Board of Trustees Meeting
Audit & Business Committee
March 22, 2018
Bell Hall 260

MINUTES

AGENDA ITEM 1—CALL TO ORDER

The Tennessee Tech Board of Trustees Audit & Business Committee met on March 22, 2018, in Bell Hall 260. Chair Teresa Vanhooser called the meeting to order at 08:35 a.m.

Chair Vanhooser asked Ms. Kae Carpenter, Secretary, to call the roll. The following members were present:

- Millard Oakley
- Purna Saggurti participated by phone and confirmed that he could simultaneously hear and speak to the Committee members, that he was the only person present in the location from which he was calling, and that he received the Board materials in advance of the meeting.
- Teresa Vanhooser

Other board members and members of the public were also in attendance.

AGENDA ITEM 2—Approval of Minutes of December 11, 2017

Chair Vanhooser asked for approval of the minutes of the December 11, 2017 Audit & Business Committee meeting. Chair Vanhooser asked if there were questions or comments regarding the minutes. There being none, Mr. Oakley moved to recommend approval of the December 11, 2017 Audit & Business Committee minutes. Mr. Saggurti seconded the motion. Chair Vanhooser announced there would be a roll call vote due to Mr. Saggurti not being physically present. Ms. Carpenter took a roll call vote. The motion carried unanimously.

AGENDA ITEM 3—Planning and Finance Policies

Chair Vanhooser asked Dr. Stinson to present the four new policies. Dr. Stinson advised all four polices were related to capital projects due to severance from Tennessee Board of Regents effective July 1, 2018. All of the policies had to comply with the State Building Commission and Office of State Architect policies and procedures. Policy 580 Capital Projects Management ensured compliance with THEC, State Building Commission and Office of State Architect.

Policy 581 was In-House Construction Maintenance Project and included any projects that might be a gift that would be managed on campus. Policy 582 was Acquisition and Disposal of Real Property which sets forth procedures on how Tennessee Tech acquires land and dispose of land in compliance with the State Building Commission and the Office of State Architect. Policy 583 was related to Lease Procurement and established how Tennessee Tech would bid if space needed to be leased or the process used if leasing to an outside party.

Chair Vanhooser asked the committee if there were questions on the policies. Chair Tom Jones asked for clarification on whether these policies were part of the transfer of responsibility from TBR to this Board and mirrored what was in place with TBR. Chair Vanhooser advised he was correct. Dr. Stinson added they mirrored what was in place with TBR and TBR policies mirrored what was required by the State Building Commission and Office of State Architect. Trustee Stites asked if any of these policies were detrimental, in Dr. Stinson's staff's opinion would it be communicated to the Board, so the Board could help address issues. Dr. Stinson replied we would bring back any issues to the committee and Board for discussion. Chair Vanhooser asked for a motion to send Policies 580, 581, 582 and 583 to the Board for approval and to put on the Board's consent agenda. Mr. Oakley moved to recommend. Mr. Saggurti seconded the motion. Ms. Carpenter took a roll call vote. The motion carried unanimously.

AGENDA ITEM 4A—Approval of 2018-19 Non-Mandatory Fees

Chair Vanhooser asked Dr. Stinson to present the 2018-19 student fees. Dr. Stinson advised two items were being presented on the non-mandatory fees for approval.

The first item was parking which is in year three of a 10-year plan. The parking plan was established when the opportunity to build the science building came about. The initial plan called for a fairly large increase in the rates and a zoned plan was selected so students and employees could make decisions based on their financial situation. Zone 1 & 2 were inner campus parking and were more expensive and called for a $15 per year increase. Zone 3 was for individuals living in Tech Village to have the opportunity to purchase an inner campus permit and be able to park both at their residence and inner campus at a $7.50 per year increase. Zone 4 was outer parking which was the least expensive and had a $9 per year increase.

The funding received as a result of this parking plan was used to service the debt for the construction of parking lots, allocated funds into a renewal and replacement account; and funding for repaving campus roads. The parking increase also provided funds for a campus shuttle for students and employees from outer parking to inner campus. Funds also provided parking enforcement which was a large issue. The parking plan called for the increase of$15, $9 and $7.50 in fiscal years 2019 thru 2024. Concern was initially expressed due to there being a 15-20 year timeframe where parking rates were unchanged. The increase was due to the necessity for a significant increase in order to address the issues.

Dr. Stinson proceeded to discuss the second item which was housing rates. Dr. Stinson stated that a 3% increase was being proposed for the upcoming year. In the past, Tennessee Tech had 3-5% increases to keep up with the cost of maintaining and managing the resident halls and apartments. Initially the request from Residential Life was a 5% increase. After reviewing, analyzing and comparing area housing to campus housing and completing a comparison with other public universities in Tennessee, it was determined that Tennessee Tech residential rates were in mid-range especially with the dorms that had been renovated. Tennessee Tech had approximately the second highest rate on new dorms compared to the other residence halls at public universities. Housing is an auxiliary and must cover all of its own expenses. Revenue was used to provide Residential Life staffing, general maintenance, extraordinary maintenance, roof replacements, and security, etc.

Chair Vanhooser opened for discussion and verified that the fees will be presented to the board for approval. Barbara Fleming asked when we compared our housing cost to other public universities if services were considered and whether it was a comparable comparison. Trustee Fleming also asked how much higher Tennessee Tech was and if we were the second highest on the new dorms and what was the differential on housing among the public universities. Dr. Stinson advised we were at $2,460 and the University of Tennessee-Knoxville was at $2,950 on the lower end. Tennessee Tech was at $3,800 on double occupancy in New Hall North and UTK was around $4,000. The lowest on that particular double occupancy was Tennessee State University at $2,000.

Trustee Fleming then asked how our parking fees compared to other public universities. Dr. Stinson stated Tennessee Tech was in line with the other campuses. East Tennessee State had a parking garage and their rates for on ground parking were not as high as ours. Dr. Stinson further stated there was quite a bit of analysis on that when it was proposed to do the parking plan.

Trustee Stites stated that the state was notorious for not paying for deferred maintenance and asked what Tennessee Tech had done to include cash for deferred maintenance in these numbers. Dr. Stinson replied that Tennessee Tech had looked at the rates being changed so that Tennessee Tech could establish R & R (renewal and replacement) which would enable Tennessee Tech to maintain parking and housing. Dr. Stinson further explained that it was part of the university's plan to ensure that R & R funds are accumulated to adequately maintain the facilities. Trustee Stites asked what percentage of the total was R & R. Dr. Stinson advised she will follow up and provide him with that information.

Trustee Stites asked if the same approach was being taken for the capital buildings. Dr. Stinson asked for clarification on whether he was asking about academic buildings. Trustee Stites stated he was referring to the infrastructure of the campus because if the state is not funding, where were the funds to come from. Dr. Stinson replied that the university tried to put aside R & R funding for infrastructure and maintenance of buildings. Dr. Stinson added that over the last 6-8 years, the university had been able to use some of those R & R funds to supplement the dollars received from the state for major maintenance.

Trustee Geist asked if this fee is earmarked specifically for parking and for future infrastructure for parking stating that she sees students not using campus parking and that some of the parking lots are empty. Dr. Geist also asked if the university was just going to end up pushing people off campus to park and cause people to be creative and find street parking. Dr. Stinson advised creativity was not the university's intention. Dr. Stinson indicated that the university knew that it would take students time to get used to parking in some of the outer parking areas. Dr. Stinson added it was also realized parking would be dependent on the campus moving in that direction and dependent on the construction of the Science building and a proposal that will be brought forward in June for a Biology and Engineering building. Trustee Geist asked if there was concern at any point in the 10-year plan that we would reach a price point that people won't buy parking passes and if that happens what would be the plan to complete the 10-year plan. Dr. Stinson stated that was a possibility that would be reviewed. Dr. Stinson added that the 10-year plan also included the construction of a parking garage.

Trustee Harper stated her question was regarding the logistics of the 10-year plan to increase parking $15 per year, asking if there was a reason it wasn't approved in one swoop. Chairman Vanhooser stated that it was intentioned to do as one but failed to do so. The intent is to have the board approve the 10-year plan; it will not be brought back unless the plan changes in the future.

Trustee Geist wanted to clarify that if we approve the 10-year plan and it does turn out what she said might happen, would plan be reviewed. Chairman Vanhooser confirmed. Chair Tom Jones said at one time there was discussion of a parking garage and he wanted to know if that was off the table. Dr. Stinson advised the current situation was that we had a tremendous amount of construction going on campus and we have had to back off some of the projects which included the parking garage. An amendment will be made in our master plan to locate an engineering building as the next priority. We also had to consider the potential football stadium changes that could impact where a parking garage would be located. The parking garage is still a part of the master plan unless it gets removed with some modification.

Chair Vanhooser stated the motion would be to send the proposed 2018-19 fee changes for the entire 10-year parking plan and approval of the housing fees to the board for approval. Trustee Oakley made the motion. Purna Saggurti seconded the motion. Ms. Carpenter did a roll call vote. The motion carried unanimously.

AGENDA ITEM 4B—Mandatory Fees

Chair Vanhooser advised this was an informational item only and will be brought for approval to the June board meeting and asked Dr. Stinson to present. Dr. Stinson stated this was to give the committee and other board members information on what would be considered for the 2018-19 year. THEC recommendations included an anticipated range of 0-3% for maintenance and mandatory fees for the upcoming year based on the budget request THEC had made for state appropriations. This is the recommended range and is subject to change by the commission members when they meet in May 2018. Trustee Barbara Fleming asked if the range is for an increase and what the numbers actually mean. Dr. Stinson replied THEC provided us with an anticipated range of 0-3%, which meant our maintenance fees could remain the same, decrease or increase to the max of 3%, in which would be a maximum increase of $230. The maximum increase for combined maintenance and mandatory fees would be $266.

Dr. Stinson advised 2017-18 maintenance fees annual rate was $7,656 and mandatory was $1,217 with the combination of the two being $8873. If Tennessee Tech went with the maximum amount in 2018-19, maintenance fees would be $7,886 and mandatory would be $1,254 with a combination of $9,139 annual rate. Dr. Stinson stated in-state per semester rates anticipated for 2018-19 were 2.66% increase.

In 2008 some significant cuts were made to our state appropriations. The 2008 to 2018 trend line had significant jumps in 2010-2011 and lesser in 2012 and continued to trend downward. The 2.66% increase would be the lowest since 2008.

Dr. Stinson advised 60.6% of students receive financial aid and 78.6% of students that apply for financial aid receive it. About 2,400 students receive the HOPE scholarship which amounts to $10,555,000 and 3,477 students received institutional scholarships in the amount of about $14,300,000.

Trustee Fleming wanted to verify if in June the comparisons on the other public institutions would be provided. Dr. Stinson confirmed and stated that she had already spoken with some of the business officers and most were going around 2.5-2.7% increase. However, Memphis is looking at 0% at this time.

Dr. Stinson stated she had a conversation with Trustee Vanhooser and identified that we had been skating on the edge with our budget and we don't have flexibility to address some opportunities. The budget model that was developed three years ago had a provision in it for seed money but with the enrollment decreasing, we have not been able to do that.

Trustee Fleming asked what the tuition was at Memphis compared to Tennessee Tech. Dr. Stinson advised Memphis was higher and had always been higher than the other five LGI institutions, part of that was in recognition of the research mission they had. Memphis also had a higher scale for state appropriations than Tennessee Tech.

Trustee Fleming wanted to know if there were studies that show the impact of changes in tuition on student choices in terms of enrollment. Dr. Stinson replied that a project had

begun with faculty in the College of Business, the Budget Office, Institutional Research, Enrollment Management and Financial Aid on an analytic predictive model for revenues.

Dr. Stinson discussed the proposed increase in the Student Government Association solo fee. The SOLO fee was $20 and proposed a $10 increase. A new student mental health and wellness fee was proposed at $3.00. These are mandatory fees because they apply to all students.

The SOLO fee was implemented a few years ago and initiated by the Student Government Association and the objective was to provide two concerts a year with a fairly good name group in an effort to keep our students on campus. The fee provided a concert in the fall and spring. SGA had not been able to get top-tiered names and their objective was to have the funds to attract better groups. The SGA had faced paperwork and negotiation tasks and needed someone to be in charge of that. The SGA proposed with this fee that they would pay 25% of a staff level position to assist with paperwork. A portion of the SOLO fee was designated to other student organizations on campus and the student government made those determinations.

Regarding the new proposed student mental health and wellness fee, the Counseling Center had a federal grant that provided some resources. One of the resources was a suicide prevention hotline at $17,000. They also had been able to have online screeners for students that might have been in trouble and could go online and someone would be alerted to help. The proposal also was to provide some educational materials related to mental health disorders and electronic record tracking.

Trustee Fleming asked if student health service was funded thru the fee system and if no insurance was accepted. Dr. Stinson advised there was no insurance and the university provided a budget for health services in addition to the student fee. Trustee Fleming expressed she hoped the possibility of taking insurance and using a billing agent would be considered.

Chairman Jones wanted to know why this was an informational item. Dr. Stinson advised Tennessee Tech had to wait until THEC set the binding range in May. President Oldham added we were trying to give the board a complete picture of the financials at the earliest possible time.

Dr. Stinson reminded the committee that there were certain fees that THEC did not set a binding rate, such as, graduate maintenance, out-of-state and non-mandatory fees. These fees are strictly left up to the institution's Board. Dr. Stinson stated at this point Tennessee Tech was looking at a 2.9% increase in graduate maintenance fees. Tennessee Tech had 1,114 graduate students, and of those, 289 received assistantships, 62.34% of those were engineering students. 115 students had research assistantships funded thru external funding with 88 of those engineering students and 14 were education students with the remainder spread out in other colleges. Of Tennessee Tech's graduate students, 985 were domestics and 16 of those paid both maintenance fee and out-of-state tuition. 129 graduate students were international, 17 of those paid both graduate fee and out-of-state tuition. All graduate students did not pay out-of-state because policy states students receive the in-state tuition rate if they are receiving assistantships. $500,000 of our Carnegie reclassification funds were invested into our assistantships last year.

Trustee Harper needed clarification on the approximately 1,100 graduate students with only around 200 are receiving assistance – was that at all or from the university? Dr. Stinson advised from the university.

Chairman Jones wanted to know how much funding was from outside. Dr. Stinson advised 115 students had research assistantships funded thru external research dollars.

Dr. Stinson stated out-of-state tuition for Tennessee Tech had not increased in the last three years. Students that were out-of-state paid two things: maintenance fees and out-of-state tuition.

Dr. Stinson explained that the university had the R250 program for out-of-state students -- students within a 250 mile radius of Tennessee Tech receive a discount on out-of-state tuition. The R250 students pay maintenance and an amount equivalent to what the state provided in state appropriations per student. The R250 rate was $2,340 as compared to $7,000. Trustee Fleming wanted to know what the impact of R250 program had been. Dr. Stinson advised it had not been as positive as anticipated.

Dr. Stinson stated the Governor's budget submitted in late January included state appropriations up to $55 million that THEC had requested. A portion of funds were dedicated to a 2.5% salary improvement which amounted to $1.3 million. The university received $1.3 million funding for formula outcomes. In the outcomes formula, Tennessee Tech scored very well last year and Tennessee Tech received almost $500,000. Revenues generated by the 2.66% maintenance fee increase would be almost $2 million. Resources would amount to about $5 million. The costs associated with the 2.5% salary increase including a fringe benefit cost is $2.2 million. Operating fund balances need to be re-established and need to allow $2 million for this. Calculations on non-salary items were made using the higher education price index which increased in 2017 by 3.7%. -- $963,000 is still needed.

Trustee Stites asked if the 2.5% salary increases from the legislature were similar to last year. Dr. Stinson advised last year was 3% and same terms applied.

President Oldham added Governor Haslam had recently released the supplemental budget and there was an adjustment in it that the General Assembly would need to approve which included an additional $700,000 for Tennessee Tech's Carnegie Classification.

AGENDA ITEM 5—Adjournment of Open Session & Call to Order of Executive Closed Session

There being no further business, the meeting adjourned at 9:45 a.m. After a short break, the Executive Closed Session began at 10:08 a.m. All Tennessee Tech Board Trustees were present with the exception of Mr. Purna Saggurti, who participated by phone.

The following were also present for the meeting:

- President Philip Oldham
- Ms. Kae Carpenter, Board Secretary
- Ms. Deanna Metts, Director of Internal Audit
- Dr. Claire Stinson, Vice President for Planning and Finance
- Ms. Janice Scarlett, Internal Audit Administrative Associate
- Lee Wray, Chief of Staff
- Yvette Clark, IT Executive Director
- Debra Zsigalov, Chief Information Security Officer
- Paul Gogonelis, Assistant Director of Internal Audit

AGENDA ITEM 6—Adjournment

There being no further business, the Executive Closed Session adjourned at 11:53 a.m.

Approved,

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Teresa Vanhooser, Chair

DRAFT

Agenda Item Summary

Date: June 26, 2018

Division: Planning and Finance

Agenda Item: Tenure and Promotions Recommendations

☐ **Review** ☒ **Action** ☐ **No action required**

PRESENTERS: Dr. Mark Stephens

PURPOSE & KEY POINTS:

Recommendations and supporting documentation for granting tenure and promotion for all eligible faculty members.

Tennessee Tech University
Board of Trustees

FACULTY PROMOTION CERTIFICATION STATEMENT

31 faculty members are hereby recommended for promotion beginning in June 2018.

2 faculty members is/are recommended for promotion by exception.

Number of faculty at each rank prior to recommendations:

22 Instructor

94 Assistant Professor

81 Associate Professor

145 Professor

The recommendations for promotion include the following:

1 from Instructor to Assistant Professor

19 from Assistant to Associate Professor

11 from Associate to Professor

If these recommendations are approved, the distribution of rank among the faculty members at Tennessee Tech University in Fall 2018, including new positions being anticipated, will be:

RANK	NUMBER	PERCENTAGE
Instructor	21	6
Assistant Professor	98	27
Associate Professor	90	25
Professor	157	43

The percentage of total faculty recommended for promotion in June 2018 is 9%.

DATE: 5/30/18

Tennessee Tech University
Board of Trustees

FACULTY PROMOTION RECOMMENDATIONS FOR 2018 – 2019

Recommended personnel are listed alphabetically by last name.

	Name	Department/Division	Proposed Rank	Current Rank
1	Adams, Stephanie	Library	Associate Professor	Assistant Professor
2	Asante, Joseph	Earth Sciences	Associate Professor	Assistant Professor
3	Bounds, Paulina	English	Associate Professor	Assistant Professor
4	Carlton, Cecil (Clark)	Sociology & Political Science	Associate Professor	Assistant Professor
5	Chitiyo, George	Curriculum & Instruction	Professor	Associate Professor
6	Craven, Kristine	General & Basic Engineering	Associate Professor	Assistant Professor
7	Duvall, Judy	Nursing	Associate Professor	Assistant Professor
8	Elkeelany, Omar	Electrical & Computer Engineering	Professor	Associate Professor
9	Fennewald, Dennis	Agriculture	Associate Professor	Assistant Professor
10	Ghafoor, Sheikh	Computer Science	Professor	Associate Professor
11	Hadjik, David	Library	Professor	Associate Professor
12	Hansen, Jeremy	Music	Professor	Associate Professor
13	Harris, Eric	Music	Professor	Associate Professor
14	Hurt, Carla	Biology	Associate Professor	Assistant Professor
15	Jared, Barbara	Nursing	Associate Professor	Assistant Professor
16	Kidd, Mary	Physics	Associate Professor	Assistant Professor
17	Killman, Christy	Exercise Science	Professor	Associate Professor
18	Krosnick, Shawn	Biology	Associate Professor	Assistant Professor
19	Mahmoud, Mohamed	Electrical & Computer Engineering	Associate Professor	Assistant Professor
20	Ogbomo, Queen	Curriculum & Instruction	Associate Professor	Assistant Professor
21	Phillips, Michael	Exercise Science	Professor	Associate Professor

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22	Piras, Susan	Nursing	Associate Professor	Assistant Professor
23	Sanders, Robby	Chemical Engineering	Associate Professor	Assistant Professor
24	Shipley, Lee Ann	Human Ecology	Professor	Associate Professor
25	Sisk, Cara	Human Ecology	Assistant Professor	Instructor
26	Smith, Troy	History	Associate Professor	Assistant Professor
27	Trent, Kristen	Curriculum & Instruction	Professor	Associate Professor
28	Padmini, Veerapen	Mathematics	Associate Professor	Assistant Professor
29	Wendt, Stephanie	Teacher Education	Associate Professor	Assistant Professor
30	Wolack, Jeannette	Earth Sciences	Associate Professor	Assistant Professor
31	Zamer, Craig	Music	Professor	Associate Professor

TTU Board of Trustees

FACULTY TENURE CERTIFICATION STATEMENT

18 faculty members are hereby recommended for tenure beginning in June 2018.

2 faculty members is/are recommended for tenure by exception.

If these recommendations are approved, the percentage of tenured faculty members at Tennessee Tech University in Fall 2018 will be 74%, which includes new tenure-track positions anticipated for 2018 - 2019.

DATE: 5/30/18

Tennessee Tech University
Board of Trustees

FACULTY TENURE RECOMMENDATIONS FOR 2018 – 2019

Recommended personnel are listed alphabetically by last name. An asterisk indicates faculty also being recommended for promotion.

	Name	Department/Division	Current Academic Rank
1	Asante, Joseph	Earth Sciences	Assistant Professor*
2	Bounds, Paulina	English	Assistant Professor*
3	Brown, Cynthia (Shelley)	Sociology & Political Science	Instructor
4	Burgin, Chris	Counseling & Psychology	Associate Professor
5	Carlton, Cecil (Clark)	Sociology & Political Science	Assistant Professor*
6	Davis, Ann	Accounting	Associate Professor
7	Fennewald, Dennis	Agriculture	Assistant Professor*
8	Holderman, Sharon	Library Operations	Associate Professor
9	Hurley, Shelia	Nursing	Associate Professor
10	Hurt, Carla	Biology	Assistant Professor*
11	Kidd, Mary	Physics	Assistant Professor*
12	Krosnick, Shawn	Biology	Assistant Professor*
13	Kubiak, Damian	Mathematics	Associate Professor
14	Ogbomo, Queen	Curriculum & Instruction	Assistant Professor*
15	Piras, Susan	Nursing	Assistant Professor*
16	Sanders, Robby	Chemical Engineering	Assistant Professor*

Tennessee Tech University
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17	Smith, Troy	History	Assistant Professor*
18	Wolack, Jeanette	Earth Sciences	Assistant Professor*

Lori Mann Bruce, PhD

Associate Vice President and Dean of the Graduate School
Giles Distinguished Professor of Electrical and Computer Engineering
Mississippi State University

[redacted]

EDUCATION

Ph.D., Electrical & Computer Engineering, The University of Alabama in Huntsville, 1996

M.S., Electrical Engineering, Georgia Institute of Technology, 1992

Biomedical Engineering Certificate Program - Georgia Tech/Emory Medical School, 1992

B.S.E., Electrical & Computer Engineering, The University of Alabama in Huntsville, 1991

PROFESSIONAL EXPERIENCE

Associate Vice President and Dean of the Graduate School, Mississippi State University, 2013-present

Associate Dean for Research and Graduate Studies, Bagley College of Engineering, Mississippi State University, 2008-2013

Director, Raspet Flight Research Laboratory, Mississippi State University, (Interim), 2010-2012

Associate Director of Geosystems Research Institute, Mississippi State University, 2006-2008

Professor of Electrical and Computer Engineering, 2006-present

Associate Professor, Mississippi State University, 2003-2006

Assistant Professor, Mississippi State University, 2000-2003

Assistant Professor, University of Nevada Las Vegas, 1996-2000

Graduate Researcher and University Instructor, The University of Alabama in Huntsville, 1995-1996

NSF Graduate Research Fellow, The University of Alabama in Huntsville, 1994-1995

NSF Graduate Research Fellow, Georgia Institute of Technology, 1992-1994

Teaching Assistant, Georgia Institute of Technology, 1991-19992

Technical Staff, U.S. Army Strategic Defense Command, 1987-1990

ADMINISTRATIVE EXPERIENCE

Associate Vice President and Dean of the Graduate School, 2013-present

As Dean, my responsibilities include providing academic leadership for and shared oversight of the more than 800 graduate faculty and approximately 3500 graduate and professional students participating in more than 150 graduate programs across campus. Responsibilities include

- graduate enrollment management - marketing programs, university-level marketing and recruitment campaigns, coordinating department and college-level recruitment activities, managing admissions, and maximizing enrollment yields;
- mentoring and training college-level and department-level graduate coordinators and graduate faculty;
- administering graduate academic policies;
- reviewing and approving students for graduation;
- overseeing the launching of new graduate programs and major modifications of existing programs;
- overseeing approximately 1200 graduate assistantships campus-wide;
- providing and/or coordinating professional development programs for graduate students; and
- providing financial assistance programs to academic departments and students, such as recruitment grants, student travel grants, and graduate fellowships.

One of my major focuses has been on graduate enrollment management, including new initiatives in building the brand and image of graduate education at MSU, development of new graduate programs within various departments across the university, strategically marketing programs, launching new student recruitment activities, and modernization of the university's graduate admissions processes. Accomplishing these goals required partnering with college deans, mentoring department heads and graduate coordinators, building consensus among the faculty, and managing an office of approximately 20 staff members. As a result, our graduate admission applications have increased by 10%, selectivity rates have improved by more than 9 percentage points, and graduate enrollment has increased by 4% with an increase in new graduate students by 8%.

Associate Dean for Research and Graduate Studies, Bagley College of Engineering, Mississippi State University (2008-2013)

The Bagley College of Engineering at Mississippi State University is a research intensive college with approximately 2700 undergraduate students, 625 graduate students (300 MS and 325 PhD), 100 academic faculty, and 100 research faculty, post-docs, and research staff. The College houses 8 academic departments and approximately 10 research centers. NSF ranks the College in the top 10% of engineering colleges in the nation in terms of its annual research expenditures which exceed $70million (approximately $55million/year without subcontracts). As Associate Dean, my responsibilities include providing leadership and administrative management of all research, graduate programs, distance education programs, and industrial outreach and economic development activities.

Selected Accomplishments:

- Led the development of a research strategic plan for college, resulting in the selection of six research thrust areas for strategic college-level investments, including start-up packages, cost-share, infrastructure investments, and faculty working group funds. Example outcomes include coordinated investments and large scale proposal developments in two new areas: Big Data and unmanned aerial systems (UAS) – including chairing a UAS symposium (www.uas.msstate.edu).
- Successfully led college's research enterprise through transition from reliance on federal initiatives to majority competitive funding, while maintaining a ranking in the top 10% nationally by NSF.

- Represented Dean's office in hiring of twelve tenure-track faculty members, including five women (two of which are African American) and two African American males. Oversaw the funding of all start-up packages, including the coordination of funds from Dean's office, VP for Research, and Departments/Centers. Mentored junior faculty's establishment of research programs, with 5 NSF CAREER awards in past two years.
- Oversaw the college's industrial outreach and economic development activities, resulting in over $5.5 Billion in economic impact and more than 2,300 industrial jobs created or retained in Mississippi, as reported by NIST.
- Led college-wide graduate student recruitment efforts, fellowship application workshops, professional development workshops – resulting in college graduate enrollments increasing by 15% (545 to 625) and PhD graduation rates increasing by 100% from approximately 20/year to 45/year.
- Oversaw college's graduate fellowship program, including fundraising with development officers and selection/award of approximately 55 PhD fellowships per year.
- Oversaw college's distance learning programs, resulting in launch of 6 additional graduate distance programs and growth of distance enrollments by 100% (100 to 230) and a US News and World Report ranking of 12th nationally.
- Established the college's Distinguished Lecture Series, including lectures by Dr. Subra Suresh, Vannevar Bush Professor and Dean of Engineering, MIT and since named as Director of NSF, and Dr.Neil deGrasse Tyson, Frederick P. Rose Director of Hayden Planetarium, American Museum of Natural History and Host of Nova ScienceNOW.
- Established Think Big @ Mississippi State program, a college-wide innovation contest where student teams propose projects aligned with college's six research thrust areas. Winning teams receive up to $10,000 and faculty support to carryout projects.

Interim Director, Raspet Flight Research Laboratory (2010 – 2012)
The Raspet Flight Research Laboratory (RASPET) is a college-level research center, established in 1948, with a focus on low-speed aerodynamics, composites, and unmanned aerial systems (UAS). RASPET's infrastructure includes two large hangers (>80,000 square feet), composite storage and fabrication rooms, extensive machine shops, CNC machines, walk-in ovens, autoclaves, engine test cells, electronics shop, structural test area, and seven general aviation aircraft (six fixed-wing and one rotary wing), as well as multiple UAS, including two pilot-optional aircraft designed, prototyped, and flight tested for the U.S. Army. RASPET has full-time research and administrative staff and three part-time pilots. As Director, my responsibilities included providing leadership and administrative management of all research, teaching, and economic development activities at RASPET.

Associate Director, Geosystems Research Institute, Mississippi State University (2006 – 2008)
The Geosystems Research Institute (GRI) is a research leader in geospatial information systems, remote sensing, data/image visualization, data fusion, scientific modeling, and high performance computing with applications to coastal zone management, precision agriculture, and homeland security. GRI performs funded research for DHS, DOD, DOT, NASA, NOAA, NSF, USDA, USGS, and other state and local agencies and industry. While Associate Director of GRI, its external funding was approximately $28 million/year to support 75 active research projects involving more than 50 faculty and over 100 students and post-docs. GRI is a member of the university's High Performance Computing Collaboratory (HPC^2), housing and providing system administration for MSU's supercomputing clusters, regularly ranked in the top 20 most powerful academic computing sites in the U.S.

ACADEMIC HONORS & RECOGNITIONS

IEEE, Distinguished Lecturer (2016-present) – Selected by the Geoscience and Remote Sensing Society as one of 12 international Distinguished Lecturers, including only 5 from the US.

Mississippi State University, Giles Distinguished Professor (2012-present) – This is an honor bestowed on at most one professor each year by the President of the University.

International Conference Plenary Speaker, IEEE Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS), Tokyo, Japan (invited for 2015)

Alan Alda Center for Communicating Science, Selected for Participation in Summer Institute (2014)

IEEE Women in Engineering International Conference, selected as international representative for IEEE Geosciences and Remote Sensing Society (2014)

Mississippi State University Representative to the Southeastern Conference Academic Consortium's Leadership Development Program (2008-2009)

Mississippi State University, Faculty Leadership Program (2007-2008)

Bagley College of Engineering Researcher of the Year Award, MSU (2007)

Inducted into Engineering Alumni Academy at University of Alabama in Huntsville (2005)

Departmental Nominee for Mississippi State University Alumni Award for Outstanding Graduate Educator (2005)

Faculty Appreciation Award from student chapter of the National Society of Black Engineers (2003, 2005, 2008)

National Science Foundation Women in Engineering Leadership Institute, 1 of 30 selected nation-wide for participation in the program (2003)

Mississippi State University Nominee for the National Eta Kappa Nu Outstanding Junior Faculty Award (2003)

Outstanding Faculty Award from Tau Beta Pi - Nevada Beta Chapter (2000)

Outstanding Faculty Award from University of Nevada, Las Vegas Alumni Association (2000)

University of Nevada, Las Vegas Faculty Award for Academic Excellence and Student Focus (1998)

National Science Foundation - Graduate Research Fellowship (1992-1995)

PROFESSIONAL AFFILIATIONS

American Society for Engineering Education (ASEE)
Council for Advancement and Support of Education (CASE)
Council of Graduate Schools
IEEE Education Society
IEEE Engineering in Medicine and Biology Society
IEEE Geoscience and Remote Sensing Society
Society of Women Engineers
Order of the Engineer
Eta Kappa Nu
Phi Kappa Phi
Tau Beta Pi

PROFESSIONAL SERVICE

Administrative Committee (AdCom), IEEE Geoscience and Remote Sensing Society (IEEE-GRSS) (2016-present) Currently serving as Chair of Underrepresented Programs. AdCom has 20 voting members that provide leadership and administrative oversight to GRSS which has approximately 3500 members worldwide, 59 chapters, and annual budget of approximately $1million.

Chair of Education and Outreach, Conference Organizing Committee, 2017 IEEE International Geoscience and Remote Sensing Symposium, Dallas-Fort Worth Texas

National Science Foundation Committee of Visitors, Co-chaired national review of NSF Graduate Education and Training Programs, including IGERT and GK12 (2014)

Chair-elect, Board of Directors, ASEE Engineering Research Council (ERC), 2012-2013, Board member (2009-2013)

Chair, ASEE ERC National Conference, Washington DC 2013

Co-Chair ASEE ERC National Conference, Washington DC 2012

Organizing Committee, ASEE ERC National Conference, Washington DC, 2010-2011

Board of Directors, Mississippi Chapter of AUVSI, 2011-2012

Chair, AUVSI Unmanned Aerial Systems Conference, May 2012

Member, Mississippi Statewide Task Force for Unmanned Aerial Systems, 2009-2011.

Chair, IEEE Geoscience and Remote Sensing Society's International Technical Committee on Data Fusion (2003 – 2005)

Co-Chair, IEEE International Data Fusion Contest (Denver 2006, Barcelona Spain 2007, Honolulu Hawaii 2010, Vancouver Canada 2011)

International Steering Committee Member, *HyperWave* Research Project Funded by The Federal Office for Scientific, Technical, and Cultural Affairs of Belgium (2004-2008)

NASA Remote Sensing Course Creation Fellow, GeoWorkforce Development Center, University of Mississippi (2002-2004)

Board Member, National Advisory Board for NSF-CRCD-CV Program (Combined Research and Curriculum Development in Computer Vision) (2001-2003)

Research Conference/Symposia Organizing and Technical Committees, as well as Technical Session Organizer/Chair

IEEE Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS), Grenoble, France (2009), Reykjavik, Iceland (2010), Lisbon, Portugal (2011), Shanghai, China (2012)

IEEE International Geoscience and Remote Sensing Symposium (IGARSS), Anchorage, AK (2004), Seoul, Korea (2005), Denver, CO (2006), Barcelona, Spain (2007), Boston, MA (2008), Cape Town, South Africa (2009), Honolulu, HI (2010), Vancouver, Canada (2011), Munich, Germany (2012), Melbourne, Australia (2013), Beijing, China (2016)

Third International Workshop on Analysis of Multi-temporal Remote Sensing Images (MultiTemp), Biloxi, Mississippi (2005)

Nevada/DOE Research Symposium, Las Vegas, Nevada (1999)

ASEE Pacific Southwest Regional Conference, Las Vegas, Nevada (1997-1998)

Served on Numerous Proposal Review Panels, including for National Geospatial Intelligence Agency (NGA) (2009-2011), NSF Graduate Research Fellowship Program (2003-2005, 2007-2010, 2015), NASA (2003-2006, 2010), European Space Agency (2003, 2007, 2009)

EXTRAMURAL RESEARCH SUPPORT

Co-PI, NSF (GK12 program), "GK-12: Initiating New Science Partnerships in Rural Education (INSPIRE)" $2.9million (2010-2015)

PI, NGA (NURI program), "Redundant Wavelet Transforms and Information Fusion for Robust Hyperspectral ATR" $298,580 (2010-2012)

PI, NASA, "Applying NASA HyspIRI observations to precision vegetation mapping for ecological forecasting applications" $106,415 (2010-2011)

PI, DHS, "Rapid Detection of Agriterrorism via Remote Sensing – Phase II" $560,779, (2008-2011)

PI, DHS, "Rapid Detection of Agriterrorism via Remote Sensing" $546,300, (2007-2008)

PI, DHS, "Assured Strategic Communications During Natural and Willful Disasters" $492,000, (2007-2008)

PI, NASA, "A Rapid Prototyping Capability Experiment to Evaluate Potential Soil Moisture Retrievals of Aquarius Radiometer and Scatterometer" $644,938, (2007-2008)

PI, NASA, "A Rapid Prototyping Capability Experiment to Evaluate CrIS ATMS Observations for Urban Modeling Applications" $515,883, (2007-2008)

PI, NASA, "Evaluation of GPM Precipitation Estimates for Cross-cutting Earth Science Applications via Land Data Assimilation Studies" $546,985, (2007-2008)

PI, NASA, "Optimizing GPM Precipitation Estimation Using High Resolution Land Surface Modeling for Decision Support" $ 537,883, (2007-2008)

PI, NASA, "Using Simulated OCO Measurements for Assessing Terrestrial Carbon Pools in Southern United States" $ 529,092, (2007-2008)

Co-PI, NASA, "Magnolia-1 Small Satellite Program" $11,073,759, (2007-2008) - $2,753,798 to MSU

Co-PI, USGS, "Integrated Management Systems Of Invasive Aquatic Plants and Terrestrial Grasses" $1,813,000 (2004-2007)

PI, NASA, "Rapid Prototyping of Hyperspectral Image Analysis Algorithms for Improved Invasive Species Decision Support Tools," $135,325, (2006-2007)

Co-PI, USGS, "Integrated Management Systems for Invasive Aquatic and Terrestrial Grasses" $1,813,000 (2004-2006)

PI, NASA/MSCI, "Near-Real Time Processing of Digital Multispectral Data Acquired Using Unmanned Aerial Vehicles" $99,964 (2004-2005)

PI, NASA, "Enabling Federal Noxious Weeds Detection for the National Invasive Species Decision Support Systems" $400,000 (2004-2005)

Co-PI, NASA, "Enabling Technologies for Exploiting EOS Data for Decision Support" $550,000 (2004-2005)

Co-PI, NASA SBIR Phase I, "Data Reduction and Rapid Analysis of Hyperspectral Datasets," $70,000 (2004)

Co-PI, Western Michigan University, "High Speed Wavelet-Based Compression and Transmission of Mammograms over Internet2," $30,000 (2003-2004)

Co-PI, NASA-RSTC - "Computational Modeling Support to the Remote Sensing Technology Center," $1,170,012 (2001-2003)

Co-PI, Mississippi Department of Transportation – "Digital Acoustic Signal Processing for Automated Detection of Accidents in Intersections," $95,386 (2001-2003)

PI, General Dynamics, Electronic Systems - " Multiresolution Feature Decomposition and Noise Filtering of Hyperspectral Image Data," $25,000 (2001)

PI, DOE/Bechtel Nevada - "Classification of Hyperspectral Signatures using Wavelet-Based Feature Extraction," $100,000 (1999-2000)

PI, DOE/Bechtel Nevada/ARI, "Wavelet-based Radiance Fingerprints for Computationally Efficient Analysis of Hyperspectral Data," $105,000 (1998-1999)

PI, NSF, "Wavelet-Based Shape Features for Mammographic Analysis," $65,383 (1998-1999)

TEACHING EXPERIENCE

Taught approximately 45 sections of 17 different courses at the undergraduate, split, and graduate levels, resulting in more than 2800 student credit hours (excluding dissertation and thesis hours)

Maintained a high level of dedication to teaching, resulting in instructor evaluation scores averaging to 4.5/5.0, where the Bagley College of Engineering and the Electrical and Computer Engineering Department averages are 4.0 and 3.9, respectively

Developed new graduate and undergraduate courses in the areas of Digital Image Processing, Automated Target Recognition, Biomedical Signals and Systems, and Medical Imaging, as well as conducted overhauls of various existing courses

Received various teaching awards and faculty appreciation awards from university alumni associations and student chapters of Tau Beta Pi and National Society of Black Engineers

Graduate Lecture Courses Taught:

Analog and Digital Communications
Automated Target Recognition *(Developed for MSU)*
Digital Image Processing *(Taught on-campus and via Distance)*
Digital Signal Processing *(Taught on-campus and via Distance)*
Medical Imaging Survey *(Developed for MSU)*
Codes and Cryptography *(Developed for MSU)*
Random Processes in Engineering Systems *(Developed for UNLV)*
Remote Sensing *(Taught on-campus and via Distance)*

Undergraduate Lecture Courses Taught:

Biomedical Signals and Systems *(Developed for UNLV)*
Computer Architecture and Assembly Language
Digital Logic Design
Electrical Engineering Systems
Signals and Systems

Laboratories Taught:

Analog Electronics Laboratory
Bioelectronics Laboratory
Digital Logic Design Laboratory
Digital Signal Processing Laboratory *(Developed for UNLV)*

STUDENT ADVISING

Post-Docs:

Yan Huang, "Texture Analysis of Multispectral Imagery for Automated Detection of Vegetative Species," 2000-2001.

