Program: Bachelor of Science (BS), Electronics Engineering Technology (141)

College of Arts and Sciences

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Northwestern Mission. Northwestern State University is a responsive, student-oriented institution committed to acquiring, creating, and disseminating knowledge through innovative teaching, research, and service. With its certificate, undergraduate, and graduate programs, Northwestern State University prepares its increasingly diverse student population to contribute to an inclusive global community with a steadfast dedication to improving our region, state, and nation.

College of Arts and Sciences Mission. The College of Arts & Sciences, the largest college at Northwestern State University, is a diverse community of scholars, teachers, and students, working collaboratively to acquire, create, and disseminate knowledge through transformational, high-impact experiential learning practices, research, and service. The College strives to produce graduates who are productive members of society equipped with the capability to promote economic and social development and improve the overall quality of life in the region. The College provides an unequaled undergraduate education in the social and behavioral sciences, English, communication, journalism, media arts, biological and physical sciences, and the creative and performing arts, and at the graduate level in the creative and performing arts, English, TESOL, and Homeland Security. Uniquely, the College houses the Louisiana Scholars' College (the State's designated Honors College), the Louisiana Folklife Center, and the Creole Center, demonstrating its commitment to community service, research, and preservation of Louisiana's precious resources.

Engineering Technology Department Mission: The Engineering Technology Department is dedicated to delivering high-quality education in the areas of engineering technology, electronics engineering technology, and industrial engineering technology, as well as pre-engineering preparation. The department prepares students for successful careers and enriched lives in the public, private, and nonprofit sectors, and promotes economic development and enrichment of the communities we serve.

Electronics Engineering Technology Mission Statement: The mission of the BS in Electronics Engineering Technology is to produce four-year graduates with the breadth and depth of knowledge in electronics engineering technology to become lifelong productive members of the regional workforce and the local society.

Purpose: The Bachelor of Science in electronics engineering technology program will prepare students to: 1) analyze, test, build, operate, and maintain electronic systems, and 2) manage, maintain, and install low voltage/power systems, automation, and controls. It prepares students for entry positions in government or the private sector in which the ability to implement changes, upgrade operations, set up equipment, analyze problems, and modify if necessary is increasingly critical. It will also prepare interested students for the pursuit of advanced degrees in Engineering and Technology at other institutions.

Methodology: The assessment process for the BS in Electronics Engineering Technology program is as follows:

(1) Data from assessment tools (both direct–indirect, quantitative, and qualitative) are collected and returned to the department head and ET ABET committee.

(2) The department head and ET ABET committee analyze the data to determine whether students have met measurable outcomes.

(3) Results from the assessment are discussed with the program faculty.

(4) The department head, in consultation with the Engineering Technology Advisory Board, will propose changes to measurable outcomes, assessment tools for the next assessment period, and, where needed, curricula and program changes.

Student Learning Outcomes (SLOs):

Student learning outcome data was collected, analyzed, and reported for the Electronics Engineering Technology degree program. Measures used to collect data include reports, case studies, projects, exams, presentations, and written exercises. Assessment data for the academic year 2025-2026 showed that some targets were met or exceeded and, in other cases,not met. Most of the student performance indices for all SLOs were found to be satisfactory. For those assessments where the targets are not met, action plans were devised and will be implemented in the next cycle.

From these results, there were several key actions recommended, and decisions made to enhance student experience and student learning outcomes with the focus onassuring students meet or exceed target expectations.

SLO 1. Ability to apply knowledge, techniques, skills, and modern tools of mathematics, science, engineering, and technology to solve broadly defined engineering problems appropriate to the discipline (ETAC of ABET Outcome1).

Courses to be evaluated:

Measure 1.1. EET 2350 (Advanced Electronics)
Measure 1.2. EET 3310 (Digital Electronics II)

Measure 1.1. Every spring semester, students in EET 2350 are graded using a rubric measuring their ability to design Integrator Circuits. The acceptable target is that 80% of

students score at least 12 out of 16 (75%) on the rubric-based assessment of the project.

Finding: Target was met.

