(Electrical Engineering Students)

CRN:

27837

Student #	Outcome 1	Outcome 2	Outcome 3 (Oral Communication- Final)	Outcome 3 (Written Communication- Final)	Outcome 4 (Ethics Scenario)	Outcome 5 (Contracts and Reports)
1	90	87	90	83	96	90
2	90	93	88	91	94	90
3	90	94	92	96	97	90
4	90	76	92	74	97	90
5	90	99	97	98	97	90
6	90	85	72	82	85	90
7	90	94	92	96	97	90
8	90	91	95	94	98	90
9	90	95	96	97	97	90
10	90	76	92	74	97	90
11	90	87	90	83	96	90
12	90	76	92	74	97	90
13	90	99	97	98	97	90
14	90	94	92	96	97	90
15	90	91	95	94	98	90
16	90	93	88	91	94	90
17	90	76	92	74	97	90
18	90	76	92	74	97	90
19	90	87	90	83	96	90
20	90	87	90	83	96	90
21	90	91	95	94	98	90
22	90	85	72	82	85	90
23	90	99	97	98	97	90
24	90	87	90	83	96	90
25	90	94	92	96	97	90
26	90	93	88	91	94	90
Class Average	90	89	91	88	96	90