

4.1

Student achievement

The institution evaluates success with respect to student achievement consistent with its mission. Criteria may include enrollment data; retention, graduation, course completion, and job placement rates; state licensing examinations; student portfolios; or other means of demonstrating achievement of goals.

Judgment

Compliance Partial Compliance Non-Compliance Not Applicable

Narrative

Tennessee Technological University (TTU) is in compliance with Federal Requirement 4.1 (Student Achievement) based upon the evidence and practice that the University uses to evaluate its effectiveness in promoting student achievement on various performance indicators. The University and its academic programs have instituted aspiring goals and thresholds for student achievement. The performance indicators presented in the narrative illustrate the student achievement. Furthermore, the priority actions identified in the University's strategic plan demonstrate the University's commitment to continue supporting and improving student success.

TTU is proud of the accomplishments of its students in the classroom, in campus activities, and after graduation. The University evaluates success with respect to student achievement consistent with its mission "to provide leadership and outstanding programs ...that benefit the people of Tennessee and the nation" [1]. The undergraduate student achievement is assessed on a variety of performance indicators, including enrollment data, retention and graduation rates, performance on senior exit exams, licensure examinations and major field tests, job placement rates, employer surveys, and alumni surveys. In addition, graduate student achievement is assessed based on graduate thesis and dissertation publications, graduate assistantship awards, fellowship awards, and research participation and recognition. The University, academic units, and student service and support units use this information in ongoing planning and assessment activities that guide improvement efforts, as directed by the University's Strategic Plan, the Flight Plan [2]. Evidence of these performance indicators is briefly presented below.

The Flight Plan features four major themes as initial key focus areas:

- Improve the undergraduate student experience
- Transform technology
- Create distinctive programs and invigorate faculty
- Expand financial resources and modernize infrastructure

Each focus area contains several goals that support TTU's commitment to develop students who are hard-working, critical thinkers prepared for a global environment.

Undergraduate Student Achievement

The goals in Focus Area One articulate the institutional commitment to undergraduate student success.

Focus Area 1: Improve undergraduate student experience.

Goal 1.1 Enhance the quality of the undergraduate student experience
Goal 1.2 Improve academic advising

- Goal 1.3 Increase degrees conferred and retention; reduce time-to-degree
- Goal 1.4 Focus on incoming student quality and diversity
- Goal 1.5 Improve student recruitment and use of scholarships

Accomplishment of these goals is measured through chosen metrics that directly relate to student achievement. The measureable metrics are

- 5% increase over 5 years in 1st to 2nd year retention
- 2% increase over 5 years in 2nd to 3rd year retention
- 5% increase over 5 years in 6-year graduation rate

The data that demonstrate student achievement are presented in the following sections:

- Student Enrollment Data
- Student Retention Rate
- Student Graduation Rate
- Degree Awarded
- Performance on Senior Exit Exam
- Performance on Licensing Exams
- Major Field Assessment
- Job Placement Rate - "First Destination" after Graduation
- Employer Satisfaction Survey
- Alumni Satisfaction Survey
- Continuous Improvement

Student Enrollment Data

The enrollment of TTU has increased 23% during the last 10 years – from 9,217 in Fall 2004 to 11,339 in Fall 2014 [3]. The total enrollment in Fall 2014 includes 10,314 students enrolled in undergraduate programs and 1,025 students enrolled in graduate programs. Details of individual unit enrollment are also available on TTU’s Institutional Research (IR) website. Celebrating the centennial year of operation in 2015, TTU is expected to continue enrolling more than 11,000 students.

Student Retention Rate

TTU’s retention data are reported in the TTU IR website. The development of the Flight Plan started in Fall 2012, and the 1st to 2nd year retention of 72.8% in Fall 2011 was taken as the baseline retention rate. As described in the Focus Area One matrix, the target retention rate was set as a 5% increase over five years in 1st to 2nd year retention. As indicated in the data reported for 1st to 2nd year retention rates of first-time, full-time, degree-seeking students (see Table 1 below), TTU has made solid progress toward its target for the last two years. The full report of the 1st to 2nd year retention in the past 19 years can be found on the TTU IR website [4].

