

INSTITUTIONAL EFFECTIVENESS AUDIT FORM

Vision Statement

Tennessee Tech will achieve national prominence and impact through its engage students, dedicated faculty, and career-ready graduates known for their creativity, tenacity, and analytical approach to problem solving.

Mission of Tennessee Tech University

Tennessee's technological university creates, advances, and applies knowledge to expand opportunity and economic competitiveness. As a STEM-infused, comprehensive institution, Tennessee Tech delivers enduring education, impactful research, and collaborative service. (Tennessee Tech Board of Trustees reviewed and approved the mission statement on June 26, 2018.)

Note:

Institutional Effectiveness reports are due annually on August 15. Reports are reviewed by the Institutional Effectiveness Assessment Committee (IEAC) using a [rubric](#) to ensure that each report follows the institutional effectiveness process, to assess quality, and to provide feedback to programs. The table presented below outlines the institutional effectiveness components detailed in each programs report. (The components are detailed in the [IEAC rubric](#) and listed below). The table also provides a sample of improvement strategies initiated over the last three assessment cycles. Links are also provided for each academic program for the last three assessment cycles.

R1. Definition of Department or Unit

R2. Program Goals/ Student Learning Outcomes

R3. Assessment Tools/ Measures

R4. Assessment Rationale

R5. Results/ Findings

R6. Analysis of Results

R7. Process of Institutional Effectiveness

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Agriculture & Human Ecology											
Agriculture (BSAg)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	To improve students' critical thinking skills (SLO3) and provide more experiential learning opportunities, a capstone course is being piloted one concentration in the program. Students in the Agriculture Engineering and Technology concentration (AGET-4850) are engaging in the first pilot capstone experience. Students in the new AGET-4850 course performed at similar levels to other senior students on the CCTST. We will continue to provide the new capstone course and push the capstone experience out to other concentrations as our faculty believe the capstone experience can have a positive impact on critical thinking.
Human Ecology (BSHE)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	Two faculty members received a QEP grant to revise HEC 1005 and incorporate a peer mentor model. The revised course was taught in Spring 2019 and Spring 2020 with the goal of improving retention in the major and increasing competence in the Body of Knowledge assessment (HEC Exit Exam). Results from the 2020-21 IE report indicate that students in the revised HEC 1005 course with the peer mentor model scored higher on the Body of Knowledge assessment in comparison to previous years. The peer mentor model is continuing to be used and the department hopes to see continued improved as peer mentor student matriculate through the program.
Arts & Sciences											
Biology (BS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	In the Biology BS program, we use the ACAT exam to address student learning outcome 4 – general biology concepts and principles. Student scores on the Evolution section of the ACAT exam are generally at or near the bottom of the 7 sections with this year's results being well below others. We have discussed adding an Evolution course to the program of study for our biology majors, both as a response to this and due to a general feeling that this subject is lacking in our curriculum. We have been unable to add this course in the past, due mainly to the fact that we've been short 1-3 faculty positions over most of the past 5 years. We will fill both of our remaining lines this academic year, and thus start offering this course in either 2022-23.

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Biology (MS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	For Student Learning Outcomes 1 and 3, we plan to adopt a more quantitative rubric for our oral exams. The rubric will provide a better assessment of both the command of general biology principles and scientific reasoning. The rubric has been developed (and piloted on one student's defense during the summer of 2021), and will be used for all defenses in the upcoming academic year.
Chemistry (BS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>1. In the Fall of 2019, the faculty adopted and deployed a new online learning system for the CHEM 1110 students: ALEKS. This platform was chosen based on class tests (including a full pilot of the platform in CHEM 1110 in Spring 2019) and faculty trials. ALEKS customizes the students' learning experience based on demonstrated prior knowledge and directs students to engage in topics only when they are ready to learn the material, much as a faculty member would do in a one-on-one session. With the COVID-19 pandemic interrupting normal operations in Spring 2020, a direct comparison of the effectiveness of the platform could not be made with previous semesters. It is very likely that a valid, full comparison of the previous homework system and the new ALEKS platform will not be able to be made until after the conclusion of the 2021-2022 academic year.</p> <p>2. In response to increased DFW rates and lower performance on the General Chemistry Assessment, a one-hour recitation has been added in place of a traditional pre-lab lecture. This is a significant modification that essentially provides an attendance-required help session each week.</p>
Chemistry (MS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	In order to make progress on Learning Outcome 6, <i>effectively communicate scientific knowledge</i> , assessment results of student communication skills have driven the department to change the way the CHEM 6910 is structured. First, the coordinator of the Chemistry M.S. seminar program, in consultation with other graduate faculty in the department, prepared oral presentation guidelines for students giving seminars in the M.S. program. Secondly, graduate students have been given their own

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											<p>time slots to give seminar presentations on literature separate from the external speaker series. This provides a more informal setting for a student's first presentation, and gives the student a chance to gain experience in a low-stakes but professional setting. These two changes have improved the performance of M.S. students in our seminar program, as perceived in our Literature and Thesis Seminars results.</p> <p>Beginning in Spring 2021 the second literature seminar course, CHEM 6911, Literature Seminar, was reinvented by two research faculty. This course focuses on the use of Ted Talks, lectures, practice sessions and other similar learning tools to help students improved oral dissemination of data and interpretation of that data. The reinventing of CHEM 6911 will continue the progress we've seen since redesigning CHEM 6910.</p>
English (BA)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>1. Faculty in the English department have taken full advantage of the Universities QEP project to improve student critical thinking performance. While student performance on the CCTST met the national average in 2016-17, faculty felt there was significant room for improvement. English instructors applied for an increasing number of QEP EDGE grants to incorporate critical thinking activities in their courses. From Fall 2016 to Fall 2019, the department increased QEP EDGE courses from two to seven courses. CCTST scores increased steadily from equivalent to the national average (16.4) on Fall 2016 to 125% of the national average (19.2) in Fall 2019. Plans are in place to continue teaching the QEP EDGE developed courses.</p> <p>2. The department is currently developing a program wide rubric in a similar style to our graduate rubric. The rubric will be used to assess student writing, critical thinking, and diverse cultural experiences so as to provide additional actionable results for each of our SLOs. We hope to incorporate the new rubric in 2021-22.</p>
English (MA)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>In order to provide faculty and students with more actionable feedback on theses, project papers, and the comprehensive exam, the department developed a rubric that evaluates</p>

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											<p>student ability to demonstrate broad and integrated knowledge, as well as, advanced analytical and communication skills. The new rubric will be implemented Fall 2021 beginning in ENGL 6000 Introduction to Graduate Studies. Overtime, the department will evaluate gains from students entering the program in ENGL 6000 to exiting the program via the comprehensive exams.</p>
Foreign Language (BA)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>1. During the 2019-20 academic year, the faculty developed and adopted a new rubric for the capstone presentation. The rubric serves as a more effective instrument to evaluate specific course and program outcomes, such as critical thinking, intercultural competence, and discourse quality. Capstone students are now introduced to the presentation rubric at the start of the course so that they can better understand how their work will be assessed. During the 2020-21 academic year, faculty provided feedback on the new presentational rubric developed and adopted for all capstone courses. Faculty remarked that the new rubric allowed them to provide more constructive feedback on formative assessments throughout the capstone course—especially regarding proficiency and critical thinking skills.</p> <p>2. In a spring 2021 department meeting, faculty expressed concern that current and past majors have been so intimidated by the forms of sustained research required in the capstone course that they have dropped the major entirely or they have delayed the capstone course until they eventually dropped out of Tennessee Tech. Indeed, some faculty remarked that although the research project and presentation assessments in the capstone course help faculty evaluate critical thinking and linguistic proficiency, perhaps these aspects of the capstone are not preparing students for professions or careers besides academia. Therefore, in Fall 2021, faculty will begin developing and piloting different major assessments for capstone students. Special attention will be paid to the requirements of critical thinking and linguistic proficiency; however, the summative assessments in the</p>