Ph.D. students (Chaired)

Jiang Li, "Linear Unmixing of Hyperspectral Signals via Wavelet Feature Extraction," 2002.

Abhinav Mathur, "Hyperspectral Hypertemporal Feature Extraction Methods with Applications to Aquatic Invasives Target Detection," 2006.

John Ball, "Three Stage Level Set Segmentation of Mass Core, Periphery, and Spiculations for Automated Analysis of Digital Mammograms", 2007.

Saurabh Prasad, "Multiclassifiers and Decision Fusion for Multi-Source Data with Applications to Remote Sensing and Medial Imaging," 2008.

Terrance West, "Adaptive Wavelet Transforms for Dimensionality Reduction of Remotely Sensed Hyperspectral Imagery," 2009.

Matthew Lee, "Applications of Artificial Intelligence to Remotely Sensed Imagery," 2012.

Sathish Samiappan, "Support Vector Machines and Adaptive Learning for Remotely Sensed Imagery with Limited Ground Truth," 2014.

Masters students - Thesis Option (Chaired)

Ravikiran Kalluri, "Effects of Wavelet Compression on Mammographic Mass Recognition," 1998.

Jiang Li, "Fast Wavelet-based Algorithms for Analysis of Hyperspectral Images," 1999.

Nithya Shanmugam, "Automated Mammographic Mass Shape Classification using Wavelets and Neural Networks," 2000.

Cliff Morgan, "Detection of Weak Anomalies in Hyperspectral Signatures using Wavelet Coefficient Energy Features," 2000.

Abhinav Mathur, "Dimensionality Reduction of Hyperspectral Signatures for Optimized Detection of Invasive Species," 2002.

Anil Cheriyadat, "Limitations of Principal Component Analysis for Dimensionality Reduction of Hyperspectral Data," 2003.

Huang-de Lin, "Projection Pursuits for Dimensionality Reduction of Hyperspectral Signals in Target Recognition Applications," 2003.

Navaneethakrishnan Balraj, "Automated Accident Detection in Intersections Via Digital Audio Signal Processing," 2003.

Anuradha Agatheeswaran, "Analysis of JPEG2000 Compression Effects on Automated Shape and Texture Feature Extraction from Digital Mammograms", 2004.

Shilpa Venkataraman, "Hyperspectral Dimensionality Reduction via Localized Discriminant Bases," 2005.

Darrell Wesley Johnson, "Assessing Resolution Tradeoffs of Remote Sensing Data via Classification Accuracy Cubes for Sensor Selection and Design," 2006.

Terrance R. West, "Detecting Invasive Species via Hyperspectral Imagery using Sequential Projection Pursuits," 2006.

Matthew Lee, "Analysis of Breast Lesions Using a Simplified Rubber Band Straightening Transform and the Onion Transform," 2006.

Hemanth Kalluri, "Use of spectral derivatives in hyperspectral image processing and target recognition," 2009.

Minshan Cui, "Genetic Algorithms Based Feature Selection and Decision Fusion for Robust Remote Sensing Image Analysis", 2011.

Graduate Students (Non-Thesis Chair and/or Committee)

Served on approximately 55 graduate student committees, including Phd and MS students in the Electrical and Computer Engineering Department, Computer Science and Engineering Department, Plant and Soil Sciences Department, Forestry Department.

Selected Undergraduate Student Research Assistants

Sara Larsen, "Wavelet Denoising of Cl^- Patch Clamp Signals", "Wavelet Analysis of Hyperspectral Data," 1997-2000.

Cliff Morgan, "Applying Steerable Filters to Hyperspectral Images," 1999.

Mathew Burns, "Designing Adaptive Wavelet Filter Banks," 1999.

Ricco Novero, "Wavelet Algorithm Development for the Texas Instruments DSP Microprocessors," 1998-1999.

Andres Mendoza, "Wavelet Analysis of Mammographic Tumor Shapes", "Recognition of Vegetation Textures via Wavelet Packets," 1998-2000.

Jay Stenmark, "Fourier and Wavelet Transform Methods for Texture Analysis in Remotely Sensed Imagery," 2002.

Darryll Wesley Johnson, "Spectral Resolution Effects on Automated Detection of Cogongrass in Hyperspectral Imagery," 2004.

Terrance West, "Investigating the use of Unsupervised Classifiers for Automated Detection of Invasive Species in Remotely Sensed Images," 2004.

Lennon Brown, "Automated Invasive Species in Multispectral Imagery via Supervised Statistical Classification," 2004.

Jacob Bowen, "Hyperspectral Remote Sensing: Ground Truth Data via Field Campaigns and Simulation of Satellite Imagery," 2008.

Jeff Brantley, "Hyperspectral Remote Sensing: Ground Truth Data via Field Campaigns and Simulation of Satellite Imagery," 2008.

PUBLICATIONS

Citation Indices

More than 140 publications have been cited more than 3300 times resulting in citation indices of h-index = 26 and i10-index = 59.

Books and Book Chapters

B1. S. Prasad, L.M. Bruce, J. Chanussot, *Optical Remote Sensing - Advances in Signal Processing and Exploitation Techniques*, Springer Publishing Company, Berlin, 2011. *(ISBN: 978-3-642-14211-6)*

B2. S. Prasad, L.M. Bruce, J. Chanussot, "Introduction - Signal Processing and Exploitation for Optical Remote Sensing," Chapter 1 in *Optical Remote Sensing - Advances in Signal Processing and Exploitation Techniques*, Springer Publishing Company, Berlin, 2011. *(ISBN: 978-3-642-14211-6)*

B3. S. Prasad, L.M. Bruce, "A Divide-and-Conquer Paradigm for Hyperspectral Classification and Target Recognition," Chapter 7 in *Optical Remote Sensing - Advances in Signal Processing and Exploitation Techniques*, Springer Publishing Company, Berlin, 2011. *(ISBN: 978-3-642-14211-6)*

B4. S. Prasad, L.M. Bruce, J.E. Ball, "Information Fusion in a High Dimensional Feature Space for Robust Computer Aided Diagnosis using Digital Mammograms," Chapter 9 in *New Developments in Biomedical Engineering*, Edited by: D. Campolo, In-Tech Publishers, Croatia, January 2010. (*ISBN: 978-953-7619-57-2*)

Journal Articles

J1. S. Samiappan, S. Prasad, L.M. Bruce, "An Adaptive Support Vector Machine Classifier for Hyperspectral Image Analysis," *IEEE Transactions on Geoscience and Remote Sensing*, (submitted and under review)

J2. M. Lee, Y. Huang, H. Yao, S. Thomson, L.M. Bruce, "Determining the Effects of Storage on Cotton and Soybean Leaf Samples for Hyperspectral Analysis," *IEEE Journal of Selected Topics in Applied Earl Observations and Remote Sensing,* vol.7, no. 6, June 2014.

J3. M. Lee, Y. Huang, Haibo Yao, S. J. Thomson, L. M. Bruce, "Effects of Sample Storage on Spectral Reflectance Changes in Corn Leaves Excised From the Field," *Journal of Agricultural Science*, vol. 6, no. 8, pp. 214-220, 2014.

J4. M. Cui, S. Prasad, W. Li, L.M. Bruce, "Locality Preserving Genetic Algorithms for Spatial-Spectral Hyperspectral Image Classification," *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing,* vol. 6, no. 3, pp. 1688-1697, May 2013.

J5. M. Cui, S. Prasad, L.M. Bruce, "Non-Uniform Random Feature Selection and Kernel Density Scoring with SVM based Ensemble Classification for Hyperspectral Image Analysis," *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol. 6, no. 3, pp. 792-800, June 2013.

J6. M. Cui, S. Prasad, W. Li, L.M. Bruce, "Locality Preserving Genetic Algorithms for Spatial-Spectral Hyperspectral Image Classification," *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol. 6, no. 3, pp. 1688-1697, June 2013.

J7. S. Prasad, Wei Li, J.E. Fowler, L.M. Bruce, "Information Fusion in a Redundant-Wavelet-Transform Domain for Noise-Robust Hyperspectral Classification," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 50, no. 9, pp. 3474-3486, Sept 2012.

J8. M. Cui, S. Prasad, M. Mahrooghy, J. Aanstoos, M. Lee, L.M. Bruce, "Decision Fusion of Textural Features Derived from Polarimetric

Data for Levee Assessment," *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol. 5, no. 3, pp. 970-976, June 2012.

J9. W. Li, S. Prasad, J. Fowler, L.M. Bruce, "Locality-Preserving Dimensionality Reduction and Classification for Hyperspectral Image Analysis," *IEEE Transactions on Geoscience and Remote Sensing*, vol.50, no.4, pp.1185-1198, 2012.

J10. W. Li, S. Prasad, J. Fowler, L. M. Bruce, "Locality-Preserving Discriminant Analysis in Kernel-Induced Feature Spaces for Hyperspectral Classification," *IEEE Geoscience and Remote Sensing Letters*, vol. 8, no. 5, pp. 894-898, Sept 2011.

J11. H. Kalluri, S. Prasad, L.M. Bruce "Decision Level Fusion of Spectral Reflectance and Derivative Information for Hyperspectral Classification and Target Recognition," *IEEE Transactions on Geoscience and Remote Sensing*, vol.48, no.11, pp.4047-4058, November, 2010.

J12. C.J. Gray, D.R. Shaw, L.M. Bruce, "Utility of Hyperspectral Reflectance for Differentiating Soybean (*Glycine max*) and Six Weed Species," *Weed Technology*, vol. 23, no. 1, pp. 108-119, 2009.

J13. S. Prasad, L.M. Bruce, "Information Fusion in Kernel-Induced Spaces for Robust Subpixel Hyperspectral ATR,", *IEEE Geoscience and Remote Sensing Letters,* vol. 6, no. 3, pp. 572-576, July 2009.

J14. C.J. Gray, D.R. Shaw, P.D. Gerard, L.M. Bruce, "Utility of Multispectral Imagery for Soybean and Weed Species Differentiation," *Weed Technology*, vol. 22, no. 4, pp. 713-718, 2008.

J15. S. Prasad, L.M. Bruce, "Limitations of Principal Components Analysis for Hyperspectral Target Recognition," *IEEE Geoscience and Remote Sensing Letters,* vol. 5, no. 4, pp. 625-629, October 2008.

J16. S. Prasad, L.M. Bruce, "Decision Fusion with Confidence based Weight Assignment for Hyperspectral Target Recognition," *IEEE Trans. On Geoscience and Remote Sensing*, vol. 46, no. 5, pp. 1448-1456, May 2008.

J17. Q. Du, N. Raksuntorn, A. Orduyilmaz, L. M. Bruce, "Automatic registration and mosaicking for airborne multispectral image sequences," *Photogrammetric Engineering & Remote Sensing*, vol. 74, no. 2, pp. 169-181, Feb. 2008.

J18. J.E. Ball and L.M. Bruce, "Level Set Hyperspectral Image Classification Using Best Band Analysis," *IEEE Trans. On Geoscience and Remote Sensing*, vol. 45, no. 10, pp. 3022-3027, October 2007.

J19. L. Alparone, L. Wald, J. Chanussot, C. Thomas, P. Gamba, L.M. Bruce, "Comparison of Pansharpening Algorithms: Outcome of the 2006 GRS-S Data Fusion Contest", *IEEE Trans. On Geoscience and Remote Sensing*, vol. 45, no. 10, pp. 3012-3021, October 2007.

J20. J.E. Ball, L.M. Bruce, and N.H. Younan, "Hyperspectral pixel unmixing via spectral band selection and DC insensitive singular value decomposition," *IEEE Geoscience and Remote Sensing Letters*, Vol. 4, No. 3, pp. 382-386, July 2007.

J21. L.M. Bruce, A. Mathur, J.D. Byrd, "Denoising and Wavelet-Based Feature Extraction of MODIS Multi-Temporal Vegetation Signatures," *GIScience & Remote Sensing*, vol. 43, pp. 170-180, 2006.

J22. J. Li and L.M. Bruce, "Wavelet-Based Feature Extraction for Improved Endmember Abundance Estimation in Linear Unmixing of Hyperspectral Signals," *IEEE Trans. Geoscience and Remote Sensing*, vol. 42, no. 3, pp. 644-649, March 2004. (See Correction to "Wavelet-Based Feature Extraction for Improved Endmember Abundance Estimation in Linear Unmixing of Hyperspectral Signals", *IEEE Trans. Geoscience and Remote Sensing*, vol. 42, no. 5, pp. 1122, May 2004.)

J23. W.B. Henry, D. Shaw, L.M. Bruce, "Spectral reflectance curves to distinguish soybean from common cocklebur (*Xanthium stumarium*) and sicklepod (*Cassia obtusifolia*) grown with varying soil moisture," *Weed Science*, vol. 52, no. 5, pp.78-796, 2004.

J24. W. B. Henry, D. Shaw, L.M. Bruce, H. Tamhankar, "Remote Sensing to Distinguish Soybean (Glycine max) from Weeds Following

Herbicide Application," *Weed Technology,* vol. 18, no. 3, pp. 594-604, 2004.

J25. W.B. Henry, D.R. Shaw, K.R. Reddy, L.M. Bruce, H.D. Tamhankar, "Remote Sensing to Detect Herbicide Drift on Crops," *Weed Technology*, vol. 18, pp. 358-368, 2004.

J26. C.H. Koger, L.M. Bruce, D.R. Shaw, K.N. Reddy, "Wavelet Analysis of Hyperspectral Reflectance Data for Detecting Pitted Morningglory (Ipomoea lacunosa) in Soybean (Glycine max), *Remote Sensing of Environment*, vol. 86, no. 1, pp. 108-119, June 2003.

J27. C. H. Koger, D. R. Shaw, K. N. Reddy, L.M. Bruce, "Detection of pitted morningglory with hyperspectral remote sensing. I. Effects of tillage and cover crop residue," *Weed Science*, vol. 52, no. 2, pp. 222–229, 2004.

J28. C. H. Koger, D. R. Shaw, K. N. Reddy, L.M. Bruce, "Detection of pitted morningglory with hyperspectral remote sensing. II. Effects of vegetation ground cover and reflectance properties," *Weed Science*. vol. 52, no. 2, pp. 230–235, 2004.

J29. L.M. Bruce, N. Balraj, Y. Zhang, Q. Yu, "Automated Accident Detection in Intersections via Digital Audio Signal Processing," *Transportation Research Record, Journal of the Transportation Research Board,* vol. 1840, pp. 186-192, 2003.

J30. C.T. Leon, D.R. Shaw, L.M. Bruce, C. Watson, "Effect of purple (*Cyperus rotundus*) and yellow nutsedge (*C. esculentus*) on growth and reflectance characteristics of cotton and soybean," *Weed Science*, vol. 51, no. 4, pp. 557–564, 2003.

J31. L.M. Bruce, C.H. Koger, J. Li, "Dimensionality Reduction of Hyperspectral Data Using Discrete Wavelet Transform Feature Extraction," *IEEE Trans. Geoscience and Remote Sensing*, vol. 40, no. 10, pp. 2331-2338, 2002.

J32. L.M. Bruce, J. Li, Y. Huang, "Automated Detection of Subpixel Hyperspectral Targets with Adaptive Multichannel Discrete Wavelet Transform," *IEEE Trans. Geoscience and Remote Sensing*, vol. 40, no. 4, pp. 977-980, 2002.

J33. L.M. Bruce, C. Morgan, S. Larsen, "Automated detection of subpixel targets with continuous and discrete wavelet transforms," *IEEE Trans. Geoscience and Remote Sensing*, vol. 39, no. 10, pp. 2217-2226, 2001.

J34. L.M. Bruce, J. Li, "Wavelets for computationally efficient hyperspectral derivative analysis," *IEEE Trans. Geoscience and Remote Sensing*, vol. 39, no. 7, pp. 1540-1546, 2001.

J35. L.M. Bruce, R.R. Adhami, "Classifying Mammographic Mass Shapes Using the Wavelet Transform Modulus-Maxima Method," *IEEE Trans. Medical Imaging*, vol. 18, no. 12, pp. 1-8, December 1999.

J36. L.M. Bruce, "Isolation Criteria for the Wavelet Transform Mod-Max Method", *IEEE Trans Circuits and Systems II: Analog and Digital Signal Processing*, vol. 45, no. 8, pp. 1084-1087, 1998.

J37. L.M. Bruce, R.R. Adhami, "Wavelet-based Algorithm for the Numerical Solution of Differential Equations," *International Journal of Smart Engineering System Design*, vol. 1, no. 4, pp. 235-240,1998.

Magazine Articles

M1. L.M. Bruce, A. Cheriyadat, M. Burns, "Wavelets: Getting Perspective," *IEEE Potentials,* vol. 22, no. 2, pp. 24-27, 2003.

M2. L.M. Bruce, "Bioelectric Potentials: Regulating Reactions from the Heart," *IEEE Potentials*, vol. 17, no. 5, pp. 5-9, Dec 1998.

Conference Proceedings and Abstracts

C1. L.M. Bruce, K. McNeal, S. Radencic, D. Pierce, D. Schmitz, "INSPIRE: Linking Graduate Students with K12 Teachers to Address Remote Sensing Educational Needs," *IEEE International Geoscience and Remote*

Sensing Symposium (IGARSS), pp.1584-1587, Quebec, Canada, 2014

C2. L.M. Bruce, "Game Theory Models for Spectral Band Grouping and Classifier Ensembles for Hyperspectral Image Classification," *IEEE Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS)*, Lausanne, Switzerland, June 2014.

C3. L.M. Bruce, "Game Theory Applied to Big Data Analytics," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS),* pp. 4094-4097, Melbourne, Australia, July 2013.

C4. S. Samiappan, L.M. Bruce, H. Yao, R. Kincaid, "Support Vector Machines Classification of Fluorescence Hyperspectral Image for Detection of Aflatoxin in Corn Kernels," *Proc. of Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS '13)*, Gainsville, FL, June 2013.

C5. M. Cui, S. Prasad, L.M. Bruce, R. Shrestha, "'Robust Spatial-Spectral Hyperspectral Image Classification for Vegetation Stress Detection," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS),* pp. 5486-5489, Munich, Germany, 2012.

C6. M. Lee, J.V. Aanstoos, L.M. Bruce, S. Prasad, "Application of Omni-Directional Texture Analysis to SAR Images for Levee Landslide Detection," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS),* pp. 1805-1808, Munich, Germany, 2012.

C7. M. Lee, L.M. Bruce, S. Prasad, "Concurrent Spatial-Spectral Band Grouping: Providing a Spatial Context for Spectral Dimensionality Reduction," *Proc. of Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS '11)*, Lisbon, Portugal, July 2011.

C8. Wei Li, S. Prasad, J. Fowler, L.M. Bruce, "Class Dependent Compressive-Projection Principal Component Analysis for Hyperspectral Image Reconstruction," *Proc. of Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS '11)*, Lisbon, Portugal, July 2011.

C9. Wei Li, S. Prasad, J. Fowler, L.M. Bruce, "A Multi-Modal Pattern Classification Framework for Hyperspectral Image Analysis," *Proc. of Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS '11)*, Lisbon, Portugal, July 2011.

C10. M. Cui, S. Prasad, M. Mahrooghy, L.M. Bruce, J. Aanstoos "'Genetic Algorithms and Linear Discriminant Analysis based Dimensionality Reduction for Remotely Sensed Image Analysis," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS),* pp. 2373-2376, Vancouver, Canada, July 2011.

C11. S. Samiappan, L.M. Bruce, E. A. Hansen, "'Branch and Bound based Feature Elimination for Support Vector Machine based Classification of Hyperspectral Images," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS),* pp. 2523-2526, Vancouver, Canada, July 2011.

C12. S. Samiappan, S. Prasad, L.M. Bruce "'Automated Hyperspectral Imagery Analysis via Support Vector Machines based Multi-Classifier System with Non-Uniform Random Feature Selection," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS),* pp. 3915-3918, Vancouver, Canada, July 2011.

C13. M.A. Lee, L.M. Bruce, "Applying Cellular Automata to Hyperspectral Edge Detection," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS),* pp. 2202-2205, Honolulu, Hawaii, July 2010.

C14. S. Prasad, H. Kalluri, L.M. Bruce, S. Samiappan, "Data Dependent Adaptation for Improved Classification of Hyperspectral Imagery," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS)*, pp. 68-71, Honolulu, Hawaii, July 2010.

C15. S. Samiappan, S. Prasad, L.M. Bruce, W. Robles, "NASA's Upcoming HyspIRI Mission – Precision Vegetation Mapping with Limited Ground Truth," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS)*, pp. 3744-3747, Honolulu, Hawaii, July 2010.

C16. M.A. Lee, S. Prasad, L.M. Bruce, T.R. West, D. Reynolds, T. Irby, H. Kalluri, "Sensitivity of hyperspectral classification algorithms to training sample size," *Proc. of Workshop on*

Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS '09), Grenoble France, August 26-28, 2009.

C17. H. Kalluri, S. Prasad, L.M. Bruce, "Fusion of spectral reflectance and derivative information for robust hyperspectral land cover classification," *Proc. of Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS '09)*, Grenoble France, August 26-28, 2009.

C18. S. Prasad, L.M. Bruce, H.Kalluri, "Data Exploitation of HyspIRI Observations for Precision Vegetation Mapping," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS)*, pp. IV-785 – IV-788, Cape Town, South Africa, July 2009.

C19. T.R. West, S. Prasad, L.M. Bruce, D. Reynolds, "Utilization of Local and Global Hyperspectral Features via Wavelet Packets and Multiclassifiers for Robust Target Recognition," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS)*, vol. 3, pp. III-825 – III-828, Cape Town, South Africa, July 2009.

C20. T.R. West, S. Prasad, L.M. Bruce, D. Reynolds, T. Irby "Rapid Detection of Agricultural Food Crop Contamination via Hyperspectral Remote Sensing," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS),* vol. 4, pp. IV-889 – IV-892, Cape Town, South Africa, July 2009.

C21. S. Prasad, L.M. Bruce, J.E. Ball, "A Multi-Classifier and Decision Fusion Framework for Robust Classification of Mammographic Masses," Proc. 30th- *Annual International Conference IEEE Engineering in Medicine and Biology*, pp. 3048-3051, Vancouver, Canada, August 2008.

C22. T.R. West, S. Prasad, L.M. Bruce, "Wavelet Packet Tree Pruning Metrics for Hyperspectral Feature Extraction," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS)*, vol. 2, pp. II-946 – II-949, Boston, MA, July 2008.

C23. S. Prasad, L.M. Bruce, "Multiple Kernel Discriminant Analysis and Decision Fusion for Robust Sub-Pixel Target Recognition," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS)*, vol. 2, pp. II-45 – II-48, Boston, MA, July 2008.

C24. S. Prasad, L.M. Bruce, H. Kalluri, "A Robust Multi-classifier Decision Fusion Framework for Hyperspectral Multi-temporal Classification," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS)*, vol. 2, pp. II-273 – II-276, Boston, MA, July 2008.

C25. S. Prasad, L.M. Bruce, "Overcoming the Small Sample Size Problem in Hyperspectral Classification and Detection Tasks," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS)*, vol. 5, pp. V-381 – V-384, Boston, MA, July 2008.

C26. J.E. Ball and L.M. Bruce, "Digital Mammographic Computer Aided Diagnosis (CAD) using Adaptive Level Set Segmentation," *Proc. 29th Annual International Conference IEEE Engineering in Medicine and Biology*, pp. 4973-4978, Lyon, France, August 2007.

C27. J.E. Ball and L.M. Bruce, "Digital Mammogram Spiculated Mass Detection and Spicule Segmentation using Level Sets," *Proc. 29th Annual International Conference IEEE Engineering in Medicine and Biology,* pp. 4979-4984, Lyon, France, August 2007.

C28. J.E. Ball and L.M. Bruce, "Level Set-Based Core Segmentation of Mammographic Masses Facilitating Three Stage (Core, Periphery, Spiculation) Analysis," *Proc. 29th Annual International Conference IEEE Engineering in Medicine and Biology*, pp. 819-824, Lyon, France, August 2007.

C29. S. Prasad, L.M. Bruce, "Limitations of Subspace LDA in Hyperspectral Target Recognition Applications," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS)*, pp. 4049-4052, Barcelona, Spain, July 2007.

C30. S. Prasad, L.M. Bruce, "Hyperspectral Feature Space Partitioning via Mutual Information for Data Fusion," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS)*, pp. 4846-4849, Barcelona, Spain, July 2007.

C31. T.R. West, S. Prasad, L.M. Bruce, "Multiclassifiers and Decision Fusion in the Wavelet Domain for Exploitation of Hyperspectral Data," *Proc. IEEE Geoscience*

and Remote Sensing Symposium (IGARSS), pp. 4850-4853, Barcelona, Spain, July 2007.

C32. J. Ball, T.R. West, S. Prasad, L.M. Bruce, "Level Set Hyperspectral Image Segmentation using Spectral Information Divergence-based Best Band Selection," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS)*, pp. 4053-4056, Barcelona, Spain, July 2007.

C33. S. Prasad, L.M. Bruce, "Information Theoretic Partitioning and Confidence based Weight Assignment for Multi-Classifier Decision Level Fusion in Hyperspectral Target Recognition Applications," *Proc. of the SPIE Defense and Security Symposium*, Orlando, Florida, USA, April 2007.

C34. L. Alparone, L. Wald, J. Chanussot, L. Bruce, P. Gamba, "Data Fusion Contest: Fusion of Panchromatic and Multispectral Images," *Proc. IEEE Geoscience and Remote Sensing Symposium(IGARSS)*, pp. 3814-3815, Denver, CO, August 2006.

C35. A. Mathur, L.M. Bruce, D.W. Johnson, W. Robles, "Exploiting Hyperspectral Hypertemporal Imagery with Feature Clustering for Invasive Species Detection," *Proc. IEEE Geoscience and Remote Sensing Symposium(IGARSS)*, pp. 828 – 831, Denver, CO, August 2006.

C36. J. Ball, L.M. Bruce, "Level Set Hyperspectral Segmentation: Near-Optimal Speed Functions using Best Band Analysis and Scaled Spectral Angle Mapper," *Proc. IEEE Geoscience and Remote Sensing Symposium(IGARSS)*, pp. 2596-2600, Denver, CO, August 2006.

C37. A. Mathur, L.M. Bruce, D.W. Johnson, W. Robles, J. Madsen, "Automated Stepwise Selection of Hyperspectral Hypertemporal Features for Target Detection," *Proc. IEEE Geoscience and Remote Sensing Symposium(IGARSS)*, pp. 533-536, Denver, CO, August 2006.

C38. T.R. West, L.M. Bruce, "Detecting Invasive Species via Hyperspectral Imagery using Sequential Projection Pursuits," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS)*, pp. 2465-2468, Denver, CO, August 2006.

C39. A. Mathur, L.M. Bruce, "Identification of Pertinent Regions in Spectro-Temporal Maps for Vegetative Target Detection," *Proc. of the American Society of Photogrammetry and Remote Sensing 2006 Annual Conference (ASPRS 2006)*, Reno, NV, May 2006.

C40. J. Ball, L.M. Bruce, "Accuracy Analysis of Hyperspectral Imagery Classification using Level Sets," *Proc. of the American Society of Photogrammetry and Remote Sensing 2006 Annual Conference (ASPRS 2006)*, Reno, NV, May 2006.

C41. D.W. Johnson, L.M. Bruce, "Spectral and spatial resolution effects on remotely sensed data used to detect invasive species," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS)*, vol. 5, pp. 3561- 3564, Seoul, Korea, July 2005.

C42. J.E. Ball, L.M. Bruce, N.H. Younan, "Adaptive hyperspectral pixel unmixing using best bands analysis and dc insensitive singular value decomposition," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS)*, vol. 6, pp. 4299-4303, Seoul, Korea, July 2005.

C43. S. Venkataraman, L.M. Bruce, A. Cheriyadat, A. Mathur, "Hyperspectral Dimensionality Reduction via Localized Discriminant Bases," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS)*, vol. 2, pp. 1245-1248, Seoul, Korea, July 2005.

C44. J. Ball, L.M. Bruce, "Level set segmentation of remotely sensed hyperspectral images," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS)*, vol. 8, pp. 5638-5642, Seoul, Korea, July 2005.

C45. L.M. Bruce, A. Mathur, "Denoising Multi-Temporal Vegetation Signatures Generated from MODIS Imagery," *Proc. Third Intl. Workshop on Analysis of Multi-temporal Remote Sensing Images*, May 16-18, 2005.

C46. A. Mathur, L.M. Bruce, "Feature Extraction via Spectro-Temporal Analysis of Hyperspectral Data for Vegetative Target Detection," *Proc. Third Intl. Workshop on Analysis of Multi-temporal Remote Sensing Images*, May 16-18, 2005.

C47. J.W. Bruce, L.M. Bruce, "This town ain't big enough for the both of us: Two Engineering Educator Careers, One Department," Proc. *2005 ASEE Annual Conference & Exposition*, Portland, Oregon, June 12-15, 2005.

C48. V. Shah, L.M. Bruce, N. Younan, "Applying Modular Classifiers To Mammographic Mass Classification," *Proc. 26th Annual International Conference IEEE Engineering in Medicine and Biology Society*, pp. 1585-1588 San Francisco, California, September 2004.

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C52. Huang-De Lin, L.M. Bruce, "Projection Pursuits for Dimensionality Reduction of Hyperspectral Signals in Target Recognition Applications," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS)*, vol. 2, pp. 960-963, Anchorage, Alaska, September, 2004.

C53. L.M. Bruce, J.W. Bruce, "Maximizing Your Productivity as a Junior Faculty Member: Balancing Research, Teaching, and Service," *Proc. 2004 ASEE Annual Conference & Exposition*, Salt Lake City, Utah, June 20-23, 2004.

C54. J.W. Bruce, L.M. Bruce, "Maximizing Your Productivity as a Junior Faculty Member: Being Effective in the Classroom," *Proc. 2004 ASEE Annual Conference & Exposition*, Salt Lake City, Utah, June 20-23, 2004.

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C60. A. Cheriyadat, L. M. Bruce, "Why Principal Component Analysis is not an Appropriate Feature Extraction Method for Hyperspectral Data", *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS)*, vol. 6, pp. 3420-3422, Toulouse, France, July 2003.

C61. A. Mathur, L. M. Bruce, A. M. Cheriyadat, Huang-de Hennessy Lin "Hyperspec - Analysis Of Handheld Spectroradiometer Data", *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS)*, vol. 1, pp. 342-344, Toulouse, France, July 2003.

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C63. K.D. Burnell, J. D. Byrd, Jr., D. B. Mask, J. W. Barnett, C. M. Cofer, L. M. Bruce,

"Differentiation of cogongrass (Imperata cylindrica) and other grassy weeds using hyperspectral reflectance data," *Weed Sci. Soc. Am. Abst*., vol 40, 2003. (poster presented Jan 10-12, 2003 Jacksonville, FL).

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C66. K. Burnell, J. Byrd, L. Bruce, "Differentiation of Kudzu (Pueraria montana) and Forest Vegetation Using Hyperspectral Reflectance Data," *Proc. South. Weed Sci. Soc*., vol. 56, pp. 340, 2003. (poster presented Jan 27-29, 2003, Houston, TX)

C67. L. M. Bruce, H. Tamhankar, A. Mathur, R. King, "Multiresolutional texture analysis of multispectral imagery for automated ground cover classification," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS)*, vol. 1, pp. 312-314, Toronto, Canada, June 2002.

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C71. H. Tamhankar, L.M. Bruce, B. Henry, D. Shaw, "Detection of moisture stress effects on plants using hyperspectral reflectance," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS)*, vol. 3, pp. 1529-1531, Toronto, Canada, June 2002.

C72. W.B. Henry, D.R. Shaw, R. Reddy, L.M. Bruce, M.C. Smith, "Detection herbicide injury using hyperspectral reflectance data from corn, soybean, and four weed species," *Weed Sci. Soc. Am. Abst*., vol. 42, pp 28, Jan 2002.

C73. R.L. King, C. Ruffin, L.M. Bruce, J. Vickery, N. Younan "A Hyperspectral Toolkit For The Analysis Of Multitemporal Handheld Spectroradiometer Data," *Proc. of First International Workshop On The Analysis of Multi-Temporal Remote Sensing Images (Multitemp-2001),* Trento (Italy), September 13-14, 2001.

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C76. Yan Huang, L.M. Bruce, T.H. Koger, D. Shaw, "Analysis of the effects of cover crop residue on hyperspectral reflectance discrimination of soybean and weeds via Haar transform*," Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS)*, vol. 3, pp. 1276 – 1278, Sydney, Australia, July 2001.

C77. Jiang Li, L.M. Bruce, J. Byrd, J. Barnett, "Automated detection of Pueraria montana (kudzu) through Haar analysis of hyperspectral reflectance data," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS)*, vol. 5, pp. 2247–2249, Sydney, Australia, July 2001.

C78. L.M. Bruce, C. Morgan, S. Larsen, "Continuous and Discrete Wavelet Transforms for Automated Subpixel Target Detection,"

Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS), vol. 5, pp. 2352–2354, Sydney, Australia, July 2001.

C79. Yan Huang, L.M. Bruce, J. Byrd, B. Mask, "Using wavelet transforms of hyperspectral reflectance curves for automated monitoring of Imperata cylindrica (cogongrass)," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS)*, vol. 5, pp. 2244–2246, Sydney, Australia, July 2001.

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C81. Jiang Li, L.M. Bruce, Yan Huang, "Adaptive Multichannel Discrete Wavelet Transforms for Automated Subpixel Target Detection," *Proc. IEEE Geoscience and Remote Sensing Symposium (IGARSS)*, vol. 1, pp. 369-371, Sydney, Australia, July 2001.

C82. D.B. Mask, J.D. Byrd, Jr., J.W. Barnett, Jr., L.M. Bruce, Y. Huang, "Automated classification of cogongrass (Imperata cylindrica) using hyperspectral reflectance data," *Proc. South. Weed Sci. Soc*., 2001.

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C84. T.H. Koger, D.R. Shaw, L.M. Bruce, and C.S. Bray, "Reflectance dyanamics of cover crop residue, tillage, and soybean row spacing," *Proc. South. Weed Sci. Soc*., 2001.

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C87. K.M. Bloodworth, L.M. Bruce, C.D. Rowland, D.B. Reynolds, "Detection, classification, and quantification of herbicide drift utilizing spectral signatures," *Proc. South. Weed Sci. Soc*., 2001.

C88. J.C. Sanders, L.M. Bruce, D.B. Reynolds, "Utilization of spectral images and COTMAN to optimize cotton defoliation timing," *Proc. South. Weed Sci. Soc*., 2001.

C89. L.M. Bruce, N. Shanmugam, "Using neural networks with wavelet transforms for an automated mammographic mass classifier," *Proc. 22nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, vol. 2, pp. 985-987, July 2000.

C90. L.M. Bruce, S.E. Larsen "Wavelet denoising of patch clamp signals for improved histogram analysis," *Proc. 22nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, vol. 1, pp. 310-313, July 2000.

C91. L.M. Bruce, S.E. Larsen, S. Hillyard, "Improved analysis of Cl- patch clamp signals using discrete wavelet approximations," *Proc. 21st Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, vol. 2, October 1999.

C92. L.M. Bruce, M. Kallergi, A. Mendoza, "Wavelet Scalar-Energy Features for Recognition of Mammographic Mass Shapes," *Proc. SPIE*, vol. 3723, pp. 156-162, 1999.

C93. L.M. Bruce, M. Kallergi, "Effects of Image Resolution and Segmentation Method on Automated Mammographic Mass Shape Classification", *Proc. SPIE*, vol. 3661, pp. 940-947, 1999.

C94. L.M. Bruce, R. Kalluri, "An Analysis of the Effects of Discrete Wavelet Compression on Automated Mammographic Mass Shape Classification", *Proc. SPIE*, vol 3661, pp. 1190-1195, 1999.

C95. L.M. Bruce, J. Li, "Enhancing hyperspectral data throughput utilizing wavelet-based fingerprints," *Proc. SPIE*, vol. 3871, pp. 218-227, 1999.

C96. L.M. Bruce, J. Li, "Fast Wavelet-Based Algorithms for Multiresolutional Decomposition and Feature Extraction of Hyperspectral Signatures," *Proc. SPIE*, vol. 3717, pp. 72-81, 1999.

C97. S. Norris and L.M. Bruce, "Co-op Faculty Advisors? Collaboration or Consternation," *Proc. 1999 ASEE CIEC Conf*, Palm Springs, California, February 1999.