Analysis: In AC 2024-2025, the target was met with 7 out of 8 (88%) students scoring at least 12 out of 16 (75%) on the rubric-based assessment of their integrator circuit. Based on the analysis of the AC 2024-2025 results, the faculty made the following changes in 2025-2026. The instructor did more examples on how to apply Laplace transforms and ODE for the analysis and design of integrator and differentiation circuits.

As a result of these changes, in 2025-2026, the target was met. In AC 2025-2026, 5 out of 6 (83%) students scored at least 12 out of 16 (75%) on the rubric-based assessment of their integrator circuit. The results showed a relatively lower level of student success, relative to those of AC 2024-2025. The single failing measurement can be attributed to the student's inefficient participation.

Decision: In AC 2025–2026, the target was achieved. Based on the assessment results from AC 2025–2026, the faculty will implement the following improvements in AC 2026–2027 to support continuous improvement. The instructor will place greater emphasis on both mathematical analysis and computer simulation for the study of circuit systems. In addition, the instructor will encourage the use of AI tools such as Gemini and ChatGPT to help illustrate the operation and behavior of circuit systems.

Measure 1.2. Every fall semester, students in EET 3310 are graded using a rubric-based assessment to measure their ability to design synchronous counter. The acceptable target is that 80% of students score at least 9 out of 12 (75%) on the rubric-based assessment of the semester project.

Finding: Target was met.

Analysis: In AC 2024–2025, the target was met. EET 4310 was evaluated. All (10 out of 10 students or 100%) scored at least 9 out of 12 (75%) on the rubric-based assessment for the assignment on the design of FM receivers. Based on the analysis of the AC 2024-2025 results, the instructor provided more emphasis on explaining the design aspects of modern FM communication with real life applications. The outlines of the related components ensuring optimum performance was also explained in detail. More group activities were done during class time, and instantaneous feedback was provided to the students to accelerate learning.

In AC 2025–2026, **EET 3310** was evaluated rather than EET4310. The instructor implemented the following actions to strengthen student attainment of Student Outcome 1. The instructor increased instructional emphasis on troubleshooting schematic designs within the synchronous counter project.

As a result of these instructional improvements, the target was successfully met in AC 2025–2026, with all (6 out of 6 students or 100%) scoring at least 9 out of 12 (75%) on the rubric-based assessment for the synchronous counter design assignment.

- **Electronics Concentration:** 5 out of 5 students (100%) met or exceeded the performance criteria.
- **Biomedical Concentration:** 1 out of 1 student (100%) met or exceeded the performance criteria.

Although students met the performance criteria, additional emphasis on troubleshooting is needed to enhance students' ability to identify and resolve design errors, thereby strengthening analytical skills and practical problem-solving competency.

Decision: In AC 2025–2026, the performance target was achieved.

Based on the analysis of AC 2025–2026, the faculty will implement several instructional improvements in AC 2026–2027 to support continuous program enhancement. Greater emphasis will be placed on explaining the design principles of synchronous counters through practical, real-world applications. The roles and interactions of related stages of design required to ensure optimal performance will be discussed in greater depth. In addition, more in-class group activities will be incorporated, with immediate feedback provided to students to reinforce understanding and accelerate learning.

SLO 2. Ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes(ETAC of ABET Outcome 4).

Course to be evaluated:
Measure 2.1: EET 2351 (Advanced Electronics Lab)
Measure 2.2: EET 3311 (Digital Electronics II Lab)

Measure 2.1. Every spring semester, students in EET 2351 are graded using a rubric designed to measure their ability to design Op-Amp Circuits. The acceptable target is that 80% of students score at least 12 out of 16 (75%) on rubric-based assessment of projects.

Finding: Target was met.

Analysis: In AC 2024-2025, the target was met when 7 out of 8 (88%) students scored at least 12 out of 16 (75%) on the rubric-based assessment of lab assignments on the analysis and design of op-amps circuits. Based on the analysis of the AC 2024-2025 results, the faculty made the following changes in 2025-2026. The instructor encouraged the use of AI tools such as ChatGPT to enhance understanding. Moreover, the instructor demonstrated systematic troubleshooting techniques, including the half-splitting method.

Because of the change in AC 2025-2026, the target was met with 6 out of 7 (86%) students scoring at least 12 out of 16 (75%) on the rubric-based assessment of lab assignments on the analysis and design of Op-Amps circuits.