Table 1. 1st to 2nd Year Retention Rates.

Baseline (Fall 10-Fall 11)	Fall 2011-Fall 2012	Fall 2012-Fall 2013	Fall 2013-Fall 2014
72.8%	69.9%	74.6%	75.7%

The full report of TTU’s 2nd to 3rd year student retention data can be found on the TTU IR website [5]. The 2nd to 3rd year retention rate of 85% in Fall 2011 was taken as the baseline, and the target retention rate was set as a 2% increase in the 2nd to 3rd year retention. As shown in Table 2 below, TTU has maintained very promising 2nd to 3rd year retention rates.

Table 2. 2nd to 3rd Year Retention Rates.

Baseline (Fall 09-Fall 11)	Fall 2010-Fall 2012	Fall 2011-Fall 2013	Fall 2012-Fall 2014
85.0%	85.0%	85.1%	85.8%

Student Graduation Rate

Graduation rates and degrees awarded are also included in the TTU IR Annual Report [6]. A six-year graduation rate of 50.0% in Academic Year 2011 was used as a baseline, and the target rate was set as a 5% increase over five years in six-year graduation rate. As indicated in Table 3 below, TTU has maintained a very stable six-year graduation rate. The University is continually implementing the actions in Flight Plan to increase the student graduate rate.

Table 3. Six-Year Graduation Rates.

Baseline (AY 2010-11)	AY 2011-12	AY 2012-13	AY 2013-14
50.0 %	52.0%	50.6%	49.4%

Degrees Awarded

The number of undergraduate degrees awarded* at TTU has continued to increase each year, from 1,270 in 2004-05 to 1,804 in 2013-14. The total degrees awarded have also increased, from 1,936 in 2004-05 to 2,179 in 2013-14. The information on degrees conferred at TTU during the last decade is available in the IR website [7]. Information about the number of degrees conferred, levels of degrees, and the gender and ethnicity of degree recipients is also available in the IR website. A comparison of the number of undergraduate degrees awarded (for first major program of study) in the past three years shows an increase from the baseline set in 2010-11 (see Table 4 below).

Table 4. Comparison of ALL Undergraduate Degree Completers with Baseline.

Baseline (AY 2010-11)	AY 11-12	AY 12-13	AY 13-14
1,626	1,704	1,841	1,804
---	+4.8%	+13.2%	+12.0%

**Degrees awarded for first major program of study only; second bachelor's degrees during that year not included.*

Performance on Senior Exit Exams

All graduating seniors are required to take the Senior Exit Exam during their senior year. The California Critical Thinking Skills Test (CCTST) is currently used as TTU's senior exit exam. The Exam is also a required component of the Tennessee Higher Education Commission (THEC) Performance Funding Program. The measurable goal for this facet of student achievement is that the TTU average graduating senior score will be equal to, or greater than, the national average score. As shown in Table 5, TTU graduating seniors have consistently achieved an average score higher than the national average on the CCTST in the past four years, and TTU has met this objective. The summary of TTU graduates' CCTST exam results in the past four years is also attached in Evidentiary Documents [8].

Table 5. TTU Average CCTST Score Compared to the National Average.

	(2010-2011) N=1465	(2011-2012) N=1421	(2012-2013) N=1550	(2013-2014) N=1410
TTU Average	17.3	17.9	17.6	17.7
CCTST National Average	≈16.8	≈16.8	≈16.8	≈17.1

Performance on Licensure Exams

Performance on professional licensure exams is a key indicator of the effectiveness of academic programs. TTU submits an annual Performance Funding report on licensure exam results in three professional programs to THEC and the Tennessee Board of Regents (TBR). The benchmark for the licensure exams is that the institution's pass rate is not less than the statewide pass rate or national average pass rate. These exams are also used in academic programs as direct measures of successful student learning outcomes.

