Meta-assessment Analysis Report for the

College of Science and Engineering Technology

Please return the completed report back to the Office of Assessment

by **March 21, 2025**.

Meta-assessment Analysis Report for the College of Science & Engineering Technology

Assessment is an important best-practice in higher education that helps programs determine whether key objectives are being met, identify areas for improvement, and develop actions to improve program effectiveness. Additionally, meaningful and effective assessment is the corner stone of many discipline-specific accreditations, as well as our university's regional accrediting body, the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC). Meta-assessment is an important tool for helping ensure that all programs at Sam Houston State University are engaging in a meaningful and effective continuous improvement assessment process.

Meta-assessment serves two important roles for the College and the University. First, it provides valuable feedback to units regarding ways in which they may continue to improve their annual assessment processes. Second, it provides College and University leaders with a way to observe the overall quality of assessment processes for their units. The purpose of this report is to detail the meta-assessment process utilized by the College of Science & Engineering Technology, the College's plan for distributing the completed meta-assessment rubrics to their departments and programs, the assessment strengths observed within the reviewed assessment plans, the areas for improvement of assessment practices, the strategies for implementing those improvements, and the training or resources needed to implement those strategies.

Section 1: Description of Meta-assessment Methodology Employed by the College

Detail the College's meta-assessment methodology and process. Include a description of who was involved (e.g., a committee of senior faculty or college administrators), your methodology for evaluating unit-level assessment plans, steps for ensuring reliability, and your timeline.

The College of Science & Engineering Technology (COSET) has recently updated both assessment and meta-assessment processes. The goals are to make both more time-efficient and to improve effectiveness. To achieve these goals, the meta-assessment process has changed as follows:

- All COSET program, department, or center assessors participate in meta-assessment. This allows all COSET assessors to observe plans from other departments. One objective is for more assessors to adopt best practices and improve their plans. Another objective is to increase idea sharing and discussion across units.
- Rather than meta-assess all COSET plans annually, a rotation was established. Approximately one-third of all COSET 2020-2021 assessment plans were reviewed in February 2022, while roughly one-third of the 2021-2022 plans were reviewed in June 2022. In June 2023, one-third of all COSET 2022-2023 plans were reviewed. This reduction in the number of plans meta-assessed should allow more detailed feedback for each, as well as a focused response to feedback. *Note: Any program that receives an average Overall score below 2 (or Minimally Compliant) will be re-assessed the next calendar year.

- Beginning in 2022, all plans have an internal COSET deadline of May 31 for all assessment elements. Thus, summer meta-assessment will yield feedback that is actionable before Office of Assessment deadlines in August and September.

All COSET assessors were offered training in April. No one sought training, as each person had recently been involved in the assessment process in 2022.

According to the new rotation process for COSET that began in 2022, one meta-assessment reviews was conducted in June 2023. One-half of all COSET assessors participated in the June 2023 review of 2022-2023 assessment plans. This included 10 faculty, 3 department chairs, and the Associate Dean for Curriculum and Assessment. Approximately one-third of the plans were reviewed, including 2 departments, 1 center, 5 graduate programs, 8 bachelor's programs, 5 minors, and 1 certificate. The meta-assessment was conducted over a 3-week period from June 8 to June 30. Department chairs and faculty were given 3 units to review (with the exception of one faculty member assigned only 2 units); the associate dean completed 6 reviews. All units were evaluated anonymously by 2 external reviewers, using the rubric provided by the Office of Assessment.

Section 2: Plan for Distributing Completed Rubrics to Units
Detail the College's plan for sharing the completed meta-assessment rubrics with its departments and programs.

The COSET leadership (department chairs, associate deans, and dean) will each receive a copy of this summary report. Department chairs will also receive the completed rubrics for each plan under their supervision. Similarly, the faculty member charged with assessment of a reviewed unit will receive both the summary and the completed rubrics for that plan.

Section 3: Observed Strengths within College Assessment Plans
Detail the general strengths identified by the College after reviewing its units' assessment plans. What general aspects of the annual assessment processes are units mastering? Are there any units that you would recommend serve as exemplary models?

Table 1 below provides a quantitative summary of the results. All COSET plans are listed for reference, but only 25 were scored. Of these, 23 earned overall averages of Minimally Compliant or above.

For reference, we assigned numerical codes to the four performance categories as follows:

1 = Developing
2 = Minimally Compliant
3 = Good
4 = Exemplary

Table 1: All COSET Programs and 2024 Meta-Assessment Results

Unit Name	Overall Avg	Goals Avg	Learn Obj Avg	Indicators Avg	Criteria Avg	Findings Avg	Perf Obj Avg	KPIs Avg	Target Avg	Results Avg	Actions Avg	Updated PCI Avg	New PCI Avg
Science and Engineering Technology, College of	3	3.5					3	3	3	3.5	3	4	3
Agricultural Sciences, School of													
Agricultural Business BS													
Agricultural Communication BS													
Agricultural Engineering Technology BS	1.5	2	2.5	3	3	1					1	2	1
Agriculture MS													
Animal Science BS													
Equine Science Minor	3	4	3	3	3.5	3					3.5	3	3
Interdisciplinary Agriculture BS													
Plant and Soil Science BS													
Sustainable Agriculture and Food Environment MAG													
Sustainable Agriculture Certificate													
Wildlife Ecology Minor													
Wildlife Management Minor	3	3	3	3	3	3.5					3	3	3
Biological Sciences, Department of													
Biology BA/BS	3	3.5	3	2.5	2.5	3					2.5	2.5	2
Biology MA													
Biology MS													
Biomedical Sciences BS													
Conservation Biology Minor	1	2	1	2	2	1					1	1	1
Chemistry, Department of													
Chemistry BS	4	4	3.5	4	4	4					4	4	3.5
Chemistry MS													
Forensic Chemistry BS													
Composite Science BS													
Computer Science, Department of													
Computing and Data Science MS	2	2	2	2	2	2					2	2.5	2.5
Computing Science BS													
Cyber Forensics Intelligence Center													
Cyber Security Certificate													
Cybersecurity BS	2.5	2.5	2.5	2	2.5	2..5					2	2.5	1.5
Data Assurance Certificate	2	3	2.5	1.5	2	2					2.5	2.5	1.5
Digital and Cyber Forensic Science PHD													
Digital Forensics MS	3	3.5	3	3.5	2	2					3.5	3	3
Digital Investigation Certificate													
Information Assurance and Cybersecurity MS	2	2	1	2	2	1.5					2.5	2	1.5
Software Engineering BS	2	3	2.5	1.5	2	1					2	2	2
Engineering Technology, Department of	2.5	2.5					2.5	2.5	2.5	3	3	1.5	2.5
Architectural Design Technology Minor	3	3.5	3.5	3	3.5	2.5					2.5	3.5	3.5
Construction Management BS													
Electronics and Computer Engineering Technology BS													
Engineering Design Technology BS	2.5	3.5	3.5	2.5	2.5	2.5					2.5	3	2.5
Engineering Technology BS	3.5	3.5	4	3.5	3.5	3.5					3	2.5	2.5
Industrial Safety Management Minor													
Manufacturing Engineering Technology Minor	2	2.5	2	1.5	2	2					2	2	2
Mechanical Engineering Technology BS													
Trades and Industry Certification Minor	3	3	3.5	2.5	3	1					1	2	2.5
Environmental and Geosciences, Department of													
Environmental Science BS													
Environmental Studies Minor													
Geographic Information Systems MS	3	3.5	3	2.5	2.5	3.5					3	3.5	3
Geographic Information Systems Certificate													
Geography BA	3	3	3	2.5	3	3					2.5	3	3
Geography BS													
Geology BS													
Mathematics and Statistics, Department of													
Mathematics BA/BS	2	3	2.5	2.5	3	3.5					1.5	2	1
Mathematics MA													
Mathematics MS													
Statistical Methods Minor													
Statistical Theory Minor													
Statistics & Data Science MS	3	3	3	3.5	3	3					3	3.5	3.5
Physics and Astronomy, Department of													
Astronomy Minor	2	2	1.5	2	3	1.5					2	2.5	2.5
Physics BS													
STEM Center	2	4					4	4	3.5	1	2.5	2.5	1
Element Median	**2.50**	**3.00**	**3.00**	**2.50**	**2.75**	**2.50**	**3.00**	**3.00**	**3.00**	**3.00**	**2.50**	**2.50**	**2.50**

Again, we assigned numerical codes to the four performance categories as follows:

1 = Developing
2 = Minimally Compliant
3 = Good
4 = Exemplary

Table 2 shows the same data, but only for the programs that underwent the meta-assessment process in summer 2024.

Table 2: Meta-Assessment Results for COSET Programs Reviewed in 2024

Unit Name	Overall Avg	Goals Avg	Learn / Perf Obj Avg	Indicators / KPIs Avg	Criteria / Targets Avg	Findings / Results Avg	Actions Avg	Updated PCI Avg	New PCI Avg
Science and Engineering Technology, College of	3	3.5	3	3	3	3.5	3	4	3
Agricultural Engineering Technology BS	1.5	2	2.5	3	3	1	1	2	1
Equine Science Minor	3	4	3	3	3.5	3	3.5	3	3
Wildlife Management Minor	3	3	3	3	3	3.5	3	3	3
Biology BA/BS	3	3.5	3	2.5	2.5	3	2.5	2.5	2
Conservation Biology Minor	1	2	1	2	2	1	1	1	1
Chemistry BS	4	4	3.5	4	4	4	4	4	3.5
Computing and Data Science MS	2	2	2	2	2	2	2	2.5	2.5
Cybersecurity BS	2.5	2.5	2.5	2	2.5	2..5	2	2.5	1.5
Data Assurance Certificate	2	3	2.5	1.5	2	2	2.5	2.5	1.5
Digital Forensics MS	3	3.5	3	3.5	2	2	3.5	3	3
Information Assurance and Cybersecurity MS	2	2	1	2	2	1.5	2.5	2	1.5
Software Engineering BS	2	3	2.5	1.5	2	1	2	2	2
Engineering Technology, Department of	2.5	2.5	2.5	2.5	2.5	3	3	1.5	2.5
Architectural Design Technology Minor	3	3.5	3.5	3	3.5	2.5	2.5	3.5	3.5
Engineering Design Technology BS	2.5	3.5	3.5	2.5	2.5	2.5	2.5	3	2.5
Engineering Technology BS	3.5	3.5	4	3.5	3.5	3.5	3	2.5	2.5
Manufacturing Engineering Technology Minor	2	2.5	2	1.5	2	2	2	2	2
Trades and Industry Certification Minor	3	3	3.5	2.5	3	1	1	2	2.5
Geographic Information Systems MS	3	3.5	3	2.5	2.5	3.5	3	3.5	3
Geography BA	3	3	3	2.5	3	3	2.5	3	3
Mathematics BA/BS	2	3	2.5	2.5	3	3.5	1.5	2	1
Statistics & Data Science MS	3	3	3	3.5	3	3	3	3.5	3.5
Astronomy Minor	2	2	1.5	2	3	1.5	2	2.5	2.5
STEM Center	2	4	4	4	3.5	1	2.5	2.5	1
Element Median	**2.5**	**3.0**	**3.0 / 3.0**	**2.5 / 3.0**	**2.75 / 3.0**	**2.5 / 3.0**	**2.5**	**2.25**	**2.5**