Decision: In AC 2025-2026, the target was met. Based on the analysis of AC 2025-2026, the faculty will implement the following changes in 2026-2027 to drive the cycle of improvement. In AC 2026–2027, the instructor will provide additional demonstrations on the use of algebra, calculus, and computer simulations for circuit analysis. The instructor

will also further integrate mathematical software such as Desmos and AI tools including Gemini and ChatGPT to enhance learning outcomes. These changes are expected to strengthen students' practical and analytical skills.

Measure 2.2. Every fall semester, students in EET 3311 are graded using a rubric designed to measure the ability to design timer circuits. The acceptable target is that 80% of students score at least 9 out of 12 (75%) on rubric-based assessment of projects.

Finding: The target was met.

- Electronics Concentration: 5 out of 5 students (100%) met or exceeded the performance criteria.
- Biomedical Concentration: 1 out of 1 student (100%) met or exceeded the performance criteria.

Analysis: In AC 2024–2025, the target was met. All (10 out of 10 students or 100%) scoring at least 9 out of 12 (75%) on the rubric-based assessment of FM modulator design in EET 4311 course. Based on these results, the instructor of EET 4311, encouraged the students to submit their draft reports for review at least two weeks before the final submission. The instructor also reminded the students weekly about the draft report submissions and offered technical assistance on report writing.

In AC 2025–2026, this measure was conducted in **EET 3311 course** rather than in EET4311. Based on the assessment results, several improvements were implemented. Students were introduced to the conceptual design of Monostable and Astable Multivibrators in EET 3310 before the laboratory exercise with worked examples provided for preparation. The project rigor was enhanced through additional design requirements to improve performance and efficiency. Greater emphasis was placed on mathematical interpretation, waveform analysis, and critical design steps for optimal timer circuit performance. Students were also required to submit a draft report by Week 13 for instructor feedback, allowing them to improve their data collection, testing, measurements, analysis, and interpretation before final submission.

As a result of these instructional changes, in 2025-2026, the target was met in the Monostable and Astable Multivibrators design laboratory. This year all (6 out of 6 or 100%) students scored at least 9 out of 12 (75%) on the rubric-based assessment of Monostable and Astable Multivibrator experiments.

Decision: In AC 2025–2026, the target was met.

Based on the analysis of the AC 2025–2026 results and to support the continuous improvement cycle, the faculty will implement the following changes in AC 2026–2027. At the beginning of each laboratory experiment, the instructor will review the relevant theoretical concepts and discuss experimental results with students individually to reinforce understanding. In addition, Multisim training will be provided to enhance students' comprehension and practical application of Monostable and Astable Multivibrator design and analysis. These changes will enhance the students' theoretical knowledge, computer skills, and troubleshooting abilities.

SLO 3. Ability to design systems, components, or processes meeting specifiedneeds for broadly defined engineering problems appropriate to the discipline (ETAC of ABET Outcome 2).

Courses to be evaluated:
Measure 3.1. EET/IET 4940 (Project Design I)
Measure 3.2. EET 4300 (Microprocessor Fundamentals)

Measure 3.1. Every fall semester, the students in EET 4940 students are graded using a check-list based evaluation designed to measure the technical portion of project report. The acceptable target is that at least 80% of students score 28 or higher out of 35 points.

Finding: Target was met.

Analysis: In AC 2024-2025, target was met with 10 out of 10 students (100%) scoring at least 28 out of 35 (80%) on the rubric-based assessment of AM modulator design in EET 4940 course. Based on the results of 2024-2025, faculty implemented some changes in AC 2025-2026, in EET 4940. At the beginning of the lab experiment, the instructor reviewed the theory once more and addressed the experiment results individually.

In AC 2025-2026 this assessment was conducted in EET 4940 course for biomedical concentration students. The instructor prepared the students to increase the individual engagement from the very beginning of the project so that the contribution of each student was well distributed.

As a result of these changes, in 2025-2026 the target was met. All (6 out of 6 or 100%) of the students met the performance criterion, with a group average score of 29.4 out of 35 (84%) in a checklist-based evaluation. All students were part of a single project team group for BMET. Reassessment of the planned improvement in a subsequent assessment action will occur in a subsequent assessment cycle.