Education. Teacher candidates in all licensure programs must complete a series of exams that evaluate professional knowledge and content. Praxis exams are both a Tennessee state licensure requirement and a TTU program requirement. For admission to the TTU Teacher Education Program, candidates who score below a 21 on the ACT must pass the Praxis Core Academic Skills exam, with subtests in reading, writing, and math. After candidates are admitted to the Program, they are required to attempt and pass a series of two to four Praxis II exams, depending on the licensure area. In 2011-2012, 435 teacher candidates attempted the exam, with 427 passing for a 98% pass rate (compared to a 99% state average pass rate). In 2013-2014, 436 candidates attempted the exam, with a 100% pass rate (exceeding the state pass rate of 98% for that year). Tables 6-10 present the TTU PRAXIS II Exam pass rates and comparison to the statewide pass rates.

Table 6. PRAXIS II Exam - Child & Family Studies.

Year	2010-2011	2011-2012	2012-2013	2013-2014
No. of Tested	15	32	29	30
No. of Passed	15	32	29	30
TTU Pass Rate	100%	100%	100%	100%
Statewide Pass Rate	100%	100%	100%	100%

Table 7. PRAXIS II Exam - Special Education.

Year	2010-2011	2011-2012	2012-2013	2013-2014
No. of Tested	13	12	8	16
No. of Passed	11	12	8	16
TTU Pass Rate	85%	100%	100%	100%
Statewide Pass Rate	99%	100%	99.0%	100%

Table 8. PRAXIS II Exam - Secondary Education.

Year	2010-2011	2011-2012	2012-2013	2013-2014
No. of Tested	141	93	103	89
No. of Passed	121	93	101	89
TTU Pass Rate	86%	100%	98%	100%
Statewide Pass Rate	96%	98%	99%	86.6%

Table 9. PRAXIS II Exam - Multidisciplinary Studies.

Year	2010-2011	2011-2012	2012-2013	2013-2014
No. of Tested	304	278	280	278
No. of Passed	278	277	280	278
TTU Pass Rate	91%	100%	100%	100%
Statewide Pass Rate	98%	100%	100%	100%

Table 10. PRAXIS II Exam - Exercise Science, Physical Education & Wellness.

Year	2010-2011	2011-2012	2012-2013	2013-2014
No. of Tested	62	19	26	23
No. of Passed	29	19	25	23
TTU Pass Rate	47%	100%	96%	100%
Statewide Pass Rate	82%	96%	98%	100%

Engineering. In the College of Engineering, graduates in the Civil Engineering program are required to take the NCEES Fundamental Engineering Exam before their graduation. The benchmark is to surpass the national pass rate. Graduates in other engineering majors are encouraged to take the FE exam. Table 11 shows the Civil Engineering FE exam results and comparison with the national pass rate. The graduates scored higher than the benchmark in each of the past four years.

Table 11. NCEES Fundamental Engineering Exam (FE) – Civil Engineering.

Year	2010-2011	2011-2012	2012-2013	2013-2014
No. of Tested	55	59	50	51
No. of Passed	48	45	41	40
TTU CEE Pass Rate	87%	76%	82%	78%
National CEE Pass Rate	71%	68%	74%	74%

Nursing. Graduates from the baccalaureate degree in nursing program are eligible to apply for licensure as a Registered Nurse (RN) through the state board of nursing. Graduates must sit for the National Council Licensure Examination for Registered Nurses (NCLEX-RN) to become licensed as an RN. In the state of Tennessee, nursing programs must maintain annual pass rates on the NCLEX-RN above 85%. The Whitson-Hester School of Nursing sets two annual benchmarks: a pass rate above 90% and consistent scoring above the national average for the first attempt on the exam. Performance on the NCLEX-RN continues to be strong with an annual average pass rate of 96% for the past four years and an average of 97% for the past three graduating classes. The program consistently exceeds both state and national benchmarks on the NCLEX-RN. Table 12 shows the TTU Nursing graduates' NCLEX-RN pass rates and comparison to the national average in the past four years. The 2006-2013 TTU nursing graduates NCLEX-RN results and comparison with national norm is also attached [9].

Table 12. Nursing NCLEX-RN Exam.