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											course will no longer need to take the form of an academic research paper and presentation.
Geosciences (BS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	Assessment of senior thesis communication ability showed the need for an increased emphasis on communication ability in 2019-20. Multiple courses implemented writing exercises including Paleoclimate (GEOL 3550) which began requiring weekly written laboratory reports and oral presentations and Structural Geology and Tectonics (GEOL 3230) which asked students to focus on abstract writing to summarize results in a focused method common in the geosciences profession. Results from the thesis assessment for 2020-21 showed relatively similar performance on communication ability. Earth Science faculty will continue to implement writing exercises and require poster presentations or oral presentations as part of their courses. Collectively, these assignments will build a geoscience student's writing and presentation skills toward Senior Thesis (GEOL 4930-31) where they have the opportunity to document their own novel research and present it in a professional venue.
History (BA/BS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	In 2018-19 the Department of History revised the senior seminar rubric used to assess SLO 1 – ability to research and write a scholarly paper. In the initial application of the revised rubric (Spring 2020) approximately 60% of students scored as emerging or weak in critical thinking and analysis on the senior capstone project. The lowest score for all rubric categories. In Fall 2020 and Spring 2021, two upper division courses (HIST 4690 & HIST 4650) were revised as part of a QEP grant to offer students the chance to explore and analyze social, cultural, and political events in popular historical shows such as the Tudors. Over the course of the semester, students completed journaling assignments using discovery processes, such as library and archival research, to start to develop a problem or question, collect the necessary primary sources to address the research problem, and finally, evaluate the information to produce a formal paper. Both courses were very successful. Unfortunately, only 2 seniors completed the senior seminar course this year, so there is insufficient data to prompt

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											any reexamination of the recently-revised rubric or to reevaluate progress on critical thinking skills. These courses will continue to include creative inquiry next year and with 9 students enrolled in senior seminar, we hope to see substantial progress with our cohort.
Mathematics (BS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>1. In spring 2019, the department began offering a Special Topics course based on a curriculum for future high school mathematics teachers developed by the Mathematics Teacher Education Partnership. We created a new upper-division mathematics course (MATH 4950) for Secondary Education Math majors. The course utilized portions of the curriculum developed by the partnership and materials developed by departmental faculty. Although the data is quite limited, the first-attempt pass rate was much better on the PRAXIS for 2019-20 than all the previous years listed. First attempt and Final pass rates in 2020-21 were not as high as hoped. MATH-4950 continues to be offered and the department continues discussions with the College of Education to improve pass rates.</p> <p>2. Faculty developed two new assessments to evaluate general education mathematics (one in Math 1530-Intro to Statistics; one in Math 1910-Calculus I). Unfortunately, the assessment development was postponed until Fall of 2020 to be implemented in Spring 2021. The common questions provide a new measure of student learning with results indicating that 74% of Math 1530 students answering correctly and 60% of Math 1910 students. For the Math 1910 common question results, the 60% pass rate simply go along with the DFW rates seen by the individual sections in 1910. The Math 1910 committee is already discussing ways to improve this course.</p>
Mathematics (MS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	Two graduate courses were created and approved by the Department of Mathematics in February 2020. The courses were created to give our graduate students academic credit for teaching and research seminars we already require of them. The two courses are Math 6001 and Math 6002. Math 6001 provides the graduate students with the practical training in the teaching of mathematics. Math 6002 provides the graduates

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											<p>students with the training in writing, typesetting, and presentation of mathematical research and supports student knowledge and skill in an area of mathematics (SLO 2).</p> <p>Due to a curriculum error, we were not able to offer these courses officially but have been offering them unofficially for the last year. Dr. Alexander Shibakov created an online version of Math 6002 of which all the graduate students last year participated. Our goal for 2021-2022 is to fix the curriculum issue.</p>
Physics (BS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>The Force Concept Inventory is administered as a pre/posttest in PHYS 2010 Physics I and PHYS 2110 Physics II to assess students understanding of foundational basic concepts in mechanics (SLO1). After four years of steady improvement in the rolling five-semester average gain score for PHYS 2110, faculty observed a decline in student performance in the Spring of 2018. To address this, several faculty adopted more interactive teaching strategies. Assessment results from FY 2019 and FY 2020 indicate that these strategies have been effective in improving student outcomes.</p>
Political Science (BS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>1. Based on program review results and faculty observation of students writing, faculty determined that an additional measure of oral and written communication was warranted. A rubric assessment was added for the Political Science 3000: Data Analysis course. This course is required of all Political Science majors and the rubric/assignment provide vital practice and feedback to students related to oral and written communication skills.</p> <p>2. A multiple-choice exam covering topics in Political Science-Legal Studies is being developed to replace/ compliment the ETS Major Field Test. It is hoped that this assessment change will mirror the success of the multiple-choice exam developed in the Sociology program.</p>
Sociology (BS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>Although students are meeting the threshold for supervisor's rating as part of a successful internship (SLO5), discussion with site supervisors, students and faculty highlighted opportunities for both more student engagement</p>

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											<p>and more Agency Site involvement. More specifically, ePortfolios were piloted in Spring 2019 and implemented fully in 2019-20. Critical-thinking Assessment Test (CAT) results collected in Spring 2020 as part of the QEP project demonstrated that students made significant gains on critical thinking skills related to their ability to separate relevant from irrelevant sources of information.</p> <p>As part of the ePortfolio experience, student complete the ePortfolio guide. This guide is graded at the end of the semester and accounts for half of the internship grade. Site Supervisors will begin providing additional feedback based on the ePortfolio. A rubric assessment of the ePortfolios will be provided in future reports. Currently the ePortfolios rubric is featured both on the Provost homepage and as a component of Tech's Strategic Plan and ePortfolios are being added for student interns to take a virtual e-resume with them after their internship.</p>
Wildlife & Fisheries Science (BS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>Participation by Wildlife and Fisheries Sciences majors in internships has been consistently short of our goal of 25% each year. To encourage more students to pursue internships and co-ops, we began allowing students to substitute an internship, along with Conservation Techniques (a 3-hour Maymester course) for Wildlife Techniques, our 6-hour summer "capstone" course for wildlife majors. During the 2019-2020 academic year student participation in internships increased from 9.1% to 18.8%. Anecdotally, several students had internships that were canceled due to the pandemic, so the raw numbers likely would have been higher than reported. We will continue to encourage students to pursue internships and allow students to substitute an internship for the capstone experience.</p>
Business											
Accounting (BSBA)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>Results from the 2019/2020 CCTST assessment indicated that accounting students fell short of the goals in the areas of Deduction and Numeracy (SLO 2). In addition, the ETS results from Spring 2020 indicate that Accounting students are not performing at an extraordinarily high level in Quantitative Analysis (SLO 1). Finally, internal</p>

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											<p>measures of program on dimensions of Blooms Taxonomy indicate that accounting students are falling short of the goal in the area of Application (SLO 3). The Accounting program will be implementing a new course in Accounting Analytics in Fall 2022. The course will be an enhanced focus both on understanding the implications of information (Deduction) and in the ability to create and interpret visualizations of data (Numeracy). The Department is scheduled to meet in October 2021 to define the new course. It will be submitted to the College Curriculum Committee and to the University Curriculum Committee in Spring 2022 with intended implementation in Fall 2022. We believe that this significant program change will result in improvement of accounting students in all the areas mentioned as shortfalls.</p>
Accountancy (MAcc) (Distance Learning)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>Results from the 2019-20 assessment of students' understanding of ethical conduct found that overall students were performing at or above the desired levels of achievement. However, a more in-depth item analysis found that students were experiencing difficulty with the concept of professional independence as articulated in the AICPA Code of Professional Conduct. To address this, faculty implemented the following action in Spring 2021: (1) Re-emphasized the concept in core upper division accounting courses, not just in Auditing; (2) Focused on ethics during the MAcc Weekend; and (3) Encouraged Beta Alpha Psi (national honors business organization) to schedule professional speakers who will focus specifically on the topic of independence and the Code of Professional Conduct. Assessment results from 2020-21 found that students' understanding of the concept of professional independence improved slightly. As a result, in Spring 2022 faculty will: (1) Continue to re-emphasize the concept in other core upper division accounting course and (2) Sponsor at least one virtual seminar early in each semester focused on the importance of professional independence.</p>
Business Administration (MBA) (Distance Learning)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>In 2019-20 only 63% of students reached the assigned threshold of 70% on the COMP-XM Business Communication score (a measure of SLO 3.1 – Students will demonstrate proficiency</p>