Decision: In 2025-2026 the target was met.

Based on the analysis on 2025-2026 results, the faculty will implement the following actions in 2026-2027 to further strengthen student attainment:

(i) Introduce AI tools (*e.g.*, ChatGPT, Gemini, and Grok) to support research, literature review, and technical documentation.
(ii) Implement structured strategies to promote active and equitable student participation throughout the project lifecycle.

Guided use of AI tools will help students improve the quality, depth, and organization of technical content while reinforcing effective research practices. In group-based projects, early and continuous engagement will improve individual accountability, teamwork, effectiveness, and learning outcomes in group-based projects.

Measure 3.2. Every spring semester, students in EET 4300 are graded using a rubric designed to measure their ability to design 2D LED display with PIC18F4321. The

acceptable target is that 80% of students score at least 9 out of 12 (75%) on the rubric-based assessment of the project.

Finding: The target was met.

Analysis: In AC 2024-2025, the target was met with 8 out of 9 (89%) of the students scoring at least 9 out of 12 (75%) on the rubric-based assessment of the project designing two-way traffic controllers using PLCs in EET 4351 course. Based on this assessment, the instructor dedicated one complete lab session for the students to work on the semester project. The instructor also reviewed the draft copy of the report with the suggested edits one week before the final submission. These changes broadened the students' ability to implement new devices using PLCs, thereby continuing to push the cycle of improvement forward.

In AC 2025–2026, this assessment was conducted in **EET 4300 course** rather than in the EET 4351 course. The target was achieved with 7 out of 8 (87.5%) of the students scoring at least 9 out of 12 (75%) on the rubric-based assessment for the project involving the design of a 2D LED display using the PIC18F4321. This was the first year the course was evaluated for SOL 3.2. Continuous improvement will be monitored and assessed in subsequent years.

Decision: In AC 2025-2026, the target was met. The faculty will implement the following changes in AC 2026-2027 to drive the cycle of improvement. The instructor will introduce a more advanced interfacing circuit Pikit5 for better stability and efficiency. This will make the project design more productive.

SLO 4. Ability to function effectively as a member of a team or as its leader (ETAC of ABET Outcome 5).

Courses to be evaluated:
Measure 4.1. EET 4950/IET 4960 (Project Design II)
Measure 4.2. EET 4940/IET 4940 (Project Design I)

Measure 4.1. Every spring semester, the instructor of the course rates students in EET 4950 (or IET 4960) based on their ability and skill as a member or a leader of a team using a checklist-based review survey. The instructor uses the overall impression of the team based on asemester-long interaction with the team to rate the team members and its leader. The acceptable target is that 80% of students are rated at least 20 out of 25 points on the checklist-based survey.

Finding: The target was not met.

Analysis: The target was not met in AC 2024-2025, as 3 out of 4 (75%) of EET students scored above 80%. However, one student in the group exhibited poor communication, missing group meetings, and failing to meet submission deadlines. Based on the results of AC 2024-2025, the instructor collected feedback on team collaboration every two weeks

and required a mandatory, weekly team meetings with the instructor. The instructor also experimented with making the course in-person where each team would give a 5 to 10-minute update on their progress every other week. This also allowed individual students to have one-on-one time with the instructor if team member issues were apparent.

Despite these changes in AC 2025-2026, the target was not met with 6 out of 8 (75%) of EET students receiving a score of at least 80%. The two students who received a score less than 80% were both working outside of school, which led to low team participation and caused their teammates to reallocate project assignments less evenly. These two students also received the lowest evaluations from the instructor on their teamwork participation.

Decision: In AC 2025-2026, the target was not met. Based on the analysis of the AC 2025-2026 results and to drive the cycle of improvement, the faculty will implement the following change in AC 2026-2027:

- Discuss aspects of teamwork in EET 4940/IET 4940 before project teams are assigned
- Assign students to complete an initial survey to determine the following:
    - Available time commitment for coursework, capstone project, and outside responsibilities (*i.e.*, personal, work, student organizations, etc.)
    - Student self-appraisal of their capabilities that they bring into a project team
- Instructors will utilize the above information to form more “complete” teams and to better fit those teams with an appropriately scoped capstone project.