C98. L.M. Bruce, "Centroid Sensitivity of Wavelet-based Shape Features," *Proc. SPIE*, vol. 3391, pp. 358-366, 1998.

C99. . L.M. Bruce, "Teaching Multidisciplinary Courses in an Electrical Engineering Curriculum: An Example Bioelectricity Course," *Proc. ASEE-PSW Annual Conf.*, Claremont, California, March 1998.

C100. L. M. Bruce and R.R. Adhami, "Wavelet Based Feature Extraction for Mammographic Lesion Recognition," *Proc. of SPIE*, vol. 3034, pp. 779-789, Feb. 1997.

C101. L.M. Bruce, R. Kalluri, "An analysis of the contribution of scale in mammographic mass classification," *Proc. 19th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, vol. 4, pp. 1609-1612, October 1997.

C102. R.R. Adhami and L.M. Bruce, "Applications of Wavelet Transform in Aerospace Engineering," *Proc. IEEE Aerospace Conf.*, February 1997.

C103. L.M. Bruce, R.R. Adhami, J.W. Bruce, "Appropriate Scales when using Wavelets for Feature Extraction," *Intelligent Engineering Systems Through Artificial Neural Networks*, (Dagli et al, eds), pp. 507-512, Nov. 1996.

C104. L.M. Bruce, R.R. Adhami, "Wavelets for Shape Recognition with Applications to Mammography," *Intelligent Engineering Systems Through Artificial Neural Networks*, (Dagli et al, eds), pp. 653-658, Nov. 1996.

C105. S.M. Hamidi, R.R. Adhami, L.M. Bruce, "Orthogonal compactly supported wavelet construction using beta functions," *Proc. of IEEE Signal Processing International Symposium*, pp. 401-404, October 25-28, 1994.

ACADEMIC SERVICE

UNIVERSITY SERVICE

MISSISSIPPI STATE UNIVERSITY

MSU Dean's Council (2013-present)

MSU Executive Enrollment Management Council (2013-present)

MSU Strategic Enrollment Management Committee (2013-2014)

MSU Associate Deans Council (2008-2013)

MSU representative to Mississippi State-wide UAS Task Force (2010-2013)

MSU General Counsel Search Committee (2011)

MSU Strategic Planning Committee, Outreach and Economic Development (2010)

MSU Faculty Research Advisory Committee (2004-2010)

MSU Courses and Curriculum Committee (2006-2010)

MSU Office of Research and Economic Development, Research Thrust Focus Group (2008)

MSU Commencement Usher and/or Attendee (2000-2010)

High School Outreach Events, hosted numerous recruiting events for high school students visiting MSU (2000-2010)

Remote Sensing Seminar, semester-long seminar course video-conferenced between faculty and students at MSU, Purdue, University of Nebraska, and Indiana State (2003)

UNIVERSITY OF NEVADA LAS VEGAS

Faculty Senate, Admissions Committee Member (1997-2000)

University Planning Council, Member - Attend Bi-weekly meetings, attend all-day planning retreat, review Planning Initiative Award Proposals, etc. (1998)

Expanding Your Horizons Day – Sponsored laboratory/workshop (1998)

Faculty/Scholar Mentoring Program, Multicultural Student Affairs Office (1996-1997)

COLLEGE SERVICE

MISSISSIPPI STATE UNIVERSITY

Graduate School Fellowship Application Workshop, created and presented workshop to undergrad and graduate students to assist them in preparation for graduate school admission and fellowship applications, approximately 60 students attend annually, personally assisted approximately 12 students with fellowship applications, essays, reference letters, etc. (2003-2013)

College of Engineering New Faculty Development Program, Conducted Brown Bag Lunch Seminars on Effective Teaching and on Jump-Starting a Research Program (2004-2013)

Director, Women in Engineering Programs, Bagley College of Engineering, (2006-2007).

Advisor, MSU Student Chapter of Society of Women Engineers (SWE), attend monthly meetings, advise on service activities, program speakers, chapter finances, attend national conference, etc., (2001-2006)

Girl Scout Engineering Career Workshop, presented 2-hour workshops on Saturdays introducing girl scouts to engineering (2001-2006, 2010)

Search Committee for College of Engineering Dean, Elected College Representative (2004)

Serve as a mentor to new faculty member in the College Mentoring Program (2004-2010)

College of Engineering Women's Faculty Group (2003-present)

Search Committee for College of Engineering Associate Dean for Research, Elected Rep, (2003)

Judge, College of Engineering E-Week Student Research Poster Contest (2003-2004, 2006)

Member, Search Committee for College of Engineering's K12 Outreach Director (2001)

UNIVERSITY OF NEVADA LAS VEGAS

Mechanical Engineering Faculty Search Committee (1998)

Commencement Committee - acted as the Bearer for College of Engineering (1997-2000)

High School Distance Ed Course - Developed lectures, developed lab experiments, co-authored lab manual, ordered materials/supplies, taught two 2-hour lectures, and taught three 3-hour labs – Course enrolled 20 high school students (1998)

Biomedical Engineering Program Committee – Organize curriculum, develop courses, etc. (1998-2000)

Biomedical Engineering Research Group – Meet with College of Science and University Medical Center faculty, present research topics, attend seminars, etc. (1998-2000)

Washoe County College Fair - represented Electrical & Computer Engineering Dept. and Computer Science Dept. at 2-day college recruitment fair in Reno, NV (1997-1999)

Nevada Science & Technology Day – sponsored and hosted Saturday sessions with student hands-on laboratories (1997-2000)

College of Engineering Scout Explorer's Post - Attend monthly scout meetings, conduct lab exercises with scouts (1997-1999)

Nevada Regional Science Bowl (Sponsored by DOE) - served as technical judge (1997-1999)

DEPARTMENT SERVICE

MISSISSIPPI STATE UNIVERSITY

Chair, Graduate Studies Committee (2007-2008, member 2003-2008)

Committee member, Tenure and Promotion Committee (2003-2008)

Committee member, Digital Signal Processing Committee (2000-2008)

Committee member, Space Committee (2003-2005)

Committee member, Awards Committee (2004-2006)

Committee member (elected), Department Head Search Committee (2002-2003)

Committee member, Undergraduate Curriculum Committee (2000-2003)

Committee member, Faculty Search Committee (2000-2002)

IEEE Southeastern Conference (SECON) Student Design Competition - Faculty Advisor for MSU Team for 2002 and 2004 competitions. For both the 2002 and 2004 teams, I met weekly with the design team for 1 calendar year to advise them on project development, hardware and

software development and testing, documentation, and preparations for competition. In 2004, I drove the student team to Greensboro, North Carolina so they could participate in the competition – the MSU team placed 7th out of 33 teams. In 2002, I drove the student team to Clemson, South Carolina, so they come participate in the competition – the MSU team placed 5th out of 27 teams.

UNIVERSITY OF NEVADA LAS VEGAS

Student Advising - serve as student advisor - upkeep student folders, approve of student course schedules, student financial-aid forms, recommendation letters, etc. (1996-2000)

Faculty Search Committee – searched for 5 positions (1997-2000)

EE Curriculum Committee – introduce "tracks" to curriculum, renumber departmental courses, prepare ABET accreditation documents, etc. (1996-2000)

Ph.D. Qualifying Examination Committee - provided and graded exam questions for signal processing, computer engineering, and communications portions of exams (1997-2000)

Ph.D. Comprehensive Examination Committee - Provided and graded exam questions for communications and computer engineering portions of exam, monitored exam (1997-2000)

Tau Beta Pi Departmental Advisor - Assist in member selection and induction ceremonies (1997-2000)

Strategic Planning Committee – author departmental strategic planning document (1996-1998)

Orientation, represent department at Freshman Orientation (1998)

SELECTED COMMUNITY SERVICE

Cub Scout Pack 45, assist with den and pack activities including camping trips, pinewood derby, blue & gold banquet, etc (2012-2017)

Starkville Church of Christ, teach children's bible classes, have taught on average 40 classes/year (2001-2011, 2014-present)

Sunnybrook Home for Children, provide financial and personal assistance (2001-2005, 2009-2017)

Boy Scout Troop – Assisted local Boy Scout Troop members to obtain Bicycle Merit Badge by attending rides and loaning bicycles for use, including a tandem bicycle for use by blind troop members (2003, 2008)

Junior Auxiliary of Starkville, Mississippi, conduct service projects for the children of Oktibbeha County, Mississippi (2004-2007)

J.W. BRUCE, Ph.D.

[redacted]

Education Summary

2000 UNIVERSITY OF NEVADA LAS VEGAS
Doctor of Philosophy in Engineering, Electrical Engineering

1993 GEORGIA INSTITUTE OF TECHNOLOGY
Master of Science in Electrical Engineering

1991 UNIVERSITY OF ALABAMA HUNTSVILLE
Bachelor of Science in Engineering, Electrical Engineering

Professional Experience Summary

2000– MISSISSIPPI STATE UNIVERSITY
Department of Electrical & Computer Engineering
Assistant Professor, Associate Professor

1996-2000 UNIVERSITY OF NEVADA LAS VEGAS
Department of Electrical & Computer Engineering
Graduate Teaching Assistant, Graduate Research Assistant, Instructor

1996-2000 UNIVERSITY OF NEVADA LAS VEGAS
Department of Electrical & Computer Engineering
Graduate Teaching Assistant, Graduate Research Assistant, Instructor

1995-1996 INTERGRAPH CORPORATION
Intergraph Computer Systems, Workstation 3D Graphics Group
Senior Computer Engineer

1994-1995 MEVATEC INC.
Space Science Engineering Support
Staff Engineer

1994-1996 DIACOUSTICS, INC.
A multimedia software company start-up
Vice-President

1991-1993 GEORGIA INSTITUTE OF TECHNOLOGY
Department of Electrical & Computer Engineering
Graduate Teaching Assistant, Graduate Research Assistant, Instructor

1989-1991 SCIENCE APPLICATION INTERNATIONAL CORPORATION (SAIC)
Systems Analyst

Academic Activity Details

2015– Engineering Education working group
Founding Graduate Coordinator, Ph.D. in Engineering Education
Bagley College of Engineering, Mississippi State University

Long-standing member of predecessor groups before the formal founding of the Mississippi State University Engineering Education working group in 2015. Working group is composed of faculty from the Bagley College of Engineering, College of Education, and the College of Arts & Science. Working group collaborations have resulted in more than 50 publications and externally-funded research awards of nearly $2.5 million in engineering education since its inception.

Developed (with two other BCoE faculty) the requirements for Ph.D. in Engineering Education. Authored degree proposals and coordinated supporting partnerships of existing programs and faculty in the Bagley College of Engineering, College of Education, and the College of Arts & Science. Three Ph.D. students are already working toward degree requirements. Degree approved for official enrollment starting Fall 2018. Appointed founding graduate coordinator for the Ph.D. in Engineering Education program overseeing program admission, program of study approvals, promotion to Ph.D. candidacy, degree completion requirement audits, dissertation approvals, and graduate faculty status appointments.

Recent engineering education research efforts have been investigating efficacy of authentic, team-based experiential learning environments for design education. Implemented a team-effort progressive design that, in addition to providing the technical embedded systems knowledge, develops team and communication skills in situations emulative of industry. Student effort and comprehension were measured via proven software engineering IEEE standards. Student abilities were found to be equal or improved compared to more traditional instructional approaches and student satisfaction was markedly higher due to the perceived relevance of the work and the processes used.

2009– Electrical & Computer Engineering Undergraduate Programs Chair
Department of Electrical & Computer Engineering, Mississippi State University

Responsible for "all things undergraduate" for BSEE and BSCpE programs. Search committee chair for hiring professional advising staff; oversight of professional advising staff training on program and curricular issues. Chair of the ECE undergraduate committee which approves course content, prerequisites, textbooks, and learning outcomes for core/required degree program courses. Designated approval authority on degree petitions and degree variances, approving course substitutions and transfer courses, and compliance with university academic policy for the BSEE and BSCpE programs. Liaison between BSEE and BSCpE programs and ECE advisory board, program constituent employers, student leaders, and the ECE faculty.

Oversaw creation of the first-ever academic degree programs in engineering on the

Mississippi Gulf Coast. The program is hosted at Mississippi Gulf Coast Community College in Gautier, and leads to a Mississippi State University BSEE degree. Students reside on the Mississippi Gulf Coast for the entire program. Created facilities plan, budgets, and coordinated with MSU and MGCCC administrators for program founding student cohort in Fall 2015. Hired program academic advisor to schedule program courses, advise students, recruit new students, and monitor student retention at coast campus. Directed search to hire two resident Coast faculty members to teach courses, outfit and erect course laboratories, and perform student assessment. On-going academic administration of the "Electrical Engineering on the Coast" program. Enrollment has grown from an initial cohort of seven students to 30 students in Fall 2017.

Current research efforts look into the effective use of program concept maps to identify efficient program of study organization to increase perceived student relevance and increase just-in-time instruction. Minimizing delay between concept introduction and practical application increases student knowledge retention and internalization. Related research investigates use of program knowledge concept maps and ABET course learning objectives assessment as it relates to student persistence, retention, graduation rates and potential uses as a predictive tool for identifying at-risk students. It is hoped that diagnostic quantitative data from a student outcomes attainment assessment can be used to generate directives for corrective action.

2009– ECE First-Year Experience Director
Department of Electrical & Computer Engineering, Mississippi State University

Developed mentor program to improve experience for "first-year" (freshmen and transfer) BSEE and BSCpE students. Selection of and direct activities of six upperclassmen mentors as they interact with first-year ECE students in classroom and extracurricular activities. Mentors also coordinate department-wide social events and E-week events for the Department of Electrical & Computer Engineering. Created an honors section of the ECE first-year experience created to provide open-ended project wherein students adapt toys for children with learning disabilities. Toy adaption adds cognitively- and physically-accessible interfaces to activate toddler toys without compromising the toy's original functionality. The toy adaptation program done in conjunction with MSU collaborators and Ohio State University, and is the focus of a pending NSF research proposal.

Under my direction, enrollment in ECE first-year experience program has increased from 120 in the 2009-2010 academic year to 185 in academic year 2017-2018.

Currently developing textbook for a first-year electrical and computer engineering course focused on engineering design and project management. First-year design experience will focus on socially relevant engineering, the design process, technical communications, engineering ethics, and required success skills needed by first-year engineering students.

First-year engineering education research activities center around an investigation of perception among first-year engineering students of the ECE profession and aspirational job responsibilities and their relationship to persistence, retention, and graduation rate.

2008– Electrical & Computer Engineering Accreditation Coordinator
Department of Electrical & Computer Engineering, Mississippi State University

ABET program evaluator since 2008 for engineering programs that include "electrical," "electronic(s)," "computer," or similar modifiers in their titles.

Lead for ABET and Southern Association of Colleges and Schools (SACS) program accreditation for BSEE and BSCpE degree programs. Architect of assessment and continuous improvement process for the BSEE and BSCpE programs in use since 2008. Responsible for data management for course and program outcomes assessment and student outcomes attainment. Directed assessment and continuous improvement activities for BSEE and BSCpE involving more than 50 courses taught by 30+ faculty members. Combined enrollment of the two program is approximately 500 students. Coordinated student outcomes assessment and evaluation with other BCoE programs for program service courses. Created assessment, evaluation, and continuous improvement processes for instruction of BSEE program located on the Mississippi Gulf Coast. Provided external evaluation of assessment, continuous improvement processes, and ABET self-study reports for several BCoE degree programs. Frequent speaker at BCoE accreditation coordinator seminars. Authored BSEE and BSCpE self-study reports and served as main program contact for ABET site visits in 2011 and 2017. In the most recent ABET site visit, no shortcomings were cited in either program.

2000– Assistant Professor, Associate Professor
Department of Electrical & Computer Engineering, Mississippi State University

Developed and taught courses in ECE from first-year to Ph.D.-level. Investigator, both sole-PI and research team, on more than $10M in externally funded research. Served on numerous department-, college- and university-level committees. Authored textbook on microprocessors and embedded systems that was adopted by universities throughout the US, Canada, and the world. Text is currently in its second edition with the third edition planning in progress.

Undergraduate and Graduate Courses Taught:

- Introduction to Electrical and Computer Engineering
- Electrical Engineering Systems
- Introduction to Electronic Circuits
- Intermediate Electronic Circuits
- Microprocessors
- Principles of VLSI Design
- Embedded Systems
- Advanced Microprocessors
- Consumer Electronics Design
- Mixed-Signal IC Design
- Wireless Sensor Networks
- Ad-hoc Mobile Sensor Networks

- Logic Design for Quantum Computing
- Detection and Avoidance for UAVs
- Characterization of NAS for UAS Operations

Current research and directing graduate students in

- wireless sensor networks – organization and networking for energy efficiency
- conservative-reversible logic families suitable for low-energy traditional and future quantum computing technologies
- unmanned aerial and space systems architectures including ground-stations, communication links and avionics
- avionics design for UAS sensing and collision, detection and avoidance, and
- next-generation airspace policy and regulation to allow safe operations of unmanned aerial vehicles with existing aircraft.

Directed more than thirty graduate students to degree completion. Served as committee member more than fifty Ph.D. and M.S. degree students.

Directed dozens of BSEE and BSCpE senior (capstone) design team projects

1996-2000 Graduate Research Assistant, Graduate Teaching Assistant, Instructor
Audio Engineering Society (AES) Graduate Fellow
Department of Electrical & Computer Engineering, University of Nevada Las Vegas

Conducted research in the design and analysis of low harmonic distortion dynamic element matching data converter architectures. Research includes determination of suitable metrics for comparison of dynamic element matching networks, design of efficient circuit implementations, determination of network's effects on data converter output and fabrication of several prototypes. Assisted research in neural networks, optical character recognition, and machine vision.

Developed efficient circuit implementation for dynamic element matching algorithms for use in multi-bit delta-sigma data converters. Obtained up to 30% reduction in hardware complexity and costs compared to the state-of-the-art. Developed analysis of dynamic element matching techniques for data converters to eliminate energy and harmonic distortion from low-cost ASIC components. Determined sufficient conditions to guarantee zero harmonic distortion using ordinary digital CMOS fabrication technology. Determined equivalence classes among existing dynamic element matching techniques and algorithms. Substantiated performance claims and improved on implementations of existing devices.

Taught several laboratory sections and a service course for non-majors. Directed senior design projects in data converter architectures. Authored laboratory manual for department wide use in Circuits laboratory courses. Guest lecturer for Advanced Analog IC Design course.

Courses Taught:

- Fundamentals of Electrical Engineering

- Circuits Laboratory
- Electronics Lab
- VLSI Design Lab

1995-1996 Adjunct Instructor
Dept. of Electrical & Computer Engineering, University of Alabama Huntsville

Taught digital signal processing laboratory and Capstone senior design course on real-time DSP systems using embedded processors.

Courses Taught:

- Digital Signal Processing Laboratory
- Senior Design: Real-time DSP Systems

1991-1993 Research Assistant
Dept. of Electrical & Computer Engineering, Georgia Institute of Technology

Conducted research in the enhancement of digital speech signals acquired in noisy rotor-craft cockpit environments. Enhancement was optimized for subsequent processing by speech recognition systems. Analyzed inverse synthetic aperture radar imaging systems in GTRI's Modeling and Analysis Laboratory.

Taught undergraduate circuits, electronics and digital design course for non-majors.

Courses Taught:

- Fundamentals of Electrical Engineering

1988-1990 Undergraduate Research Assistant
Dept. of Electrical & Computer Engineering, University of Alabama Huntsville

Assisted in design of space plasma measurement instrument at the NASA's MSFC Space Science.

Industrial Activity Details

1995-1996 Senior Computer Engineer, Intergraph Corp., Huntsville, AL.

Designed embedded systems firmware and device drivers in Intergraph's Workstation 3D Graphics Group (subsequently purchased by *3DLabs* and now a division of *nvidia*). While working in this design group, Dr. Bruce was a team member that created the first product and the foundation of the *Wildcat* 3D graphics technology. Developed software device driver support for the first OpenGL graphics accelerator for Microsoft Windows NT. This graphics integrated circuits included embedded graphics processor cores, dedicated hardware texture mapping, 2+ megapixel resolution, and support for multiple screens. Following this work, Dr. Bruce was the principal device driver and firmware designer for the sequencer processor embedded subsystem on the world's first OpenGL geometry accelerator for Microsoft Windows NT.

This seven MIMD processor PCI card allowed the Wildcat products to deliver performance of over 1 million filled 3D triangles per second – an industry-first and a significant achievement at the time. Design team member that improved the *Wildcat* products to include industry-first 32-bit Z-buffers for OpenGL and the Microsoft Windows platform.

1994-1996 Vice-President, DiAcoustics, Inc., Huntsville, AL.
Vice-president of the multimedia software start-up company, DiAcoustics. The company's first product, *MIDI Renderer*, was a software-only music synthesis package utilizing frequency modulation, additive synthesis, ADSR wavetable, non-homogeneous multisampling, synthesis-by-analysis and physical modeling. *MIDI Renderer* replaced several embedded multimedia processors in PCs with low-cost software. *MIDI Renderer* provided multimedia functions not available any other way to many laptops of the day. *MIDI Renderer* included support for the MIDI command set, multiple tuning systems, and easy end-user customization. The software provided the highest polyphony available at the time and was especially popular with video editors, television stations, television commercial production companies and music theorists. *MIDI Renderer* was featured in the international computer press and sold copies around the world. Was a key designer in the company's second product, *Drum Action*, one of the industry's first commercially available software-only real-time music synthesis systems for the Microsoft Windows environment.

1994-1995 Staff Engineer, Mevatec, Inc., Huntsville, AL.

Design architect for embedded systems for data acquisition and experiment control for fluid diffusion and crystallography research that flew on the Space Shuttle's "glovebox" experiment platform. Provided engineering design and research support for NASA's Space Science Laboratory Microgravity Research Group. Developed quasi-steady, low frequency and broadband microgravity environment accelerometer signal data analysis package. Provided analysis and interpretation of shuttle microgravity telemetry data from embedded 3D accelerometers in response to daily shuttle activities and astronaut movement.

1989-1991 Systems Analyst, Science Application International Corp. (SAIC), Huntsville, AL.

Designed software for simulation of Strategic Defense Initiative (SDI) theater defense scenarios. Assisted in design of defense strategies and logistical support of space-based defense systems. Co-authored several classified documents detailing outcomes and analyses of space theater defense simulations.

Funded Projects[1]

2016 Development of a New First-year Engineering Experience for ECE: Phase II, Hearin Foundation and the Bagley College of Engineering, $3000. ($3000)

2015 UAS in the National Airspace: Surveillance Criticality, FAA, $298,000. ($98,000)

2015 Development of a New First-year Engineering Experience for ECE: Phase I, Hearin Foundation and the Bagley College of Engineering, $3000. ($3000)

[1]Year of project initiation and project total awarded. The institution's portion is given in parentheses.

2015	Mentoring in a First-Year Engineering Experience in ECE , Hearin Foundation and the Bagley College of Engineering, $50,000. ($50,000)
2012	Great Horned Owl UAV, IARPA with the Amtec Corp. $208,254. ($99,238)
2006	Magnolia Small Satellite Program, NASA Stennis Space Center and Surrey Satellite Technology, Ltd., $11,073,759 ($2,753,798)
2004	Sonification and Visualization of Scientific Data, US Army Corps of Engineers, $299,999. ($299,999)
2004	Development of an Undergraduate Embedded Systems Laboratory, MSU Academic Affairs, $3000. ($3000)
2003	Embedded systems using high-speed microcontrollers. Dallas Semiconductor and Ubicom Semiconductor, $5000. ($5000)
2002	Next-generation white goods appliances. Viking Range Corp., $3000 ($3000)
2002	Research for the Electric Ship Research and Development Consortium, Florida State University/Office of Naval Research, $8,683,057. ($8,683,057)
2002	Efficient Direct Digital Frequency Synthesis using Nonlinear D/A Conversion, Intel Corporation Research Laboratories $2000. ($2000)
2000	Assessment of Dedicated Computing Remote Sensing Hardware, NASA Stennis Space Center, $86,545. ($44,000)
2000	High performance real-time embedded systems using "super" Harvard architecture DSPs, Analog Devices, $2000. ($2000)
1999	A novel dynamic element matching algorithm for data converters, HRL (Hughes/Raytheon) Laboratories, $15,000. ($15,000)
1999	Dynamic element matching techniques for analog-to-digital and digital-to-analog converters, Conexant Systems (formerly Rockwell Semiconductor), $20,000. ($20,000)
1999	Dynamic element matching techniques for analog-to-digital and digital-to-analog converters, State of Nevada Applied Research Initiative Program, $17,000. ($17,000)

Publications

- J.W. Bruce and R.A. Taylor, "Using Information Gap Learning Techniques in Embedded Systems Design Education," in Proceedings of the American Society for Engineering Education (ASEE) Annual Conference & Exposition, June 2017. *Nominated for Best Paper in the ASEE Computers in Education Division.*
- J.W. Bruce and J. Corn, "Clustering Algorithm for Improved Network Lifetime of Mobile Wireless Sensor Networks,", International Workshop on Wireless Sensor, Actuator and Robot Networks, International Conference on Computing, Networking and Communications, pp. 1063-1067, Jan. 2017.

- B. A. Jones, R. B. Reese, and J.W. Bruce, *Microcontrollers: From Assembly Language to C Using the dsPIC/PIC24 Family 2/e*. Boston: Cengage Learning, 2015.
- R. B. Reese, J.W. Bruce, and B. A. Jones, *Microcontrollers: From Assembly Language to C Using the PIC24 Family*. Boston: Cengage Learning, 2009.
- J.W. Bruce, "An approach for vertically integrated embedded systems design," in Proceedings of the American Society for Engineering Education (ASEE) Annual Conference & Exposition, June 2008.
- J.W. Bruce, "Embedded systems education via dissection," in Proceedings of the American Society for Engineering Education (ASEE) Annual Conference & Exposition, June 2007.
- J.W. Bruce, *Microprocessor Fundamentals: Assembly to C with the PIC18Fxx2*, "Data Conversion". Thomson-Delmar Learning/DaVinci Engineering Press, 2005.
- J.W. Bruce and N. T. Palmer, "Platform-independent sonification system for visualization," in Proc. International Conference on Auditory Display, July 2005.
- J.W. Bruce and L. M. Bruce, "This town ain't big enough for the both of us: Two engineering educator careers, one department," in Proceedings of the American Society for Engineering Education (ASEE) Annual Conference & Exposition, June 2005.
- J.W. Bruce and L. M. Bruce, "Maximizing your productivity as a junior faculty member: Being effective in the classroom," in Proceedings of the American Society for Engineering Education (ASEE) Annual Conference & Exposition, June 2004.
- L. M. Bruce and J.W. Bruce, "Maximizing your productivity as a junior faculty member: Balancing research, teaching, and service," in Proceedings of the American Society for Engineering Education (ASEE) Annual Conference & Exposition, June 2004.
- J.W. Bruce and J.W. Goulder, "A first look at an internet-enabled embedded systems design course," in Proceedings of the American Society for Engineering Education (ASEE) Annual Conference & Exposition, June 2005.
- J.W. Bruce, "Active and cooperative learning in a VLSI design course: Lessons from the trenches," in Proc. American Society for Engineering Education Southeast Meeting, April 2005.
- J.W. Bruce, "Design methodology suitable for team-based embedded systems education," ASEE J. Computers in Education, vol. 14, pp. 41–54, July 2004.
- J.W. Bruce, "Design inspections and software product metrics in an embedded systems design course," in Proceedings of the American Society for Engineering Education (ASEE) Annual Conference & Exposition, June 2004. *Nominated for "Best Paper" among the 1400+ published papers at American Society of Engineering Education (ASEE) 2004 National Meeting and Exposition.*
- J.W. Bruce and L. A. Hathcock, "Maintenance and monitoring object models for high-availability network appliances," IEEE Trans. Consumer Electronics, vol. 50, May 2004.

- J.W. Bruce, R. B. Reese, and J. C. Harden, "Cooperative and progressive design experience for embedded systems," IEEE Trans. Education, vol. 47, pp. 83–92, Feb. 2004. *Most Outstanding Engineering Instructional Paper Award, Mississippi State University Bagley College of Engineering*
- J.W. Bruce, M. A. Gray, and R. F. Follett, "Personal digital assistant (pda) based i2c bus analysis," IEEE Trans. Consumer Electronics, vol. 49, pp. 1482–1487, Nov. 2003.
- J.W. Bruce, "Design methodology suitable for team-based embedded systems education," in Proceedings of the American Society for Engineering Education (ASEE) Annual Conference & Exposition, June 2003.
- J.W. Bruce, J. E. Creekmore, and B. J. Blalock, "Adaptive design method for efficient direct digital synthesis," in Proc. IEEE Midwest Symp. on Circuits and Systems, pp. 545–548, August 2002.
- J.W. Bruce and J. A. Bell, "CMOS current mode interpolating flash analog to digital converter," in Proc. IEEE Midwest Symp. on Circuits and Systems, pp. 363–366, August 2002.
- J.W. Bruce, M. A. Thornton, L. Shivakumaraiah, P. Kokate, and X. Li, "Efficient adder circuits based on a conservative reversible logic gate," in Proc. IEEE International Symp. on VLSI, pp. 83–88, April 2002.
- J.W. Bruce, "Nyquist-rate digital to analog converter architectures," IEEE Potentials, vol. 20, pp. 24–28, August 2001.
- J.W. Bruce, "Nyquist-rate analog to digital converter architectures," IEEE Potentials, vol. 17, no. 5, pp. 36–39, 1999.
- J. E. Creekmore, S. R. Porter, J.W. Bruce, and B. J. Blalock, "Direct digital frequency synthesis using nonlinear digital-to-analog conversion," in Proc. IEEE Midwest Symp. on Circuits and Systems, pp. 897–900, August 2001.
- J.W. Bruce, B. J. Blalock, J. A. Bell, and P. A. Stubberud, "CMOS current mode flash analog to digital converter," in Proc. IEEE Midwest Symp. on Circuits and Systems, pp. 272–275, August 2001.
- J.W. Bruce, B. Steadman, and P. A. Stubberud, "Generalized cube-based dynamic element matching algorithms for digital-to-analogue converters," IEE Electronics Letters, vol. 37, pp. 485–487, April 2001.
- P. A. Stubberud and J.W. Bruce, "An analysis of dynamic element matching flash digital to analog converters," IEEE Trans. Circuits and Systems II: Analog and Digital Signal Proc., vol. 48, pp. 205–213, Feb. 2001.
- J.W. Bruce and P. A. Stubberud, "A comparison of hardware efficient dynamic element matching networks for digital to analog converters," in Proc. IEEE Midwest Symp. on Circuits and Systems, pp. 672–675, August 2000.
- J.W. Bruce and P. A. Stubberud, "An analysis of harmonic distortion and integral nonlinearity in digital-to-analog converters," in Proc. IEEE Midwest Symp. on Circuits and Systems, pp. 470–473, August 1999.

- P. A. Stubberud and J.W. Bruce, "An analysis of stochastic dynamic element matching DACs," in Proc. IEEE Midwest Symp. on Circuits and Systems, pp. 481–484, August 1999.
- P. A. Stubberud and J.W. Bruce, "An analysis of dynamic element matching algorithms for analog to digital converters," in Proc. IEEE Midwest Symp. on Circuits and Systems, pp. 684–687, August 2000.
- P. A. Stubberud and J.W. Bruce, "A frequency analysis of stochastic dynamic element matching flash digital-to-analog converters," in Proc. International Conference on Systems Engineering XIV, pp. 13–18, August 1999.
- J.W. Bruce and P. A. Stubberud, "Exposing undergraduates to collaborative engineering design teams," in Proc. American Society for Engineering Education Pacific Southwest Meeting, pp. 79–86, March 1999.
- J.W. Bruce, P. A. Stubberud, and A. Iyer, "Range estimation and object identification with a single camera machine vision system," in Proc. International Conference on Systems Engineering XIII, pp. 253–259, Sept. 1999.
- J.W. Bruce, "Circuit switching topologies for dynamic element matching data converters," in Proc. Convention of the AES, p. 4773, Sept. 1998.
- J.W. Bruce and P. A. Stubberud, "Generalized cube networks for dynamic element matching in digital-to-analog converters," in Proc. IEEE Midwest Symp. on Circuits and Systems, pp. 522–525, August 1998.
- P. A. Stubberud, J.W. Bruce, and B. Steadman, "A DAC architecture with a hardware efficient dynamic element matching network," in Proc. International Conference on Mixed-signal IC Design and Applications, pp. 9–12, August 1998.
- P. A. Stubberud and J.W. Bruce, "An LMS algorithm for training single layer globally recursive neural networks," in Proc. IEEE International Conf. Neural Networks, pp. 2214–2217, May 1998.
- L. M. Bruce, R. Adhami, and J.W. Bruce, "Appropriate scales when using wavelets for feature extraction," in Proc. Artificial Neural Networks in Engineering, pp. 507–512, Nov. 1996.
- L. M. Bruce, R. Adhami, and J.W. Bruce, "Wavelets for shape recognition with applications to mammography," in Proc. Artificial Neural Networks in Engineering, pp. 653–658, Nov. 1996.

Honors and Awards

2017 "Best Paper in Computers in Education Division" Nomination, American Society of Engineering Education (ASEE) National Meeting and Exposition, "Using Information Gap Learning Techniques in Embedded Systems Design Education".

2015 Wood Badge, Boy Scouts of America, Pushmataha Area Council S1-691-15

2003-present Senior Member, Institute of Electrical and Electronics Engineers (IEEE).

2004 "Best Paper" Nomination, American Society of Engineering Education (ASEE) National Meeting and Exposition, "Design Inspections and Software Product Metrics in an Embedded Systems Design Course". Nominated for "Best Paper" out of 1400+ submissions

2004 John A. Curtis Lecture Award for Best Paper Presentation, ASEE National Meeting and Exposition, "Design Inspections and Software Product Metrics in an Embedded Systems Design Course".

2004 Most Outstanding Engineering Instructional Paper Award, Mississippi State University Bagley College of Engineering, IEEE J. Education, "Cooperative and progressive design experience for embedded systems".

2003 James W. Bagley College of Engineering Outstanding Engineering Educator Award

2003 NSF "Engineering" Engineering Education Workshop, NSF Project Catalyst. Selected as one of eight ECE professors nationwide to attend weeklong workshop on modern techniques for engineering education hosted by NSF and Project Catalyst at Bucknell University.

2002 Outstanding Engineering Educator Award, Mississippi State University Bagley College of Engineering .

2002 Intel Research Award, Intel Research Laboratories.
Guided undergraduate research of BSCpE senior Jonathan Creekmore earning him Intel Research Laboratories Research Fellowship – only 17 awards nationwide. Research into design of a direct digital frequency synthesizer using nonlinear digital-to-analog conversion. Upon conclusion, Intel Fellows' projects were by Director of Intel Research Labs, Director of Intel Corporate Technology Division, Sr. Director of Research at Intel Labs-Berkeley, Tech. Director of Intel Microprocessor Research, Research Director of Intel Microprocessor Research, Director of Intel Microprocessor Architecture Research, and Program Manager of Pentium4 Processor Development. Project was awarded 3rd place.

Tau Beta Pi

Eta Kappa Nu

Upsilon Pi Epsilon

Service – Professional and University

2016– Bagley College of Engineering Committee on Courses and Curriculum

2014-2015 IEEE Committee on Education and Accreditation Activities

2014 Faculty Delegate, Tau Beta Pi National Convention

2009– ECE Undergraduate Programs Chair

2008– ABET Program Evaluator

2008– ECE Accreditation Coordinator

2008-2009	Past Division Chair, ASEE New Engineering Educators Division
2007-2008	Division Chair, ASEE New Engineering Educators Division
2007–	ECE Undergraduate Curriculum Committee
2006-2007	Technical Chair, ASEE New Engineering Educators Division
2005-2007	University Committee on Family Leave
2005-2006	Vice-Chair, ASEE New Engineering Educators Division
2005-2010	University Committee on the Evaluation of Teaching
2004–	Faculty advisor W5YD – Mississippi State University's Amateur Radio Club
2004-2005	Chair, ASEE SouthEast Section, Computer Engineering Division
2004-2005	Treasurer, ASEE New Engineering Educators Division
2003-2004	Secretary, ASEE New Engineering Educators Division
2003-2004	Mentor to Society of Scholar inductee Jay Stenmark
2002–	Chief faculty advisor Tau Beta Pi Mississippi Alpha chapter
2002-2003	BSCpE Curriculum, aka "Computing" Committee
2002-2003	MSMS Research Scholar adviser
2002	Faculty Delegate, Tau Beta Pi National Convention
2005-2006	ECE Faculty Search Committee, Chair
2001-2002	Undergraduate Committee on FE Exam Performance
2000-2005	ECE Undergraduate Curriculum Committee
2001-2002	Presidential Endowed Scholar Mentor
2001-2003	CSEM Scholar Adviser
1998-2001	Associate Editor, *IEEE Potentials*
Reviewer	ASEE Annual Meeting ASEE Journal of Computers in Education IEEE Int'l Symposium on Circuits and Systems IEEE Midwest Symposium on Circuits and Systems IEEE Trans. Circuits and Systems IEEE Trans. Consumer Electronics IEEE Trans. Education McGraw-Hill Cengage Prentice-Hall Pearson Educational Publishing Springer-Verlag

Agenda Item Summary

Date: June 26, 2018

Division: Planning & Finance

Agenda Item: Policy 205 (Faculty Tenure)

☐ **Review** ☒ **Action** ☐ **No action required**

PRESENTER(S): Provost Bruce

PURPOSE & KEY POINTS:

Pursuant to Tennessee Code Annotated Section 49-8-301, the Board is responsible for adopting a tenure policy for faculty. The policy describes the process by which a faculty member acquires tenure and the process by which a faculty member's tenure is relinquished, revoked, or otherwise removed.

Tennessee Technological University
Policy No. 205

Faculty Tenure

Effective: June 26, 2018

Policy No.: 205
Policy Name: Faculty Tenure
Date Revised:

I. Purpose

The concept of tenure and the tenure process is an essential component in building and maintaining the highest quality faculty at any university. Faculty quality is built, monitored, and maintained through the appraisal, by competent faculty and administrative officers, of each candidate for tenure. In addition, tenure at Tennessee Technological University provides certain full-time faculty with the assurance of continued employment during the academic year until either retirement or dismissal for adequate cause, financial exigency, or curricular reasons, as discussed herein.