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											<p>in written and oral communications skills). In response, the MBA program increased the number of activities that provide students with practice and feedback related to written communication. Specifically, in Fall 2020, DS 6220 added a written case analysis with feedback.</p> <p>Results from the 2020-21 COMP-XM Business Communications score indicated that 66% of students reached the assigned threshold; a slight improvement.</p> <p>The MBA program will increase the number of activities that provide students with practice and feedback related to written communication as part of our Writing Across the Curriculum initiative. Every core MBA course will include a graded writing assignment. To help students improve their writing skills, all MBA students have access to Grammarly Premium, which provides great feedback on weaknesses in their writing skills. This was piloted in Fall 2020 and fully implemented starting in Spring 2021. The impact will take a few semesters to assess properly.</p>
Business Management (BSBA) – Includes Economics (BS), Finance (BSBA), International Business & Cultures (BS), and Marketing (BSBA)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>Results from the 2019-20 CCTST assessment indicated that student performance in the area of Numeracy (the ability to look at numerical information relationships tables, charts, graphs, and diagrams with the ability to interpret them) fell below the satisfactory threshold of 50%. As an immediate response, the incorporation and interpretation of charts, graphs, and tables in reports and presentations was strengthened in BMGT 3720 Business Communications and other core business classes. Results from the 2020-21 CCTST indicate that students continue to struggle with Numeracy.</p> <p>An interdisciplinary task force was created to provide a more systematic and comprehensive intervention. The task force outlined a set of Quantitative Reasoning Learning Outcomes (from University of Virginia) and course specific recommendations for each core business course.</p> <p>For example, in DS 3520 Operations Management the following recommendations were provided:</p>

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											<p>A. Solve Word Problems (Learning Outcome 4). Word problems are at the end of chapters in the text. I assign problems for homework, and then we go over the solutions to those problems as well as others in the class.</p> <p>B. Solve Multistep Problems (Learning Outcome 7). Multistep problems at the end of the chapters take results of previously worked problems and use those results as inputs to answer additional questions.</p> <p>C. These problems are not graded, but similar problems are a part of the exams. The problems make up approximately 25% of each exam."</p>
Education											
Psychology (BS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>Due to faculty interest and low critical thinking scores, the Psychology department began offering PSY-3000 Problem Solving in Fall 2017. Critical thinking scores (as measured by the CCTST) hit their lowest point in 2017-18. The course has been taught each fall and spring and engages sophomore and junior students in cognitive strategies used to understand and organize complex problems. This first cohort of students completing the Problem Solving course took the CCTST in 2018-19 improving on the 2017-18 CCTST score from 14.8 to 15.5 respectively. Additional gains were seen in the second cohort with a 2019-20 CCTST score of 17.4. PSY 3000 continues to be taught as an elective psychology course.</p>
Educ. Psychology & Counselor Education (MA)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>Low CPCE scores in the Group Counseling & Group Work domain for SLO 2, prompted the COUN-6320 "Group Counseling" faculty member to include additional assessments that provide students with practice and feedback on CPCE style questions. The additional assessments improved student performance on the Group Counseling & Group Work domain from 2.5 points below the national score (2018-19) to .75 points above the national score (2019-20). A new faculty member taught COUN-6320 in 2020-21 incorporating the same additional assessments. Student performance on the Group Counseling & Group Work domain was slightly below the national norm. We will continue to provide the</p>

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											additional assessments and evaluate student progress in this domain.
Educ. Psychology & Counselor Education (EdS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>Candidates have indicated difficulty with professional autonomy, specifically their confidence and ability to respond in high stress decisions involving students. To support candidates to feel as experts in their field and produce competent professionals (SLO 1), EDPY-7170 – Consultation in the Educational Setting initiated an activity called “Circle Time”.</p> <p>“Circle Time” is an intensive role-playing and encounter exercise that was expanded from a minor class activity to a major course component, following a qualitative review of its effectiveness in desensitizing candidates to the stresses often associated with the delivery of expert systems. The consultation course has a two-fold purpose: 1) to teach candidates how to act as behavioral consultants in school and home settings, and 2) to train candidates to confidently act as “experts” in their fields when delivering consultative services. In “Circle Time” candidates act in chorus as a single consultant working with a consultee (the course instructor). Realistic role-playing and real-time reactions of the consultee require the consultant(s) to respond appropriately and cogently to real-world behavioral situations. Expanding this exercise to the second-half of every class post-midterm acts to desensitize and reprogram the candidates over time, hopefully resulting in improved confidence and autonomy in dealing with behavioral issues.</p> <p>Recent candidates completing EDPY-7170 – Consultation in the Educational Setting have indicated that “Circle Time” has provided them with practice in dealing with stressful situations as the expert. “Circle Time” will continue to be a large component of EDPY-7170 to improve confidence and professional autonomy.</p>
Counseling & Supervision PhD	✓	✓					✓	New Program Fall 2020		2020-21	<p>The Counseling & Supervision PhD enrolled its first 6 students in Fall 2020. The Ph.D. program adheres to the Council on Accreditation of Counseling and Related Educational Programs (CACREP) standards, which ensures our graduates, have high quality training and opportunities for national certification, state licensing, and professional development. In Fall</p>

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												2021-Spring 2022, the Ph.D. faculty will identify specific assessment methods to evaluate all Student Learning Outcomes including the development of rubrics to assess specific CACREP standards. All of the CACREP standards will be included on the related course syllabus.
Early Childhood Education (BS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21		In 2019-20 new course literacy standards were implemented across coursework and to better prepare students for practicum field work. The State of Tennessee revised and updated expectations for all state teacher education program providers (EPPs) related to literacy standards that K-12 students must meet. The State of TN's expectations are that EPPs integrate these standards and are proficient in teaching students when EPP candidates are hired in school districts. The Early Childhood program revised standards, assignments, and created new courses to better prepare candidates to teach fundamental literacy in school districts. The State of TN approved the plan and changes to the curriculum through an iterative review process. Candidates in the 2020-2021 academic year began these newly revised and updated courses. TEAM evaluation scores are comparable to previous years.
Elementary Education (BS) (Program has components at off-campus locations)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21		1. To ensure preparedness for residency experiences and licensure exams, the ELED 4872 course description was updated in 2018-19 to a "B or better" statement for licensure candidates where previously only a passing grade was required to move forward in the program. Future success will be evaluated based on completion of residency for those who meet minimum grade requirements. 2. New minors were voted in and approved in 2019-20 for students across the department, including ELED. The minors in ESLP and SPED will give ELED candidates additional opportunities for add-on endorsements and new career pathways in high-need teacher shortage areas. An increase in add-on endorsements should be evident with the 2022 candidates.
Multidisciplinary Studies (BS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21		1. English as a Second Language (ESLP 3100) was integrated into the curriculum to better prepare MDS majors for more diverse students in

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											<p>schools. The course was voted into all MDS programs with students to be enrolled in 2019-2020. Impact is to be evaluated when MDS student reach the classroom in 2021-2022.</p> <p>2. To ensure preparedness for residency experiences and licensure exams, the SEED 4872 course description was updated in 2019-20 to a "B or better" statement for MDS licensure candidates where previously only a passing grade was required to move forward in the program. Future success will be evaluated based on completion of residency for those who meet minimum grade requirements.</p>
Secondary Education (BSEd)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>1. English as a Second Language (ESLP 3100) was integrated into the curriculum to better prepare SEED majors for more diverse students in schools. The course was voted into all SEED programs with students to be enrolled in 2019-2020. Impact is to be evaluated when SEED student reach the classroom in 2021-2022.</p> <p>2. In Spring 2019, SEED Math candidates had very low passing rates on the national licensure exam. In collaboration with the Math department, a new course was designed and integrated into the curriculum. With interventions and support, the following year SEED Math candidates had a much higher success rate (~80%) on the national licensure exam.</p>
Special Education (BS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>1. Faculty recognized a need to recruit underrepresented candidates into the Special Education licensure area. Strategies were developed and early implementation took place in Fall 2020 including the receipt of a grant to pay for coursework for current teachers to add a Special Education endorsement to their license and a graduate partnership program with Hamilton County School District to help teacher's aides become licensed teachers. In the first year, eight candidates participated, and nearly all of the recommended participants are minorities. The Praxis info, unfortunately, lags behind a full year so we won't have data on these initiatives until next year. Percentage changes should be realized in 2-3 years.</p>

