Reporting Year 2025-2026

Associate Of Applied Science Chemical Laboratory Technology Learning Outcomes

Laboratory Performance

Perform basic chemical statistical analysis in a chemical lab setting.

MEASURES	RESULTS	ACTIONS
Final Exam Grade The School of Industrial Technology at SOWELA Technical Community College designs its programs and courses with a deliberate focus on achieving clearly defined student learning outcomes aligned with workforce expectations and institutional goals. Program curricula are developed through a collaborative process involving faculty subject matter experts, industry advisory committees, and institutional leadership to ensure that instructional content reflects current industry standards, technological advancements, and the competencies required for employment in technical and industrial fields. Each program within the School of Industrial Technology identifies specific student learning outcomes that describe the knowledge, technical skills, and professional behaviors graduates are expected to demonstrate upon completion of their program of study. Course-level learning objectives are intentionally aligned with program outcomes and are structured to support progressive skill development throughout the curriculum. Faculty regularly assess student performance using a variety of direct and indirect assessment methods, including laboratory performance, practical demonstrations, written examinations, project-based learning, and industry-aligned competency evaluations. Instructional delivery is designed to support multiple modes of learning and incorporates a combination of classroom instruction, online learning platforms, and extensive hands-on laboratory experience. Faculty utilize modern instructional technologies such as learning management systems, simulation software, digital instructional tools, and interactive classroom technologies to enhance engagement and reinforce theoretical concepts. These resources allow students to access course materials, complete assignments, and participate in learning activities both in-person and online, supporting flexibility while maintaining academic rigor. Hands-on training remains a cornerstone of instruction within the School of Industrial Technology. Students gain practical experience using current industry training aids, equipment, and laboratory systems that replicate real-world industrial environments. These laboratories provide opportunities for	MET **Summary** The Chemistry Laboratory program achieved an overall success rate of 81%, slightly exceeding the established benchmark of 80%. 2026-06-30T0806_Grades-CLTE-2100-01.csv 2026-06-30T0806_Grades-CLTE-2100-01.xlsx **Analysis** The Chemistry Laboratory program achieved an overall success rate of 81%, slightly exceeding the established benchmark of 80%. While the target was met, the narrow margin suggests that student performance is stable but leaves limited room for variability. Several contributing factors help explain these results. First, instructional quality and student support appear to play a significant role. The primary instructor demonstrates a high level of engagement by developing supplemental instructional resources, offering flexible scheduling, and maintaining strong availability for student assistance. These practices align with best practices for student-centered learning and likely contributed to students meeting minimum competency thresholds. Second, the program has benefited from enhanced staffing capacity, including the addition of a new adjunct instructor to support laboratory sections. This has likely improved instructor-to-student ratios and increased access to guidance during lab activities, contributing to the overall success rate. Third, learning environment factors have positively influenced outcomes. The program has prioritized maintaining modern, discipline-relevant laboratory equipment, which supports hands-on skill acquisition aligned with course outcomes. Additionally, small class sizes facilitate individualized instruction, timely feedback, and improved student engagement, all of which are associated with stronger academic performance. Despite these strengths, the marginal difference between the achieved rate (81%) and the benchmark (80%) suggests that gains are modest rather than substantial. This may indicate that while	**Gather Additional Data** IN PROGRESS Leverage Data for Targeted Improvements The program coordinator will disaggregate assessment results (e.g., by assignment type or student subgroup) to identify specific areas where students underperform. These insights will be used to refine lab exercises or instructional approaches. Recommended Due Date: 01/04/2027

students to apply theoretical knowledge in controlled, experiential settings that emphasize safety, troubleshooting, system diagnostics, and operational procedures. The integration of modern training equipment ensures that students develop competencies relevant to the technologies and systems used in contemporary industrial workplaces. Faculty professional development is also a critical component of maintaining instructional quality and ensuring alignment with evolving industry practices. Faculty members actively participate in professional development activities, industry partnerships, technical certifications, and training programs designed to maintain subject matter expertise and instructional effectiveness. These efforts support the continuous improvement of curriculum design, instructional methods, and assessment strategies. Through the intentional integration of industry-informed curriculum design, modern instructional technologies, faculty professional development, and hands-on experiential learning, the School of Industrial Technology ensures that its programs effectively prepare students to meet defined learning outcomes and to successfully transition into skilled technical careers. Continuous evaluation of student learning outcomes, supported by feedback from industry partners and program advisory committees, guides ongoing program improvement and ensures that instructional practices remain aligned with workforce needs and institutional objectives. Direct - Exam (Course-based) *Chemical Indstrial Analysis II: CLTE 2100* **Target** Average overall grade result for the student population successfully completing the course during the academic year will be 80% or greater.	current strategies are effective at helping most students meet minimum expectations, they may not sufficiently support higher levels of mastery or address all barriers faced by at-risk students.	