II. Review

This policy will be reviewed every four years or whenever circumstances require review, whichever is earlier, by the Provost, with recommendations for revision reviewed by the Faculty Senate and approved by the Academic Council, Administrative Council, University Assembly, and the Board of Trustees.

III. Scope

The Faculty Tenure Policy governs all aspects of the tenure process and tenure rights and responsibilities for tenured and tenure-track faculty at Tennessee Tech. This policy is only applicable to those full-time faculty members that either hold tenure or are on a tenure-track appointment.

IV. Definitions

A. Academic Appointment -- a personnel status (as distinct from an assignment of responsibilities) in an academic department/unit pursuant to which professional services in the areas of teaching, research/scholarship/creative activity, and service/outreach are retained by Tennessee Tech from a faculty member. Academic appointments shall be made with academic rank, and may be temporary, tenure-track, or with tenure (see Faculty Appointments, Policy 204).

B. Academic Department/Unit -- an academic organizational unit (e.g., a department or division) or program, including the Library, within Tennessee Tech, generally devoted to the pursuit of a specific discipline, in which a faculty member holds academic rank.

C. Academic Rank -- an element of faculty status limited to individuals who meet the minimum criteria that distinguish between academic ranks as established in Policy 206 – Faculty Promotion.

D. Academic Tenure -- a personnel status in an academic department/unit pursuant to which the academic or fiscal year appointments of full-time faculty who have been awarded tenure are continued at Tennessee Tech until the expiration or relinquishment of that status, subject to dismissal for adequate cause, financial exigency, or curricular reasons.

E. Adequate Cause -- a basis upon which a tenured faculty member may be dismissed or terminated. The specific grounds which constitute Adequate Cause are set forth in Section VII.G. herein.

F. Board – the Tennessee Tech Board of Trustees

G. Financial Exigency -- the formal declaration that Tennessee Tech faces an imminent financial crisis, that there is a current or projected absence of sufficient funds for the campus as a whole to maintain its current programs and activities at a level sufficient to fulfill its educational goals and priorities, and that the budget can only be balanced by extraordinary means, which include the termination of existing and continuing academic and non-academic appointments.

H. Faculty Member -- a member of the academic profession (including professional librarians) who holds academic rank as instructor, senior instructor, master instructor, assistant professor, associate professor, or professor, and whose responsibilities primarily include teaching, research/scholarship/creative activity, and service/outreach. Those who hold rank as Lecturer, Senior Lecturer, or Master Lecturer are those faculty whose responsibilities primarily involve teaching; however, in some cases, these faculty may have minor responsibilities in research/scholarship/creative activities and/or service/outreach. While also defined as faculty, lecturers are not eligible for tenure.

I. Peers/Departmental/Unit Peers -- in the context of this policy, the terms "peers" and "departmental/unit peers" refer to those regular, full-time tenured members of the departmental/unit faculty whose professional responsibilities to Tennessee Tech lie in the areas of teaching, research/scholarship/creative activity, and service/outreach. The terms do not refer to those whose primary responsibilities are administrative, such as departmental/unit chairpersons, directors of Centers of Excellence, assistant and associate deans, deans, assistant and associate vice presidents, vice presidents, the President, and any others in similar situations. No evaluation and/or recommendation shall be submitted by peers (either within or without the department/unit) who are members of a faculty member's immediate family. For purposes of this policy, “immediate family member” shall include spouse, domestic partner, cohabitant, child, stepchild, grandchild, parent, stepparent, mother-in-law, father-in-law, son-in-law, daughter-in-law, grandparent, great grandparent, brother, sister, half-brother, half-sister, stepsibling, brother-in-law, sister-in-law, aunt, uncle, niece, nephew, or first cousin (that is, a child of an aunt or uncle). Immediate family members will not be included in the plenum of peers when a tenure vote is taken (see Tenure Procedures and Forms List, section III,I).

J. President -- the President of Tennessee Technological University.

K. Probationary Employment -- a period of full-time professional employment by a faculty member for whom an appointment letter denotes a tenure-track appointment in which he/she does not have tenure and in which he/she is evaluated by Tennessee Tech for the purpose of determining his/her satisfaction of the criteria for a recommendation for

tenure. Probationary employment provides an opportunity for the individual to assess his/her commitment to Tennessee Tech and for Tennessee Tech to determine whether the individual meets its perception of quality and projected need.

L. University/this institution/Tennessee Tech -- Tennessee Technological University.

M. Curriculum Vitae – from Latin, meaning [the] course of [my] life. Similar to a resume but usually greater in scope and detail. Works and accomplishments attained or acquired prior to employment at Tennessee Tech should be dated appropriately.

N. Committee of the Whole – the complement of faculty in a department qualified to vote on a particular tenure consideration, by policy.

V. Consideration for Tenure

A. Tenure Overview

The awarding of tenure is recognition of the merit of a faculty member and of the assumption that he/she meets the long-term staffing needs of the academic department/unit and Tennessee Tech. Tenure is awarded only to those members of the faculty who have exhibited professional excellence and outstanding abilities sufficient to demonstrate that their future services and performances justify the degree of permanence afforded by academic tenure. The Board does not award tenure in non-faculty positions. Tenure appointments reside in the academic departments/units or programs, and are assurances of continued employment during the academic year subject to expiration, relinquishment, or termination of tenure as set forth in Section VII. herein. Recommendations for or against tenure should originate from the academic department/unit in which the faculty member is assigned and should include appropriate participation in the recommendation by tenured faculty in the academic department/unit as specified in this policy.

Tenure is awarded only by positive action of the Board, pursuant to the requirements and procedures of this policy. No faculty member shall acquire or be entitled to any interest in a tenure appointment at Tennessee Tech without approval pursuant to this policy. No person shall have any authority to make any representation concerning tenure to any faculty member. Failure to give timely notice of non-renewal of a contract shall not result in the acquisition of a tenure appointment, but shall result in the right of the faculty member to another year of service at Tennessee Tech, provided no tenure appeals remain outstanding due to lack of cooperation and/or appropriate action on the part of the candidate in completing the appeal process.

B. Tenure Process

The Tenure process is described in the Tenure Procedures and Forms List. University procedures shall ensure that peer committees have qualified privilege of academic confidentiality against disclosure of individual tenure votes unless there is evidence that casts doubt upon the integrity of the peer committee. This policy shall be interpreted in a manner consistent with the Tennessee Public Records Act, as recorded in T.C.A. Sections 10-7-101 et seq. or any other applicable law or legal requirement. The President must make the recommendation for tenure to the Board. In the event that the Board awards

tenure, the President shall furnish to the faculty member written confirmation of the award.

Annual evaluations conducted by the candidate's academic department/unit chair or program head are an important aspect of the criteria for tenure at this University. Types of evidence relevant to evaluating effectiveness and contributions in teaching, research/scholarship/creative activity, and service/outreach are identified in subsections VI.B.1-3.

C. Minimum Eligibility Requirements for Consideration for Academic Tenure
Academic tenure may be awarded only to full-time faculty members who: (a) hold academic rank as instructor, master instructor, senior instructor, assistant professor, associate professor, or professor and meet the minimum criteria for that rank as specified in Tennessee Tech Policy 206 – Faculty Promotion ; (b) have been employed pursuant to tenure-track appointments and have completed a probationary period of service, and/or as agreed upon in writing and signed by the appropriate academic officer; and (c) have been determined by Tennessee Tech to meet the criteria for recommendation for tenure and have been so recommended pursuant to this policy.

Faculty members whose appointment is supported in whole or in part by funds available to Tennessee Tech on a short-term basis, such as grants, contracts, or foundation sponsored projects, shall not be eligible for tenure unless continuing support for such members can be clearly identified in the regular budget of Tennessee Tech upon the recommendation of tenure to the Board.

No faculty member shall be eligible for tenure unless the employee's contract specifies his/her tenure-track status; provided that where a faculty member with tenure is appointed to an administrative position, he/she will retain tenure in a former faculty position only; and provided further that a faculty member otherwise eligible for tenure who also holds a non-faculty position may be awarded tenure in the faculty position only, subject to the requirements of this policy.

D. Probationary Employment
Faculty may be employed on annual tenure-track appointments for a period that may not exceed six years. The faculty member may apply for tenure at the beginning of the fifth, but no later than the beginning of the sixth year, except as provided in this policy or by law. A faculty member may apply for tenure only once. If the ultimate result of the tenure application is negative, there is no second chance.

A faculty member may receive a reduction of the probationary period in the following instances:

1. Reduction of the minimum probationary period may be made for a faculty member who shows exceptional accomplishment during the probationary period. Such requests for probationary period reductions are made upon recommendation of the departmental/unit peers to the department/unit chair, thence to the dean, the

provost, and the President. The application for tenure does not occur until after the President's approval.

2. Prior service credit may be applied toward the completion of the tenure probationary period, upon recommendation of the departmental/unit peers to the department/unit chair, thence to the dean, the provost, and the President of Tennessee Tech, thereby resulting in a reduction of the tenure probationary period. Credit toward tenure for prior service must be agreed upon by those mentioned above at the time of employment and must be included in the appointment letter. Faculty members who have received prior service credit may not subsequently request that the credit not be applied to their probationary period. For example, if a faculty member receives two years of prior service credit, he/she must apply for tenure at the beginning of the fourth year. A faculty member may apply for tenure only once. If the ultimate result of the tenure application is negative, there will be no second chance.

E. Calculating the Probationary Period

1. Credit toward completion of the probationary period may, upon the recommendation of the peers to the chair and thence to the dean, the provost, and the President of Tennessee Tech, be given for a maximum of two years of previous full-time service at other colleges, universities, or institutes, provided that the prior service is relevant to Tennessee Tech's own needs and criteria. Any credit for prior service that is recognized and agreed to must be confirmed in writing in the letter of appointment. Years of credit for prior service will be accepted in lieu of the final, not the initial, year(s) of the probationary period. See the Tenure-Track Schedule for important dates to be observed during the tenure-track years.

   Credit toward completion of the probationary period may, upon the recommendation of the peers to the chair and thence to the dean, the provost, and the President of Tennessee Tech, be given for a maximum of two years of previous full-time service in a temporary faculty appointment at Tennessee Tech (see Policy 204 - Faculty Appointments) or in an earlier tenure-track appointment at Tennessee Tech that has been followed by a break in service. Any credit for prior service in a temporary full-time faculty appointment at Tennessee Tech or in an earlier tenure-track appointment at Tennessee Tech that has been followed by a break in service must be recognized and confirmed in writing in the appointment letter to a tenure-track position.

   Only full-time continuous service at a university will be included in determining completion of the probationary period, except where a break in service was pursuant to an approved leave of absence.

A period of approved leave of absence shall be excluded from the requisite period for completion of the probationary period unless the President of Tennessee Tech

specified in writing before the leave of absence that it shall be included in the probationary period. Absent good cause, leaves of absence may not be granted retroactively. A faculty member may apply for a maximum of two extensions in one-year increments so long as the total probationary period does not exceed six years. Requests for a second extension follow the same procedure and are subject to the same considerations as the original extension.

2. Stopping the Tenure Clock
   A faculty member in a tenure-track appointment may request to "stop the tenure clock" during his/her probationary period when circumstances exist that interrupt the faculty member's normal progress toward building a case for tenure. Discretion for stopping the tenure clock rests on Tennessee Tech and requires supervisory approval (described in detail in the Section E.4. below). In such cases, the faculty member may request to "stop the tenure clock" for one year if he/she demonstrates circumstances that reasonably warrant such interruption. Reasons for approving a request to "stop the tenure clock" will typically be related to a personal or family situation requiring attention and commitment that consumes the time and energy normally addressed to faculty duties and professional development. Examples of events that may, but will not necessarily warrant stopping the clock include, but are not limited to, childbirth or adoption, care of dependents, medical conditions or obligations, physical disasters or disruptions, or similar circumstances that require a fundamental alteration of one's professional life. The intent of this policy is to serve the best interests of Tennessee Tech while providing neither preference to nor adverse effect on a faculty member's process of developing a case for tenure. Once approved, the "stop the tenure clock" year is not counted in the probationary period accrual.

3. Application for Leave of Absence and/or Tenure Clock Stoppage
   A faculty member seeking a leave of absence and/or a stoppage of the tenure clock must submit his/her request, in writing and addressing the considerations described above, to the department/unit chair for consideration and recommendation. The chair's recommendation is forwarded to the dean of the faculty member's college for consideration and recommendation; thence to the provost for consideration and recommendation; and finally, to the President for approval or denial. Within one month of receiving the request, the President will notify the faculty member, in writing, of the decision to approve or deny such exceptions. Requests for modification of the probationary period that are based on a faculty member's health or care for an immediate family member should also be submitted to Tennessee Tech's legal counsel for review.

4. Administrative Appointments Before Tenure
   A faculty member that is appointed to an administrative position prior to a tenure award remains eligible for tenure under two considerations: (1) the faculty member must qualify for tenure under academic department/unit, college, and University guidelines; and (2) the faculty member must maintain a significant involvement in academic pursuits including teaching,

research/scholarship/creative activity, and service/outreach. The time (or prorated portion of time) spent in the administrative position may be credited toward completion of the probationary period.

5. Departmental Transfer Before Tenure
   Where a faculty member is serving a probationary period in an academic department/unit and is subsequently transferred to another academic department/unit, the faculty member may elect, with the approval of the President, to begin a new probationary period on the date that the transfer occurs. If he/she does not so elect and confirm, in writing, to the President, time spent in the first appointment shall count toward establishing the minimum and maximum probationary period (see V.E above).

VI. Criteria to Be Considered in Tenure Recommendations

A. Overview
The relative importance of the criteria for the recommendation for tenure depends upon the mission and goals of Tennessee Tech, as well as the mission and goals of the specific academic department/unit in which a faculty member holds academic rank. The recommendation for tenure, subject to the requirements of this policy, shall devolve from the professional judgment of tenured peers in the academic department/unit in which the faculty member holds academic rank; the tenured peers representing that segment of the wider community of scholars best qualified to evaluate the faculty member in the performance of his/her professional services. Recommendation for tenure for librarians shall be based upon the performance of professional library responsibilities. The faculty member is expected to maintain minimum professional levels of performance with the weightings agreed upon in the Agreement on Responsibilities. Greater specificity is provided in Tenure Procedures and Forms List, which constitutes the procedures used to follow the tenure policy. At this point, it is sufficient to state emphatically (1) that the faculty member is assumed to have been trained professionally in an academic discipline, (2) that the faculty member is aware of the standards of excellence in his/her discipline, (3) that the faculty member's principal responsibility is to practice that discipline in pursuit of excellence to the limits of individual capacity and institutional duties, and (4) that the faculty member's success will be determined by the professional judgment of his/her tenured peers. This determination shall, consistent with this policy, establish the basis for the faculty member's recommendation for tenure.

B. Criteria
Criteria for tenure relate to Tennessee Tech's three traditional and often inter-related missions: teaching, research/scholarship/creative activities, and service/outreach.

1. Teaching
   Effective teaching is an essential qualification for tenure, and tenure should not be granted in the absence of clear evidence of a candidate’s teaching ability and potential for continued development. Excellence in teaching is a strong recommendation for both tenure and promotion though it cannot be considered in isolation from research/scholarship/creative activities and service/outreach. Each

academic department/unit must develop a procedure to ensure that information relative to a candidate's teaching is available at the time he/she is considered for tenure.

The teaching dossier should include, but is not limited to, evidence of teaching excellence as follows: ability to organize and present subject matter in a logical and meaningful way; ability to motivate and stimulate creativity, intellectual curiosity, and interest in writing and inquiry in undergraduates and/or graduate students; and evidence of peer evaluation. Documentation of teaching should routinely include: statement of teaching philosophy; course materials; student evaluations for every course evaluated during the probationary period; and evidence of supervision of student projects and other forms of student mentorship. A candidate for tenure may choose to include other types of evidence that support his/her application for tenure such as additional student input, student products, teaching recognition; teaching scholarship; peer input; evidence of professional development in teaching, evidence of disciplinary or interdisciplinary program or curricular development, alumni surveys and student exit interviews, and other evidence of excellence in teaching or mentoring, or both.

2. Research/Scholarship/Creative Activities
A candidate for tenure must present evidence of his/her research/scholarship/creative activities when he/she applies for tenure. Research/scholarship/creative activity includes those professional activities designed to discover, create, or disseminate greater knowledge, appreciation, or understanding of an academic discipline, including, but not limited to:

   a. Pure research: seeking new knowledge, investigating realms not covered by current understanding or challenging current understanding.
   b. Applied research: the application of known methods or theories to specific circumstances.
   c. Pedagogical research: the development of pedagogical techniques and the application in the classroom or laboratory that furthers the dissemination of knowledge.
   d. Artistic creativity and performance: the creation and exhibition of works of art or crafts, or the composition and/or performance of plays, music, etc.
   e. Faculty development: formal and informal activities primarily directed to maintain and enhance faculty research, scholarship, or creative capabilities or performance.

   The tenure dossier must include evidence of peer review of the candidate's record of research/scholarship by qualified peers. Such evidence should cite books, journal articles, monographs, creative activities, performances, or exhibitions that have undergone appropriate peer review. Research publications in refereed journals or media of similar quality are reliable indicators of research/scholarship ability. For creative activity, written reviews and evaluations by qualified peers, either in person or aided by other forms of reports, or both, are appropriate for

performances, compositions, and other artistic creations. Books published by reputable firms and articles in refereed journals, reviewed by recognized scholars, are more significant than those not subjected to such rigorous examination. In reviewing these materials, the tenure committee shall place a higher importance of the quality of the works rather than the quantity of such works.

The research/scholarship of teaching (pedagogical research) is a valid measure of research capability. It goes beyond doing a good job in the classroom. Faculty should organize, record, and document their efforts so colleagues may share their contributions to the art of teaching. Appropriate textbooks or educational articles in one's discipline and innovative contributions to teaching, if published or presented in a peer-reviewed forum, constitute scholarship of teaching.

3. Service/Outreach
   Service/outreach encompasses a faculty member's activities in one or more of the following three areas:
   a. The outreach or public service function is Tennessee Tech's outreach to the community and society, with major emphasis on the application of knowledge for the solution of societal problems. Outreach primarily involves sharing professional expertise and should directly support the goals and mission of Tennessee Tech. A vital component of Tennessee Tech's mission, public service must be performed at the same high levels of quality that characterize the teaching and research/scholarship/creative activities missions.

   b. University service refers to work other than teaching and research/scholarship/ creative activities done at the department/unit, college, or University level. A certain amount of such service is expected of every faculty member. University service includes, but is not limited to, serving on departmental/unit, college, and University committees. Some faculty members may accept more extensive citizenship functions, such as a leadership role in the Faculty Senate, membership on a specially appointed task force, service as advisor to a University-wide student organization, and membership on a University search committee.

   c. Professional service refers to the work done for organizations related to one's discipline or to the teaching profession generally. Service to the profession includes association leadership, journal editorships, article and grant proposal review, guest lecturing on other campuses, and other appropriate activities. More is required than organizational membership and attendance. Examples of significant service would be that done by an officer of a professional organization or a member of the editorial staff of a journal.

C. Assessment of Satisfactory Progress Toward Tenure
   As part of the annual evaluation of faculty on tenure-track appointments, the departmental chairperson, in consultation with the tenured members of the departmental faculty, shall assess whether or not the faculty member is making satisfactory progress

toward achieving tenure. Deadlines for this assessment vary according to the faculty member's years of service on tenure-track appointment and appear on the Tenure-Track Schedule in the Tennessee Tech Faculty Handbook.

To complete this assessment, the departmental chairperson shall notify each tenure-track faculty member of the deadline to compile and submit a dossier of information similar to that required by Form T3 (Tenure Procedures and Forms List), No letters of recommendation shall be included in the dossier. Once submitted, the dossier is available to departmental peers for review. By the identified Deadline for Tenure-Track Review, the departmental chairperson shall call a meeting of the departmental peers to discuss the tenure-track faculty member's qualifications. During this meeting, each peer will complete Form T15 (Tenure Procedures and Forms List), thereby conveying to the departmental chairperson her/his assessment of the faculty member's progress toward tenure. The chairperson of the department shall provide written communication of the results of his/her assessment to the faculty member. In the event the faculty member's performance is such as to justify non-renewal during the probationary period, the decision not to renew the appointment shall be made by the departmental chairperson in consultation with the tenured departmental peers and with the approval of the appropriate administrative officers in accordance with Section VII.A. below.

VII. Changes in Tenure/Tenure-Track Status

A. Non-Renewal of Probationary Tenure-Track
   1. When tenure-track appointments of faculty are not to be renewed for further service, the faculty member shall receive notice of his/her non-retention for the ensuing academic year as follows:
      a. No later than March 1 of the first academic year of service, if the appointment expires at the end of that year; or, if the appointment terminates during an academic year, at least three months in advance of its termination;

      b. No later than December 15 of the second academic year of service, if the appointment expires at the end of that year; or, if the appointment terminates during an academic year, at least six months in advance of its termination;

      c. No later than the close of the academic year preceding the third or subsequent year of service, if the appointment expires at the end of that year; or, if the appointment terminates during an academic year, at least twelve months in advance of its termination.

   The above stated dates are the latest dates of notice of non-renewal of faculty on tenure-track appointments. Notice of non-renewal shall be effective upon personal delivery of the notice to the faculty member, or upon the date the notice is mailed, by registered letter, to the faculty member at his/her current home address of record at Tennessee Tech.

Applicable dates for notice of non-renewal are based upon actual years of service at Tennessee Tech and are in no way affected by any credit for prior service. When a faculty member on a tenure-track appointment completes his/her probationary period, the President will recommend the faculty member for tenure or will notify the faculty member of non-renewal of the appointment during the spring term following application for such status. Notice of non-renewal should be given no later than the final day of the academic year. The faculty member's right in an instance where timely notice is not given is described in Section V. A. herein. When a tenure-track faculty member's probationary period has ended and the faculty member has not been awarded tenure, the faculty member may remain at Tennessee Tech one more academic year, but on a temporary appointment, not a tenure-track appointment.

2. Faculty members on tenure-track appointments shall not be terminated during the term of the annual appointment as stated in the employment contract except for reasons which would constitute adequate cause for the termination of tenured faculty.

3. The non-renewal or non-appointment of any faculty member on a tenure-track appointment does not necessarily carry an implication that his/her work or conduct has been unsatisfactory.

4. A tenure-track faculty member who is dissatisfied with the reasons given for the non-renewal of his/her appointment may appeal that decision through the Faculty Affairs Committee or through a committee specifically empowered by the President to hear such appeals. The Committee shall make a recommendation to the President, and the President's decision shall be final.

B. Transfer of Tenure

Tenured faculty may have their academic appointments transferred within the institution to accommodate the changing needs of Tennessee Tech. Before implementing any such transfer, the tenured faculty member and the academic department/unit in which his/her new academic appointment is to be located shall be consulted and informed of the reasons for the proposed transfer. The peers in the receiving academic department/unit shall vote to advise the President of the acceptability of the tenured faculty member under consideration for transfer. When a tenured faculty member is transferred to another academic department/unit other than that with which he/she was originally associated, the transfer will be made with tenure. In no instance may the faculty member be compelled to relinquish tenure as a condition for effecting the transfer.

Tenure-track faculty on probationary appointments may have their academic appointments transferred within the institution to accommodate the changing needs of Tennessee Tech. Before implementing any such transfer, the tenure-track faculty member and the academic department/unit in which his/her new academic appointment is to be located shall be consulted and informed of the reasons for the proposed transfer. The

tenure-track faculty member may request that a new probationary period begin at the time of the transfer. The tenured faculty members in the receiving academic department/unit shall vote to advise the President of the acceptability of the tenure-track faculty member being considered for transfer and whether to credit the tenure-track faculty member with the years of prior service completed in the previous academic department/unit.

For the transfer of either a tenured or a tenured-track faculty member from one academic department/unit to another, both the faculty member and the receiving academic department/unit shall be consulted concerning the transfer and, in the case of a tenure-track faculty member, concerning the probationary period required in the receiving academic department/unit. In either type of transfer, no tenure committee shall be formed and no dossier compiled. However, in the case of a tenure-track faculty member, the information compiled in the faculty member's former academic department/unit, including tenure-track reviews, shall be transferred to the receiving academic department/unit.

In cases involving transfers resulting from reorganizations of entire programs, academic departments/units, colleges, or schools, the President shall carry out procedures similar to those described in Section VII. F. Termination of Tenure for Curricular Reasons. In such terminations resulting from reorganization, the same principles apply as stated above, namely, all tenured faculty retain their tenured status, and both the faculty members and the receiving academic departments/units shall be consulted concerning the transfer.

C. Expiration of Tenure
Tenure status shall expire upon retirement of the faculty member. Consistent with federal or state law, tenure shall also expire upon the event of permanent physical or mental inability of a faculty member, as established by an appropriate medical authority, to continue to perform his/her assigned duties.

D. Relinquishment of Tenure
A faculty member shall relinquish or waive his/her right to tenure upon resignation from Tennessee Tech or upon failure to report for service at the designated date of the beginning of any academic term, which shall be deemed to be a resignation unless, in the opinion of the President, the faculty member has shown good cause for his/her failure to report. Where a tenured faculty member is transferred or reclassified to another academic department/unit by Tennessee Tech, the transfer or reassignment shall be with tenure. Tenure is not relinquished during approved leaves of absence or administrative assignments at this University. Tenure is relinquished during a period of an unapproved leave of absence.

E. Termination of Tenure for Reasons of Financial Exigency
A tenured faculty member may be terminated as a result of financial exigency at this University subject to Board declaration that such financial conditions exist. All personnel decisions that result from a declaration of financial exigency at this University will comply with Tennessee Tech Policy 648 - Financial Exigency.

F. Termination of Tenure for Curricular Reasons

The appointment of a tenured faculty member may be terminated (1) because an academic program is deleted from the curriculum or (2) because of substantial and continued reduction of student enrollment in a field. Each of these reasons for termination of tenure for curricular reasons must denote shifts in staffing needs that warrant greater reductions than those which are accommodated by transferring appointments from one academic department/unit to another to handle changing enrollment patterns. Before declaring that curricular reasons exist that warrant the termination of appointments of tenured faculty, determining where such terminations might be required, or initiating the procedures described below, the President shall ensure meaningful participation by the Faculty Senate in making these decisions and shall inform that body of all considerations that warrant the termination of tenured appointments for curricular reasons. The President shall work with the Faculty Senate in identifying specific curricular reasons, considering alternatives to termination, evaluating the long-term effect of shifting enrollment patterns of Tennessee Tech's curricula, mission, and strategic planning goals, and determining where such reductions in faculty might best be made so as to least seriously compromise the educational programs of Tennessee Tech. These decisions shall take into account the extraordinary nature of such conditions, as outlined above, and shall be based upon careful assessment of the impact of any proposed actions on the staffing requirements of the academic department/unit, as compared to overall patterns of faculty responsibilities in comparable academic departments/units within Tennessee Tech and in other institutions similar enough to warrant comparison.

The Faculty Senate shall have the opportunity of responding in writing to the President on all matters relating to any proposed termination of tenured appointments before the Procedures for Termination of Tenure for Curricular Reasons described below are initiated.

1. Upon determination by the President, after consultation with the Faculty Senate, that termination of the appointment of one or more tenured faculty members is warranted for curricular reasons and upon identification by the President, after consultation with the Faculty Senate, of the department(s)/unit(s) within which such terminations should be made, faculty reductions within an academic department/unit shall take place in the following order, unless the President demonstrates (preferably by means of past annual performance evaluations) that an exception should be made to reduce qualitative compromise of an educational program:

    a. Before a tenured faculty member is terminated, part-time faculty should not be renewed.

    b. Before a tenured faculty member is terminated, temporary faculty or tenure-track faculty in the probationary period should not be renewed.

    c. Among tenured faculty, those with lower rank should be terminated before those with higher rank.

d. Among tenured faculty with comparable rank, those with lower academic degrees should be terminated before those with appropriate higher academic degrees.

e. Among tenured faculty with comparable rank and comparable degrees, those with less seniority in rank should be terminated before those with greater seniority.

2. After identifying the specific faculty members to be terminated pursuant to the above parameters, the President shall furnish each faculty member to be terminated a written statement detailing the reasons for the termination. Those reasons shall address fully the curricular circumstances that warrant the termination and shall indicate the manner and the information upon which the decision was reached of which faculty members were to be terminated. The President's written statement shall also indicate that the faculty member has the opportunity to respond in writing stating any objections to the decision.

3. If the faculty member to be terminated indicates objections to the President's written statement(s) and requests a review, the Faculty Affairs Committee shall conduct that review. That committee shall conduct a hearing on each review requested. At such hearing, the Committee shall consider evidence, including but not limited to the following: the identification of the academic department/unit in which the reductions are required, the order of reductions within the academic department/unit, exceptions to the normal order of reductions, and the possibility of relocation within Tennessee Tech. At the conclusion of its review, the committee shall report its findings and recommendation to the President, who shall consider, but not be bound by, such findings and recommendations. In a reasonable amount of time, the President shall inform in writing the faculty member proposed for termination either that the decision for termination stands or that it has been altered.

4. The President's decision to terminate a tenured faculty member for curricular reasons is not subject to appeal.

5. When a tenured faculty member is terminated for curricular reasons, the position will not be filled by a new appointee with the same areas of specialization as the terminated faculty member within a period of three years unless the terminated faculty member has been offered, in writing, reappointment to the position at his/her previous rank and salary (with the addition of an appropriate increase which, in the opinion of the President, would constitute the raise(s) that would have been awarded during the period that he/she was not employed), and with tenure.

6. Upon determining that termination of one or more tenured faculty members is warranted for curricular reasons, the President shall base his/her decision about which faculty member(s) should be terminated upon his/her assessment as to what

action would least seriously compromise the educational programs of the academic department/unit. Termination for curricular reasons presumes a staffing pattern in an academic department/unit which cannot be warranted either by comparison with general load practices within Tennessee Tech or by comparison with faculty loads in comparable academic departments/units at similar universities. In that light, the President shall also, at his/her discretion, base his/her decision on a careful assessment of the impact of the curricular reason on staffing requirements in the academic department/unit as compared to overall patterns in Tennessee Tech and to comparable academic departments/units which, in his/her judgment, are in universities similar enough to warrant assessment.

7. Definitions: "Program is deleted from the curriculum" means that the Board takes formal action to terminate a degree major, concentration, or other curricular component, and that such termination eliminates or reduces the need for faculty qualified in that discipline or area of concentration. "Substantive and continued reduction of student enrollment in a field" means that over a period of at least three years, student enrollment in a field has decreased at a rate in considerable excess of that of Tennessee Tech as a whole and that such reduction has resulted in faculty-student ratios that, in the opinion of the President, cannot be warranted either by comparison with equivalent faculty load practices within Tennessee Tech or by comparison with faculty loads in comparable academic departments/units at similar universities which the President deems appropriate for comparison.

8. When a tenured faculty member is to be terminated for curricular reasons, the President will make every possible effort to relocate the tenured faculty member in another vacant position for which he/she is qualified. In instances where, in the opinion of the President, relocation within Tennessee Tech is a viable alternative, Tennessee Tech has an obligation to make significant effort to relocate the faculty member. The final decision on relocation is within the discretion of the President.

9. No decision shall be made to create, combine, dissolve, or otherwise reorganize academic departments/units, colleges, or schools of Tennessee Tech without prior discussion with the Academic or Administrative Council, whichever is appropriate, and the faculty members involved.

G. Termination for Adequate Cause

A faculty member with tenure may be terminated for adequate cause, which includes, but is not limited to, the following:

1. Incompetence or dishonesty in teaching or research.

2. Willful failure to perform the duties and responsibilities for which the faculty member was employed or refusal or continued failure to comply with the policies of the Board, Tennessee Tech, or his/her academic department/unit, or his/her willful failure to carry out specific assignments, when such policies or assignments are reasonable and non-discriminatory.

3. Conviction of a felony or a crime involving moral turpitude.

4. Improper use of narcotics or intoxicants, which substantially impairs the faculty member's fulfillment of his/her departmental/unit and University duties and responsibilities.

5. Capricious disregard of accepted standards of professional conduct.

6. Falsification of information on an employment application or other information concerning qualifications for a position.

7. Failure to maintain the level of professional excellence and ability demonstrated by other members of the faculty in the academic department/unit in which he/she holds academic appointment.

H. Process for Termination for Adequate Cause

Termination of a faculty member with tenure shall be subject to the following:

1. No termination shall be effective until steps 4 through 9 below are completed.

2. Suspensions pending termination shall be governed by the following:
   a. A faculty member may not be suspended pending completion of steps 4 through 9 unless it is determined by Tennessee Tech that the faculty member's presence poses a danger to persons or property, or a threat of destruction to the academic or operational processes of Tennessee Tech. Reassignment of responsibilities is not considered suspension; however, the faculty member must be reassigned responsibilities for which he/she is qualified.

   b. In any case of suspension, the faculty member shall be given an opportunity at the time of decision or immediately thereafter to contest the suspension; and, if there are disputed issues of fact or cause and effect, the faculty member shall be provided the opportunity for a hearing on the suspension as soon as possible at which time the faculty member may cross-examine his/her accuser, present witnesses on his/her behalf, and be represented by legal counsel. Thereafter, whether the suspension is upheld or revoked, the matter shall proceed pursuant to these procedures

3. Except for such simple announcements as may be required concerning the time of proceedings and similar matters, public statements and publicity about these proceedings by either the faculty member or administrative officers will be avoided as far as possible until the proceedings have been completed.

4. Upon a recommendation by the chief academic officer of Tennessee Tech to the President or upon a decision by the President that these procedures should be undertaken in consideration of the termination of a faculty member, the proposed termination shall be preceded by (a) discussion between the faculty member and appropriate administrative officers looking toward a mutual settlement and (b)

informal inquiry by the Faculty Affairs Committee which may, failing to effect an adjustment, determine whether in its opinion termination proceedings should be undertaken, without its opinion being binding upon the President.

5. If no mutually acceptable resolution is reached through step 4, the following steps shall be taken:
   a. The faculty member shall be provided with a written statement of the specific charges alleged by Tennessee Tech that constitute grounds for termination and a notice of hearing specifying the time, date, and place of the hearing. The statement and notice must be provided at least twenty days before the hearing. The faculty member shall respond to the charges in writing at least five days before the hearing. The faculty member may waive the hearing by execution of a written waiver. If the faculty member waives the hearing, but denies the charges against him/her or asserts that the charges do not support a finding of adequate cause, the hearing committee will evaluate all available evidence and rest its recommendation upon the evidence in the record.

   b. A hearing committee consisting of five tenured faculty or tenured faculty and administrators shall be appointed to hear the case and to determine if adequate cause for termination exists according to the procedure herein described. The President shall appoint two members of this committee and the President of the Faculty Senate shall appoint three members. The committee may not include any member of the Faculty Affairs Committee. Members deeming themselves disqualified for bias or interest shall remove themselves from the case, either at the request of a party or on their own initiative. Members of the committee shall not discuss the case outside committee deliberations and shall report any ex-parte communication pertaining to the hearing to the President who shall notify all parties of the communication.

6. The hearing committee shall elect a chairperson who shall direct the proceedings and rule on procedural matters, including the granting of reasonable extensions of time at the request of any party and upon the showing of good cause for the extension.

7. The chairperson of the hearing committee may at his/her discretion require a joint pre-hearing conference with the parties that may be held in person or by a conference telephone call. The purpose of the pre-hearing conference should include, but is not limited to, one or more of the following:
   a. To delineate the procedure for conduct of the hearing.

   b. To exchange witness lists, documentary evidence and affidavits.

   c. To define and clarify issues.

   d. To effect stipulations of fact. A written memorandum of the pre-hearing conference should be prepared and provided to each party.

8. A hearing shall be conducted by the hearing committee to determine whether adequate cause for termination of the faculty member exists. The hearing shall be conducted according to the procedures below:
   a. During the hearing, the faculty member will be permitted to have an academic advisor present and may be represented by legal counsel of his/her choice.

   b. A verbatim record of the hearing will be taken and a typewritten copy will be made available to the faculty member, upon request, at the faculty member's expense.

   c. The burden of proof that adequate cause exists rests with Tennessee Tech and shall be satisfied only by clear and convincing evidence in the record considered as a whole.

   d. The faculty member will be afforded an opportunity to obtain necessary witnesses and documentary or other evidence. The administration will cooperate with the committee in using its best efforts to secure witnesses and make available documentary and other evidence that is under its control.

   e. The faculty member and the administration will have the right to confront and cross-examine all witnesses. Where the witnesses cannot or will not appear, but the committee determines that the interests of justice require admission of their statements, the committee will identify the witnesses, disclose their statements and, if possible, provide for interrogatories. An affidavit may be submitted in lieu of the personal appearance of a witness if the party offering the affidavit has provided a copy to the opposing party at least ten days prior to the hearing and the opposing party has not objected to the admission of the affidavit in writing within seven days after delivery of the affidavit or if the committee chairperson determines that the admission of the affidavit is necessary to ensure a just and fair decision.

   f. In a hearing on charges of incompetence, the testimony shall include that of qualified faculty members from Tennessee Tech and other institutions of higher education.

   g. The hearing committee will be generally bound by rules of evidence but may admit any evidence which is of probative value in determining the issues involved. Every possible effort will be made to obtain the most reliable evidence available.

   h. The findings of fact and the report will be based solely on the hearing record.

   i. The President and the faculty member will be provided a copy of the written report. The committee's written report shall specify findings of fact and shall state whether the committee has determined that adequate cause for termination exists and, if so, the specific grounds for termination found. In

addition, the committee may recommend action less than termination. The report shall also specify any applicable policy the committee considered.

9. After consideration of the committee's report and the record, the President may in his/her discretion consult with the faculty member, the hearing committee, or others as necessary before reaching a final decision regarding termination. Following his/her review, the President shall notify the faculty member of his/her decision, which, if contrary to the committee's recommendation, shall be accompanied by a statement of the reasons.

VIII. Interpretation

The President or his/her designee has the final authority to interpret the terms of this policy.