Degree Program	R1	R2	R3	R4	R5	R6	R7	Links to IE Reports			Modifications for Continuous Improvement
											2. Praxis scores have been slightly lower than faculty expectations for the 2020-21 academic year. Faculty are working with Office of Teacher Education to build practice test sessions into courses across curriculum. Praxis scores will be reassessed next academic year.
Curriculum & Instruction (MA)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>1. Faculty data assessment forum meetings helped identify a gap in Literacy standards and achievement on licensure exams. A more in-depth literacy course was developed and implemented to better mirror undergraduate preparation and CAEP standards. Future licensure data should reflect any positive changes.</p> <p>2. State licensure requirements and standards dictate the high-stakes tests that candidates complete in the various pathways to licensure. As these assessments have evolved (the State of TN has increased the minimum score requirements for the edTPA performance assessment), additional supports and coursework were needed to successfully prepare candidates. Faculty and administrators observed the increase in candidates at the graduate level across licensure pathways during a regularly scheduled college Data and Assessment Forum meeting. Varied backgrounds and increased enrollment have led to pockets of difficulty with testing across licensure specialty areas. A course was designed specifically to address the edTPA assessment with the growing population of post-bacc and job-embedded licensure students. The course is currently being integrated fully into the curriculum, but has been partially integrated into several concentrations as of summer 2021. This impact will be observable by the end of the 2021-2022 academic year.</p>
Curriculum & Instruction (EdS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	1. Requests for updated curricula and new offerings had been expressed by districts and the university at the advanced Ed.S. level. In response, three new certificates were developed that Ed.S. students can enroll or embed in their POS: Online Teaching & Design; Service; Computer Science Education. Results will be measurable in completers for the 2022-2023 academic year.

Degree Program	R1	R2	R3	R4	R5	R6	R7	Links to IE Reports			Modifications for Continuous Improvement
											<p>2. State licensure requirements and standards dictate the high-stakes tests that candidates complete in the various pathways to licensure. As these assessments have evolved (the State of TN has increased the minimum score requirements for the edTPA performance assessment), additional supports and coursework were needed to successfully prepare candidates. Faculty and administrators observed the increase in candidates at the graduate level across licensure pathways during a regularly scheduled college Data and Assessment Forum meeting. Varied backgrounds and increased enrollment have led to pockets of difficulty with testing across licensure specialty areas. A course was designed specifically to address the edTPA assessment with the growing population of post-bacc and job-embedded licensure students. The course is currently being integrated fully into the curriculum, but has been partially integrated into several concentrations as of summer 2021. This impact will be observable by the end of the 2021-2022 academic year.</p>
Instructional Leadership (MA)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>1. Evaluation of coursework by faculty during the college data and assessment forum indicated that updates should be made in preparation of an upcoming state mandated licensure exam change. Changes to coursework and the POS were proposed and passed. The academic language in the Tennessee Instructional Leadership Standards (TILS) was updated by the State Department of Education and would soon be reflected in the state licensure exams. In addition, the updated licensure exam more closely aligns with state expectations for field-based experiences. The coursework/POS updates reflect that balance through changes in objectives and assignments. Data will be available on the success rates in the 2022 academic year.</p> <p>2. State required integrated field experiences have been more difficult to coordinate with pandemic parameters in place in the school districts. Adaptations for video and reflective practices were examined and implemented. These procedures should help maintain consistent</p>

Degree Program	R1	R2	R3	R4	R5	R6	R7	Links to IE Reports			Modifications for Continuous Improvement
											<p>success with the field experiences, indicated by the number of successful candidates and graduates.</p> <p>3. Updates to the research core better reflect current educational language and CAEP standards. The research core (course sequence) for MA candidates was restructured to better prepare practicing teachers for data and assessment in public schools. The collaborative faculty experience encourages candidates to partner with faculty and researchers to explore data-driven decision making across disciplines and in an applied research approach. Faculty are striving to provide authentic research experiences in the graduate program, and these modifications should help achieve the goal. Collaborative research and increased publications from students should be more evident and measurable in 2022.</p>
Instructional Leadership (EdS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>1. Evaluation of coursework by faculty during the college data and assessment forum indicated that updates should be made in preparation of an upcoming state mandated licensure exam change. Changes to coursework and the POS were proposed and passed. The academic language in the Tennessee Instructional Leadership Standards (TILS) was updated by the State Department of Education and would soon be reflected in the state licensure exams. In addition, the updated licensure exam more closely aligns with state expectations for field-based experiences. The coursework/POS updates reflect that balance through changes in objectives and assignments. Data will be available on the success rates in the 2022 academic year.</p> <p>2. State required integrated field experiences have been more difficult to coordinate with pandemic parameters in place in the school districts. Adaptations for video and reflective practices were examined and implemented. These procedures should help maintain consistent success with the field experiences, indicated by the number of successful candidates and graduates.</p> <p>3. Faculty expressed interest in updating the Requirements for Admission to Candidacy. The</p>

Degree Program	R1	R2	R3	R4	R5	R6	R7	Links to IE Reports			Modifications for Continuous Improvement
											CITI research training modules were removed from the research course sequence and voted by faculty to replace the admission to candidacy requirement. The training will better prepare candidates earlier in the POS for their research knowledge and application. Results will be quantifiable in the research course's final project.
Exceptional Learning (PhD)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	Efforts to increase student scholarly research activity and move more students into the threshold of exceptionality, included: 1) regular sharing of conference, seminar, and symposia calls for proposals to increase student awareness of these opportunities and 2) workshops for conference proposal submissions to help students learn discipline-specific protocols and language in support of sharing original research done as part of ELPhD coursework. Assessment results from the 2019-20 IE cycle indicate that these initiatives have had a mixed impact of students' scholarly work. In Fall 2020, the program director expanded previous efforts and created a pilot program to provide one-on-one feedback on proposal and publication submission drafts by pairing students with other students and ELPhD alumni. A dip was seen in the number of conference presentations; this can be attributed to a greater proportion of new students who do not yet have active original research, as well as the effects of the COVID-19 pandemic. However, there was a slight increase in other activities such as grant proposals crafted and pending peer-reviewed publications. During qualitative program evaluation interviews conducted annually, students report that these measures help them feel more confident in finding opportunities for collaboratively participating in and presenting/publishing research with peers and faculty. The Director will continue this program in the 2021-2022 academic year and regularly solicit feedback to evaluate the initiative's efficacy and ensure students' needs are met
Exercise Science, Phys. Educ., & Wellness (BS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	Upon reviewing the results for SLO 2 – Research for the 2018-19 and 2019-20 academic years, it is clear that the data collection and methods areas of research tend to be the weakest areas for students. Modifications for 2019-20 and 2020-21 included: (1) Spending more time with