Year	2010	2011	2012	2013
No. of Tested	80	88	73	93
No. of Passed	73	84	73	90
TTU WH-SON BSN Graduates Pass Rate	91.3%	95.5%	100%	96.8%
National Average Pass Rate (First Attempt, U.S.)	82.0%	83.0%	90.3%	86.6%

Major Field Assessment

Graduating seniors at TTU take Major Field Exams in their disciplines if licensure exams are not required. The benchmark for major field exams is that the institutional average score from TTU graduates exceeds the national average. As scheduled in the 2011-2015 THEC Performance Funding plan, each program has to report its major field exam once during the five-year cycle to THEC as part of the performance funding requirements. The results of major field exams in 14 programs reported to THEC are shown in Table 13. Of the 14 programs, eight programs achieved scores at or exceeding the respective national average (% Inst. to Comp. Score >100%), and the other six programs achieved scores higher than 93% of the respective national average (% Inst. to Comp. Score >93%) [10].

Table 13. Program Major Field Tests.

Academic Program	Degree	Test Year	Test Code	No. of Tested	TTU Inst. Score	National Comp. Score	% Inst. to Comp. Score
Wildlife & Fisheries Science	BS	2010-11	ACAT	26	470.3	500.0	94%
Biology	BS	2010-11	ACAT	68	464.8	500.0	93%
Chemistry	BS	2010-11	ETS	18	147.2	147.3	100%
Engineering Technology	BSET	2011-12	ATMAE	18	101.0	88.0	115%
Political Science	BS	2011-12	ETS	25	149.2	149.9	100%
History	BA, BS	2011-12	ACAT	18	601.3	500.0	120%
Communication	BS	2012-13	ACAT	24	564.6	500.0	113%
Computer Science	BS	2012-13	ETS	11	159.5	150.5	106%
Sociology	BS	2012-13	ETS	79	144.4	147.8	98%
English	BA	2013-14	ETS	12	147.7	154.1	96%
Business Management	BSBA	2013-14	ETS	56	144.9	151.3	96%
Accounting	BSBA	2013-14	ETS	61	155.7	151.3	103%
Finance	BSBA	2013-14	ETS	28	151.9	151.3	100%
Marketing	BSBA	2013-14	ETS	23	143.6	151.3	95%

Job Placement Rate - “First Destination” after Graduation

The Office of Career Services is responsible for collecting and reporting first destination information for the University. The national trend across university career services organizations is to move away from the term “job placement” and use the term “first destination” when reporting where graduates go after they leave the university. First destination includes attending graduate school, enrolling in the military, starting a business, and choosing other after-graduation destinations that may not include a full-time position in a career field. For the purposes of this document, the term “first destination” will be used to describe this collection and reporting process.

A challenge faced by career service organizations across the U.S. is a lack of response from graduating students. TTU Career Services faces the same challenge in the data collection process. The methodology employed by TTU Career Services to capture first destination data is multi-fold as students do not automatically provide information on their after-graduation career plans. Moving from a paper-and-pencil data collection method in 2011, data collection methods currently implemented by TTU Career Services include the following:

1. An email survey of graduating seniors who are registered with Career Services and using the online job search database
2. An online survey embedded in the Career Services website
3. An email survey of all graduating students
4. Surveys of graduating seniors in classroom presentations
5. A face-to-face survey at the Senior Salute pre-graduation cap and gown event
6. A follow-up email campaign to all Senior Salute respondents who did not have first destination plans at the time of the event

In a recent effort to improve response rates, a survey was emailed to employers who recruit TTU students asking them to provide the names of any TTU students they have just hired. Additionally, TechWorks, a career management software program, which was launched in Fall 2014, allows students and employers to self-report hiring status. First destination response rates from 2006 through 2013 are shown in Table 14.

Table 14. TTU First Destination Response Rates.

Academic Year	First Destination Response Rate*
2013 -2014	98.5%
2012-2013	85.5%
2011-2012	84.7%
2010-2011	73.2%
2009-2010	66.4%
2008-2009	75.1%
2007-2008	76.6%
2006-2007	59.0%

* First Destination Response Rates from 2006 – 2013 are taken from a representative sample of graduating students. Response Rates from 2013 – 2014 represent data reported by all graduating students.