IX. Citation of Authority for Policy

T.C.A. 49-8-301

X. Approved by:

Academic Council:	April 4, 2018
Administrative Council:	April 4, 2018
University Assembly:	April 18, 2018
Board of Trustees:	

in approval

Tennessee Technological University
Policy No. 205

Faculty Tenure

in approval

Effective: June 26, 2018

Policy No.: 205
Policy Name: Faculty Tenure
Date Revised:

I. Purpose

The concept of tenure and the tenure process is an essential component in building and maintaining the highest quality faculty at any university. Faculty quality is built, monitored, and maintained through the appraisal, by competent faculty and administrative officers, of each candidate for tenure. In addition, tenure at Tennessee Technological University provides certain full-time faculty with the assurance of continued employment during the academic year until either retirement or dismissal for adequate cause, financial exigency, or curricular reasons, as discussed herein.

II. Review

This policy will be reviewed every four years or whenever circumstances require review, whichever is earlier, by the Provost, with recommendations for revision reviewed by the Faculty Senate and approved by the Academic Council, Administrative Council, University Assembly, and the Board of Trustees.

III. Scope

The Faculty Tenure Policy governs all aspects of the tenure process and tenure rights and responsibilities for tenured and tenure-track faculty at Tennessee Tech. This policy is only applicable to those full-time faculty members that either hold tenure or are on a tenure-track appointment.

IV. Definitions

A. Academic Appointment -- a personnel status (as distinct from an assignment of responsibilities) in an academic department/unit pursuant to which professional services in the areas of teaching, research/scholarship/creative activity, and service/outreach are retained by Tennessee Tech from a faculty member. Academic appointments shall be made with academic rank, and may be temporary, tenure-track, or with tenure (see Faculty Appointments, Policy 204).

B. Academic Department/Unit -- an academic organizational unit (e.g., a department or division) or program, including the Library, within Tennessee Tech, generally devoted to the pursuit of a specific discipline, in which a faculty member holds academic rank.

C. Academic Rank -- an element of faculty status limited to individuals who meet the minimum criteria that distinguish between academic ranks as established in Policy 206 – Faculty Promotion.

D. Academic Tenure -- a personnel status in an academic department/unit pursuant to which the academic or fiscal year appointments of full-time faculty who have been awarded tenure are continued at Tennessee Tech until the expiration or relinquishment of that status, subject to dismissal for adequate cause, financial exigency, or curricular reasons.

E. Adequate Cause -- a basis upon which a tenured faculty member~~, either with academic tenure or a tenure-track appointment, prior to the end of the specified term of the appointment,~~ may be dismissed or terminated. The specific grounds which constitute Adequate Cause are set forth in Section VII.G. herein.

F. Board – the Tennessee Tech Board of Trustees

G. Financial Exigency -- the formal declaration that Tennessee Tech faces an imminent financial crisis, that there is a current or projected absence of sufficient funds for the campus as a whole to maintain its current programs and activities at a level sufficient to fulfill its educational goals and priorities, and that the budget can only be balanced by extraordinary means, which include the termination of existing and continuing academic and non-academic appointments.

H. Faculty Member -- a member of the academic profession (including professional librarians) who holds academic rank as instructor, senior instructor, master instructor, assistant professor, associate professor, or professor, and whose responsibilities primarily include teaching, research/scholarship/creative activity, and service/outreach. Those who hold rank as Lecturer, Senior Lecturer, or Master Lecturer are those faculty whose responsibilities primarily involve teaching; however, in some cases, these faculty may have minor responsibilities in research/scholarship/creative activities and/or service/outreach. While also defined as faculty, lecturers are not eligible for tenure.

I. Peers/Departmental/Unit Peers -- in the context of this policy, the terms "peers" and "departmental/unit peers" refer to those regular, full-time tenured members of the departmental/unit faculty whose professional responsibilities to Tennessee Tech lie in the areas of teaching, research/scholarship/creative activity, and service/outreach. The terms do not refer to those whose primary responsibilities are administrative, such as departmental/unit chairpersons, directors of Centers of Excellence, assistant and associate deans, deans, assistant and associate vice presidents, vice presidents, the President, and any others in similar situations. No evaluation and/or recommendation shall be submitted by peers (either within or without the department/unit) who are members of a faculty member's immediate family. For purposes of this policy, "immediate family member" shall include spouse, domestic partner, cohabitant, child, stepchild, grandchild, parent, stepparent, mother-in-law, father-in-law, son-in-law, daughter-in-law, grandparent, great grandparent, brother, sister, half-brother, half-sister, stepsibling, brother-in-law, sister-in-law, aunt, uncle, niece, nephew, or first cousin (that is, a child of an aunt or uncle). Immediate family members will not be included in the plenum of peers when a tenure vote is taken (see Tenure Procedures and Forms List, section III,I).

J. President -- the President of Tennessee Technological University.

K. Probationary Employment -- a period of full-time professional employment by a faculty member for whom an appointment letter denotes a tenure-track appointment in which he/she does not have tenure and in which he/she is evaluated by Tennessee Tech for the

Commented [A1]:
By including "tenure-track appointment" in this definition, it appears that tenure-track faculty have the same rights upon termination as tenured faculty. This seems to conflict with the definition of "Probationary Employment" and Sections VI and VII.A, which appear to contemplate a separation during the tenure-track period by processes different than and for reasons less than those afforded tenured faculty.

Recommend the rewording of this subsection to only include tenured faculty and to exclude tenure-track faculty who are still in their probationary period.

purpose of determining his/her satisfaction of the criteria for a recommendation for tenure. Probationary employment provides an opportunity for the individual to assess his/her commitment to Tennessee Tech and for Tennessee Tech to determine whether the individual meets its perception of quality and projected need.

L. University/this institution/Tennessee Tech -- Tennessee Technological University.

M. Curriculum Vitae – from Latin, meaning [the] course of [my] life. Similar to a resume but usually greater in scope and detail. Works and accomplishments attained or acquired prior to employment at Tennessee Tech should be dated appropriately.

N. Committee of the Whole – the complement of faculty in a department qualified to vote on a particular tenure consideration, by policy.

V. Consideration for Tenure

A. Tenure Overview

The awarding of tenure is recognition of the merit of a faculty member and of the assumption that he/she meets the long-term staffing needs of the academic department/unit and Tennessee Tech. Tenure is awarded only to those members of the faculty who have exhibited professional excellence and outstanding abilities sufficient to demonstrate that their future services and performances justify the degree of permanence afforded by academic tenure. The Board does not award tenure in non-faculty positions. Tenure appointments reside in the academic departments/units or programs, and are assurances of continued employment during the academic year subject to expiration, relinquishment, or termination of tenure as set forth in Section VII. herein. Recommendations for or against tenure should originate from the academic department/unit in which the faculty member is assigned and should include appropriate participation in the recommendation by tenured faculty in the academic department/unit as specified in this policy.

Tenure is awarded only by positive action of the Board, pursuant to the requirements and procedures of this policy. No faculty member shall acquire or be entitled to any interest in a tenure appointment at Tennessee Tech without ~~a recommendation for tenure by his/her peers and by the President and an affirmative award of tenure by the Board~~ approval pursuant to this policy. No ~~other~~ person shall have any authority to make any representation concerning tenure to any faculty member. Failure to give timely notice of non-renewal of a contract shall not result in the acquisition of a tenure appointment, but shall result in the right of the faculty member to another year of service at Tennessee Tech, provided no tenure appeals remain outstanding due to lack of cooperation and/or appropriate action on the part of the candidate in completing the appeal process.

Commented [A2]: Recommend deleting the phrase "a recommendation for tenure by his/her peers and by the President and an affirmative award of tenure by the Board" and inserting the phrase "approval pursuant to this policy". This revisions results in all appropriate approvals being required for awarding Tenure.

Also recommend the deletion of the word "other" in the sentence "No other person shall have authority…" The inclusion of the word "other" implies that there exists a person who can grant tenure when, in fact, only the Board of Trustees can grant tenure.

B. Tenure Process

The Tenure process is described in the Tenure Procedures and Forms List. University procedures shall ensure that peer committees have qualified privilege of academic confidentiality against disclosure of individual tenure votes unless there is evidence that casts doubt upon the integrity of the peer committee. This policy shall be interpreted in a manner consistent with the Tennessee Public Records Act, as recorded in T.C.A. Sections

10-7-101 et seq. or any other applicable law or legal requirement. The President must make the recommendation for tenure to the Board. In the event that the Board awards tenure, the President shall furnish to the faculty member written confirmation of the award.

Annual evaluations conducted by the candidate's academic department/unit chair or program head are an important aspect of the criteria for tenure at this University. Types of evidence relevant to evaluating effectiveness and contributions in teaching, research/scholarship/creative activity, and service/outreach are identified in subsections VI.B.1-3.

C. Minimum Eligibility Requirements for Consideration for Academic Tenure
Academic tenure may be awarded only to full-time faculty members who: (a) hold academic rank as instructor, master instructor, senior instructor, assistant professor, associate professor, or professor and meet the minimum criteria for that rank as specified in Tennessee Tech Policy 206 – Faculty Promotion ; (b) have been employed pursuant to tenure-track appointments and have completed a probationary period of service, and/or as agreed upon in writing and signed by the appropriate academic officer; and (c) have been determined by Tennessee Tech to meet the criteria for recommendation for tenure and have been so recommended pursuant to this policy.

Faculty members whose appointment is supported in whole or in part by funds available to Tennessee Tech on a short-term basis, such as grants, contracts, or foundation sponsored projects, shall not be eligible for tenure unless continuing support for such members can be clearly identified in the regular budget of Tennessee Tech upon the recommendation of tenure to the Board.

No faculty member shall be eligible for tenure unless the employee's contract specifies his/her tenure-track status; provided that where a faculty member with tenure is appointed to an administrative position, he/she will retain tenure in a former faculty position only; and provided further that a faculty member otherwise eligible for tenure who also holds a non-faculty position may be awarded tenure in the faculty position only, subject to the requirements of this policy.

D. Probationary Employment
Faculty may be employed on annual tenure-track appointments for a period that may not exceed six years. The faculty member may apply for tenure at the beginning of the fifth, but no later than the beginning of the sixth year, except as provided in this policy or by law. ~~See V.D-E for exceptions.~~ A faculty member may apply for tenure only once. If the ultimate result of the tenure application is negative, there is no second chance.

Commented [A3]: Recommend replacing the sentence "See V.D-E for exceptions" with the phrase "except as provided in this policy or by law". This allows for a broader set of conditions in which probationary periods may be extended, rather than being restricted to only the conditions detailed in section V.D-E.

A faculty member may receive a reduction of the probationary period in the following instances:

1. Reduction of the minimum probationary period may be made for a faculty member who shows exceptional accomplishment during the probationary period.

Such requests for probationary period reductions are made upon recommendation of the departmental/unit peers to the department/unit chair, thence to the dean, the provost, and the President. The application for tenure does not occur until after the President's approval.

2. Prior service credit may be applied toward the completion of the tenure probationary period, upon recommendation of the departmental/unit peers to the department/unit chair, thence to the dean, the provost, and the President of Tennessee Tech, thereby resulting in a reduction of the tenure probationary period. Credit toward tenure for prior service must be agreed upon by those mentioned above at the time of employment and must be included in the appointment letter. Faculty members who have received prior service credit may not subsequently request that the credit not be applied to their probationary period. For example, if a faculty member receives two years of prior service credit, he/she must apply for tenure at the beginning of the fourth year. A faculty member may apply for tenure only once. If the ultimate result of the tenure application is negative, there will be no second chance.

E. Calculating the Probationary Period

1. Credit toward completion of the probationary period may, upon the recommendation of the peers to the chair and thence to the dean, the provost, and the President of Tennessee Tech, be given for a maximum of two years of previous full-time service at other colleges, universities, or institutes, provided that the prior service is relevant to Tennessee Tech's own needs and criteria. Any credit for prior service that is recognized and agreed to must be confirmed in writing in the letter of appointment. Years of credit for prior service will be accepted in lieu of the final, not the initial, year(s) of the probationary period. See the Tenure-Track Schedule for important dates to be observed during the tenure-track years.

   Credit toward completion of the probationary period may, upon the recommendation of the peers to the chair and thence to the dean, the provost, and the President of Tennessee Tech, be given for a maximum of two years of previous full-time service in a temporary faculty appointment at Tennessee Tech (see Policy 204 - Faculty Appointments) or in an earlier tenure-track appointment at Tennessee Tech that has been followed by a break in service. Any credit for prior service in a temporary full-time faculty appointment at Tennessee Tech or in an earlier tenure-track appointment at Tennessee Tech that has been followed by a break in service must be recognized and confirmed in writing in the appointment letter to a tenure-track position.

   Only full-time continuous service at a university will be included in determining completion of the probationary period, except where a break in service was pursuant to an approved leave of absence.

A period of approved leave of absence shall be excluded from the requisite period for completion of the probationary period unless the President of Tennessee Tech specified in writing before the leave of absence that it shall be included in the probationary period. Absent good cause, ~~l~~Leaves of absence may not be granted retroactively. A faculty member may apply for a maximum of two extensions in one-year increments so long as the total probationary period does not exceed six years. Requests for a second extension follow the same procedure and are subject to the same considerations as the original extension.

Commented [A4]: Recommend the addition of the clause "Absent good cause" to provide flexibility for Tennessee Tech to address situations that would warrant a retroactive request for a leave (e.g. major injury or natural disaster that prevents a person from making a timely request)

2. Stopping the Tenure Clock
   A faculty member in a tenure-track appointment may request to "stop the tenure clock" during his/her probationary period when circumstances exist that interrupt the faculty member's normal progress toward building a case for tenure. Discretion for stopping the tenure clock rests on Tennessee Tech and requires supervisory approval (described in detail in the Section E.4. below). In such cases, the faculty member may request to "stop the tenure clock" for one year if he/she demonstrates circumstances that reasonably warrant such interruption. Reasons for approving a request to "stop the tenure clock" will typically be related to a personal or family situation requiring attention and commitment that consumes the time and energy normally addressed to faculty duties and professional development. Examples of events that may, but will not necessarily warrant stopping the clock include, but are not limited to, childbirth or adoption, care of dependents, medical conditions or obligations, physical disasters or disruptions, or similar circumstances that require a fundamental alteration of one's professional life. The intent of this policy is to serve the best interests of Tennessee Tech while providing neither preference to nor adverse effect on a faculty member's process of developing a case for tenure. Once approved, the "stop the tenure clock" year is not counted in the probationary period accrual.

3. Application for Leave of Absence and/or Tenure Clock Stoppage
   A faculty member seeking a leave of absence and/or a stoppage of the tenure clock must submit his/her request, in writing and addressing the considerations described above, to the department/unit chair for consideration and recommendation. The chair's recommendation is forwarded to the dean of the faculty member's college for consideration and recommendation; thence to the provost for consideration and recommendation; and finally, to the President for approval or denial. Within one month of receiving the request, the President will notify the faculty member, in writing, of the decision to approve or deny such exceptions. Requests for modification of the probationary period that are based on a faculty member's health or care for an immediate family member should also be submitted to Tennessee Tech's legal counsel for review.

4. Administrative Appointments Before Tenure
   A faculty member that is appointed to an administrative position prior to a tenure award remains eligible for tenure under two considerations: (1) the faculty

member must qualify for tenure under academic department/unit, college, and University guidelines; and (2) the faculty member must maintain a significant involvement in academic pursuits including teaching, research/scholarship/creative activity, and service/outreach. The time (or prorated portion of time) spent in the administrative position may be credited toward completion of the probationary period.

5. Departmental Transfer Before Tenure
   Where a faculty member is serving a probationary period in an academic department/unit and is subsequently transferred to another academic department/unit, the faculty member may elect, with the approval of the President, to begin a new probationary period on the date that the transfer occurs. If he/she does not so elect and confirm, in writing, to the President, time spent in the first appointment shall count toward establishing the minimum and maximum probationary period (see V.E above).

VI. Criteria to Be Considered in Tenure Recommendations

A. Overview
   The relative importance of the criteria for the recommendation for tenure depends upon the mission and goals of Tennessee Tech, as well as the mission and goals of the specific academic department/unit in which a faculty member holds academic rank. The recommendation for tenure, subject to the requirements of this policy, shall devolve from the professional judgment of tenured peers in the academic department/unit in which the faculty member holds academic rank; the tenured peers representing that segment of the wider community of scholars best qualified to evaluate the faculty member in the performance of his/her professional services. Recommendation for tenure for librarians shall be based upon the performance of professional library responsibilities. The faculty member is expected to maintain minimum professional levels of performance with the weightings agreed upon in the Agreement on Responsibilities. Greater specificity is provided in Tenure Procedures and Forms List, which constitutes the procedures used to follow the tenure policy. At this point, it is sufficient to state emphatically (1) that the faculty member is assumed to have been trained professionally in an academic discipline, (2) that the faculty member is aware of the standards of excellence in his/her discipline, (3) that the faculty member's principal responsibility is to practice that discipline in pursuit of excellence to the limits of individual capacity and institutional duties, and (4) that the faculty member's success will be determined by the professional judgment of his/her tenured peers. This determination shall, consistent with this policy, establish the basis for the faculty member's recommendation for tenure.

B. Criteria
   Criteria for tenure relate to Tennessee Tech's three traditional and often inter-related missions: teaching, research/scholarship/creative activities, and service/outreach.
   1. Teaching
      Effective teaching is an essential qualification for tenure, and tenure should not be granted in the absence of clear evidence of a candidate's teaching ability and

potential for continued development. Excellence in teaching is a strong recommendation for both tenure and promotion though it cannot be considered in isolation from research/scholarship/creative activities and service/outreach. ~~Although it is difficult to establish evidence of teaching excellence, e~~Each academic department/unit must develop a procedure to ensure that information relative to a candidate's teaching is available at the time he/she is considered for tenure.

Commented [A5]: The policy includes a broad definition of evidence of teaching excellence. For that reason, the characterization of it as "difficult to establish" seems unnecessary.

The teaching dossier should include, but is not limited to, evidence of teaching excellence as follows: ability to organize and present subject matter in a logical and meaningful way; ability to motivate and stimulate creativity, intellectual curiosity, and interest in writing and inquiry in undergraduates and/or graduate students; and evidence of peer evaluation. Documentation of teaching should routinely include: statement of teaching philosophy; course materials; student evaluations for every course evaluated during the probationary period; and evidence of supervision of student projects and other forms of student mentorship. A candidate for tenure may choose to include other types of evidence that support his/her application for tenure such as additional student input, student products, teaching recognition; teaching scholarship; peer input; evidence of professional development in teaching, evidence of disciplinary or interdisciplinary program or curricular development, alumni surveys and student exit interviews, and other evidence of excellence in teaching or mentoring, or both.

2. Research/Scholarship/Creative Activities
   A candidate for tenure must present evidence of his/her research/scholarship/creative activities when he/she applies for tenure. Research/scholarship/creative activity includes those professional activities designed to discover, create, or disseminate greater knowledge, appreciation, or understanding of an academic discipline, including, but not limited to:

   a. Pure research: seeking new knowledge, investigating realms not covered by current understanding or challenging current understanding.
   b. Applied research: the application of known methods or theories to specific circumstances.
   c. Pedagogical research: the development of pedagogical techniques and the application in the classroom or laboratory that furthers the dissemination of knowledge.
   d. Artistic creativity and performance: the creation and exhibition of works of art or crafts, or the composition and/or performance of plays, music, etc.
   e. Faculty development: formal and informal activities primarily directed to maintain and enhance faculty research, scholarship, or creative capabilities or performance.

   The tenure dossier must include evidence of peer review of the candidate's record of research/scholarship by qualified peers. Such evidence should cite books, journal articles, monographs, creative activities, performances, or exhibitions that

have undergone appropriate peer review. Research publications in refereed journals or media of similar quality are reliable indicators of research/scholarship ability. For creative activity, written reviews and evaluations by qualified peers, either in person or aided by other forms of reports, or both, are appropriate for performances, compositions, and other artistic creations. Books published by reputable firms and articles in refereed journals, reviewed by recognized scholars, are more significant than those not subjected to such rigorous examination. In reviewing these materials, the tenure committee shall place a higher importance of the quality of the works rather than the quantity of such works.

The research/scholarship of teaching (pedagogical research) is a valid measure of research capability. It goes beyond doing a good job in the classroom. Faculty should organize, record, and document their efforts so colleagues may share their contributions to the art of teaching. Appropriate textbooks or educational articles in one's discipline and innovative contributions to teaching, if published or presented in a peer-reviewed forum, constitute scholarship of teaching.

3. Service/Outreach
   Service/outreach encompasses a faculty member's activities in one or more of the following three areas:
   a. The outreach or public service function is Tennessee Tech's outreach to the community and society, with major emphasis on the application of knowledge for the solution of societal problems. Outreach primarily involves sharing professional expertise and should directly support the goals and mission of Tennessee Tech. A vital component of Tennessee Tech's mission, public service must be performed at the same high levels of quality that characterize the teaching and research/scholarship/creative activities missions.

   b. University service refers to work other than teaching and research/scholarship/ creative activities done at the department/unit, college, or University level. A certain amount of such service is expected of every faculty member. University service includes, but is not limited to, serving on departmental/unit, college, and University committees. Some faculty members may accept more extensive citizenship functions, such as a leadership role in the Faculty Senate, membership on a specially appointed task force, service as advisor to a University-wide student organization, and membership on a University search committee.

   c. Professional service refers to the work done for organizations related to one's discipline or to the teaching profession generally. Service to the profession includes association leadership, journal editorships, article and grant proposal review, guest lecturing on other campuses, and other appropriate activities. ~~While it is difficult to define the exact nature of significant professional service, m~~More is required than organizational membership and attendance. Examples of significant service would be that done by an officer of a professional organization or a member of the editorial staff of a journal.

Commented [A6]: The policy includes a broad definition of significant professional service. For that reason, the characterization of it as "difficult to establish" seems unnecessary.

C. Assessment of Satisfactory Progress Toward Tenure
As part of the annual evaluation of faculty on tenure-track appointments, the departmental chairperson, in consultation with the tenured members of the departmental faculty, shall assess whether or not the faculty member is making satisfactory progress toward achieving tenure. Deadlines for this assessment vary according to the faculty member's years of service on tenure-track appointment and appear on the Tenure-Track Schedule in the Tennessee Tech Faculty Handbook.

To complete this assessment, the departmental chairperson shall notify each tenure-track faculty member of the deadline to compile and submit a dossier of information similar to that required by Form T3 (Tenure Procedures and Forms List), No letters of recommendation shall be included in the dossier. Once submitted, the dossier is available to departmental peers for review. By the identified Deadline for Tenure-Track Review, the departmental chairperson shall call a meeting of the departmental peers to discuss the tenure-track faculty member's qualifications. During this meeting, each peer will complete Form T15 (Tenure Procedures and Forms List), thereby conveying to the departmental chairperson her/his assessment of the faculty member's progress toward tenure. The chairperson of the department shall provide written communication of the results of his/her assessment to the faculty member. In the event the faculty member's performance is such as to justify non-renewal during the probationary period, the decision not to renew the appointment shall be made by the departmental chairperson in consultation with the tenured departmental peers and with the approval of the appropriate administrative officers in accordance with Section VII.A. below.

VII. Changes in Tenure/Tenure-Track Status

A. Non-Renewal of Probationary Tenure-Track
1. When tenure-track appointments of faculty are not to be renewed for further service, the faculty member shall receive notice of his/her non-retention for the ensuing academic year as follows:
   a. No later than March 1 of the first academic year of service, if the appointment expires at the end of that year; or, if the appointment terminates during an academic year, at least three months in advance of its termination;

   b. No later than December 15 of the second academic year of service, if the appointment expires at the end of that year; or, if the appointment terminates during an academic year, at least six months in advance of its termination;

   c. No later than the close of the academic year preceding the third or subsequent year of service, if the appointment expires at the end of that year; or, if the appointment terminates during an academic year, at least twelve months in advance of its termination.

The above stated dates are the latest dates of notice of non-renewal of faculty on tenure-track appointments. Notice of non-renewal shall be effective upon personal delivery of the notice to the faculty member, or upon the date the notice is mailed, by registered letter, to the faculty member at his/her current home address of record at Tennessee Tech.

Applicable dates for notice of non-renewal are based upon actual years of service at Tennessee Tech and are in no way affected by any credit for prior service. When a faculty member on a tenure-track appointment completes his/her probationary period, the President will recommend the faculty member for tenure or will notify the faculty member of non-renewal of the appointment during the spring term following application for such status. Notice of non-renewal should be given no later than the final day of the academic year. The faculty member's right in an instance where timely notice is not given is described in Section V. A. herein. When a tenure-track faculty member's probationary period has ended and the faculty member has not been awarded tenure, the faculty member may remain at Tennessee Tech one more academic year, but on a temporary appointment, not a tenure-track appointment.

2. Faculty members on tenure-track appointments shall not be terminated during the term of the annual appointment as stated in the employment contract except for reasons which would constitute adequate cause for the termination of tenured faculty.

3. The non-renewal or non-appointment of any faculty member on a tenure-track appointment does not necessarily carry an implication that his/her work or conduct has been unsatisfactory.

4. A tenure-track faculty member who is dissatisfied with the reasons given for the non-renewal of his/her appointment may appeal that decision through the Faculty Affairs Committee or through a committee specifically empowered by the President to hear such appeals. The Committee shall make a recommendation to the President, ~~whose~~and the President's decision shall be final.

~~0. Unless there is a violation of state or federal law, non-renewal of a tenure-track appointment during the probationary period and denial of tenure accompanied by notice of termination in the final year of the probationary period are not subject to appeal to the Board.~~

Commented [A7]: If the Board decides not to hear tenure appeals, recommend the addition of the last sentence in subsection 4, i.e. "The Committee shall make a recommendation to the President, and the President's decision shall be final." and the deletion of subsection 5.

~~D.~~C. Expiration of Tenure

Tenure status shall expire upon retirement of the faculty member. Consistent with federal or state law, tenure shall also expire upon the event of permanent physical or mental inability of a faculty member, as established by an appropriate medical authority, to continue to perform his/her assigned duties.

~~E.~~D. Relinquishment of Tenure

A faculty member shall relinquish or waive his/her right to tenure upon resignation from Tennessee Tech or upon failure to report for service at the designated date of the beginning of any academic term, which shall be deemed to be a resignation unless, in the opinion of the President, the faculty member has shown good cause for his/her failure to report. Where a tenured faculty member is transferred or reclassified to another academic department/unit by Tennessee Tech, the transfer or reassignment shall be with tenure. Tenure is not relinquished during approved leaves of absence or administrative assignments at this University. Tenure is relinquished during a period of an unapproved leave of absence.

~~F.~~E. Termination of Tenure for Reasons of Financial Exigency

A tenured faculty member may be terminated as a result of financial exigency at this University subject to Board declaration that such financial conditions exist. All personnel decisions that result from a declaration of financial exigency at this University will comply with Tennessee Tech Policy 648 - Financial Exigency.

~~G.~~F. Termination of Tenure for Curricular Reasons

The appointment of a tenured faculty member may be terminated (1) because an academic program is deleted from the curriculum or (2) because of substantial and continued reduction of student enrollment in a field. Each of these reasons for termination of tenure for curricular reasons must denote shifts in staffing needs that warrant greater reductions than those which are accommodated by transferring appointments from one academic department/unit to another to handle changing enrollment patterns. Before declaring that curricular reasons exist that warrant the termination of appointments of tenured faculty, determining where such terminations might be required, or initiating the procedures described below, the President shall ensure meaningful participation by the Faculty Senate in making these decisions and shall inform that body of all considerations that warrant the termination of tenured appointments for curricular reasons. The President shall work with the Faculty Senate in identifying specific curricular reasons, considering alternatives to termination, evaluating the long-term effect of shifting enrollment patterns of Tennessee Tech's curricula, mission, and strategic planning goals, and determining where such reductions in faculty might best be made so as to least seriously compromise the educational programs of Tennessee Tech. These decisions shall take into account the extraordinary nature of such conditions, as outlined above, and shall be based upon careful assessment of the impact of any proposed actions on the staffing requirements of the academic department/unit, as compared to overall patterns of faculty responsibilities in comparable academic departments/units within Tennessee Tech and in other institutions similar enough to warrant comparison.

The Faculty Senate shall have the opportunity of responding in writing to the President on all matters relating to any proposed termination of tenured appointments before the Procedures for Termination of Tenure for Curricular Reasons described below are initiated.

1. Upon determination by the President, after consultation with the Faculty Senate, that termination of the appointment of one or more tenured faculty members is

warranted for curricular reasons and upon identification by the President, after consultation with the Faculty Senate, of the department(s)/unit(s) within which such terminations should be made, faculty reductions within an academic department/unit shall take place in the following order, unless the President demonstrates (preferably by means of past annual performance evaluations) that an exception should be made to reduce qualitative compromise of an educational program:

a. Before a tenured faculty member is terminated, part-time faculty should not be renewed.

b. Before a tenured faculty member is terminated, temporary faculty or tenure-track faculty in the probationary period should not be renewed.

c. Among tenured faculty, those with lower rank should be terminated before those with higher rank.

d. Among tenured faculty with comparable rank, those with lower academic degrees should be terminated before those with appropriate higher academic degrees.

e. Among tenured faculty with comparable rank and comparable degrees, those with less seniority in rank should be terminated before those with greater seniority.

2. After identifying the specific faculty members to be terminated pursuant to the above parameters, the President shall furnish each faculty member to be terminated a written statement detailing the reasons for the termination. Those reasons shall address fully the curricular circumstances that warrant the termination and shall indicate the manner and the information upon which the decision was reached of which faculty members were to be terminated. The President's written statement shall also indicate that the faculty member has the opportunity to respond in writing stating any objections to the decision.

3. If the faculty member to be terminated indicates objections to the President's written statement(s) and requests a review, the Faculty Affairs Committee shall conduct that review. That committee shall conduct a hearing on each review requested. At such hearing, the Committee shall consider evidence, including but not limited to the following: the identification of the academic department/unit in which the reductions are required, the order of reductions within the academic department/unit, exceptions to the normal order of reductions, and the possibility of relocation within Tennessee Tech. At the conclusion of its review, the committee shall report its findings and recommendation to the President, who shall consider, but not be bound by, such findings and recommendations. In a reasonable amount of time, the President shall inform in writing the faculty

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member proposed for termination either that the decision for termination stands or that it has been altered.

4. The President's decision to terminate a tenured faculty member for curricular reasons is not subject to appeal.

5. When a tenured faculty member is terminated for curricular reasons, the position will not be filled by a new appointee with the same areas of specialization as the terminated faculty member within a period of three years unless the terminated faculty member has been offered, in writing, reappointment to the position at his/her previous rank and salary (with the addition of an appropriate increase which, in the opinion of the President, would constitute the raise(s) that would have been awarded during the period that he/she was not employed), and with tenure.

6. Upon determining that termination of one or more tenured faculty members is warranted for curricular reasons, the President shall base his/her decision about which faculty member(s) should be terminated upon his/her assessment as to what action would least seriously compromise the educational programs of the academic department/unit. Termination for curricular reasons presumes a staffing pattern in an academic department/unit which cannot be warranted either by comparison with general load practices within Tennessee Tech or by comparison with faculty loads in comparable academic departments/units at similar universities. In that light, the President shall also, at his/her discretion, base his/her decision on a careful assessment of the impact of the curricular reason on staffing requirements in the academic department/unit as compared to overall patterns in Tennessee Tech and to comparable academic departments/units which, in his/her judgment, are in universities similar enough to warrant assessment.

7. Definitions: "Program is deleted from the curriculum" means that the Board takes formal action to terminate a degree major, concentration, or other curricular component, and that such termination eliminates or reduces the need for faculty qualified in that discipline or area of concentration. "Substantive and continued reduction of student enrollment in a field" means that over a period of at least three years, student enrollment in a field has decreased at a rate in considerable excess of that of Tennessee Tech as a whole and that such reduction has resulted in faculty-student ratios that, in the opinion of the President, cannot be warranted either by comparison with equivalent faculty load practices within Tennessee Tech or by comparison with faculty loads in comparable academic departments/units at similar universities which the President deems appropriate for comparison.

8. When a tenured faculty member is to be terminated for curricular reasons, the President will make every possible effort to relocate the tenured faculty member in another vacant position for which he/she is qualified. In instances where, in the opinion of the President, relocation within Tennessee Tech is a viable alternative,

Tennessee Tech has an obligation to make significant effort to relocate the faculty member~~, including the bearing of reasonable retraining costs.~~ The final decision on relocation is within the discretion of the President.

9. ~~Since the primary responsibility for the curriculum is vested in the faculty, and to prevent the inadvertent creation of situations in which curricular reasons for the termination of tenured faculty members might arise, n~~No decision shall be made to create, combine, dissolve, or otherwise reorganize academic departments/units, colleges, or schools of Tennessee Tech without ~~the~~ prior ~~participation of~~discussion with the Academic or Administrative Council, whichever is appropriate, and ~~of~~ the faculty members involved.

~~H.~~G. Termination for Adequate Cause

A faculty member with tenure~~, or a faculty member on a tenure-track appointment,~~ may be terminated for adequate cause, which includes, but is not limited to, the following:

1. Incompetence or dishonesty in teaching or research.
2. Willful failure to perform the duties and responsibilities for which the faculty member was employed or refusal or continued failure to comply with the policies of the Board, Tennessee Tech, or his/her academic department/unit, or his/her willful failure to carry out specific assignments, when such policies or assignments are reasonable and non-discriminatory.
3. Conviction of a felony or a crime involving moral turpitude.
4. Improper use of narcotics or intoxicants, which substantially impairs the faculty member's fulfillment of his/her departmental/unit and University duties and responsibilities.
5. Capricious disregard of accepted standards of professional conduct.
6. Falsification of information on an employment application or other information concerning qualifications for a position.
7. Failure to maintain the level of professional excellence and ability demonstrated by other members of the faculty in the academic department/unit in which he/she holds academic appointment.

~~I.~~H. Process for Termination for Adequate Cause

Termination of a faculty member with tenure~~, or a faculty member on a tenure-track appointment,~~ shall be subject to the following:

1. No termination shall be effective until steps 4 through 9 below are completed.
2. Suspensions pending termination shall be governed by the following:
   a. A faculty member may not be suspended pending completion of steps 4 through 9 unless it is determined by Tennessee Tech that the faculty member's

Commented [A8]: Recommend the deletion of the phrase "including the bearing of reasonable retraining costs" as this seems inconsistent with the requirement that the faculty member be qualified for the position.

Commented [A9]: By statute, the Board's authority also extends to curricula. For that reason, recommend the deletion as noted.

Commented [A10]: Recommend the deletion of the phrase "or a faculty member on a tenure-track appointment" for the same reasons as those described in the comments of Section IV.E.

Commented [A11]: Recommend the deletion of the phrase "or a faculty member on a tenure-track appointment" for the same reasons as those described in the comments of Section IV.E.

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presence poses a danger to persons or property, or a threat of destruction to the academic or operational processes of Tennessee Tech. Reassignment of responsibilities is not considered suspension; however, the faculty member must be reassigned responsibilities for which he/she is qualified.

b. In any case of suspension, the faculty member shall be given an opportunity at the time of decision or immediately thereafter to contest the suspension; and, if there are disputed issues of fact or cause and effect, the faculty member shall be provided the opportunity for a hearing on the suspension as soon as possible at which time the faculty member may cross-examine his/her accuser, present witnesses on his/her behalf, and be represented by legal counsel. Thereafter, whether the suspension is upheld or revoked, the matter shall proceed pursuant to these procedures

3. Except for such simple announcements as may be required concerning the time of proceedings and similar matters, public statements and publicity about these proceedings by either the faculty member or administrative officers will be avoided as far as possible until the proceedings have been completed.~~, including consideration by the Board.~~

Commented [A12]: If the Board decides not to hear tenure appeals, recommend the deletion of the phrase "including consideration by the Board."

4. Upon a recommendation by the chief academic officer of Tennessee Tech to the President or upon a decision by the President that these procedures should be undertaken in consideration of the termination of a faculty member, the proposed termination shall be preceded by (a) discussion between the faculty member and appropriate administrative officers looking toward a mutual settlement and (b) informal inquiry by the Faculty Affairs Committee which may, failing to effect an adjustment, determine whether in its opinion termination proceedings should be undertaken, without its opinion being binding upon the President.

5. If no mutually acceptable resolution is reached through step 4, the following steps shall be taken:
   a. The faculty member shall be provided with a written statement of the specific charges alleged by Tennessee Tech that constitute grounds for termination and a notice of hearing specifying the time, date, and place of the hearing. The statement and notice must be provided at least twenty days before the hearing. The faculty member shall respond to the charges in writing at least five days before the hearing. The faculty member may waive the hearing by execution of a written waiver. If the faculty member waives the hearing, but denies the charges against him/her or asserts that the charges do not support a finding of adequate cause, the hearing committee will evaluate all available evidence and rest its recommendation upon the evidence in the record.

   b. A hearing committee consisting of five tenured faculty or tenured faculty and administrators shall be appointed to hear the case and to determine if adequate cause for termination exists according to the procedure herein described. The President shall appoint two members of this committee and the President of

the Faculty Senate shall appoint three members. The committee may not include any member of the Faculty Affairs Committee. Members deeming themselves disqualified for bias or interest shall remove themselves from the case, either at the request of a party or on their own initiative. Members of the committee shall not discuss the case outside committee deliberations and shall report any ex-parte communication pertaining to the hearing to the President who shall notify all parties of the communication.

6. The hearing committee shall elect a chairperson who shall direct the proceedings and rule on procedural matters, including the granting of reasonable extensions of time at the request of any party and upon the showing of good cause for the extension.

7. The chairperson of the hearing committee may at his/her discretion require a joint pre-hearing conference with the parties that may be held in person or by a conference telephone call. The purpose of the pre-hearing conference should include, but is not limited to, one or more of the following:
   a. To delineate the procedure for conduct of the hearing.

   b. To exchange witness lists, documentary evidence and affidavits.

   c. To define and clarify issues.

   d. To effect stipulations of fact. A written memorandum of the pre-hearing conference should be prepared and provided to each party.