Degree Program	R1	R2	R3	R4	R5	R6	R7	Links to IE Reports			Modifications for Continuous Improvement
											students in preparation of the project reviewing and answering questions about the rubric and (2) Recommending student groups consult with instructor about research method before beginning data collection to ensure the group is on the right track with their methods and presenting the results. The 2020-21 results showed an improvement on the data collection and methods areas of research potentially related to recommending that student groups consult with instructor about research method before beginning data collection. Modifications for the 2021-22 year include: Requiring (instead of recommending) student groups to consult with instructor about research method before beginning data collection to ensure the group is on the right track with their methods and presenting the results.
Exercise Science, Phys. Educ., & Wellness (MA) (Distance Learning)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	Because some students struggle with passing the comprehensive exam (SLO1) which assesses the student's understanding and ability to apply content knowledge from core, research and concentration areas, the graduate faculty are considering the following: (1) require a capstone project in each course that demonstrates understanding and ability to apply content/concepts from that course instead of administering a comprehensive exam, (2) restructure the concentrations to include a capstone class that would also include demonstration of understanding and ability to apply research and core concepts instead of administering a comprehensive exam. Both of these options could be beneficial to student learning and provide a standard assessment that provides more data on student learning.
Engineering											
Chemical Engineering (BChE)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	SO5 – Teamwork – Multiple attempts have been made to improve teamwork with the first teamwork training occurring in Fall 2017 (CHE 4410 Design I). The training was based on four simple critical teamwork skills that state that an effective team member must be knowledgeable, capable, reliable and ethical. Students practiced these skills in Design I, before being “released” as a team member in Design II. Results suggest that

Degree Program	R1	R2	R3	R4	R5	R6	R7	Links to IE Reports	Modifications for Continuous Improvement
									<p>the present form of teamwork training has no effect on team performance within the Design sequence.</p> <p>A second and significant effort to improve teamwork was implemented in our CHE 3121 Transfer Science II course in Fall 2018. The laboratory section was restructured to include student training in performing as functional-based teams during hands-on integration of course material via the creation of a prototype of innovative technology. The training consisted of multiple activities in which students acquire and apply (or transfer) knowledge regarding the attributes of a functional team, including but not limited to the need for a strong social contract and assessment of the contracts built. Even after this level of intensive and systematic teamwork training, when placed in a new environment, i.e. CHE 4410, this training does not seem to translate into improved team behaviors. The Department is evaluating and developing additional strategies in an effort to make substantive improvements in student application of skills acquired across the curriculum.</p> <p>SO1 – Use of Engineering Tools While students are collectively at threshold, a significant fraction of individual students have poor skills in the area of problem solving with programmable platforms, e.g. MatLab, MathCad, C++, etc. This realization became apparent to the instructor of record for Design I and II who frequently works one-on-one with many students on such programming skills. His individualized training thus provided a basis for direct assessment of student skills and levels of proficiency. Beginning with the Fall 2019 offering of Design I, individual assessment of problem-solving skills using software platforms was implemented to provide individual feedback and provide an individual level of assessment. Individual exam scores show that many students are unable to solve problems when using a programmable platform such as MatLab. In Spring 2021, Industrial “Academy” Instructors were piloted in the Design II course as an effort to bring more innovation and authentic project</p>

Degree Program	R1	R2	R3	R4	R5	R6	R7	Links to IE Reports			Modifications for Continuous Improvement
											experience. The Academy Instructors consisted of eight prior TTU CHE graduates all of whom had taken the Design sequence with the current design course instructor. A number of workshops were arranged to train the Academy participants in how to score projects, manage project teams, and report findings in accordance with departmental ABET expectations. The Academy experiment should be continued for at least one more term to gather further input from the Academy participants and students.
Chemical Engineering (MS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>SLO2 – Proficiency in graduate level transport phenomena Through discussions in the department, a preparatory course for the Advanced Kinetics course was identified as critical for any graduate students who did not have an undergraduate degree in CHE. A special topics course (CHE 6810 Physics of Transport) had been offered three times previously and was identified as a potential critical course. The course was approved as CHE 6140 as a core course in the curriculum. With only a few exceptions owing to other student needs, the Research and Graduate Program Coordinator advises new graduate students to take the CHE 6140 course during their first semester in preparation for the Advanced Kinetics course in the subsequent spring semester.</p> <p>SLO5 – Thesis Defense Effective for a Fall 2021 and aligned with expectations throughout the College of Engineering, the department now requests that the audience in attendance at MS thesis and PHD dissertation defenses evaluate the candidates using a new form. The form evaluates both oral presentation skills related to Content, Visual Aids, Presenter Appearance, Presentation Mechanics, and Response to Questions and Comments, as well as, writing skills related to Quality of English, Technical Content, and Technical Writing.</p>
Civil & Environmental Engineering (BSCE)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	1. An embedded course assignment in CEE 4950 Senior Design is used to assess how well students can apply management design principles. Ratings of the measure have fluctuated between "Acceptable" and "Excellent" over the past four assessment cycles. As such, the faculty decided

Degree Program	R1	R2	R3	R4	R5	R6	R7	Links to IE Reports			Modifications for Continuous Improvement
											<p>to add an additional assignment to support students' application of management principles and include the assignment as an additional assessment measure for this learning outcome. Starting Fall 2019, students were required to further apply management design principles by creating a project management schedule in Microsoft Project. Results from 2019-20 and 2020-21 showed improvement in students' performance on this learning outcome.</p> <p>2. Final grades for CEE 4310 Steel Design and CEE 4320 Concrete Design fell below threshold in 2018-19 and required an immediate response. Two structural faculty who taught the courses left the department, but new faculty hires and time to acclimate have reversed the trend with metric improving. The department will continue to monitor progress.</p>
Civil & Environmental Engineering (MS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>Student Learning Outcome 2 focuses on student ability to apply advanced methods in developing civil engineering solutions within a chosen sub-discipline. Student performance on the Master's Thesis proposal is a key assessment for this SLO. In 2018-19 student performance fell below threshold on the ability to respond to questions and comments during the proposal. The average graduate advisory committee rating for student ability to respond to questions and comments was 2.945, which is below the 3.0 threshold. Due to a low number of ratings, it was believed that the low rating was due to an individual student. Student performance during the thesis proposal increased in 2019-20 to 3.5 and held steady at 3.44 in 2020-21.</p> <p>It was noted again in 2020-21 that the number of students evaluated (for MS Defense) in some years has been lower than the actual number of students defending. Furthermore, since all MS students are required to have at least 3 committee members, the total number of evaluations conducted should be at least 3 times the number of students. However, this is often not the case, indicating that not all committee members are completing the survey. Therefore, going forward, to ensure that all thesis advisory committee members complete their evaluation of</p>

Degree Program	R1	R2	R3	R4	R5	R6	R7	Links to IE Reports			Modifications for Continuous Improvement
											each student thereby providing full data sets for SLO 2 and 3 all assessment will be conducted electronically and monitored. The CEE department chair will not sign off on any thesis defense forms unless the entire committee has completed the evaluation.
Computer Engineering (BSCmpE)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>Student Outcome Assessment (SLO1, SLO6, & SLO7)</p> <p>A major overhaul of our program assessment methodology was undertaken during 2020-2021 to provide for more direct assessment of student learning outcomes. This resulted in replacing the FCA and SCA with a broader direct assessment tool, termed the "Student Outcome Assessment (SOA)." Unlike the assessment tools that it replaced, the SOA will be applied to assess all student learning outcomes. After a trial in Spring 2021 on SLO1, SLO6, and SLO7, the SOA will be used to assess all SLOs during 2021-2022. After that, a biennial assessment process is envisioned that will apply the SOA to a select set of SLOs each semester while ensuring that every SLO is assessed at least once every two years.</p> <p>SLO1 – Complex Engineering Problem Data collected in the SOA from ECE 3010 (Signals and Systems) and ECE 3130 (Microcomputer Systems) and highlighted by comments made by instructors of those courses became the focus, and several areas where improvement is needed were identified. The ECE 3010 instructor found that students' lack of success on the provided instrument (an open-ended problem that required them to acquire and apply new knowledge) partly reflected a lack of mathematical sophistication and programming abilities. Thus, improvement of mathematics coverage for ECE 3010 (Signals and Systems) and ECE 3020 (Discrete-Time Signals and Systems) and improvement of programming background and abilities for ECE Students were identified as the primary revisions for SLO 1. To improve mathematics coverage in ECE 3010, an additional review (one week) of relevant mathematical topics, including relevant integration techniques and partial fraction decomposition, was added to the beginning of ECE 3010 starting in Summer 2021. To improve</p>