Measure 4.2. Every fall semester, students in IET/EET 4940 assess their peers in a technical team with respect to their ability and skill as a member or a leader of the team using a checklist-based peer-review survey. The acceptable target is that 80% of EET students are rated at least 20 out of 25 points on a checklist-based peer-review survey.

Finding: The target was met.

Analysis: In AC 2024–2025, the target was not met. Six (6) out of 8 (75%) students received ratings of at least 20 out of 25 points (80%) on the checklist-based peer-review survey.

Based on the analysis of AC 2024–2025 assessment results, faculty implemented the following changes in AC 2025–2026. Peer-review forms were required to be submitted for pre-evaluation two weeks prior to the final report submission deadline. In addition, students were encouraged to attend professional and academic conferences together to promote interaction, strengthen team cohesion, and improve collaboration.

As a result of these changes, the performance target was achieved in AC 2025–2026 with 11 out of 14 (79%) students scoring at least 20 out of 25 points (80%) on the check-list based peer-review survey. One group of four students experienced challenges related to communication and insufficient self-motivation from two members, which resulted in missed project deadlines and incomplete grades for the team. To address these issues, the group leader was reassigned. After this adjustment, the instructor observed a positive shift in team dynamics, including increased individual responsibility, improved awareness of team contributions, and stronger overall cohesiveness.

Decision: In AC 2025–2026, the target was not met.

Based on the analysis of the assessment results of AC 2025–2026, the instructor will implement the following changes in AC 2026–2027. Peer-review forms will be administered twice during the semester - once approximately six weeks prior to final examinations and again at the final report submission deadline - to provide earlier feedback. In addition, the course instructor will identify opportunities for teams to participate in or attend professional and academic conferences together.

These changes will promote sustained team accountability and further strengthen collaboration and professional engagement.

SLO 5. Ability to apply written, oral, and graphical communication in broadly defined technical and non-technical environments; and an ability to identify and use appropriate technical literature (ETAC of ABET Outcome 3).

Courses to be evaluated:

Measure 5.1. EET/IET 4940 (Project Design I)
Measure 5.2. EET 4950 / IET 4960 (Project Design II)

Measure 5.1. Every fall semester, upon presentation of capstone projects in IET/EET 4940, ET faculty evaluate student performance concerning their ability to communicate effectively in the oral presentation of the technical report. The acceptable target is that 80% of EET students score at least 80 out of 100 points (80%) on a checklist-based assessment of the oral presentation.

Finding: The target was not met for **Electronics** concentration but was met for **Biomedical** concentration.

Analysis: In AC 2024–2025, target was not met. Four (4) out of 8 students (50%) met or exceeded the established performance criteria. Based on the analysis of the AC 2024-2025 results, the instructor implemented the following change in AC 2025-2026. The dates for the final and mock presentations were announced in advance. Additionally, a separate training session on professional presentation skills was arranged. The instructor also piloted an agile project management framework aimed at improving transparency in task completion and the timeliness of deliverables using sprint reviews. Although sprint meetings and related project management activities were strongly encouraged, they were not required during this pilot phase. Consequently, improvements in team coordination were inconsistent, particularly within the Electronics concentration. Student performance will be reassessed in a subsequent assessment cycle following full implementation of the planned improvement actions. In addition, a mock presentation session was organized to provide students with structured feedback and preparation before the final presentations.

Despite these changes in AC 2025-2026, the target was still not fully met. Five (5) out of 6 students (83%) in the Biomedical concentration met or exceeded the established performance criteria, while 4 out of 8 students (50%) in the Electronics concentration met

or exceeded the performance criteria. Student performance met the established benchmark for the Biomedical concentration. However, performance in the Electronics concentration did not meet the benchmark, indicating deficiencies in team coordination, task accountability, and project management practices.

Decision: In AC 2025–2026, the target was not met.

Based on the analysis of assessment results of AC 2025-2026, the faculty will implement the following changes in AC 2026–2027:

- Enhance the project management component of the course through formal instruction on team dynamics and collaborative practices.
- Improve students' understanding of team roles, communication strategies, and conflict resolution to strengthen teamwork effectiveness and individual accountability.
- Introduce required project management activities and assignments focused on team communication, coordination, and progress tracking.
- Implement structured and mandatory activities to ensure consistent engagement across all teams and to improve adherence to project timelines and assigned responsibilities.