Laboratory Softskills

Demonstrate basic soft skills related to gaining and maintaining employment such as: time management, appropriate work attire, working as a team, and effective communication.

MEASURES	RESULTS	ACTIONS
Final Exam Grade The School of Industrial Technology at SOWELA Technical Community College designs its programs and courses with a deliberate focus on achieving clearly defined student learning outcomes aligned with workforce expectations and institutional goals. Program curricula are developed	MET **Summary** The Chemistry Laboratory program reported an 85% success rate for the outcome: “Demonstrate basic soft skills related to gaining and maintaining employment such as time management, appropriate work attire, teamwork, and effective communication.” This performance exceeds typical benchmarks	**Modify Policies / Procedures** IN PROGRESS The program coordinator will expand experiential and team-based learning opportunities using the following: Increase the use of structured group assignments or rotating team roles (e.g., team leader, recorder, safety officer) to ensure all students actively practice interpersonal and

through a collaborative process involving faculty subject matter experts, industry advisory committees, and institutional leadership to ensure that instructional content reflects current industry standards, technological advancements, and the competencies required for employment in technical and industrial fields.

Each program within the School of Industrial Technology identifies specific student learning outcomes that describe the knowledge, technical skills, and professional behaviors graduates are expected to demonstrate upon completion of their program of study. Course-level learning objectives are intentionally aligned with program outcomes and are structured to support progressive skill development throughout the curriculum. Faculty regularly assess student performance using a variety of direct and indirect assessment methods, including laboratory performance, practical demonstrations, written examinations, project-based learning, and industry-aligned competency evaluations.

Instructional delivery is designed to support multiple modes of learning and incorporates a combination of classroom instruction, online learning platforms, and extensive hands-on laboratory experience. Faculty utilize modern instructional technologies such as learning management systems, simulation software, digital instructional tools, and interactive classroom technologies to enhance engagement and reinforce theoretical concepts. These resources allow students to access course materials, complete assignments, and participate in learning activities both in-person and online, supporting flexibility while maintaining academic rigor.

Hands-on training remains a cornerstone of instruction within the School of Industrial Technology. Students gain practical experience using current industry training aids, equipment, and laboratory systems that replicate real-world industrial environments. These laboratories provide opportunities for students to apply theoretical knowledge in controlled, experiential settings that emphasize safety, troubleshooting, system diagnostics, and operational procedures. The integration of modern training equipment ensures that students develop competencies relevant to the technologies and systems used in contemporary industrial workplaces.

Faculty professional development is also a critical component of maintaining instructional quality and ensuring alignment with evolving industry practices. Faculty members actively participate in professional development activities, industry partnerships, technical certifications, and training programs designed to maintain subject matter expertise and instructional effectiveness. These efforts support the continuous improvement of curriculum design, instructional methods, and assessment strategies.

and indicates that a strong majority of students are demonstrating competency in essential employability skills.

2026-06-30T0923_Grades-CLTE-2002-01.xlsx

Analysis

The Chemistry Laboratory program reported an 85% success rate for the outcome: “Demonstrate basic soft skills related to gaining and maintaining employment such as time management, appropriate work attire, teamwork, and effective communication.” This performance exceeds typical benchmarks and indicates that a strong majority of students are demonstrating competency in essential employability skills.
Several factors help explain these positive results. First, intentional instructional practices and faculty engagement appear to significantly influence student development in soft skills. The primary instructor’s commitment to student success—through availability, individualized support, and development of supplemental learning resources—creates an environment in which professional behaviors such as communication, responsibility, and time management are modeled and reinforced.

Second, the addition of a new adjunct instructor has increased instructional capacity and provided students with more frequent opportunities to engage in team-based laboratory activities, which naturally promote collaboration, accountability, and interpersonal communication skills. This expanded instructional support enhances students’ exposure to expectations aligned with workplace behaviors.
Third, environmental and structural supports—including small class sizes and well-equipped, modern laboratory facilities—contribute to a learning environment that mirrors professional settings. These conditions make it easier for faculty to set expectations around appropriate attire, professionalism, and teamwork while providing timely feedback to students.