Degree Program	R1	R2	R3	R4	R5	R6	R7	Links to IE Reports			Modifications for Continuous Improvement
											<p>programming background and abilities, the ECE Undergraduate Program Committee has been tasked with developing curriculum improvements to improve the programming abilities of ECE students, probably by requiring additional programming courses, especially for EE students.</p> <p>SLO7 – New Knowledge ECE 3010 was targeted as assessing attainment of SLO 7, and SOA results have indicated room for further improvement in attainment of this learning outcome. The instructor of ECE 3010 noted in the SOA that students were not successful in acquiring and applying new knowledge to complete the assigned project. The specific action to improve students’ ability to acquire and apply knowledge is to introduce some exercises requiring open-ended problem solving in earlier courses in the curriculum. ECE 2110 will be targeted as one such course.</p>
Computer Science (BS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>1. In 2019-20, faculty identified some issues with SLO 1 and the ability to analyze and identify solutions for complex computing problems in CSC 4610. Faculty began introducing user stories in a lower level feeder course to focus on the mindset and mechanics of solving complex computing problems. Fall 2021 will be the first assessment cycle for this change.</p> <p>2. Past direct assessments indicated some issues in SO 2. Part of these issues have to do with system configuration and operations-level knowledge. The one credit CSC 2500 is being eliminated in favor of a three-credit CSC 2510 to address this issue. Assessments of CSC 2310, 3300, and 4610 will be performed in the future to measure the effect of this change in the curriculum.</p>
Computer Science (MS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>In order to collect more detailed data related to student learning, a new Oral Defense and Thesis/Project Assessment Form was implemented in Spring 2021. The form provides significantly better assessment data for SLO 1 - <i>The student should demonstrate knowledge of the techniques, methods, and disciplines of computer science research.</i></p>

Degree Program	R1	R2	R3	R4	R5	R6	R7	Links to IE Reports			Modifications for Continuous Improvement
											Results for Spring 2021 (6 students) are promising with the highest score indicated strong student performance on Advanced problems in their own specializations and the lowest score still showing solid to excellent grammatical form of written English. Once a full year of data is available, faculty will evaluate the form and student learning data to determine any necessary changes.
Electrical Engineering (BSEE)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>A faculty evaluation of our assessment process at an ECE faculty retreat in January 2020 resulted in the conclusion that we needed more direct measures of student outcome attainment. Specifically, it was concluded that while the SCA and FCA were important for the evaluation of course quality, they were not adequately measuring student outcome attainment. This resulted in replacing the FCA and SCA with a broader direct assessment tool, termed the "Student Outcome Assessment (SOA)." Unlike the assessment tools that it replaced, the SOA will be applied to assess all student learning outcomes. After a trial in Spring 2021 on SLO1, SLO6, and SLO7, the SOA will be used to assess all SLOs during 2021-2022.</p> <p>SLO6 – Experimentation and Data Analysis The Student Outcome Assessments of the ECE 3060 course have indicated that the analyzing and interpreting data construct has room for improvement as it has been rated just above the "acceptable" threshold. Thus, improvement of ability to conduct experimentation through solo work in ECE 2011 (EE Lab I) and ECE 3060 (EE Lab II), improvement in analyzing and interpreting data in ECE 3060, and improvement of curriculum through embedding laboratories were identified as the primary revisions for SLO 6. When following COVID-related social distancing requirements for independent lab work, instructors noticed a marked increase in the ability of students to complete the laboratory practical exam more quickly and successfully. Therefore, the improvement action for ECE 2011 and ECE 3060 is to continue to require significant solo work in the laboratories in future semesters, even after pandemic conditions subside. Additional exercises on data analysis will be</p>

Degree Program	R1	R2	R3	R4	R5	R6	R7	Links to IE Reports			Modifications for Continuous Improvement	
												introduced to ECE 3060 beginning in Fall 2021. In accordance with faculty requests and suggestions, the ECE Undergraduate Program Committee is preparing a major curriculum revision, a key component of which is the integration of theory courses and associated laboratories.
Electrical & Computer Engineering (MS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21		<p>Since the start of the pandemic in March 2020, many oral thesis defenses have been held via videoconference. In the transition to this online format, the completion of the survey was neglected for several months, and only 1 survey for a finishing M.S. student was conducted in 2020-2021. Similarly, the Record of Presentations and Publications data is incomplete records for 2017-2018 and subsequent years.</p> <p>To ensure that the thesis defense evaluation is distributed and collected in the future, the department chair will not sign defense forms until evaluation surveys have been collected from (at least) the faculty members serving on the student's committee. The defense form will also not be signed until a revised form certifying that the student either published a paper or participated in research day has been completed signifying the requirement was met. This will ensure that data is consistently collected for program assessment.</p>
Engineering (BSE) Joint w/ETSU	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21		<p>1. During the Spring 2020 assessment period, no assessment data for SO4 was collected due to a lack of appropriate pedagogy. To remedy the lack of assessment data, faculty of ENGR 4900, ENGR 4950 and ENGR 4960 met and developed content and assessment instruments and implemented them during 2020-21 academic period. During the spring 2021 assessment period, it was noted that three out of ten performance indicators, had more than 20% students did not meet expectations including indicators related to the application of ethical/professional perspectives and context. As a result, a review has been initiated. Course faculty will meet to develop improvement measures and present their improvement activities to the AAC for approval. Improvement activities will be implemented in the next course offerings.</p>

Degree Program	R1	R2	R3	R4	R5	R6	R7	Links to IE Reports			Modifications for Continuous Improvement
											2. SO7 requires "an ability to acquire and apply new knowledge as needed, using appropriate learning strategies." No assessment data were collected for four performance indicators, which can be a limitation of the rubric itself. A review of the rubrics for assessment data collection has been initiated to evaluate the adequacy and effectiveness of these instruments. The Program Director, with the support from Site Director, will lead the process. Revised rubrics will be presented to the AAC for review and approval. Revised rubrics will be implemented in Fall 2021.
Engineering (PhD)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	The CoE is adding a new assessment of student learning in Fall 2021. Students completing the dissertation proposal or defense will be evaluated using the Oral Defense and Dissertation Assessment Form. The form evaluates both oral presentation skills related to Content, Visual Aids, Presenter Appearance, Presentation Mechanics, and Response to Questions and Comments, as well as, writing skills related to Quality of English, Technical Content, and Technical Writing. All dissertation proposals and defenses must be held publicly when the PhD candidate will present her/his research to an audience of other students, faculty and staff and members of the public and in presence of their Advisory Committee. All present at this defense will be asked to complete the rubric to assess the quality of the presentation. There has been additional harmonization among the departments for consistency in the rubric used. The new form aligns directly with SLO 5 - <i>The student should demonstrate the ability to clearly communicate complex engineering and research topics in both verbal and written format</i> and will provide valuable data on candidate's oral presentation and written work.
Engineering Management (MS) (Distance Learning)	✓	✓					✓	New program Fall 2020		2020-21	A director for the Engineering MSEM program was hired and taught the first Engineering MSEM course in Fall 2020. The New Academic Program Proposal for Engineering MSEM lays out the basic roadmap for an assessment plan to evaluate SLOs, including assessments currently utilized by other MS programs in the College of Engineering such as IDEA faculty teaching evaluations, reviews of program admissions and enrollments

Degree Program	R1	R2	R3	R4	R5	R6	R7	Links to IE Reports			Modifications for Continuous Improvement	
												with respect to diversity, exit surveys of graduates, and periodic surveys of recent alumni. Over the next year, an actionable assessment plan with direct and indirect measures will be developed.
Manufacturing & Engineering Tech. (BSET)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21		<p>1. (SO2) Alumni results indicated the need for using design systems to solve engineering problems, training added to MET 3301 and 3060 to seek improvement. In Spring 2020, the faculty revised the curriculum to change the course to MET3303, a 3-credit course to improve students' design skills. MET3303 incorporates SolidWorks to increase 3D design experience, using solid modeling, innovation, and techno-entrepreneurship skills. Also, MET3060 Computer Numerical Control Machining was updated to include Fusion 360 to increase the students' CAD/CAM experiences. Students teams were tasked to design and improve the TTU Foundry and iMakerSpace. At the retreat meetings on May 14-21, 2021, faculty decided that more implementation will continue in AY2021-2022.</p> <p>2. (SO3) Alumni results also indicated need for written and oral communication support, technical writing skills added to several courses. In Spring 2021, students in MET4620 Senior Projects worked with an English Department graduate assistant to improve their technical communication and writing skills. Students in MET 110 were given topics to perform preliminary research and report writing with the findings. A list of guidelines was provided to students for reference. An impact on assessment results is not expected until these students advance to their senior year. At meetings on May 14-21, 2021, the faculty decided that more implementation will occur in AY2021-2022.</p>
Mechanical Engineering (BSME)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21		<p>1. Potential issues with SLO4 (Ethics) in 2018-19 and 2019-20 led to the development of new learning activities in the ME 2910-Professionalism and Ethics course. Student performance will be assessed with departmental student performance metrics, also used in ME 4410/ME4420, after adoption by department in Fall 2020 and student matriculation.</p>