In Spring 2014, 98.5% of TTU graduates provided first destination responses. The destination results from the respondents are shown in Table 15. The results were also included in the 2013-2014 Career Services Annual report [11]. Follow-up split surveys were then developed to target respondents still in need of job search assistance. These surveys will be deployed within 90 days, 6 months, and 12 months after graduation. All surveys include the exact verbiage used by *U.S. News and World Report* to collect student data.

Table 15. TTU First Destination Results.

Destination	Percentage
Plan to Attend Graduate School	26.4%
Joining Military	0.6%
Starting My Own Business	1.2%
Employed Full-Time In My Career Field	38.2%
Still Seeking Employment In My Career Field	30.0%
Employed But Not In My Career Field	3.6%

Employer Satisfaction Survey

The Office of University Assessment surveys employers every four to five years regarding the

preparedness of TTU graduates. The most recent employer survey was conducted in Spring 2013 and was administered to a database of employers registered with TTU Career Services. The survey solicited the employers' opinions of TTU graduates' competence in a number of specific performance areas such as teamwork, life-long learning, critical thinking, problem solving, oral and written communication, ethical awareness and behavior, etc. The survey also asks general questions concerning a graduate's overall performance on "Work Ethic" and "Meeting Job Expectations." A total of 119 employers responded and completed the surveys. The survey results show that most employers (78% to 93%) rated TTU graduates as "Good" or "Excellent" in the surveyed skills. Ninety-two percent of employers responded that TTU graduates possess good to excellent overall performance on work ethic and meeting job expectation. The majority of employers (84%) indicated that TTU graduates have good or excellent preparation for the workforce. All of the employers responding to the survey answered "Yes" to the question "Will you hire a TTU graduate again?" The full report of the 2013 Employer Survey is available at the University Assessment website [12].

Alumni Satisfaction Survey

The Office of University Assessment administers alumni surveys periodically. Both baccalaureate alumni and master's alumni are asked to report on various experiences, including satisfaction with their degree program, perceptions of TTU, their graduate/professional education, employment, professional activities, and overall satisfaction with TTU. As shown in the 2012 Alumni Survey results, 95% of respondents rated their satisfaction with their education experience at TTU as "Satisfied" or "Very Satisfied." More than 88% of them would have attended TTU if they had to start over again, and 93% of them would recommend TTU to a friend or family member considering college. The most recent Alumni Survey report [13] for undergraduate responses also indicates that 86% of the respondents reported they were satisfactorily employed, with the majority employed in the area of their TTU major or a related major. Results show that 85% of respondents rated their preparation for further study at another college or university as "Good" or "Excellent." Results also show that 78% of respondents rated their preparation for employment in their respective field as "Good" or "Excellent." According to the most recent graduate survey report (Spring 2012), 86% of respondents are currently satisfactorily employed, and 65% are employed full-time. Respondents with full-time employment since graduating from TTU were asked how effective their graduate education was in preparing them for employment or improving their job performance. Seventy-eight percent indicated their graduate education was "Good" or "Excellent."

Continuous Improvement Actions for Undergraduate Education

TTU's Flight Plan is an enhanced University strategic plan that serves as a blueprint guiding TTU's path forward. The development of Flight Plan was a fact-driven review process using assessment data in a peer comparative analysis, also called "Gap Analysis." Faculty, staff and students were engaged in the Flight Plan process through multiple focus groups and committees. The Flight Plan identified specific actions to advance the University through continued success in the future, including four priority actions to improve the undergraduate student experience (Focus Area 1):

1. Freshman Flight Path
2. Academic advising
3. High-demand course capacity
4. Technology service to students

The Commitments and Priority Actions for undergraduate education are shown in the attached Evidentiary Documents [14]. Table 16 outlines the actions and objectives of the above four priorities.

Table 16. Priority Actions for Undergraduate Student Experience.