While the results are strong, the data suggests that some students are not consistently demonstrating these competencies. This gap indicates that, although soft skills are being developed effectively for most students, there may be variability in how consistently these skills are reinforced, assessed, or internalized across all learners.

leadership skills.

Incorporate scenarios that simulate real workplace expectations.

Recommended Due Date: 01/04/2027

Through the intentional integration of industry-informed curriculum design, modern instructional technologies, faculty professional development, and hands-on experiential learning, the School of Industrial Technology ensures that its programs effectively prepare students to meet defined learning outcomes and to successfully transition into skilled technical careers. Continuous evaluation of student learning outcomes, supported by feedback from industry partners and program advisory committees, guides ongoing program improvement and ensures that instructional practices remain aligned with workforce needs and institutional objectives. Direct - Exam (Course-based) *Chemical Lab Analysis I Lab: CLTE 2002* **Target** Average overall grade result for the student population successfully completing the course during the academic year will be 80% or greater.		

Laboratory Safety

Demonstrate a basic knowledge of industrial and environmental safety.

MEASURES	RESULTS	ACTIONS
Final Exam Grade The School of Industrial Technology at SOWELA Technical Community College designs its programs and courses with a deliberate focus on achieving clearly defined student learning outcomes aligned with workforce expectations and institutional goals. Program curricula are developed through a collaborative process involving faculty subject matter experts, industry advisory committees, and institutional leadership to ensure that instructional content reflects current industry standards, technological advancements, and the competencies required for employment in technical and industrial fields. Each program within the School of Industrial Technology identifies specific student learning outcomes that describe the knowledge, technical skills, and professional behaviors graduates are expected to demonstrate upon completion of their program of study. Course-level learning objectives are intentionally aligned with program outcomes and are structured to support progressive skill development throughout the curriculum. Faculty regularly assess student performance using a variety of direct and indirect assessment methods, including laboratory performance, practical	NOT MET **Summary** The assessed outcome yielded a 77% success rate, falling below the established benchmark of 80%. 2026-06-30T0959_Grades-CLTE-1000-01.xlsx **Analysis** The assessed outcome yielded a 77% success rate, falling below the established benchmark of 80%. Additionally, the overall course performance closely mirrors this outcome score, suggesting a consistent pattern of student difficulty across both course-level achievement and the targeted competency. A key factor influencing these results may be the first-semester context of the course. Research on student transition and persistence consistently indicates that students in their initial term often experience challenges related to academic adjustment, time management, and navigating new expectations. Studies such as Tinto's model of student integration and subsequent higher education research highlight that early academic performance is strongly	**Gather Additional Data** IN PROGRESS Conduct Targeted Data Analysis The program coordinator will disaggregate results by key variables (e.g., assignment type, early vs. late performance, student demographics, attendance patterns). Identify specific points in the semester where performance declines, which may reveal critical intervention opportunities. Recommended Due Date: 01/04/2027

demonstrations, written examinations, project-based learning, and industry-aligned competency evaluations.

Instructional delivery is designed to support multiple modes of learning and incorporates a combination of classroom instruction, online learning platforms, and extensive hands-on laboratory experience. Faculty utilize modern instructional technologies such as learning management systems, simulation software, digital instructional tools, and interactive classroom technologies to enhance engagement and reinforce theoretical concepts. These resources allow students to access course materials, complete assignments, and participate in learning activities both in-person and online, supporting flexibility while maintaining academic rigor.

Hands-on training remains a cornerstone of instruction within the School of Industrial Technology. Students gain practical experience using current industry training aids, equipment, and laboratory systems that replicate real-world industrial environments. These laboratories provide opportunities for students to apply theoretical knowledge in controlled, experiential settings that emphasize safety, troubleshooting, system diagnostics, and operational procedures. The integration of modern training equipment ensures that students develop competencies relevant to the technologies and systems used in contemporary industrial workplaces.

Faculty professional development is also a critical component of maintaining instructional quality and ensuring alignment with evolving industry practices. Faculty members actively participate in professional development activities, industry partnerships, technical certifications, and training programs designed to maintain subject matter expertise and instructional effectiveness. These efforts support the continuous improvement of curriculum design, instructional methods, and assessment strategies.

Through the intentional integration of industry-informed curriculum design, modern instructional technologies, faculty professional development, and hands-on experiential learning, the School of Industrial Technology ensures that its programs effectively prepare students to meet defined learning outcomes and to successfully transition into skilled technical careers. Continuous evaluation of student learning outcomes, supported by feedback from industry partners and program advisory committees, guides ongoing program improvement and ensures that instructional practices remain aligned with workforce needs and institutional objectives.