8. A hearing shall be conducted by the hearing committee to determine whether adequate cause for termination of the faculty member exists. The hearing shall be conducted according to the procedures below:
   a. During the hearing, the faculty member will be permitted to have an academic advisor present and may be represented by legal counsel of his/her choice.

   b. A verbatim record of the hearing will be taken and a typewritten copy will be made available to the faculty member, upon request, at the faculty member's expense.

   c. The burden of proof that adequate cause exists rests with Tennessee Tech and shall be satisfied only by clear and convincing evidence in the record considered as a whole.

   d. The faculty member will be afforded an opportunity to obtain necessary witnesses and documentary or other evidence. The administration will cooperate with the committee in using its best efforts to secure witnesses and make available documentary and other evidence that is under its control.

e. The faculty member and the administration will have the right to confront and cross-examine all witnesses. Where the witnesses cannot or will not appear, but the committee determines that the interests of justice require admission of their statements, the committee will identify the witnesses, disclose their statements and, if possible, provide for interrogatories. An affidavit may be submitted in lieu of the personal appearance of a witness if the party offering the affidavit has provided a copy to the opposing party at least ten days prior to the hearing and the opposing party has not objected to the admission of the affidavit in writing within seven days after delivery of the affidavit or if the committee chairperson determines that the admission of the affidavit is necessary to ensure a just and fair decision.

f. In a hearing on charges of incompetence, the testimony shall include that of qualified faculty members from Tennessee Tech and other institutions of higher education.

g. The hearing committee will be generally ~~be~~ bound by ~~strict~~ rules of ~~legal~~ evidence but ~~and~~ may admit any evidence which is of probative value in determining the issues involved. Every possible effort will be made to obtain the most reliable evidence available.

h. The findings of fact and the report will be based solely on the hearing record.

i. The President and the faculty member will be provided a copy of the written report. The committee's written report shall specify findings of fact and shall state whether the committee has determined that adequate cause for termination exists and, if so, the specific grounds for termination found. In addition, the committee may recommend action less than termination. The report shall also specify any applicable policy the committee considered.

9. After consideration of the committee's report and the record, the President may in his/her discretion consult with the faculty member~~-~~, the hearing committee, or others as necessary before reaching a final decision regarding termination. Following his/her review, the President shall notify the faculty member of his/her decision, which, if contrary to the committee's recommendation, shall be accompanied by a statement of the reasons.

Commented [A13]: Recommend the rewording of this section since the phrase "will be bound by strict rules of evidence" is inconsistent with subsection e. above.

Commented [A14]: Recommend the addition of the phrase "the hearing committee, or others as necessary" to provide more flexibility to the President to consult with appropriate individuals when making a final decision.

VIII. Interpretation

The President or his/her designee has the final authority to interpret the terms of this policy.

IX. Citation of Authority for Policy

T.C.A. 49-8-301

X. Approved by:

Academic Council:	April 4, 2018
Administrative Council:	April 4, 2018
University Assembly:	April 18, 2018
Board of Trustees:	

in approval

Agenda Item Summary

Date: June 26, 2018

Division: Planning and Finance

Agenda Item: Institutional Compensation Plan

☐ **Review** ☒ **Action** ☐ **No action required**

PRESENTERS: Dr. Leslie Crickenberger, Associate Vice President of Human Resources

PURPOSE & KEY POINTS:

Review and approve the FY2018-19 Institutional Compensation Proposal recommendations.

Tennessee Technological University

FY 2018-19 Institutional Compensation Proposal

Part I. Creation of Salary Pool

A. A salary pool is proposed that is equal to the following percent of April 30, 2018 actual salaries and the following amount:

Percent:		2.50%
Actual Salaries:	$	69,807,010
Proposed 2.5% Salary Pool Amount:	$	1,745,175

B. The Salary Pool will be used for the following purposes (Enter Amounts):

COLA:	$ -	0.00	%
Performance Pay:	$ 1,554,314	89.06	%
Additional Positions:	$ -	0.00	
Faculty Promotions:	$ 190,861	10.94	%
	$ 1,745,175	100.00	

Part II. COLA

Provide the percent increase provided to employees 0.00 %

Provide narrative addressing any specific parameters for receipt of COLA, such as performance evaluation rating, or other parameters

Part III. Comp Plan Adjustments (Performance Only for FY19)

Are you indexing (shifting the salary grades for) your comp plan? No

If Yes, what percent of the amount dedicated to the comp plan adjustments is being used for this purpose?

What percent of the comp plan adjustment is being used to move specific employee groups to their target salary?

If any portion is for a comp plan increase please complete the remainder of the form. If it is entirely for a COLA, please skip to section D.

Tennessee Technological University

FY 2018-19 Institutional Compensation Proposal

C. Proposed 2.5% Salary Distribution:

	By EEO Category		
	Amount	Percent Total	Percent Comp Plan Funded
Faculty	$ 842,696	48.29%	
Administration	$ 145,520	8.34%	
Professional	$ 497,992	28.54%	Leave Blank - Only Use for Equity
Clerical Support	$ 258,967	14.84%	
Total	$ 1,745,175	100%	

Part VI. Comp Plan Adjustments

Provide the number of faculty members affected by using the designated amount of the salary pool above for faculty promotions

31

Part V. One-Time Payments

One-Time Performance Bonus Pool: $ 154,025

Provide narrative addressing any specific parameters for receipt of payment(i.e. Years of institution service, satisfactory performance evaluation rating, etc.)

One time performance bonus is provided to faculty who go above and beyond in research and/or teaching. It is based one current year evaluation scores and additional meritorious factors (e.g. research, etc.). This is a permanent separate funding line than the mandated 2.5% salary pool.

Part VI. Timing of Increase Adjustments

Effective Date for COLA Increases	
Effective Date for Performance Increases**	7/1/2018
Effective Date for One-Time Payment	8/1/2018
Effective Date for Additional Positions	
Effective Date for Promotions	8/1/2018

*** Performance Increases for Faculty are effective 8/1/2018; beginning of new contract year*

Tennessee TECH

Performance Evaluations and Salary Increases

Presentation to Board of Trustees

June 26, 2018

Non-Faculty Performance Evaluation Process

- Year 3 of new evaluation system based on performance
- Staff evaluations
  - Focus on individual employee performance
  - Ensure employees have a voice in their evaluation
  - Allow for specific goals and achievements to be recognized
  - Stress job specific performance
  - Include a self-evaluation component

Continuing the Change of Non-Faculty Performance Evaluation Culture

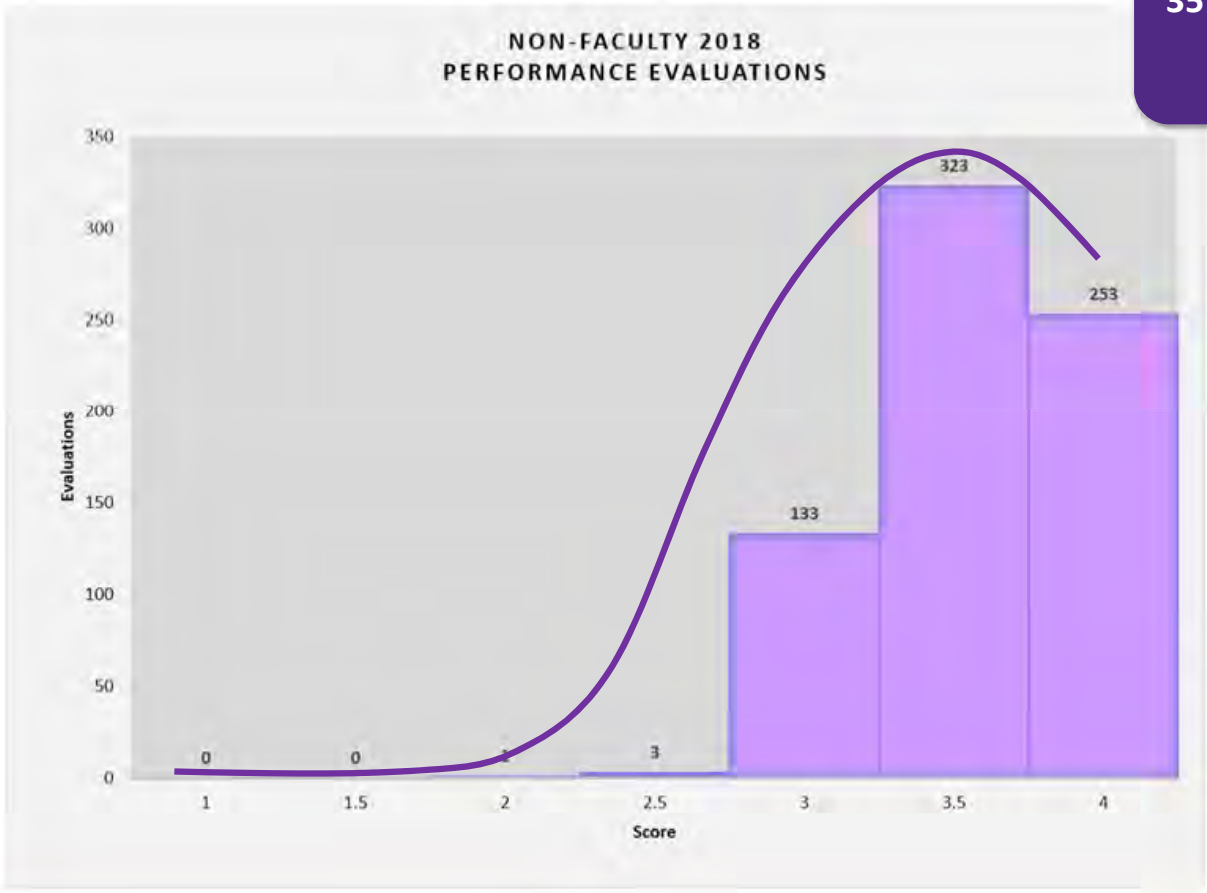
- **Evaluate core competencies relevant to ALL positions**
  - Reliability/Accountability
  - Communication Skills
  - Collaboration
  - Quality/Productivity
  - Innovation
  - Diversity

Continuing the Change of Non-Faculty Performance Evaluation Culture

- **Evaluations scores tie directly back to actual job responsibilities**
  - Annually employees and supervisors review job duties prior to evaluation to ensure accurate reflection of duties
  - Employee is rated on their specific job duties
- **Employee goals are set for high performance and departmental growth**
  - Annually evaluate accomplishments towards goals

Non-Faculty Performance Scores

Rating Guide	
Exceeds Expectations	3.5 – 4.0
Meets Expectations	2.5 – 3.49
Needs Improvement	1.5 – 2.49
Unsatisfactory	0 – 1.49

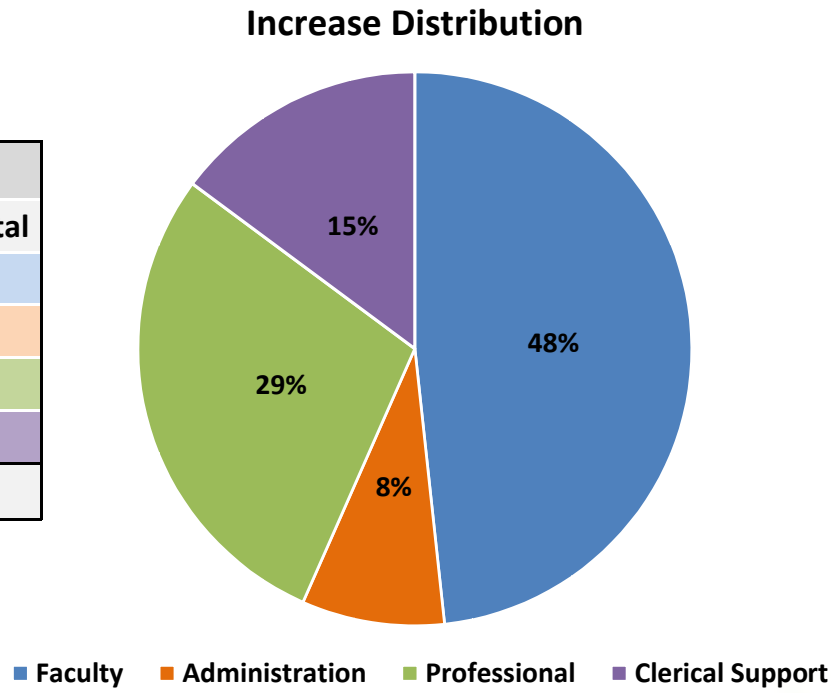


2018
35% - Score greater than 3.5
9% - Score 4.0

2017
41% - Score greater than 3.5
13% - Score 4.0

Proposed 2.5% Salary Increase Distribution

By Category						
	Salaries		2.5% Amount		Percent Total
Faculty	$	33,707,834	$	842,696	48.29%
Administrative	$	5,820,815	$	145,520	8.34%
Professional	$	19,919,687	$	497,992	28.54%
Clerical Support	$	10,358,674	$	258,967	14.84%
Total	**$**	**69,807,010**	**$**	**1,745,175**	**100%**



Non-Faculty Salary Increase Eligibility

- Employees are eligible for a performance increase if:
  - They were hired prior to May 1, 2018
  - They are not on an active Performance Improvement Plan
  - They received a Meets Expectations or higher on their performance evaluation
- Employees hired prior to January 1 are eligible for a maximum of 6%
- Employees hired after January 1 are eligible for a maximum of 2.5%

How Evaluations Tie to Performance (Non-Faculty)

Merit Pay Worksheet

Department: Human Resources

Clerical & Support

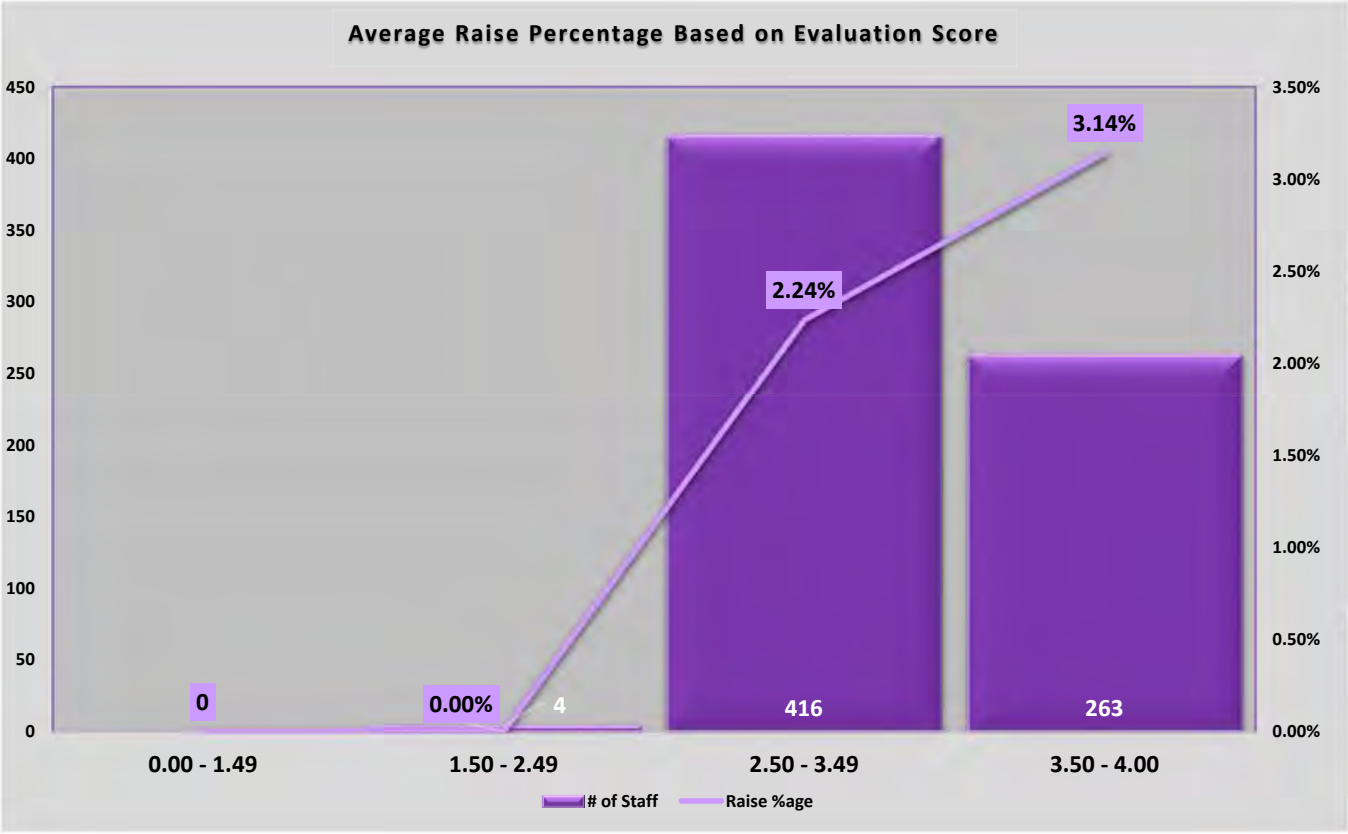
												Performance Evaluation						
T#	Pos #	Eclass	First	Middle	Last	Department	Title	Hire Date	Grade	Salary	1% COLA Inc	Prior Yr Score	Score	Overall Score	Increase Percentage	Amount of Increase	NEW Salary	Comments
T95123575	100000	CL	Mary	M	Max	Human Resources	Administrative Associate 2	9/5/1993	4	$ 26,597	$ 266	3.51	3.26	Meets Expectations	1.50%	$ 402	$ 27,265	
T74125896	200000	CL	Dorris	D	Day	Human Resources	Administrative Associate 3	9/8/2015	5	$ 25,156	$ 252	3.00	3.38	Meets Expectations	1.77%	$ 450	$ 25,858	
T96325874	300000	CL	Nancy	N	North	Human Resources	Administrative Associate 4	5/5/2014	6	$ 26,992	$ 270	3.10	3.09	Meets Expectations	1.25%	$ 340	$ 27,602	
T98745632	400000	CL	Sam	L	South	Human Resources	Administrative Associate 4	6/4/2013	6	$ 27,852	$ 279	3.87	3.75	Exceeds Expectations	2.49%	$ 700	$ 28,831	Strong employee - excellent customer service skills
T12345678	500000	CL	Walter	W	West	Human Resources	Administrative Associate 5	9/8/2001	7	$ 31,052	$ 311	3.18	3.80	Exceeds Expectations	2.75%	$ 861	$ 32,224	Significate improvement - goes above and beyond
								C&S Totals		$ 137,649	$ 1,376				2.00%	$ 2,753	$ 141,778	
								Merit Pay Budget		$ 2,753					2.00%	$ 2,753	$ 141,778	

Professional (Administrative)

												Performance Evaluation						
T#	Pos #	Eclass	First	Middle	Last	Department	Title	Hire Date	Grade	Salary	1% COLA Inc	Prior Yr Score	Score	Overall Score	Increase Percentage	Amount of Increase	NEW Salary	Comments
T85265497	120000	AD	Jake	J	Jones	Human Resources	Manager	1/5/2002	44	$ 51,024	$ 510	2.85	3.10	Meets Expectations	1.75%	$ 891	$ 52,425	
T36521478	130000	AD	Fred	F	First	Human Resources	Specialist	2/14/2008	43	$ 45,893	$ 459	3.00	3.42	Meets Expectations	2.18%	$ 1,000	$ 47,352	
T85697412	110000	AD	Liz	L	Last	Human Resources	Coordinator	3/5/2006	42	$ 42,652	$ 427	3.00	3.65	Exceeds Expectations	3.00%	$ 1,278	$ 44,357	Innovated thinker - Process improvement within area
T65982314	140000	AD	Rosie	R	Flower	Human Resources	Manager	4/15/2015	44	$ 45,268	$ 453	2.65	2.40	Needs Improvement	0.00%	$ -	$ 45,721	
T78452598	150000	AD	Betty	B	Blossom	Human Resources	Manager	5/9/2012	44	$ 49,580	$ 496	3.25	3.53	Exceeds Expectations	3.00%	$ 1,485	$ 51,561	Managed several projects outside of scope
T15359575	160000	AD	Tess	T	Trust	Human Resources	Assistant Director	6/25/2011	47	$ 63,258	$ 633	3.16	3.44	Meets Expectations	2.06%	$ 1,300	$ 65,191	
								Admin Totals		$ 297,675	$ 2,977				1.980%	$ 5,954	$ 306,606	
								Merit Pay Budget		$ 5,954					2.00%	$ 5,954	$ 306,606	
								Department Totals		$ 435,324	$ 4,353				1.980%	$ 8,707	$ 448,384	
								Merit Pay Budget		$ 8,707					2.00%	$ 8,707	$ 448,384	
																	$ 448,384	
																Under (Over) Budget	$0	

Raise Distributions (Non-Faculty)

Scores	Average % Raise Increase
Unsatisfactory 0.00 – 1.49	0.00%
Needs Improvement 1.50 – 2.49	0.00%
Meets Expectations 2.50 – 3.49	2.24%
Exceeds Expectations 3.50 – 4.00	3.14%



Spread for non-faculty merit increases 0% - 6.00%

2.50% Overall Average for Non-Faculty

Faculty Performance Evaluation Process

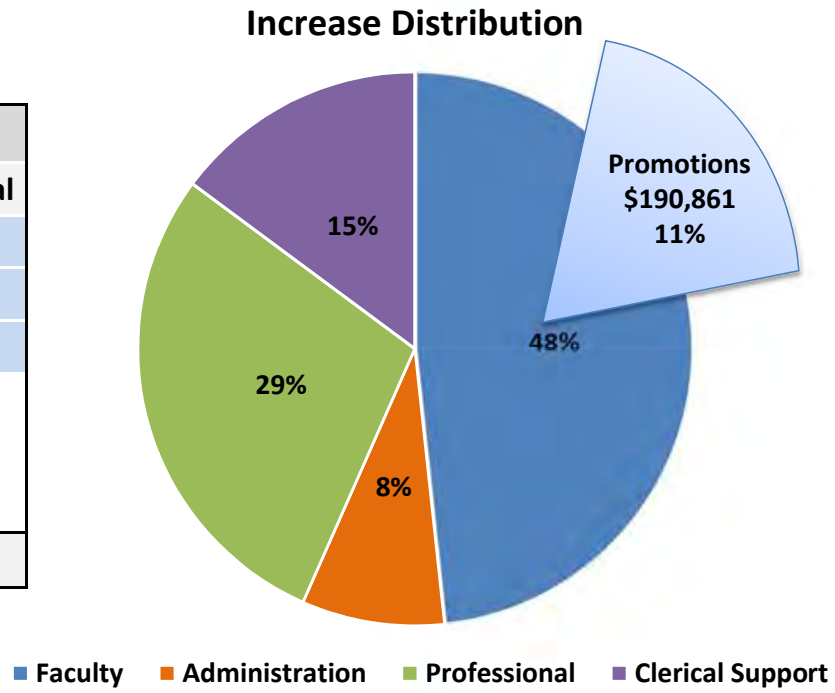
- **All faculty, both tenured and non-tenured, are evaluated annually by the department chairperson and the college dean on**
  - Teaching
  - Advisement
  - Research/Scholarship/Creative Activity
  - Service/Outreach
  - Administration
  - Other (as assigned and detailed)

Changing the Faculty Compensation Culture

- **Prior to 2018, the Faculty Compensation Committee used a complex formula that**
  - Ensured all faculty were at 80 percent of target salary based on CUPA-HR salary data for their discipline and rank
  - Applied additional equity to move faculty towards target salary that included a performance component based on annual evaluation data for 5 years
- **For FY19, faculty salary increases are based on individual faculty performance**
  - Looks at annual evaluation data for 3 years
  - Includes a one-time bonus for exceptional faculty performance

Proposed 2.5% Salary Increase Distribution

By Category			
	Salaries	2.5% Amount	Percent Total
Faculty	$ 33,707,834	$ 842,696	48.29%
Faculty Promotions		$ 190,861	10.94%
Faculty Performance		$ 651,835	37.35%
Administration	$ 5,820,815	$ 145,520	8.34%
Professional	$ 19,919,687	$ 497,992	28.54%
Clerical Support	$ 10,358,674	$ 258,967	14.84%
Total	**$ 69,807,010**	**$ 1,745,175**	**100%**



Faculty Salary Increase Eligibility

- Faculty must have an overall rating of *acceptable* or higher in the most recent evaluation to receive a raise
- Faculty with a 3-year average rating below *good* may be excluded from receiving a performance raise at the discretion of the chair/director
- Full-time temporary faculty rehired for 2018-19 are eligible for a raise of up to 1.0%
- Individual raises for each faculty member will be determined by the chair/director and **must be correlated to a 3-year average of the annual faculty evaluations**

How Evaluations Tie to Performance (Faculty)

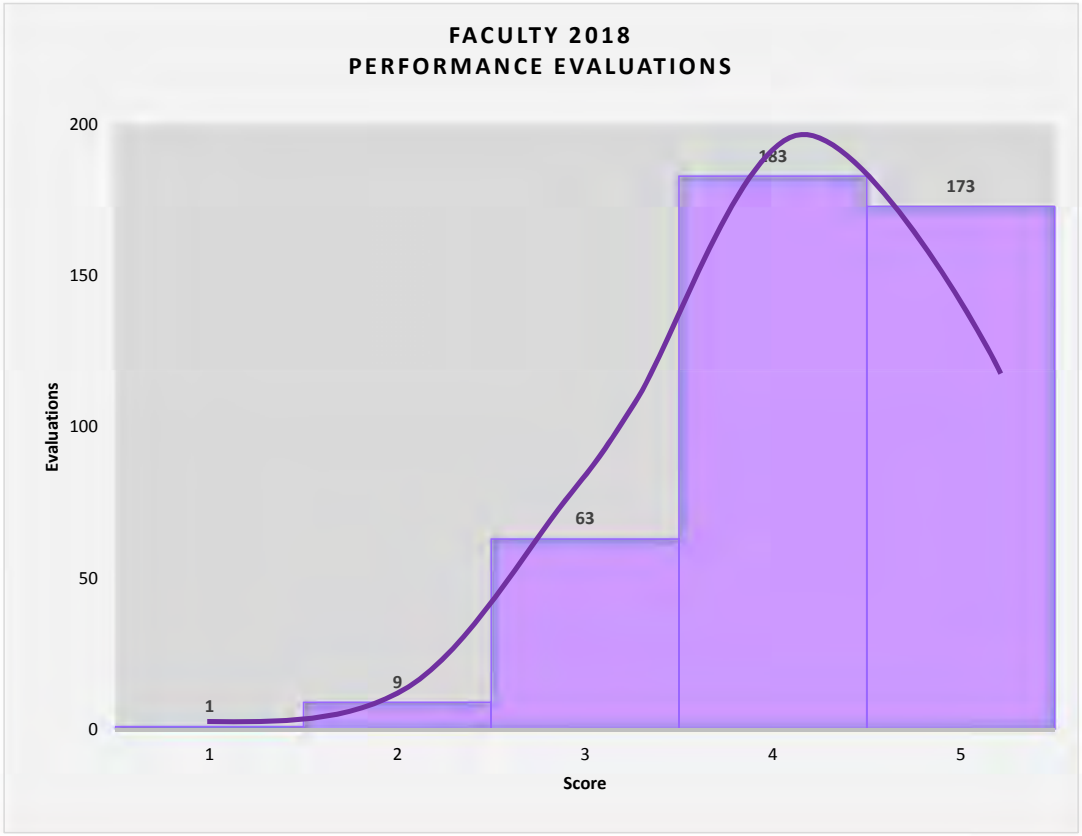
Merit Pay Worksheet

Department:

										Performance Evaluation Score							
T#	Pos #	Eclass	First	Middle	Last	Title	Salary	FY19 Promotion	Salary incl Promotion	2016	2017	2018	AVG	Increase Percentage	Amount of Increase	NEW Salary		
123456	235143	F9	Name	Name	Name	Professor	$ 73,047		$ 73,047	4	4	4	4.00	1.64%	$ 1,200	$ 74,247		
234561	235143	F9	Name	Name	Name	Associate Professor	$ 87,553		$ 87,553	5	5	5	5.00	1.31%	$ 1,150	$ 88,703		
345666	235143	F9	Name	Name	Name	Associate Professor	$ 71,360		$ 71,360	4	4	4	4.00	1.47%	$ 1,050	$ 72,410		
456771	235143	F9	Name	Name	Name	Associate Professor	$ 59,087	$ 5,000	$ 64,087	4	4	4	4.00	2.22%	$ 1,420	$ 65,507		
567876	235143	F9	Name	Name	Name	Associate Professor	$ 89,069		$ 89,069	5	5	5	5.00	1.24%	$ 1,102	$ 90,171		
678981	235143	F9	Name	Name	Name	Assistant Professor	$ 64,025		$ 64,025	4	4	4	4.00	2.81%	$ 1,800	$ 65,825		
790086	235143	F9	Name	Name	Name	Assistant Professor	$ 65,843	$ 2,500	$ 68,343	4	4	5	4.33	1.17%	$ 800	$ 69,143		
901191	235143	F9	Name	Name	Name	Assistant Professor	$ 62,732		$ 62,732	N/A	4	5	4.50	4.11%	$ 2,576	$ 65,308		
1012296	235143	F9	Name	Name	Name	Assistant Professor	$ 79,790		$ 79,790	N/A	4	5	4.50	1.56%	$ 1,244	$ 81,034		
				Totals			$ 652,506	$ 7,500	$ 660,006					1.870%	$ 12,342	$ 672,348		
							Merit Pay Budget		$ 12,342					1.87%				

Faculty Performance Scores

Rating Guide	
5	Outstanding
4	High
3	Good
2	Acceptable
1	Unacceptable



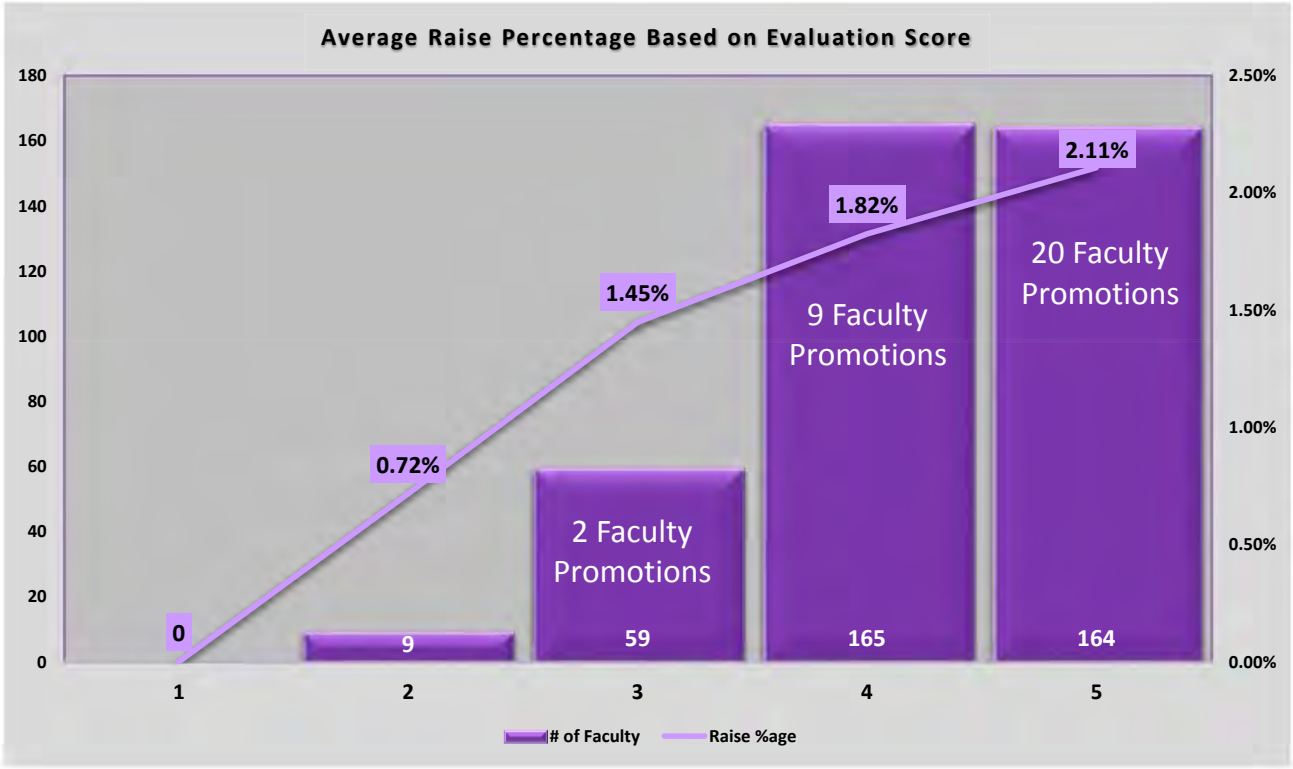
2018
83% of scores High or Outstanding

2017
77% of Scores High or Outstanding

Raise Distribution (Faculty)

Rating Guide

5	Outstanding
4	High
3	Good
2	Acceptable
1	Unacceptable



Spread for faculty increases (excluding performance bonus)

0% - 4.62%

1.86% Overall Average for Faculty

* Includes performance and faculty promotions; does not include performance bonus

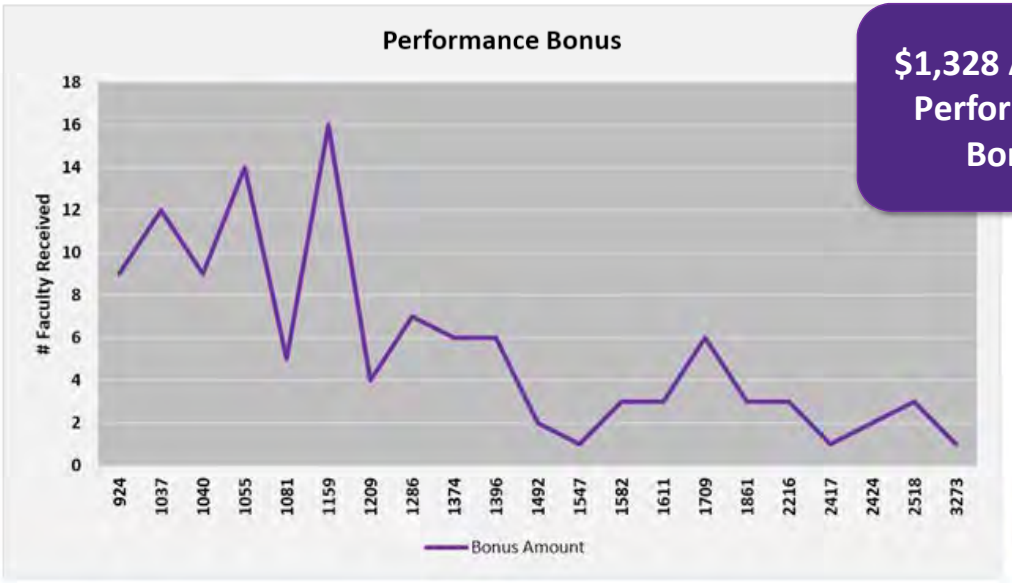
Performance Bonus (Faculty)

- Based on current year evaluation score; converted to a *z*-score (standard deviation)
- To be eligible for a bonus, the faculty's z-score must be in the 70th percentile for the university
- Performance bonus is based on a proportionate distribution; higher the z-score = higher the bonus

Performance Bonus (Faculty)

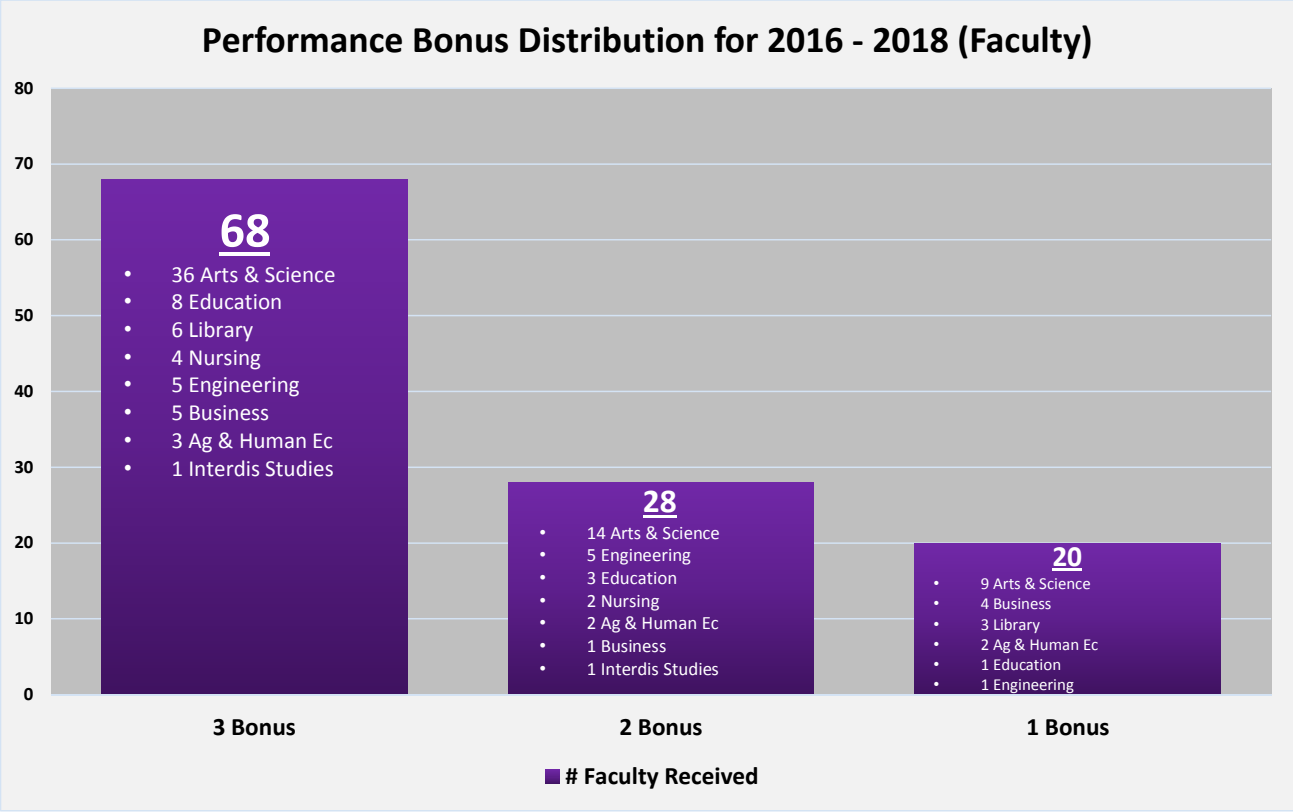
- Additional permanent funding pool of $154,000
- One-time performance bonus based on current year evaluation
  - 30 percent (116) of faculty received bonus for FY18-19

Performance bonus ranged from **$924 - $3,273**

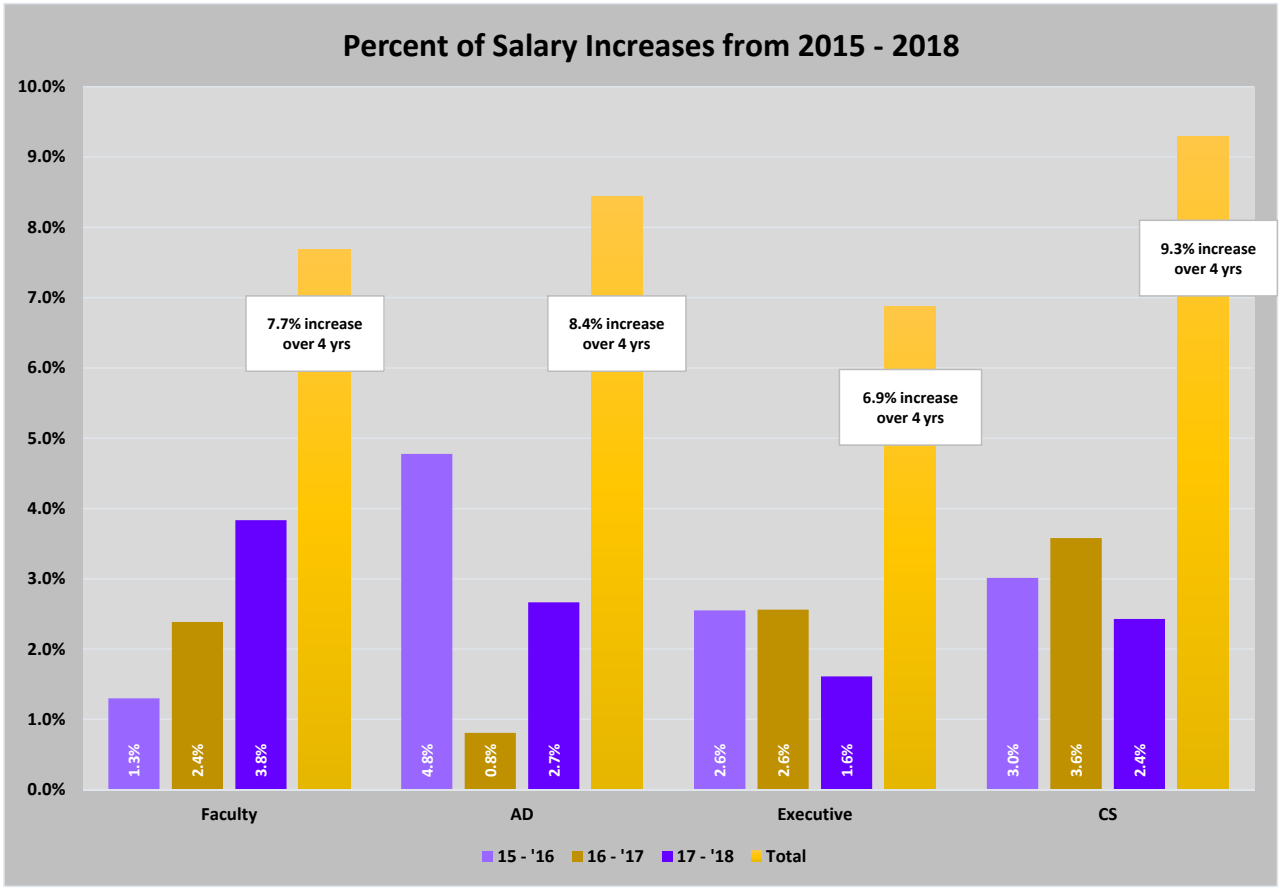


$1,328 Average Performance Bonus

Performance Bonus (Faculty)



Salary Increases from 2015 - 2018



DISCUSSION

Agenda Item Summary

Date: June 26, 2018

Division: Planning and Finance

Agenda Item: Campus Master Plan Amendment

☐ **Review** ☒ **Action** ☐ **No action required**

PRESENTERS: Dr. Claire Stinson, Vice President for Planning and Finance

PURPOSE & KEY POINTS: Review and approval of a Master Plan Amendment that more adequately defines academic expansion specifically for the College of Engineering, and illustrates the proposed location of a new Engineering Building.

