Year 4

Student Learning Outcomes (SLOs) for Academic Programs

Please list all of the student learning outcomes for your program as articulated in the assessment plan.

1.   Demonstrate effective communication skills for the engineering technology industry using written, oral, and technological formats.

2.   Analyze problems and apply engineering technology solutions utilizing quantitative reasoning and critical thinking skills.

3.   Develop an awareness of ethical values and social responsibility in a multicultural environment.

4.   Demonstrate functional and operational skills relevant to the engineering technology industry.

Overview of Measures/Instruments

SLO(s) Note: Measures might be used for more than 1 SLO	ULG*	Measures/Instruments *Please include a clear description of the instrument including when and where it is administered*	How is the information Used? *(include target score(s), results, and report if target(s) were met/not met/partially met for each instrument)*
1. Demonstrate effective communication skills for the engineering technology industry using written, oral, and technological formats.	W, S	EIU electronic writing portfolio data were used to assess the writing and critical reading components. Speech communication data were used to assess students' speaking and listening components.	For writing and critical reading components, the average result of 3.5 exceeded the desired satisfactory criteria of 3.0. For speaking and listening components, the average of 3.23 was slightly behind the EIU average of 3.53. However, 9 out of 11 students (82%) scored 3.0 or above on the overall results.
2. Analyze problems and apply engineering technology solutions utilizing quantitative reasoning and critical thinking skills.	Q, C	Quantitative reasoning component was assessed using homework assignments (control charts and reliability) in EGT 4843. Critical thinking component was assessed using quiz problems on "supply chain management" topic in EGT 4943.	Quantitative reasoning and critical thinking components met the desired level of 2.5. Overall, the average scores for quantitative reasoning and critical thinking were 3.28 and 3.87, respectively. For quantitative reasoning, 25 out of 33 students (75%) scored 3.0 or higher. For critical thinking, 17 out of 17 students (100%) scored 3.0 or higher. More specifically, 12 out of 17 students (71%) received score of 4.0.

SLO(s) Note: Measures might be used for more than 1 SLO	ULG*	Measures/Instruments *Please include a clear description of the instrument including when and where it is administered*	How is the information Used? *(include target score(s), results, and report if target(s) were met/not met/partially met for each instrument)*
3. Develop an awareness of ethical values and social responsibility in a multicultural environment.	R	Responsible citizenship component was assessed using assignment called "Safety Alert" in EGT 2773 and discussion assignment about "customer-focused quality" in EGT 4753.	This student learning outcome met the desired level of 2.5. Overall, the data showed an average of 3.62 across two courses. 26 out of 28 students (93%) of students scored 3.0 or higher.
4. Demonstrate functional and operational skills relevant to the engineering technology industry.	NA	This student learning outcome was assessed across five EGT courses. Lab assignments were used in EGT 1323, EGT 3663, and EGT 2324 for the assessment. Class projects were used in EGT 3763 and EGT 3063 for the assessment.	This student learning outcome met the desired level of 2.5. The data showed an average of 3.7 across five courses. 75 out of 78 students (96%) scored 3.0 or higher.

*Please reference any University Learning Goal(s) (ULG) that this SLO, if any, may address or assess. C=Critical Thinking, W=Writing & Critical Reading; S=Speaking and Listening; Q=Quantitative reasoning; R=Responsible Citizenship; NA=Not Applicable

Improvements and Changes Based on Assessment

1. Provide a short summary (1-2 paragraphs or bullets) of any curricular actions (revisions, additions, and so on) that were approved over the past four years as a result of reflecting on the student learning outcomes data. Are there any additional future changes, revisions, or interventions proposed or still pending?

Note that the data were collected during the COVID-19 pandemic. Several courses were offered either hybrid or online instead of in-person. These changes may affect the student learning outcomes data.

We currently consider the Association of Technology, Management, and Applied Engineering (ATMAE) accreditation. This may change the student learning outcomes and data collection process in the next assessment cycle.