Priority	Action	Objective
Freshmen Flight Path	Implement an early intervention first-year retention program for	Improve retention through early, proactive intervention.

	freshmen focusing on class attendance.	
Academic Advising	Establish a consistent approach to academic advising that expands the number of professional advisors and enhances the faculty-student mentorship role.	Increase retention and graduation rates by ensuring consistency and focusing on success in the freshman year.
High-Demand Course Capacity	Identify high-demand courses and add additional capacity through hiring faculty and effectively using classroom space.	Increase graduation rates by providing students access to courses needed to graduate on time.
Technology Service to Students	Improve technology service to students by meeting student need for connectivity and support.	Support a technology-forward student experience.

The priority action implementation plan that includes the objectives, success metrics, context for action, action steps, milestones, resources, and accountability for each of the four priority actions is described in detail in the Flight Plan [15]. The implementation began in July 2013, and actions have continued following the short-term and long-term action plan.

Graduate Student Achievement

Focus Area Three “Distinctiveness” in the Flight Plan is a driving force for the advancement of the Graduate College at TTU. It also articulates the institutional commitments to graduate student success. The goals in Focus Area Three emphasize the ways to promote research innovation and increase the total number of graduate and Ph.D. degrees conferred with new offerings in high-demand fields.

Focus Area 3: Create distinctive programs and invigorate faculty.

- Goal 3.1 Expand research and faculty scholarly activity
- Goal 3.2 Support faculty collaboration and development
- Goal 3.3 Evaluate structure where appropriate to promote cross-disciplinary and integrated programs and scholarship
- Goal 3.4 Improve graduate recruitment, incoming student quality, enrollment, and degrees conferred
- Goal 3.5 Provide undergraduate research opportunities

Criteria for evaluating the success of graduate student achievement include:

- Enrollment data
- Degrees conferred
- Thesis and dissertation publications
- Graduate assistantship awards
- Fellowship awards
- Research participation and recognition

Two priority actions in the Flight Plan support the goals in Distinctiveness Focus Area. They are Priority Action #7 - Establish Innovation for Distinctiveness in Education and Applied Sciences [16] and Priority Action #8 - Offer New Graduate Degree Programs in High-Demand, Distinctive Areas [17]. Today TTU has six academic colleges and schools offering 24 graduate degree programs in more than 64 areas of concentration. Many of the TTU degree programs offered at the graduate level are one-of-a-kind in the TBR degree portfolio. The recent approval of concentrations in Environmental Informatics and Manufacturing Sustainability within the Professional Science Master’s degree (PSM) reflects a forward thinking and distinctive offering of programs that meet the workforce needs in the state of Tennessee.

Graduate Student Enrollment

TTU Graduate College student enrollment has gone through a major shift in program growth due to influences in the external market place. In the state of Tennessee, a major change to teacher promotion and advancement policies took away the financial incentive to complete advanced degrees in the teaching field. This has had a negative impact on the enrollment of education specialist degree and Master's in Curriculum and Instruction students.

It is important to note that TTU is experiencing a positive shift in PhD enrollment primarily due to a renewed emphasis in recruiting Ph.D. in Engineering students (see Tables 17 and 18 below). Through new recruiting efforts within the Graduate College, TTU anticipates growth in Ph.D. enrollees and master's enrollees in all programs in the 2015 school year.

Table 17. Graduate Student Enrollment by College.

College/School	2010	2011	2012	2013	2014
Arts & Sciences	77	73	56	56	69
Business	197	180	186	169	178
Education	795	617	538	498	390
Engineering	159	151	150	147	175
Interdisciplinary	31	33	44	52	60
Nursing	41	46	103	123	135
Total	2102	1848	1512	1066	1025

Table 18. Graduate Student Enrollment by Degree Type.

Degree	2010	2011	2012	2013	2014
Master's	1043	865	855	870	830
Ed.S.	167	147	119	80	62
Ph.D.	90	88	103	98	115
Non-degree	802	748	435	18	18
Total	2102	1848	1512	1066	1025

Graduate Degrees Conferred

TTU Flight Plan Metrics include the monitoring of the number of degrees conferred at the graduate level. Degrees conferred contribute to overall performance funding implemented by the state of Tennessee. The more degrees awarded, the more successful TTU is in contributing to Tennessee's work force with highly qualified, productive employees.