These changes will strengthen students' ability to communicate effectively - written, oral, and graphical - in technical and non-technical settings, and to identify and use appropriate technical literature.

Measure 5.2. Every spring semester, upon submission of capstone project, reports in EET 4950 or EET 4960, ET faculty evaluate students with respect to their ability to write a technical report using relevant literature, graphs, charts, results, and recommendations adhering to the format prescribed by the instructor to assess the attainment of SLO 5. The acceptable target is that 80% of EET students are rated at least 80 out of 100 points (80%) on the checklist-based assessment of the written project report.

Finding: The target was not met.

Analysis: In AC 2024-2025, the target was not met. None of the 4 students (0%) scored at least 80 out of 100 points (80%) on the checklist-based assessment of the written project report. Based on the analysis of the AC 2024-2025 results, the instructor included a training session on the effective use of AI tools for data analysis, graph plotting, grammar and language checking, referencing, and reference verification.

Despite these changes in AC 2025-2026, the target was not met with 4 out of 8 (50%) of the EET students scoring at least 80 out of 100 points (80%) on the checklist-based assessment of the written project report. The students on average scored low in the usage of graphics to support the report's text as well as citing sources either in the text or the bibliography.

Decision: In AC 2025-2026, the target was not met. Based on the analysis of the AC 2025-2026 results and to drive the cycle of improvement, the following change will be implemented in AC 2026 – 2027. The individual components of the report will be divided

into separate assignments where focus and feedback can be given to each element. This will be in addition to and in support of the full written report assignment due at semester end.

Comprehensive Summary of Key evidence of seeking improvement based on the analysis of the results.

The program faculty made several decisions after examining the results of data analysis from AC 2024-2025 which resulted in improved student learning and program improvement in AC 2025-2026.

- In EET 2350 (SLO 1.1), the instructor provided more examples on how to apply Laplace transforms and ODE for the analysis and design of integrator and differentiation circuits.

- In EET 3310 (SLO 1.2), the instructor increased instructional emphasis on troubleshooting schematic designs within the synchronous counter project. This assessment cycle represented the first evaluation of this course for accreditation purposes and establishes a baseline for future comparison. Reassessment of the implemented improvement actions has not yet occurred and will be conducted in a subsequent assessment cycle.

- In EET 2351 (SLO 2.1), the instructor encouraged the use of AI tools such as ChatGPT to enhance understanding. Moreover, the instructor demonstrated systematic troubleshooting techniques, including the half-splitting method.

- In EET 3311 (SLO 2.2), students were introduced to the conceptual design of Monostable and Astable Multivibrators in EET 3310 before the laboratory exercise, with worked examples provided for preparation. The project rigor was enhanced through additional design requirements to improve performance and efficiency. Greater emphasis was placed on mathematical interpretation, waveform analysis, and critical design steps for optimal timer circuit performance. Students were also required to submit a draft report by Week 13 for instructor feedback, allowing them to improve their data collection, testing, measurements, analysis, and interpretation before final submission.

- In EET 4940 (SLO 3.1), the instructor prepared the students to increase the individual engagement from the very beginning of the project so that the contribution of each student would be well distributed. Reassessment of the planned improvement in a subsequent assessment action will occur in a subsequent assessment cycle.

- In EET 4300 (SLO 3.2), this was the first year the course was evaluated for SOL 3.2. Continuous improvement will be monitored and assessed in subsequent years.

- In EET 4950/IET 4960 (SLO 4.1), the instructor collected feedback on team

collaboration every two weeks and required a mandatory weekly team meeting with the instructor. The instructor also experimented with making the course in-person where each team would give a 5 to 10-minute update on their progress every other week. This also allowed individual students to have one-on-one time with the instructor if team member issues were apparent.

- In EET 4940 (SLO 4.2), peer-review forms were submitted for pre-evaluation two weeks prior to the final report submission deadline. In addition, students were encouraged to attend multiple professional and academic conferences together, which promoted interaction, strengthened team cohesion, and enhanced overall teamwork.