Degree Program	R1	R2	R3	R4	R5	R6	R7	Links to IE Reports			Modifications for Continuous Improvement
											<p>2. Potentially relevant to all SLOs, changes are being brought on-line in the culminating two-semester Senior Design Project courses, ME 4410 and ME 4420, to include Design Project Portfolios for project management, analysis, and presentation. Instructional focus has been directed at clarity in project expectations, rigor of project topic, analysis, and design, and development of students' project management and decision-making skills. The Senior Design Project Portfolio will consist of two parts; one is an instructor-developed Course Portfolio, referred to as the Capstone Handbook, and the second is the student-team-generated Design Project Portfolio. Both items are rendered electronically in Microsoft OneNote notebooks, originally setup in Microsoft SharePoint. External evaluation of Senior Design Projects is higher for 4 of 5 SLOs in 2020-21.</p> <p>3. Prior years assessment, both in course and at the program level, indicates students are not proficient with solid modeling and technical drawing as graduating seniors as associated with SLO3 Communication. Beginning in Fall 2021, the ME3001 course which is required by all ME majors in the program of study, will adopt use of SolidProfessor as a required text for the course. SolidProfessor is a four-year license to a web-based set of resources (videos, reading materials, and certifications) that has learning modules to develop skill with solid modeling, technical drawings, design for manufacturing, etc. Additional ME courses will leverage the student access to this learning resource by modifying existing and/or developing new assignments to require use of solid modeling and technical drawing.</p>
Mechanical Engineering (MS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	In Fall 2019, the faculty of Mechanical Engineering changed the ME 6990- Research and Thesis credit requirements for students in Mechanical Engineering from 6 credits to 8 credits. This proposed change will expedite the MS student's involvement in their research earlier (due to 2 fewer credit hours of coursework) and enable more in-depth investigation into the research (due to 2 additional research credit

Degree Program	R1	R2	R3	R4	R5	R6	R7	Links to IE Reports			Modifications for Continuous Improvement	
												hours). To support SLO2 and improve student ability to perform basic theoretical and applied research, a new course was offered in Fall 2020. ME 6910 Research Methods was created to provide opportunities for MS students to learn professional elements of conducting research and prepare them for their MS research. The course is now mandatory for all ME-MS students pursuing a thesis option.
Fine Arts												
Fine Arts (BFA)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21		<p>1. Praxis specific activities are embedded into art education courses, especially ARED 2020 and ART 3205. Starting 2017 - 2018, it was observed that art ed students were weak in art history, responding to art, and writing/talking about their own art and practice. In Spring 2020, a weekly Special Problems course was offered for art ed juniors who were preparing to take the Praxis exam in March. The course covered general art history, mostly timelines and non-western art, art techniques, essay writing, practice exams, and study tips. Students completed specific activities and played study games every week, and they organized outside of class study sessions, too. All students passed Praxis in Spring 2021. Because of the successful Praxis outcome that the SAC&D intends to continue to offer the Special Topics Course.</p> <p>2. Better course definition and structure were added to the Design Portfolio course which has resulted in increased productivity. Better defined timelines and objectives are the key features of the changes. These changes took place in 2019-2020 in effort to provide clarity, increase productivity and definition to the design portfolio coursework and to liken it to the senior thesis process that exists in the other studio areas. These changes have benefited students who previously cited concern about lack of clarity regarding project description and assessments. We will continue to monitor and modify where needed.</p>
Music (BM)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21		Although student achievement in Music Theory exceeds expectations, retention of students within the program has been lower than faculty would like. A review of course completion rates of

Degree Program	R1	R2	R3	R4	R5	R6	R7	Links to IE Reports			Modifications for Continuous Improvement
											<p>the four courses in the Music Harmony sequence revealed that the five-year average course complete rate for MUS 1120 Harmony I that there was a considerably lower than that of the other three courses. Since MUS 1120 is linked to the retention of students within the program, faculty took the following actions: (1) Department Chair worked with the University tutoring center to add two Music students who would provide tutoring in Music Harmony 1; and (2) An entrance exam was introduced in MUS 1120 to assess students' knowledge and skills at the beginning of the term. Students who scored below the minimum requirement were placed in a different section of the course specifically designed to address students' gaps in knowledge and skills of Music Theory. Preliminary results reported in 2020-21 found that completion rates in MUS 1120 slightly improved with a course completion rate of 77% and a successful course completion rate of 71%. Moving forward, students will continue to be required to complete a placement test and receive remediation if needed. Tutors have been hired for the Tutoring Center to provide individual assistance to students in Harmony 1. The impact of these changes on program retention will be examined in Fall 2021 when data for the Fall 2020 cohort becomes available.</p>
Interdisciplinary Studies											
Communication (BS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>1. Critical thinking performance as measured by the CCTST fell below the national and institution norm three time over the past 5 years. In response, communication instructors were encouraged to apply for QEP EDGE grants to incorporate more critical thinking and problem-solving activities in their courses. In 2020-21, two faculty received EDGE grants to implement critical and creative thinking problem scenarios on a total of four courses including Interpersonal Communications and Public Relations. While CCTST scores for 2020-21 did not improve, these courses will continue to have a problem based focus and as more students matriculate through the program; we hope to see a greater impact on the CCTST results.</p>

Degree Program	R1	R2	R3	R4	R5	R6	R7	Links to IE Reports			Modifications for Continuous Improvement
											2. The COMM 2025 rubric was refined and reinstated with a sample of students in 2018-19 and fully reinstated in 2019-20. The rubric allows the department to monitor seven key competencies for the General Education outcomes for communication and target any deficiencies. Student performance in 2018-19 and 2019-20 was well above threshold. However, a decline occurred in 2020-21. This decline is thought to be related to changes in how speeches were delivered during the pandemic. As speech delivery moves back to the classroom, we will continue to monitor performance and make any needed adjustments.
Environmental & Sustainability Studies (BS)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	In order to collect more detailed information through the capstone rubrics first implemented in 2018-19, we created a spreadsheet to track how individual student groups perform in the various categories for the fall 2020 semester (Research Project Proposal) and spring 2021 semester (Research Project Presentation) of the capstone sequence. Collecting and tracking these additional data provided insight into more focused sub-areas that might need future improvement. Fall 2020 results showed a particular need for strengthening the literature review process in the Research Proposal. We have begun to address this by dividing the class into teams to address particular parts of the overall project. Each team member then selects a piece of their team's section, submits an annotated bibliography, and writes and presents a literature review. The students then work with their team to address their portion of the project, eventually combining these into a coherent whole to present to the cooperating client. Future collection of the capstone results in the tracking spreadsheet will provide evidence of improvement.
Environmental Science (PSM) (Distance Learning)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	As a part of the curriculum, students are required to complete an internship and prepare and defend a written report. Although all candidates successfully defended and presented their written report, supervisor ratings and comments indicated a need to improve students' written communications skills. In response, program faculty agreed to allow EVS 7900 Scientific Writing and Grantsmanship to be substituted for