The Graduate College provides personalized assistance to graduate students in all colleges to help them meet the demands of the graduate program. The Graduate College provides resources and advisement to ensure their success. Graduate College staff members work with faculty advisors to monitor the student's progression and proactively monitor progression on student success each semester by reviewing grades, program of study completion, and the completion of degree requirements. Tables 19 and 20 show the degrees conferred in the most current five year period. Decreasing numbers in degrees conferred at the master's and Ed.S. levels are a result of the decreasing enrollment as discussed in the section above.

Table 19. Graduate Degrees Conferred by College.

College/School	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
Arts & Sciences	25	18	23	15	17
Business	104	116	81	87	80
Education	455	454	289	210	191
Engineering	46	53	47	49	52
Interdisciplinary	8	12	8	13	11
Nursing	14	12	14	14	24
All Graduate	652	665	462	388	375

Table 20. Graduate Degrees Conferred by Degree Type.

Degree	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
Master's	1043	865	855	870	830
Ed.S.	179	138	97	64	52
Ph.D.	19	21	18	12	23
Total	652	665	462	388	375

Thesis and Dissertation Publications

The publishing of a scholarly research report and/or article is one of the ultimate achievements that a graduate student may reach. The publishing of such a scholarly paper is a requirement in many of the master's degrees and all Ph.D. degrees. At the master's level, two Master of Science degrees require the publishing of a thesis in order to meet the degree requirement, and 10 master's programs give the student the option of a thesis or non-thesis track. Five Master's level programs, including the MBA and MPS degrees, require the student to complete a project. At the Ed.S. level, students have the option to complete a thesis or nonthesis track, and in the case of Instructional Leadership, complete a project.

Table 21 reports the number of theses and dissertations published to the global community by graduate students from TTU.

Table 21. Theses/Dissertation Publications by TTU Graduate Students.

Year	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
# of Published Dissertations & Theses	73	81	79	62	65

Graduate Assistantship Awards

One way to attract and retain high-caliber students is to provide Graduate Assistantship awards that provide students with a compensation package that includes both a salary and a scholarship used for tuition and fees. TTU has a strong assistantship program and is working diligently to increase the assistantship offerings across campus. Students must maintain a minimum course load and GPA to be eligible for the assistantship. Table 22 summarizes the current year's assistantship programs at TTU.

Table 22. Graduate Assistantship Awards.

Academic Year	Number of Student Awards	% of Enrollment	No. Hiring Units	Total Awards
2013-2014	325	30.4%	53	\$3,175,402
2014-2015	343	33.5%	53	\$4,762,966

Assistantships are competitive, and it is a recognized achievement across TTU's campus to receive the assistantship.

Fellowships Awards

Many exceptional graduate students are able to enroll in a TTU graduate degree program because they have received a fully or partially funded scholarship through a private or government foundation or fellowship. TTU is honored to admit, enroll, and graduate students who have received such scholarships. For example, the Southern Regional Education Board (SREB) and its 16 member states recently awarded a \$25,000 fellowship to a TTU Exceptional Learning Ph.D. student for her work in the field of education. The SREB provided this student with a generous stipend and the opportunity to present her research work at the SREB annual conference [18].

The TTU diversity fellowship is designed to promote TTU's commitment to a more inclusive and diverse campus that enriches the educational experience, promotes personal growth and a healthy society, strengthens communities and the workplace, and enhances America's economic competitiveness [19]. In 2014-2015, 23 students received the TTU Diversity Fellowship for a total award of \$224,915.

The NSF Graduate Research Fellowship Program recognizes and supports outstanding graduate students in NSF-supported science, technology, engineering, and mathematics disciplines who are pursuing research-based master's and doctoral degrees at accredited U.S. institutions. TTU students are encouraged to apply for NSF fellowships and fellowships offered with other federal agencies [20].