2. Please provide a brief description or bulleted list of any improvements observed/measured in student learning over the past four years. Be sure to mention any intervention made that has not yet resulted in student improvement (if applicable).

The current desired level for student learning outcome 1b (speaking and listening components) is evaluated with the EIU average rating. It might be better to use a fixed target such as the desired level of 3.0 instead of the current moving target.

As Dr. Wollan suggested, additional expectations could be added to the desired level such as 60% of students will score 3.0 or higher on the average results. These expectations should be included in the evaluation instruments of the next assessment cycle.

3. Using the form below, please document annual faculty and committee engagement with the assessment process (such as the review of outcomes data, revisions/updates to assessment plan, and reaffirmation of SLOs).

History of Annual Review		
Date of Annual Review	**Individuals/Groups who Reviewed Plan**	**Results of the Review (i.e., reference proposed changes from #1 above, revised SLOs, etc...)**
7/2/21	Dr. Melody Wollan	

Dean Review & Feedback

The assessment data and collected for Engineering Technology (EGT) is positive. As a relatively new program (4 years), EGT is in the infancy of developing a solid assessment plan, the main aim of which will be "closing the loop," or using the assessment data to influence program improvement. As mentioned in the report, the program is likely to pursue ATMAE accreditation, which is a change from the previous consideration of pursuing ABET accreditation. This change will necessitate modification of

the program objectives to more closely align with ATMAE accreditation standards, and will result in a much for comprehensive assessment plan as accreditation is sought.

_____   _____
Dean or designee   Date

Academic Affairs –Review & Feedback: B.S. Engineering Technology

The SLO report documents the Engineering Technology program's efforts to collect, analyze, and utilize the outcomes measured in particular course assignments. The faculty should be commended for continuing their assessment work through the pandemic years, but should also note such assessment activities in the "History of Annual Review" section. The faculty may want to consider relying less upon the university-level assessment data (the Electronic Writing Portfolio and the Speech data, for instance), since it is specifically the students within the program that are being observed in their ability to "demonstrate communication skills for the engineering technology industry."

_____   _____
               Suzie Park, VPAA Office   Date   **12/15/22**

Learning Outcomes	Learning Objectives	ULG	Measures	Data	Desired Level	Comments
1. Demonstrate effective communication skills for the engineering technology industry using written, oral, and technological formats	a. Write Critically and effectively in the discipline of engineering technology by developing an argument and evaluation evidence, issues, ideas, and problems from multiple perspectives.	W	EIU EWP Rating	3.5	Satisfactory 3.0	FA21,SP22(3.5)
		W	EGT 3414: Project Management	N/A	2.5	
	b. Present information using a technological tools, engage in discussion of engineering technology concepts, explain the ideas of other, and express their own ideas with clarity.	S	EIU Speaking Rating	3.23	EIU Average 3.53	FA21,SP22(3.23)
		S	EGT 4704: Engineering Technology Capstone	N/A	2.5	
		N/A	EGT Senior Exit Survey	N/A		
2. Analyze problems and apply engineering technology solutions utilizing quantitative reasoning and critical thinking skills	a. Produce, analyze, interpret, and evaluate estimating and costing systems used in engineering technology.	Q	EGT 4843: Statistical Quality and Reliability	3.28	2.5	SP21(3.03), SP22(3.53)
	b. Apply critical thinking skills to interpret engineering technology trends.	C	EGT 4943: Manufacturing Management	3.87	2.5	FA20(3.84), FA21(3.89)
	c. Apply critical thinking skills to design and manage engineering technology production environments.	C	EGT 3703: Machine Design	N/A	2.5	
	d. Create and justify cost effective engineering technology campaigns using various technological tools.	Q	EGT 1303: Engineering Technology	N/A	2.5	
		N/A	EGT Senior Exit Survey	N/A		
3. Develop an awareness of ethical values and social responsibility in a multicultural environment.	a. Interact sensitively and ethically with people from diverse backgrounds and demonstrate understanding of the sociocultural contexts that influence individual differences in engineering technology professional environments.	R	EGT 2773: Safety for Engineering Technology	3.64	2.5	FA21(3.64)
	b. Implement values and systems in production environments that will lead to positive outcomes in engineering technology environments and a society responsive to multicultural and global concerns.	R	EGT 4753: Lean Manufacturing	3.6	2.5	SP21(4), SP22(3.2)
		N/A	EGT Senior Exit Survey	N/A		
4. Demonstrate functional and operational skills relevant to the engineering technology industry.	a. Apply knowledge and technical skills in the content areas of engineering technology.	N/A	EGT 1323: Computers for Engineering Technology	3.6	3	FA21(3.6)
			EGT 3663: CNC and Rapid Prototyping	3.88	3	SP21(3.88)
			EGT 2324: Electricity and Electronic Controls	3.75	3	FA21(3.75)
			EGT 3763: Automation and Data Capture	3.56	3	FA20(3.36), FA21(3.76)
			EGT 3063: 3D Modeling	3.69	3	FA21(3.69)
			EGT Senior Exit Survey			