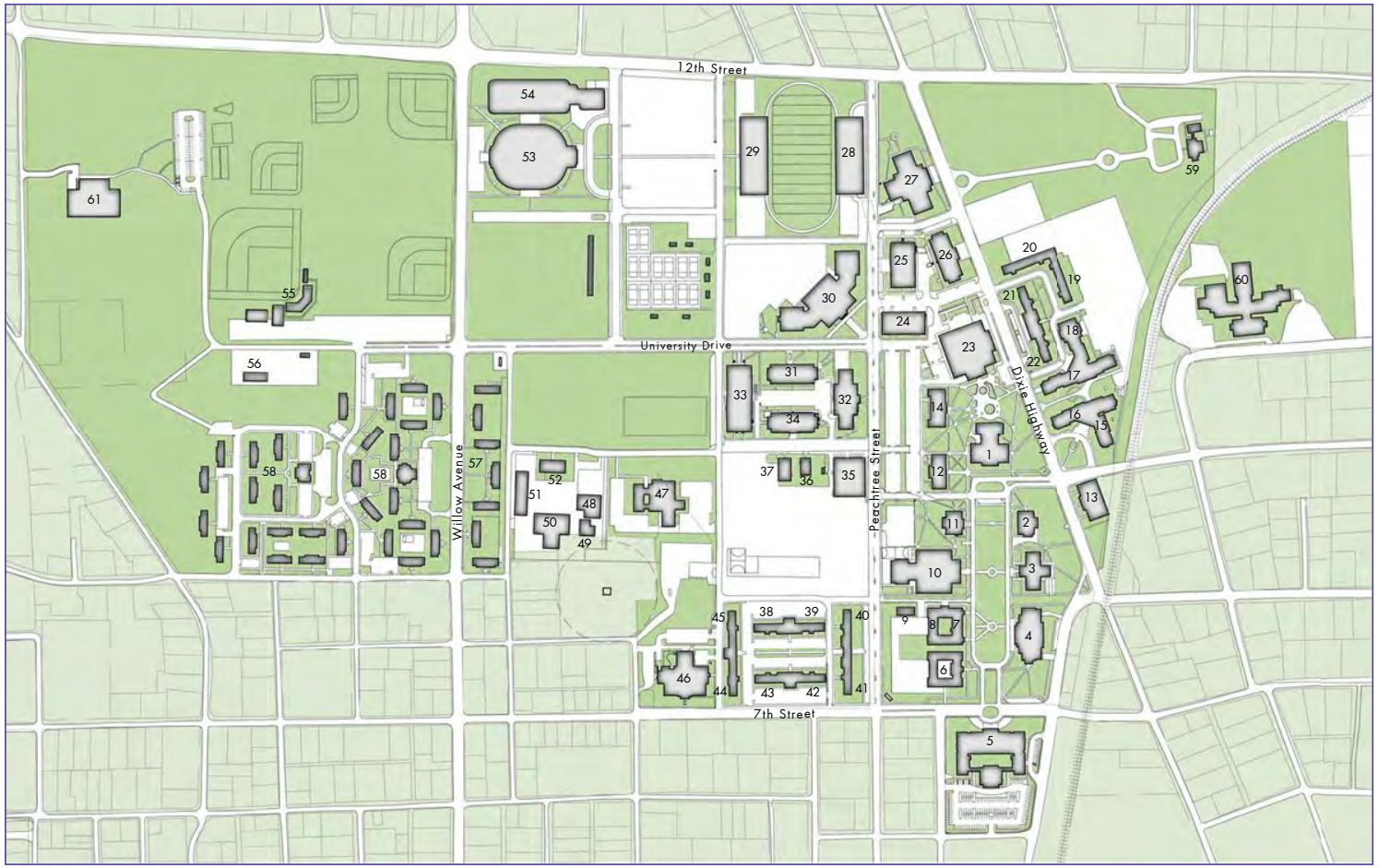
2014
MASTER PLAN
UPDATE REFINEMENT

31 OCTOBER 2013

Tennessee Tech
UNIVERSITY

A
TENNESSEE BOARD of REGENTS
INSTITUTION
SBC#166/011-05-2007

BAUER | ASKEW
architecture.pllc



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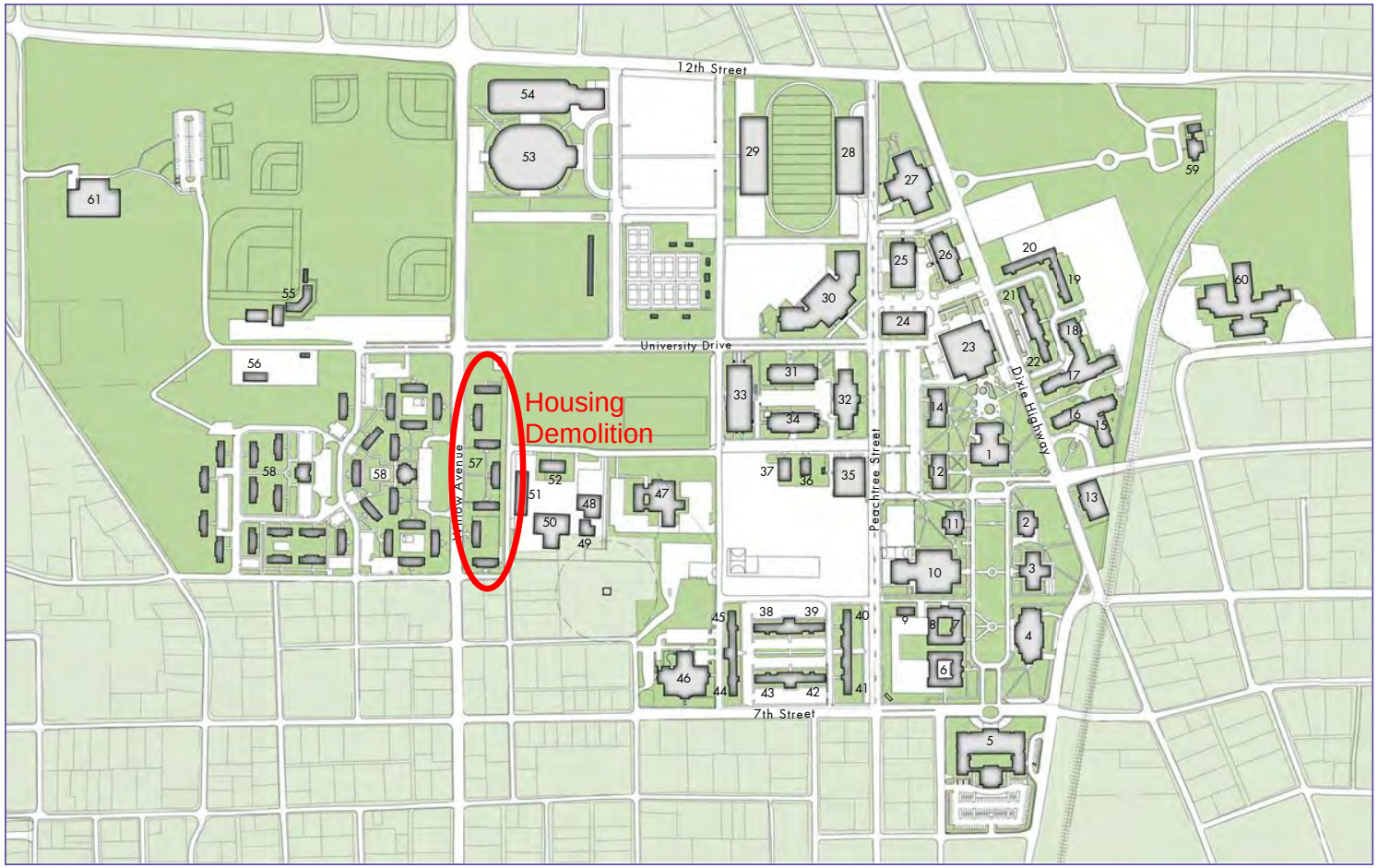

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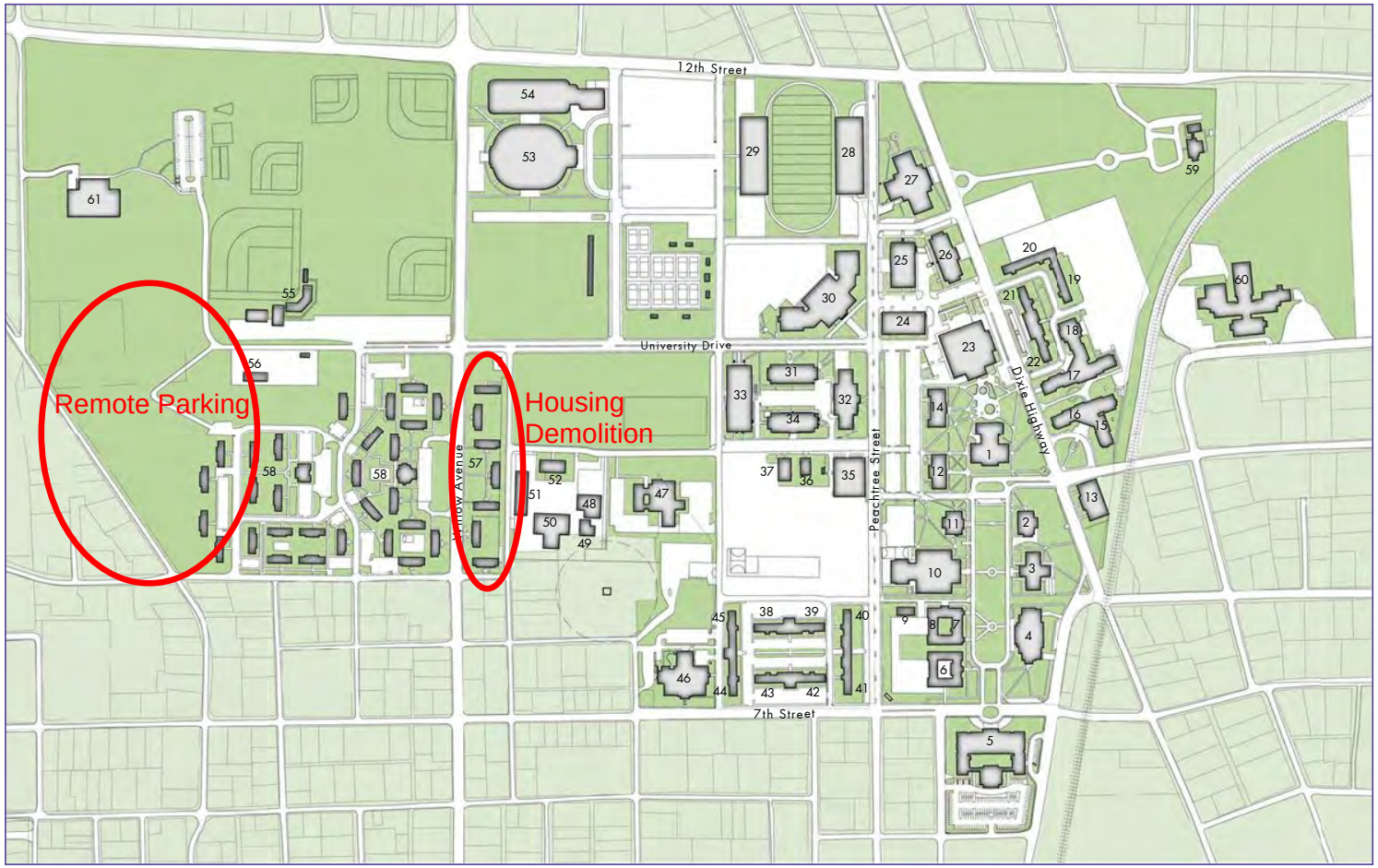

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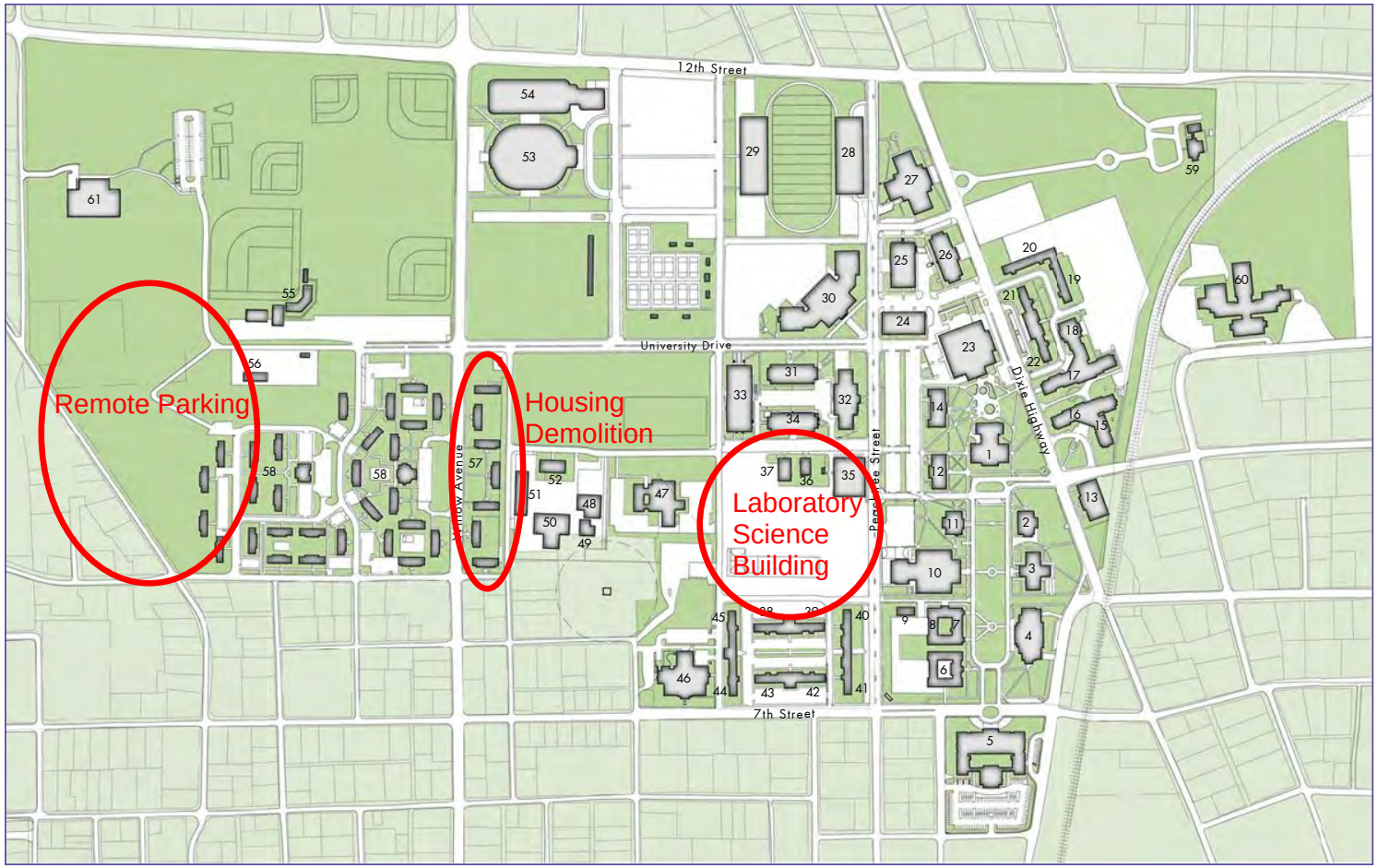

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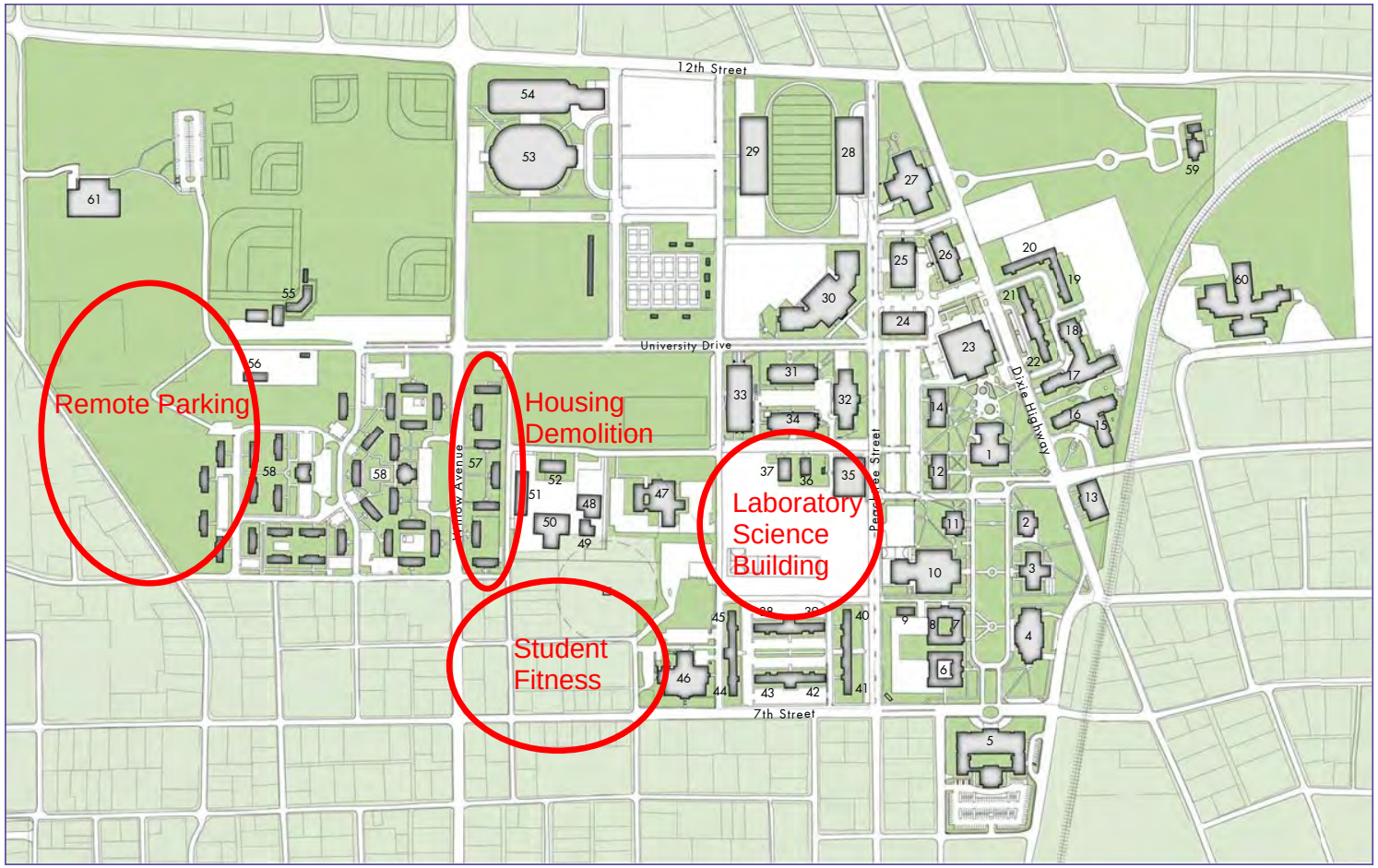

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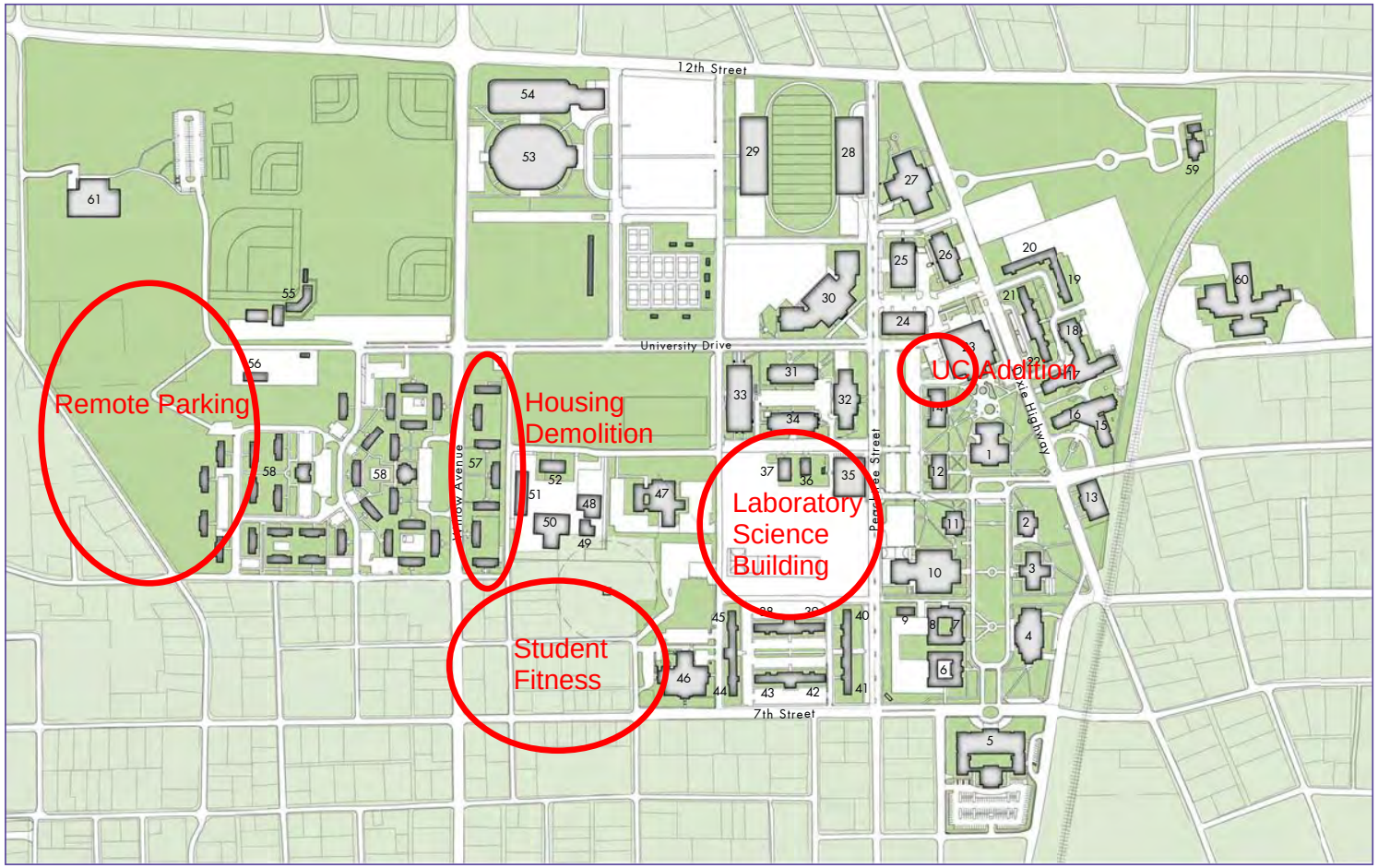

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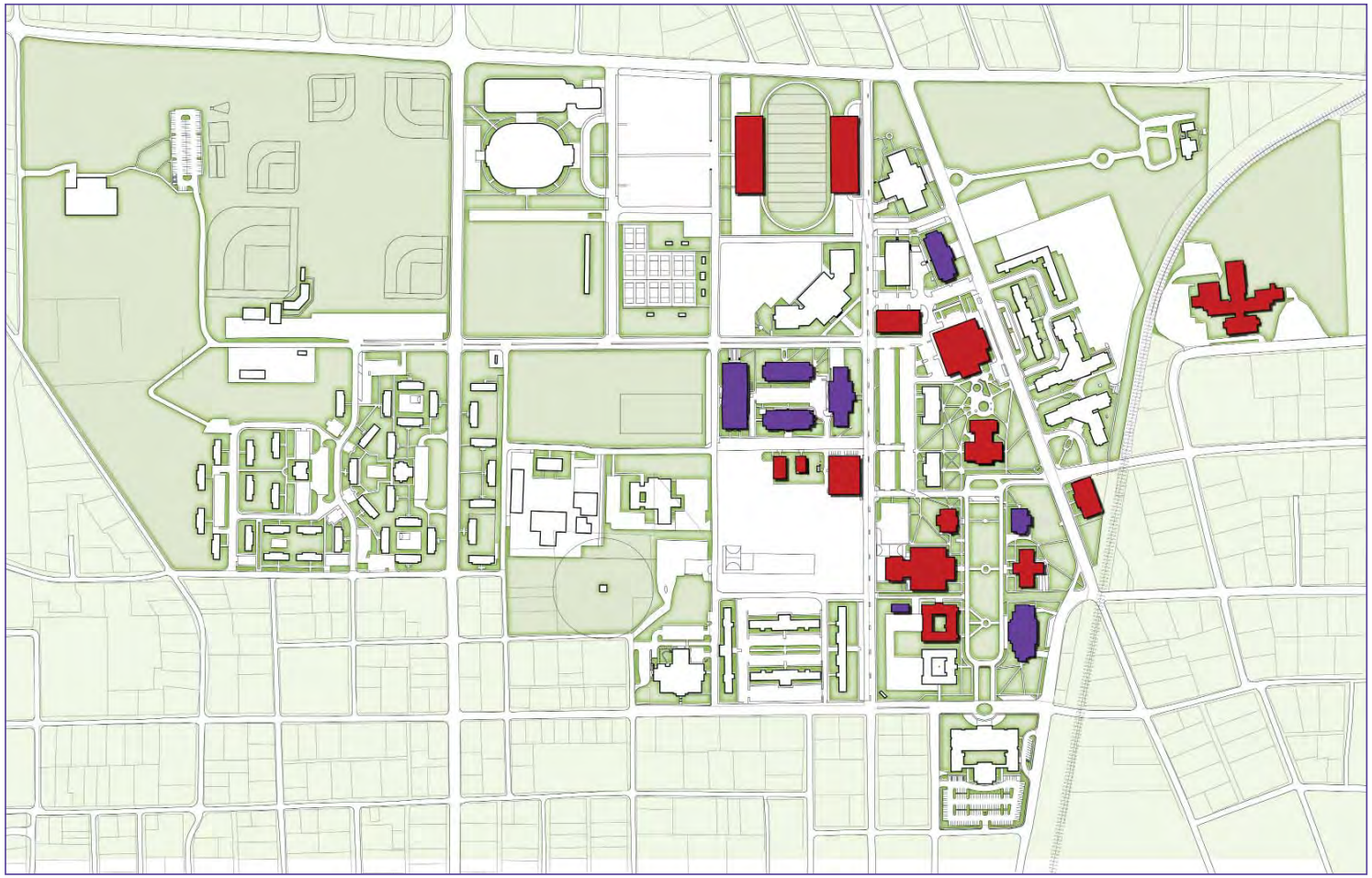
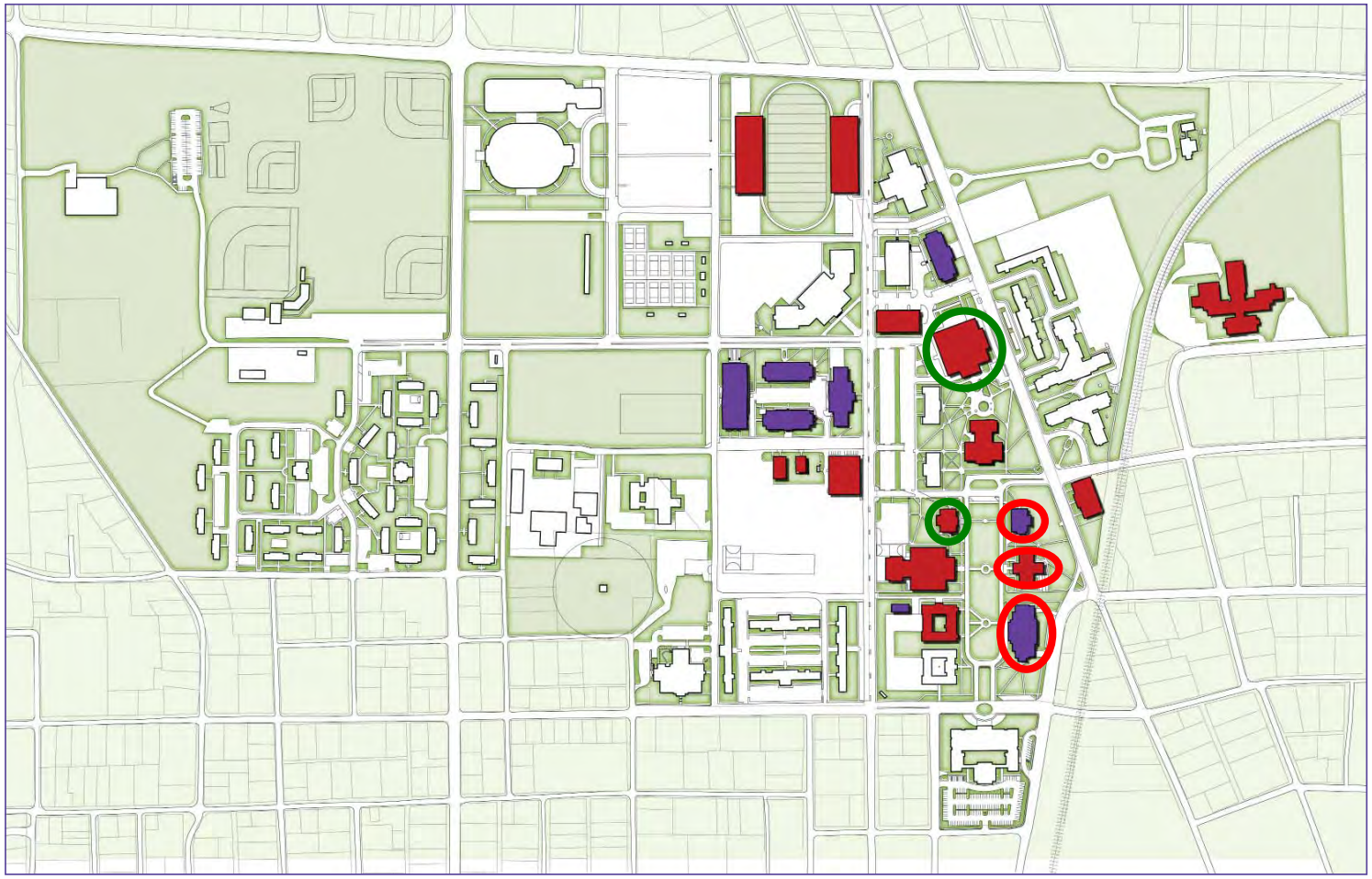


BUILDING ASSESSMENT

Attached within the Appendix is the current Facilities Survey itemizing the ratings of the physical condition of each academic building on the campus. Typically, an overall rating below 70 indicates a building in need of significant renovation or consideration for removal and replacement. The diagram to the left indicates each of the academic and core campus buildings with a score below 70. Non Educational and Core buildings such as Athletic and Housing are not included in this assessment. As this includes the majority of the campus buildings, it represents a staggering and nonviable prospect for replacement. Many of the buildings with ratings in the 60's were reviewed as a separate Six Building Assessment study during the 2010 Update process (available as a separate document) and are part of an ongoing comprehensive incremental renovation and maintenance program. Therefore, the buildings with an overall rating below 60 have been highlighted in red to bring a focus to those in the most need.

Of the thirteen buildings with a rating below 60, the lowest rated buildings, Matthews, Daniels and the East Stadium Lab spaces should be considered for immediate replacement. Foster Hall is scheduled for demolition after the new Science building and Pennebaker renovations are completed. Foundation Hall's use a flex space should not deter it's future as providing parking. Lewis Hall, the Foundry and the Old Maintenance are considered as place holders for academic expansion along the new Science Quad. The most challenging opportunities will be the repurposing or replacement of Jere Whitson and the Health and PE Building. As keynote buildings, The University Center and Derryberry Hall should be significantly renovated.