Research Participation and Recognition

Graduate students are encouraged to share their research achievements by participating in TTU's annual Student Research Day. More than 100 graduate students participate in TTU's annual Research Day event. Students are recognized at the event for their work and receive a certificate for their work. Students are encouraged to include participation in the event on their resume and vitae [21].

Graduate students are also invited to submit their research abstract to the College of Graduate Studies in order to apply to participate in the state of Tennessee's annual Graduate Student Research Day on the Hill. Each year one graduate student represents TTU at the state Capitol. At this event, state representatives and legislative staff are invited to meet with the graduate students from each university to discuss their research projects.

Continuous Improvement Action for Graduate Education

Providing more opportunities for students to participate in research projects and creating distinctive programs are action items defined by the University and are captured in TTU Flight Plan Priority Actions #7 and #8. The Commitments and Priority Actions for graduate education are shown in the attached Evidentiary Documents [22]. Table 23 outlines the actions and objectives of the above two priority actions.

Table 23. Priority Actions for Graduate Education.

Priority	Action	Objective
Multidisciplinary Research Innovation	Establish Innovation for Distinctiveness in Education and Applied Sciences, an incubator to cultivate promising and distinctive research opportunities	Expand funded research by surfacing prospects for new, distinctive research opportunities
New Graduate Programs	Offer new graduate degree programs in high-demand, distinctive areas	Increase Master's and PhD degrees conferred to align with CCTA objectives

The priority action implementation plan that includes the objective, success metrics, and context for

each of the two priority actions is described in detail in the Flight Plan [23] [24]. The implementation began in July 2013, and actions have continued following the short-term and long-term action plan.

With TTU's commitment to research and innovation, more students will have the opportunity to be recognized for their research achievements through participation in TTU's annual Student Research Day, Research Day on the Capitol Hill, and the TBR Doctoral Fellow program.














University Website for Student Achievement

TTU has a website for student achievement [25]. The website publishes the University's goals for student achievement and the statement and evidence about the success of TTU students in achieving those goals.

Conclusion

The University, the colleges, and the various academic units continue to assess student achievement. The thresholds adopted by the institution and academic programs, either internal benchmarks or national norms, are appropriate to demonstrate student achievement. Assessment data findings have been used in developing and planning new initiatives and priority actions to support and improve student achievement. Numerous committees, including Flight Plan committees, are striving to achieve higher levels of accomplishments and to determine areas of weakness that need to be improved. The goal of the University is to achieve the University Vision: "Tennessee Tech will be nationally recognized as a leading technological university in the South, providing academic, economic and cultural leadership in the region and producing practical, ready-to-work graduates from a broad range of academic disciplines prepared to compete in a technologically driven world." TTU is in compliance with Federal Requirement 4.1.

Sources

-  [01] TTU Mission and Vision
-  [02] Flight Plan Overview
-  [03] Enrollment 2004-2014
-  [04] 1st to 2nd Yr Student Retention Rate
-  [05] 2nd to 3rd Yr Retention of FR Cohort
-  [06] Graduation Rate for First-Time Freshmen
-  [07] Degrees Conferred by Level
-  [08] Senior Exam from TTU PF 2013_14
-  [09] 2006_2013 Nursing Graduates NCLEX_RN Test Results
-  [10] Major Field Test Results 2011_2015
-  [11] 2013_2014 Career Services Annual Report
-  [12] Employer Satisfaction Survey 2013
-  [13] Alumni Satisfaction Survey 2012
-  [14] Commitments and Priority Actions for Undergraduate Education in Flight Plan
-  [15] Implementation Plan for Undergraduate Education in Flight Plan
-  [16] Multidisciplinary Research Innovation
-  [17] Flight Plan New Graduate Programs

 [18] Graduate Student Funding

 [19] Diversity Fellowship

 [20] NSF Fellowship Program

 [21] Research Day

 [22] Focus #3 from Flight Plan_Overall Summary Report

 [23] Implementation Plan for #7_Research Innovation

 [24] Implementation Plan for #8_New Graduate Programs

 [25] Student Achievement Website