- In EET 4940 (SLO 5.1), instructors piloted an agile project management framework aimed at improving transparency in task completion and enhancing the timeliness of deliverables through the use of sprint reviews. Students were also encouraged to attend professional and academic conferences to participate in oral and/or poster presentations prior to delivering their final presentations within the ET department. In addition, a mock presentation session was organized to provide students with structured feedback and preparation before the final presentations.

- In EET 4950/IET 4960 (SLO 5.2), the instructor included a training session on the effective use of AI tools for data analysis, graph plotting, grammar and language checking, referencing, and reference verification.

Plan of action moving forward

- In EET 2350 (SLO 1.1), the instructor will place greater emphasis on both mathematical analysis and computer simulation for the study of circuit systems. In addition, the instructor will encourage the use of AI tools such as Gemini and ChatGPT to help illustrate the operation and behavior of circuit systems.

- In EET 3310 (SLO 1.2), greater emphasis will be placed on explaining the design principles of synchronous counters through practical, real-world applications. The roles and interactions of related stages of design required to ensure optimal performance will be discussed in greater depth. In addition, more in-class group activities will be incorporated, with immediate feedback provided to students to reinforce understanding and accelerate learning.

- In EET 2351 (SLO 2.1), the instructor will provide additional demonstrations on the use of algebra, calculus, and computer simulations for circuit analysis. The instructor will also further integrate mathematical software such as Desmos and AI tools including Gemini and ChatGPT to enhance learning outcomes. These changes are expected to strengthen students' practical and analytical skills.

- In EET 3311 (SLO 2.2), at the beginning of each laboratory experiment, the instructor

will review the relevant theoretical concepts and discuss experimental results with students individually to reinforce understanding. In addition, Multisim training will be provided to enhance students' comprehension and practical application of Monostable and Astable Multivibrator design and analysis. These changes will enhance the students' theoretical knowledge, computer skills, and troubleshooting abilities.

- In EET 4940 (SOL 3.1) for BMET and EET 4950, the faculty will Introduce AI tools (*e.g.*, ChatGPT, Gemini, and Grok) to support research, literature review, and technical documentation. The instructors will implement structured strategies to promote active and equitable student participation throughout the project lifecycle. Guided use of AI tools will help students improve the quality, depth and organization of technical content while reinforcing effective research practices. In group-based projects early and continuous engagement will improve individual accountability, teamwork, effectiveness, and learning outcomes in group-based projects.

- In EET 4300 (SLO 3.2), the instructor will introduce a more advanced interfacing circuit Pikit5 for better stability and efficiency. This will make the project design more productive.

- In EET 4950/IET 4960 (SLO 4.1), the instructor will discuss aspects of teamwork in EET 4940/IET 4940 before project teams assigned, assign students to complete an initial survey to determine the following: (a) available time commitment for coursework, capstone project, and outside responsibilities (*i.e.*, personal, work, student organizations, etc.), (b) student self-appraisal of their capabilities that they bring into a project team. The instructor will utilize the above information to form more "complete" teams and to better fit those teams with an appropriately scoped capstone project.

- In EET 4940 (SLO 4.2), peer-review forms will be administered twice during the semester - once approximately six weeks prior to final examinations and again at the final report submission deadline - to provide timely feedback and promote sustained team accountability. In addition, the course instructor will identify opportunities for teams to participate in or attend professional and academic conferences together to further strengthen collaboration and professional engagement.

- In IET/EET 4940 (SLO 5.1), to strengthen student attainment of student outcome 5, the following actions are planned:
  (i) Enhance the project management component of the course through formal instruction on team dynamics and collaborative practices.
  (ii) Improve students' understanding of team roles, communication strategies, and conflict resolution to strengthen teamwork effectiveness and individual accountability.
  (iii) Introduce required project management activities and assignments focused on team communication, coordination, and progress tracking.
  (iv) Implement structured and mandatory activities to ensure consistent engagement across all teams and to improve adherence to project timelines

and assigned responsibilities.

- In EET 4950/IET 4960 (SLO 5.2), the instructor will include a training session on the effective use of AI tools for data analysis, graph plotting, grammar and language checking, referencing, and reference verification.

- In EET 4950 (SLO 5.2), the instructor will request the individual components of the report be divided into separate assignments where focus and feedback can be given to each element.