Direct - Exam (Course-based)

Introduction to Lab Analysis: CLTE 1000

Target

affected by students' ability to adapt to institutional expectations, build academic confidence, and develop effective learning strategies. Difficulties during this transition period can lead to lower performance, particularly in courses that require both conceptual understanding and applied skills, such as laboratory-based instruction.

Additionally, the alignment between the outcome score (77%) and the overall course average suggests that the issue is systemic rather than isolated to a single assignment or competency. This pattern may reflect factors such as:

- Variability in students' prior academic preparation, particularly in foundational science or laboratory skills
- Limited early development of self-regulated learning behaviors, including time management and study strategies
- Potential gaps in early feedback or intervention, which research shows are critical in improving first-term student performance

While the program benefits from strengths such as engaged faculty, small class sizes, modern laboratory equipment, and strong instructional support, these assets may not yet be fully leveraged in a way that specifically addresses the unique needs of first-semester students. The findings suggest that additional, targeted strategies focused on early-stage student success are needed to improve outcomes.

Average overall grade result for the student population successfully completing the course during the academic year will be 80% or greater.		

Database Analysis

Display and analyze database information.

MEASURES	RESULTS	ACTIONS
Final Test Grade The School of Industrial Technology at SOWELA Technical Community College designs its programs and courses with a deliberate focus on achieving clearly defined student learning outcomes aligned with workforce expectations and institutional goals. Program curricula are developed through a collaborative process involving faculty subject matter experts, industry advisory committees, and institutional leadership to ensure that instructional content reflects current industry standards, technological advancements, and the competencies required for employment in technical and industrial fields. Each program within the School of Industrial Technology identifies specific student learning outcomes that describe the knowledge, technical skills, and professional behaviors graduates are expected to demonstrate upon completion of their program of study. Course-level learning objectives are intentionally aligned with program outcomes and are structured to support progressive skill development throughout the curriculum. Faculty regularly assess student performance using a variety of direct and indirect assessment methods, including laboratory performance, practical demonstrations, written examinations, project-based learning, and industry-aligned competency evaluations. Instructional delivery is designed to support multiple modes of learning and incorporates a combination of classroom instruction, online learning platforms, and extensive hands-on laboratory experience. Faculty utilize modern instructional technologies such as learning management systems, simulation software, digital instructional tools, and interactive classroom technologies to enhance engagement and reinforce theoretical concepts. These resources allow students to access course materials, complete assignments, and participate in learning activities both in-person and online, supporting flexibility while maintaining academic rigor.	MET **Summary** The assessed outcome yielded a success rate of 89%, exceeding the established benchmark of 80% and indicating strong student achievement of the identified learning objective. 2026-06-30T1017_Grades-CLTE-2102-01.xlsx **Analysis** The assessed outcome yielded a success rate of 89%, exceeding the established benchmark of 80% and indicating strong student achievement of the identified learning objective. Several factors likely contributed to this high level of performance. As noted previously, the program benefits from strong instructional practices, including faculty who provide extensive support, develop supplemental learning resources, and remain accessible to students. These practices are particularly impactful in a first-semester course, where students often face transitional challenges. The instructor's intentional engagement likely mitigates common first-term barriers such as underdeveloped study strategies and unfamiliarity with academic expectations. Additionally, small class sizes and well-equipped laboratory environments provide a structured and supportive learning setting that allows for individualized attention and immediate feedback. The addition of a new adjunct instructor may also have improved instructional capacity, providing students with increased opportunities for guidance and reinforcing both technical competencies and foundational academic skills. While the results are strong, it is notable—based on prior trends—that first-semester courses can exhibit variability in student performance. The current outcome suggests that existing supports are effective for this cohort; however, without deeper analysis, it is unclear which	**Revise Benchmark / Target** IN PROGRESS The program coordinator will conduct a comprehensive, multi-term analysis of assessment data to determine whether the current benchmark of 80% remains appropriate or should be increased to reflect actual program performance. This process will include reviewing outcome results across multiple cohorts, disaggregating data to identify trends, and comparing performance levels in similar courses or programs where applicable. Particular attention will be given to identifying consistent patterns of achievement above the current benchmark, which may indicate that the existing standard does not fully capture the program's level of student success. The analysis will also consider variability across sections, instructors, and semesters to ensure that any benchmark revision is both ambitious and attainable. Based on these findings, the program will determine whether to adjust the benchmark to a higher threshold (e.g., 85% or above) and document the rationale for the change. Recommended Due Date: 06/30/2027

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