One of the units received an Exemplary overall rating: **B.S. Chemistry**. The **B.S. Engineering Technology** unit received average overall rating of 3.5, between Good and Exemplary. Across programs, the strongest elements were **Goals**, **Learning Objectives**, and **Performance Objectives**, each with a median score of 3 (Good).

There were only three programs that used Performance Objectives, KPIs, Targets, and Results, so it is difficult to see trends among those three programs. However, for these four elements, the **College of Science and Engineering Technology** had average ratings of 3 or higher (Good or Exemplary). The **STEM Center** had average ratings of 4 (Exemplary) for Performance Objectives and KPIs and an average rating of 3.5 for Targets. The Results, however, were missing for this unit.

Among programs that used Learning Objectives, Indicators, Criteria, and Findings, the element with the highest mean scores (not shown in Tables 1 or 2) is Criteria (mean = 2.705) and Learning Objectives (mean =2.682). However, there was a lot of variability among all four of these elements. For example, the minimum score for Learning Objectives and Findings was 1 and the maximum score for all four elements was 4.

Plans and elements with high scores received widely varying and unit-specific comments, so they are not summarized here.

Section 4: Observed Areas for Improvement within College Assessment Plans
Detail the general areas for improvement identified by the College after reviewing its units' assessment plans. What general aspects of the annual assessment process are units struggling with?

As shown in Table 1 above, the elements with the lowest scores were Findings, Actions, and New PCI. The median score for each was 2.5 (Minimally Compliant to Good). The mean scores for Findings, Actions, and New PCI were 2.386, 2.44, and 2.32, respectively.

Two programs scored an overall average below 2 (or below Minimally Compliant): **B.S. Agricultural Engineering Technology** and **Conservation Biology Minor**. These programs will receive assistance from other COSET assessors and the Office of Assessment as they further development their assessment plans. They will re-enter the meta-assessment in Summer 2025.

Section 5: Strategies Needed to Address Identified Areas for Improvement
Detail the College's strategies for addressing the general areas for improvement identified after reviewing its units' assessment plans.

As described in Section 1, the entire assessment timeline and the meta-assessment process has been redesigned with overall improvement in mind. The change presented challenges. Some programs struggled to meet the new deadlines and rushed the assessment. In addition, COSET and the Office of Assessment will work with units to determine which assessments should be completed annually and which can be completed on a rotating basis. This should assist all units

to increase the quality of assessments by re-evaluating the quantity. Finally, COSET will work with the Office of Assessment to help units undergo training in the assessment process, particularly in the areas where improvement is needed.

In June 2024, the Associate Dean allowed programs with incomplete reports to undergo meta-assessment. The fact that some elements, such as Findings, Actions, Update to Previous Cycle's PCI, and New PCI, were not present in the report definitely affected some programs. For example, a key factor in the low ratings of the two units that will be re-assessed in 2025 (see Section 4) was the absence of required elements. Interestingly, other programs with missing elements, such as the STEM Center, received an overall average rating of Minimally Compliant.

Section 6: Training/Resources Needed to Implement the College's Improvement Strategy
Detail the types of training and resources that would assist the College with implementing its improvement strategies.

COSET will work to strengthen the partnership with the Office of Assessment to facilitate improvement. The training offered to COSET programs by the Office of Assessment was very useful, and likely contributed to higher ratings for Goals and Objectives.

Given the COSET timeline described in Section 1, it may be helpful to offer trainings (either from COSET staff or the Office of Assessment) in April or May 2025 related to Findings, Actions, Update to Previous Cycle's PCI, and New PCI. Additionally, the Associate Dean will explicitly offer training on meta-assessment in May 2025 and May 2026 to assessors. Training on meta-assessment will hopefully decrease the occurrence of an incomplete report receiving a rating of "Minimally Compliant" or better.