*N/A = Data cannot be accessed or cannot be analyzed at this time

EGT Critical Thinking Rubric

Criteria	Exemplary = 4	Achieving = 3	Developing = 2	Beginning = 1
Criteria	Issue/problem to be considered critically is stated clearly and described comprehensively, delivering all relevant information necessary for full understanding.	Issue/problem to be considered critically is stated, described, and clarified so that understanding is not seriously impeded by omissions.	Issue/problem to be considered critically is stated but description leaves some terms undefined, ambiguities unexplored, boundaries undetermined, and/or backgrounds unknown.	Issue/problem to be considered critically is stated without clarification or description.
Evidence	Information is taken from source(s) with enough interpretation/evaluation to develop a comprehensive analysis or synthesis. Viewpoints of experts are questioned thoroughly.	Information is taken from source(s) with enough interpretation/evaluation to develop a coherent analysis or synthesis. Viewpoints of experts are subject to questioning.	Information is taken from source(s) with some interpretation/evaluation, but not enough to develop a coherent analysis or synthesis. Viewpoints of experts are taken as mostly fact, with little questioning.	Information is taken from source(s) without any interpretation/evaluation. Viewpoints of experts are taken as fact, without question.
Influence of context and assumptions	Thoroughly (systematically and methodically) analyzes own and others' assumptions and carefully evaluates the relevance of contexts when presenting a position.	Identifies own and others' assumptions and several relevant contexts when presenting a position.	Questions some assumptions. Identifies several relevant contexts when presenting a position. May be more aware of others' assumptions than one's own (or vice versa).	Shows an emerging awareness of present assumptions (sometimes labels assertions as assumptions). Begins to identify some contexts when presenting a position.
Student's position (perspective, thesis/hypothesis)	Specific position (perspective, thesis/hypothesis) is imaginative, taking into account the complexities of an issue. Limits of position (perspective, thesis/hypothesis) are acknowledged. Others' points of view are synthesized within position (perspective, thesis/hypothesis).	Specific position (perspective, thesis/hypothesis) takes into account the complexities of an issue. Others' points of view are acknowledged within position (perspective, thesis/hypothesis).	Specific position (perspective, thesis/hypothesis) acknowledges different sides of an issue.	Specific position (perspective, thesis/hypothesis) is stated, but is simplistic and obvious.
Conclusions and related outcomes (implications and consequences)	Conclusions and related outcomes (consequences and implications) are logical and reflect student's informed evaluation and ability to place evidence and perspectives discussed in priority order.	Conclusion is logically tied to a range of information, including opposing viewpoints; related outcomes (consequences and implications) are identified clearly.	Conclusion is logically tied to information (because information is chosen to fit the desired conclusion); some related outcomes (consequences and implications) are identified clearly.	Conclusion is inconsistently tied to some of the information discussed; related outcomes (consequences and implications) are oversimplified.