Degree Program	R1	R2	R3	R4	R5	R6	R7	Links to IE Reports			Modifications for Continuous Improvement
											<p>a program elective and encouraged students who needed to improve their writing skills to take this course. Supervisor ratings of students' written communications the following year were higher, an indication that students' writing skills had improved as a result of enrolling in EVS 7900. Faculty agreed to continue to advise students who needed to improve their writing skills to take this course.</p>
Environmental Sciences (PhD)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>The EVS 7900 Scientific Writing and Grantsmanship course was altered in 2016 to allow students the option to develop a journal manuscript (instead of only allowing a grant proposal). In 2018 through 2020, many of the EVS 7900 students elected to prepare a journal manuscript and worked one-on-one with the instructors during editing sessions. Additionally, the EVS Executive Committee created a new policy to require doctoral students to submit at least a portion of their dissertation for peer review before they can defend their dissertation. The implementation date for the peer-review policy was August 2, 2017. This new policy was implemented to further increase student proficiency in their scientific writing and publication skills (SLO 2.2). Submitted and published manuscripts increased substantially in 2019-20 to a combined total of 43 from a previous annual total of 24. It is possible that the observed increase in journal manuscript submission and publications is partially due to this newly implemented requirement. The EVS Curriculum Committee is also tentatively recommending that EVS 7900 be one of the three required courses in the newly revamped core curriculum. If approved, then nearly every student in the program would be exposed to a writing course, which is expected to have a widespread effect on quantity and quality of manuscripts from students in the EVS program.</p>
Interdisciplinary Studies (BS) (Program has components at off-campus locations)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>Although students met or exceeded performance on the capstone project and rubric, faculty discussion noted the need to support students in the areas of identifying quality research sources, proper citation methods, and writing support. A new pre-capstone courses was developed with the goal of increasing preparedness of students</p>

Degree Program	R1	R2	R3	R4	R5	R6	R7	Links to IE Reports			Modifications for Continuous Improvement
											<p>for the challenge and rigor of the capstone experience.</p> <p>During the 2020-2021 academic year LIST 4994 was implemented and adjusted to meet the needs of the students and address the course learning objectives. The course is set up to help students better demonstrate synthesis of knowledge from the two emphasis areas, better understand research search tools, and support issues related to information literacy, resource formatting, and continuous editing of documents using comments and markup. The course is helping identify students who will need additional support in the Capstone course. We will be looking further into potential intervention approaches to help these students succeed. We will begin evaluating the effectiveness of this new course now that we have had time to tweak the course.</p>
Professional Studies (BS) (Distance Learning)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>Although students met or exceeded performance on the capstone project and rubric, faculty discussion noted the need to support students in the areas of identifying quality research sources, proper citation methods, and writing support. A new pre-capstone courses was developed with the goal of increasing preparedness of students for the challenge and rigor of the capstone experience.</p> <p>During the 2020-2021 academic year PRST 4994 was implemented and adjusted to meet the needs of the students and address the course learning objectives. The course is set up to help students better demonstrate synthesis of knowledge from the two emphasis areas, better understand research search tools, and support issues related to information literacy, resource formatting, and continuous editing of documents using comments and markup. The capstone assignment has been adapted for Professional Studies majors to increase content synthesis. The course is helping identify students who will need additional support in the Capstone course. We will be looking further into potential intervention approaches to help these students succeed. We will begin evaluating the effectiveness of this new course now that we have had time to tweak the course.</p>

Degree Program	R1	R2	R3	R4	R5	R6	R7	Links to IE Reports			Modifications for Continuous Improvement
Professional Studies (MPS) (Distance Learning)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	<p>1. MPS graduates are expected to demonstrate effective communication skills. In order to promote communication skills and provide a better assessment of student learning, PRST – 6300 Research Methods was redesigned to address communication issues related to writing, developing, and explaining a research proposal. The redesign included the implementation of a new rubric to assess student performance in written scholarly communication. Students submit a sample literature review, design a methods section, and prepare a full proposal for a research study. Future results from the PRST 6300 rubric will provide new assessment data on content knowledge, content application, conclusions, and writing. These results will help the MPS program make more informed curricular changes in the future.</p> <p>2. MPS graduates are expected to demonstrate critical thinking skills required to make good decisions and solve problems concerning the human side of business. PRST 6700 Conflict Management and Negotiation was redesigned to address the needs of students to better understand the role of conflict and negotiation within a business setting. The redesign incorporated extensive case study analysis and a rubric to assess conflict management strategies. The course incorporated case studies that explored the work setting as well as family conflict. Results from the PRST 6700 rubric will program new assessment data on considering context, communicating perspective, analyzing evidence, and using other perspectives. Future results from the PRST 6300 rubric will provide new assessment data on content knowledge, content application, conclusions, and writing. These results will help the MPS program make more informed curricular changes in the future.</p>
Nursing											
Nursing (BSN)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	1. Graduates of the Nursing BSN program must pass the National Council Licensure Exam (NCLEX-RN) in order to be licensed to practice nursing; a key goal of the BSN program. The NCLEX-RN is undergoing significant revisions, focusing more on an assessment of clinical

Degree Program	R1	R2	R3	R4	R5	R6	R7	Links to IE Reports			Modifications for Continuous Improvement
											<p>judgement rather than just safety. In anticipation of these revisions, key faculty participated in the National Council of State Boards of Nursing (NCSBN) annual conference and other professional development activities to gain information needed for the upcoming NCLEX changes. During 2020-21 academic year, a professional development plan for all faculty was developed and the process of needed curricular and testing revisions began. Faculty development and curricular and testing revisions will continue in 2021-22 and the WHSON administration will start the process of collecting information on available testing software to accommodate the changes in testing. The effectiveness of these changes will be assessed when the Fall 2020 cohort takes the NEXGEN NCLEX in 2022-23.</p> <p>2. In 2020-21, segments of the HESI RN Exit Exam fell below benchmark (national average). These segments included Communication, Interprofessional Communication, and Professionalism. Anecdotally, these students spent 80% of their Upper Division course work during COVID 19 with increased content delivered on line and adjustments to clinical experiences. These content areas will be reviewed by the WHSON Curriculum Committee and recommendations made to the WHSON Faculty Organization.</p>
Nursing (MSN) (Distance Learning)	✓	✓	✓	✓	✓	✓	✓	2018-19	2019-20	2020-21	As the Whitson Hester School of Nursing (WHSON) at TTU transitioned from TNeCampus MSN to the TTU MSN, the WHSON began the process of addressing the certification rates for the FNP concentration with a review of the curriculum and introduction of curricular changes to the FNP concentration. These changes more closely mirror the National Task Force guidelines for Family Nurse Practitioners which is focused on primary care rather than specialization in any particular field. Combining content in FNP III for Pediatrics and Women’s Health and changing the clinical practicum to a primary care focus better aligned with the recommended guidelines. In an effort to increase success with certification post-graduation the WHSON dropped the Scholarly Synthesis course in the FNP Concentration and

Degree Program	R1	R2	R3	R4	R5	R6	R7	Links to IE Reports			Modifications for Continuous Improvement
											<p>added NURS 6910: Role Transition to Certification and Practice with an emphasis on clinical reasoning and standardized testing.</p> <p>Faculty in the NURS 6910 course initiated an advisor support process assigning each graduate a faculty member to assist them in developing a post-graduation plan for certification and practice. Faculty continue to communicate with the graduate until certification is complete and employment is secured.</p> <p>As a result of the advisor support the WHSON was able to closely follow and communicate with the 22 December 2020 FNP graduates all of whom reported success on their first attempt on the FNP certification exam.</p>
Nursing D.N.P. (Distance Learning)	✓	✓	✓	✓			✓	2018-19	2019-20	2020-21	<p>The ETSU-TTU Joint DNP program began admitting students Fall 2017. The WHSON evaluation committee identified assessment methods for each of the defined DNP student learning outcomes. Curriculum evaluation related the DNP SLOs with available courses identified some areas of weakness. Multiple courses were introduced into the curriculum to augment student ability to integrate knowledge, theory and research (NRSE-5030); integration of measurement of clinical outcomes and quality management (NRSE 6050); and principles of population health analysis for advanced nursing practice (NRSE-5100).</p> <p>The first graduates completed August 2020. The first students seeking DNP certification graduated in May and August 2021 and the official 2021 certification report will not be released until early 2022.</p>