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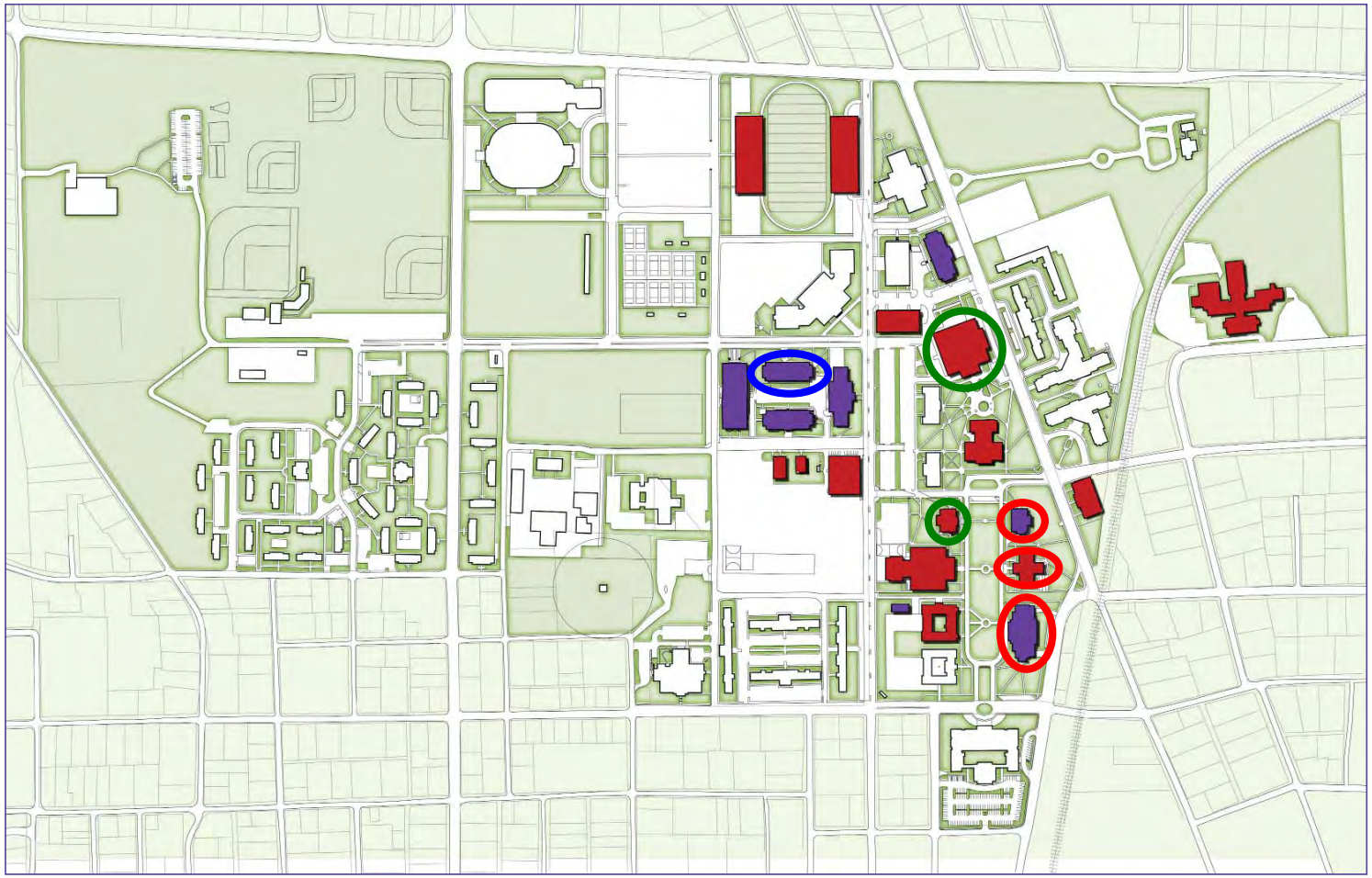

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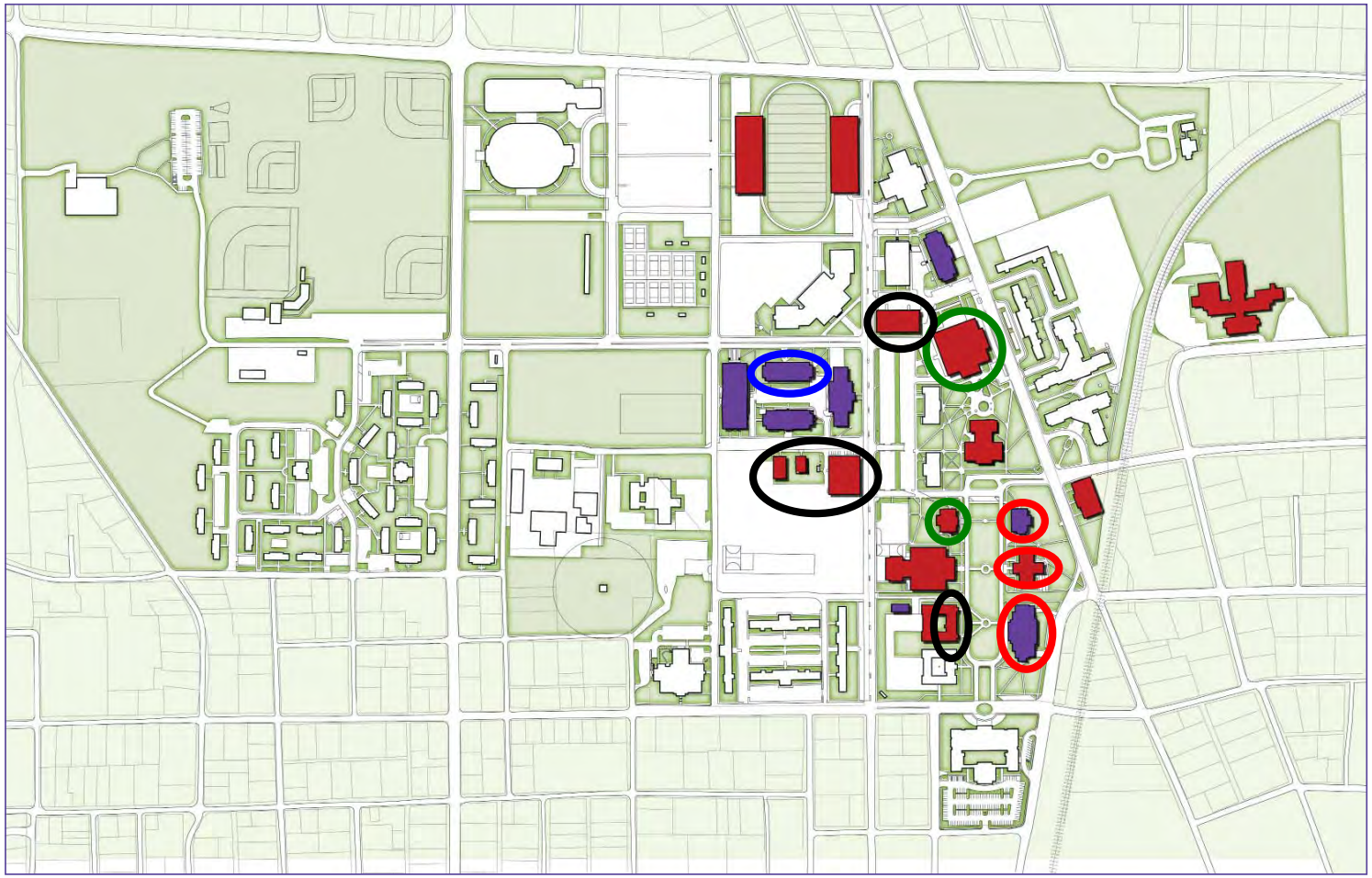

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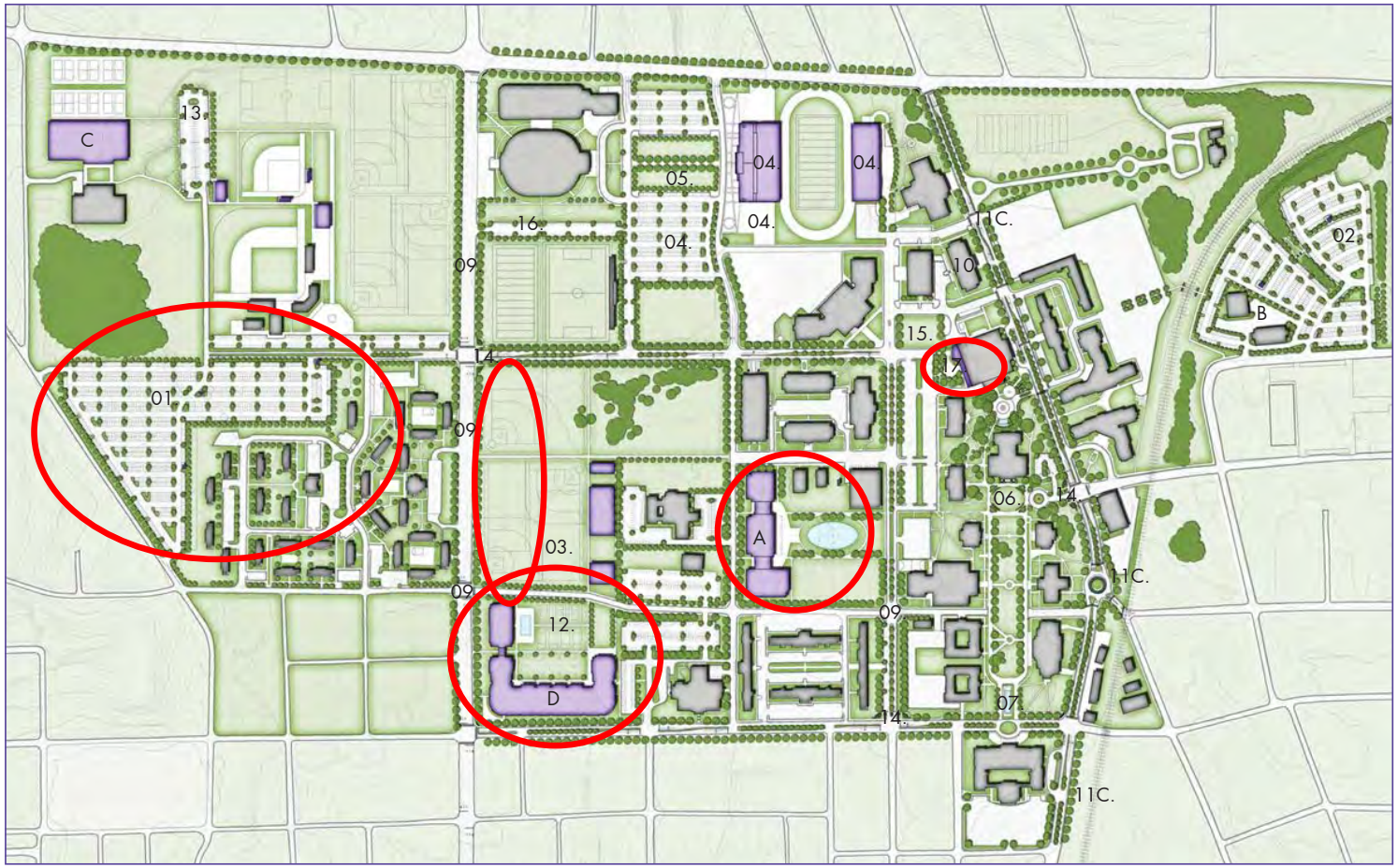
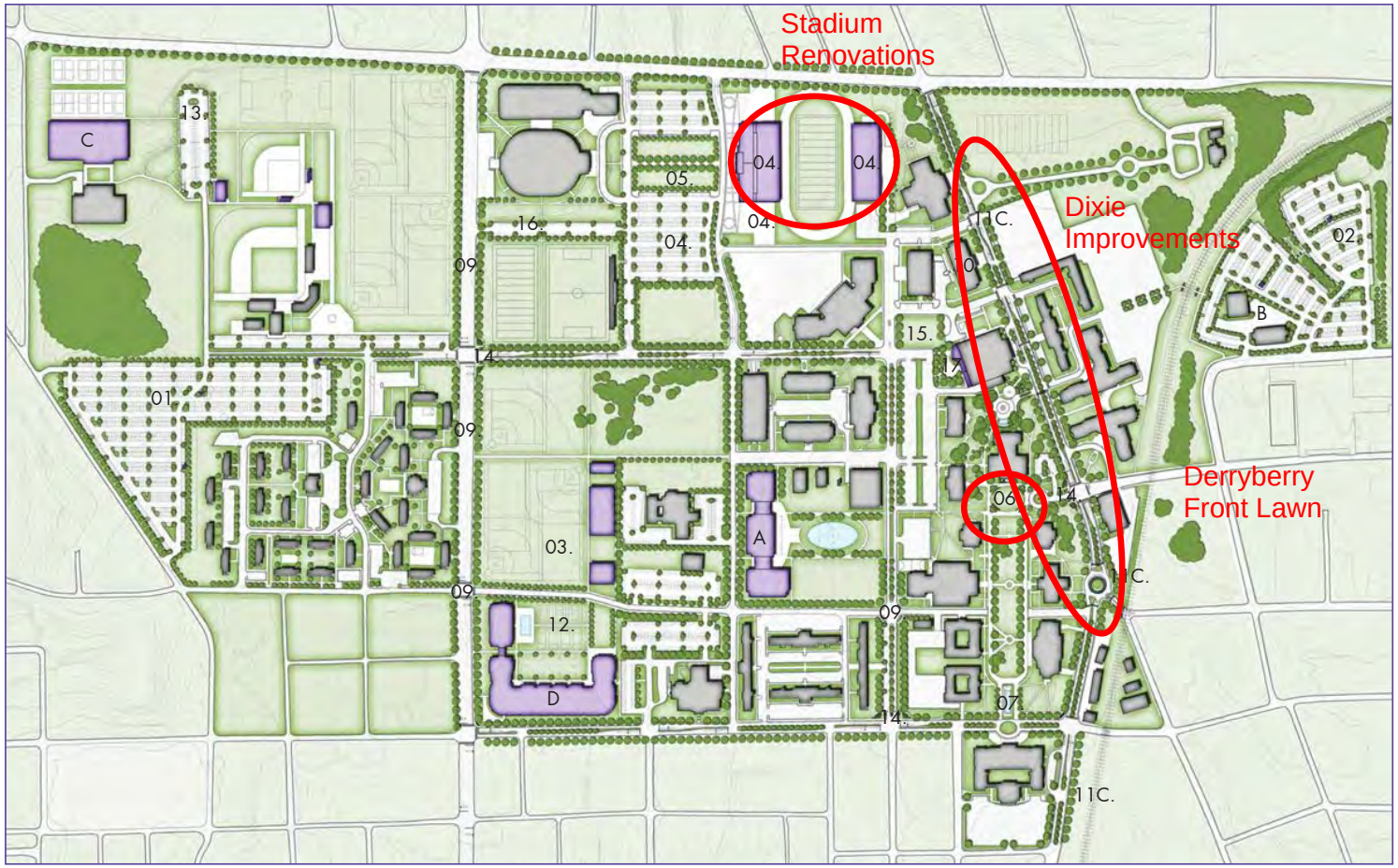


NEW BUILDINGS:

A. Integrated Science Building
B. Facilities Services Temporary Relocation
C. Tennis Court Facility
D. Intramural Building with corresponding fields

CAMPUS IMPROVEMENTS:

01. West Campus Parking Lot
    a. University Drive Upgrades
    b. Current Athletic Lot Upgrades
    c. Shuttle Route I
02. Foundation Hall Parking
03 Southwest Intramural Quad
04. West Stadium Renovations
    Stadium West Parking Greening
    Stadium Southwest Parking Removed
05. Tailgate Lawn Implemented
06. Derryberry Front & Rear Lawn Improvements
07. Centennial Fountain
08. Peachtree Central & South Sections with Pedestrian Rotary
09. Willow Improvements
10. Pennebaker Renovations
11. Dixie Improvements
    a. Dixie Avenue
    b. Roundabout
    c. Mahler Avenue
12. Rec. Tennis Courts relocated
13. Tennis Facility parking extended
14. Campus Gates established
15. Foster Demolition
16. Hooper Eblen Parking Greening
17. UC Improvements

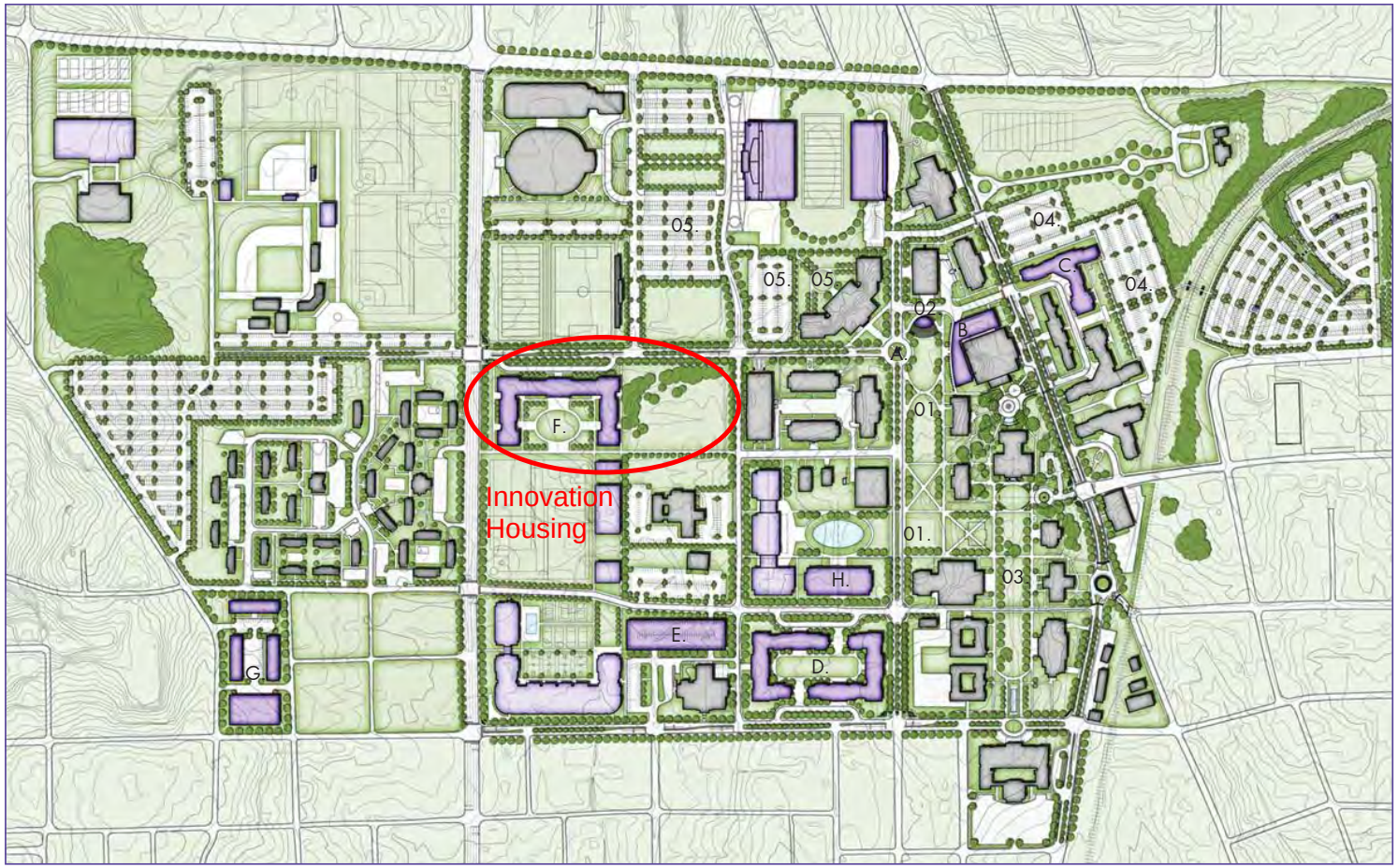


NEW BUILDINGS:

A. Integrated Science Building
B. Facilities Services Temporary Relocation
C. Tennis Court Facility
D. Intramural Building with corresponding fields

CAMPUS IMPROVEMENTS:

01. West Campus Parking Lot
    a. University Drive Upgrades
    b. Current Athletic Lot Upgrades
    c. Shuttle Route I
02. Foundation Hall Parking
03 Southwest Intramural Quad
04. West Stadium Renovations
    Stadium West Parking Greening
    Stadium Southwest Parking Removed
05. Tailgate Lawn Implemented
06. Derryberry Front & Rear Lawn Improvements
07. Centennial Fountain
08. Peachtree Central & South Sections with Pedestrian Rotary
09. Willow Improvements
10. Pennebaker Renovations
11. Dixie Improvements
    a. Dixie Avenue
    b. Roundabout
    c. Mahler Avenue
12. Rec. Tennis Courts relocated
13. Tennis Facility parking extended
14. Campus Gates established
15. Foster Demolition
16. Hooper Eblen Parking Greening
17. UC Improvements

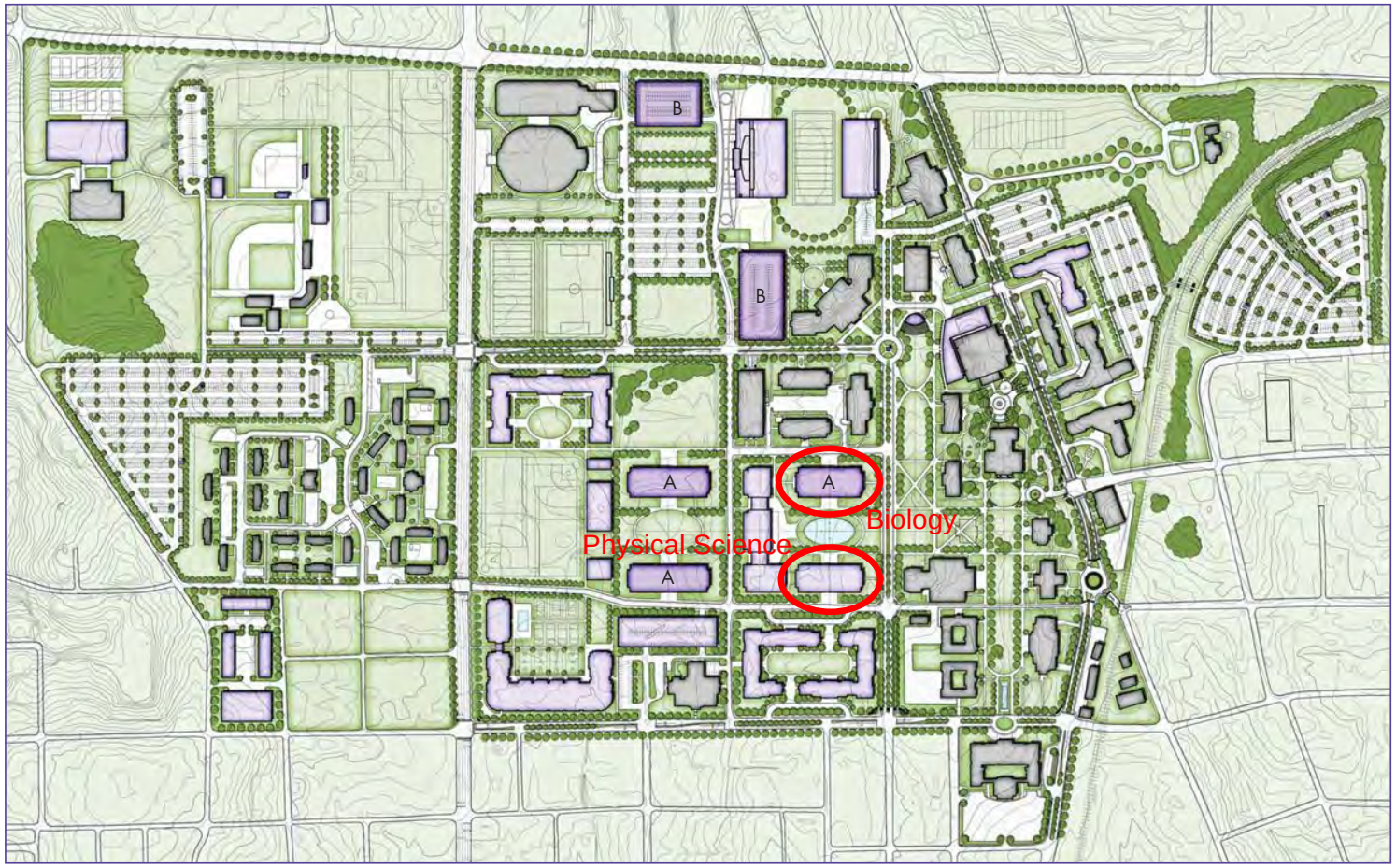


NEW BUILDINGS:

A. TTU Bell Tower
B. University Center Expansion
C. New Jobe/Murphy Student Housing
D. Capital Quad Housing Replacement
E. 8th Street Parking Garage
F. Campus Housing Expansion at University & Willow
G. Facilities Services Relocation
H. Academic Expansion
J. West Stadium Expansion
K. East Stadium Improvements

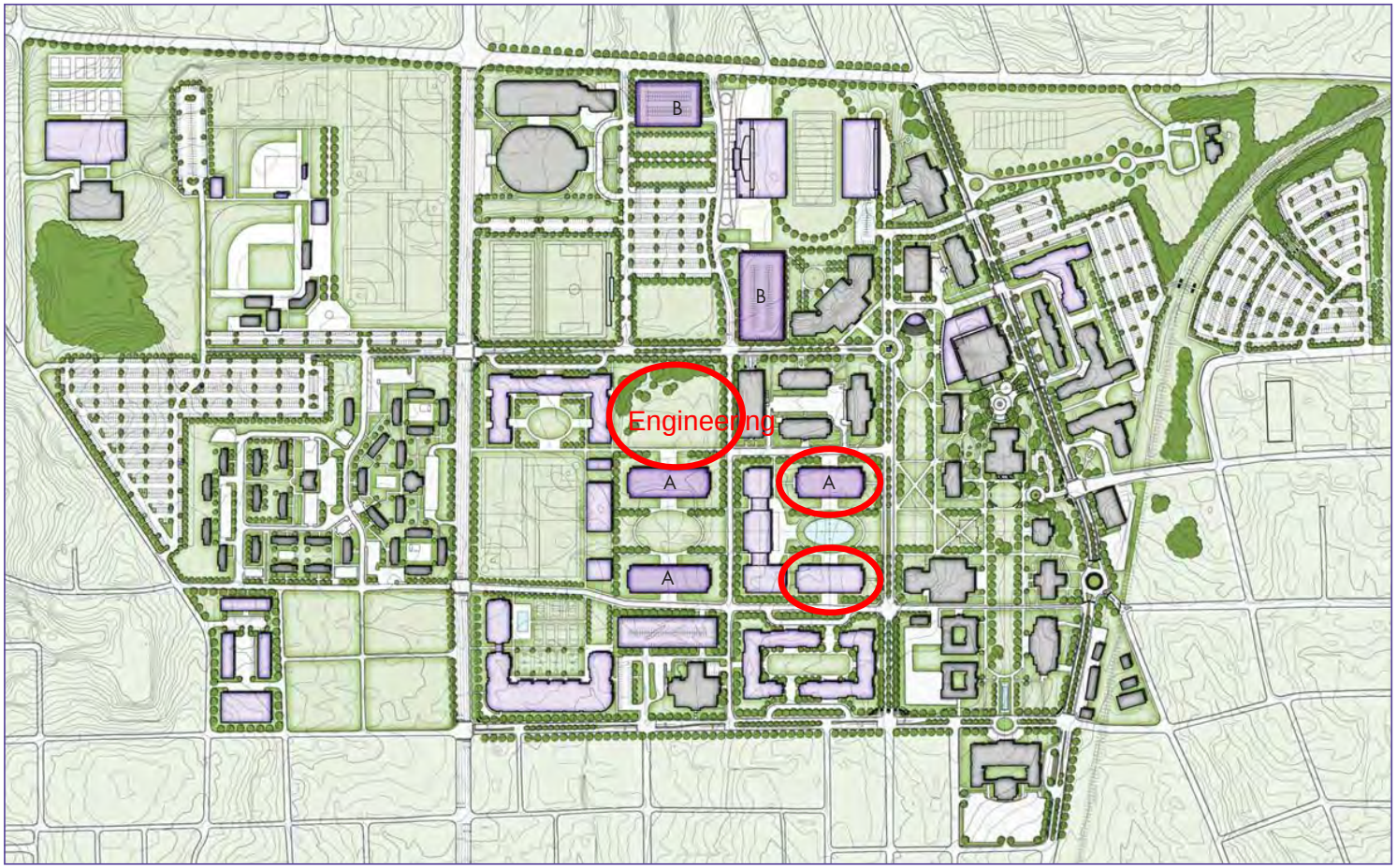
CAMPUS IMPROVEMENTS:

01. Peachtree Street and Mall
02. Peachtree Mall Amphitheater
03. Historic Quad Renovations
    a. 8th Street Extension
04. Jobe/Murphy Housing Parking Improvements
05. Library parking improvements & outdoor classroom.
06. Track and Soccer Developed Off-campus



NEW BUILDINGS:

A. Future Academic Expansion
B. Additional Parking Structures



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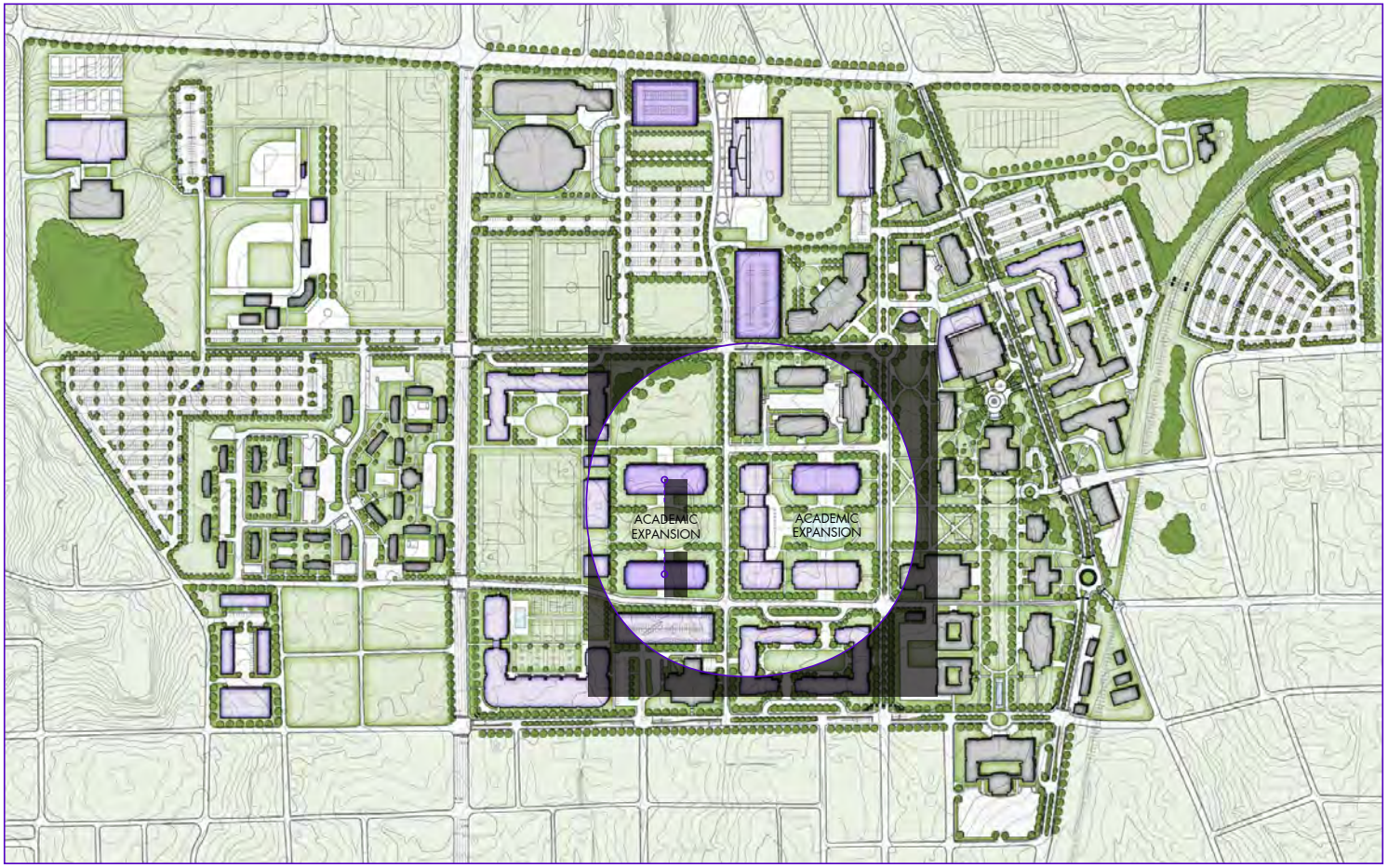
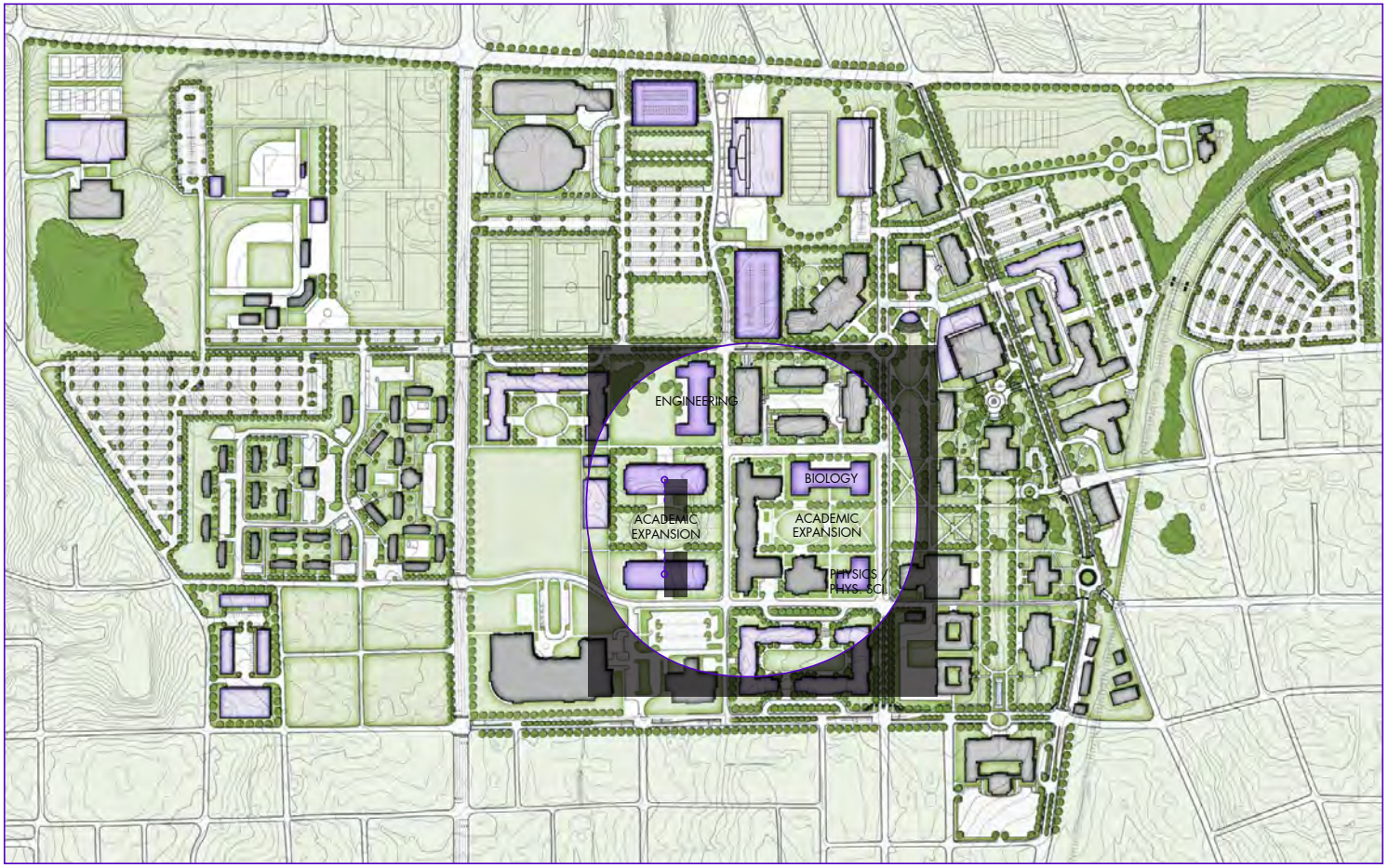


ACADEMIC EXPANSION

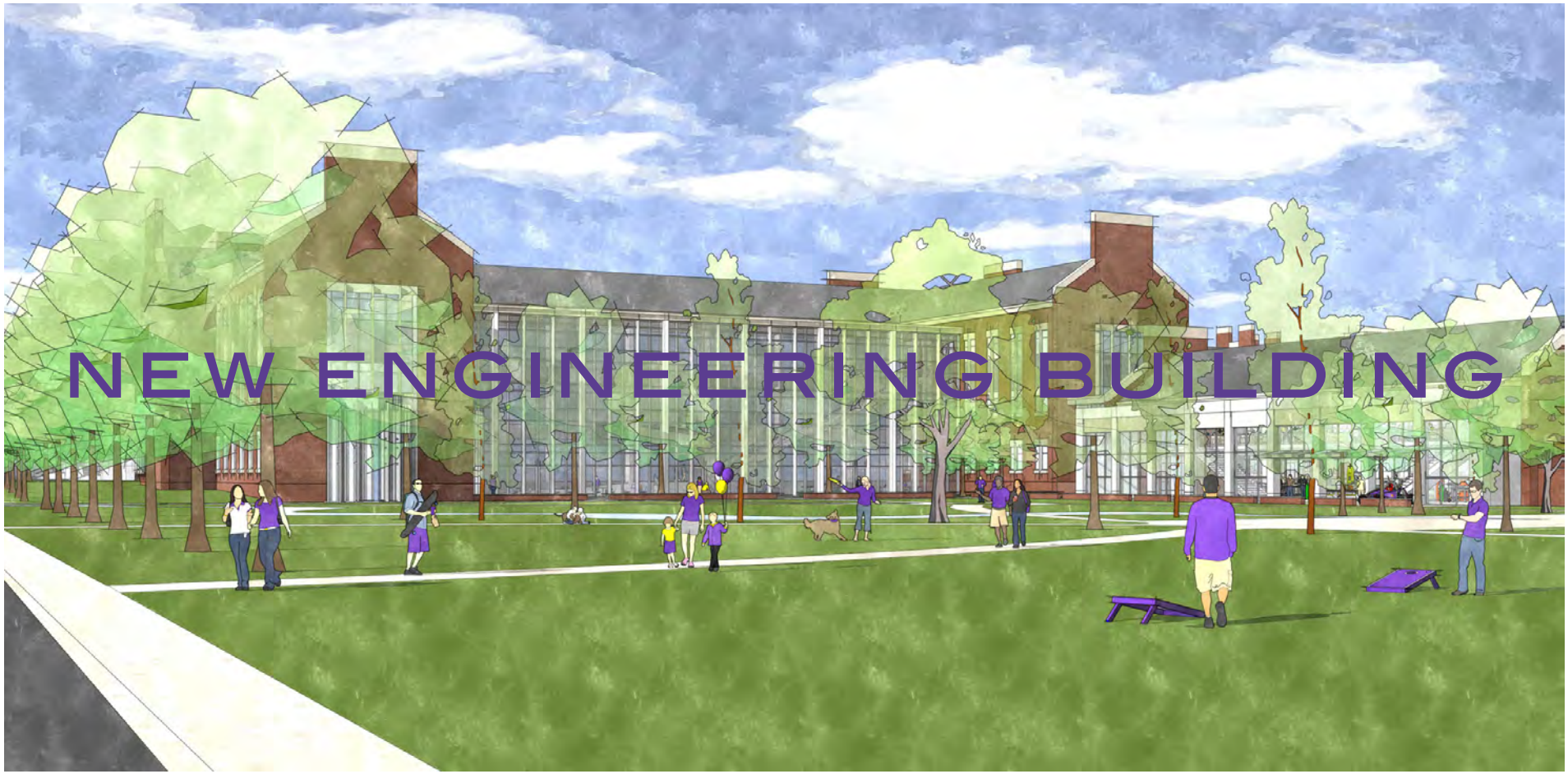
As further academic space is required in the future, the replacement of buildings such as Jere Whitson and the Health and P.E. building are options for consideration. In addition, the new science building provides several opportunities for structures in nearby locations. The removal of Lewis Hall, Foundry Building, and the Old Maintenance Building will allow for a 100,000 square foot building to be added to the North edge of the Science Mall. A similar sized building could also be added to the south side of the Science Mall to complete the formation of the mall's outdoor space. Additional square footage may also be added to the west side of Stadium Drive flanking an outdoor space aligned with the new science building. The design of the science building can therefore be developed as an ending to the new east|west science mall as well as a breezeway connection to the future quad beyond to the west.

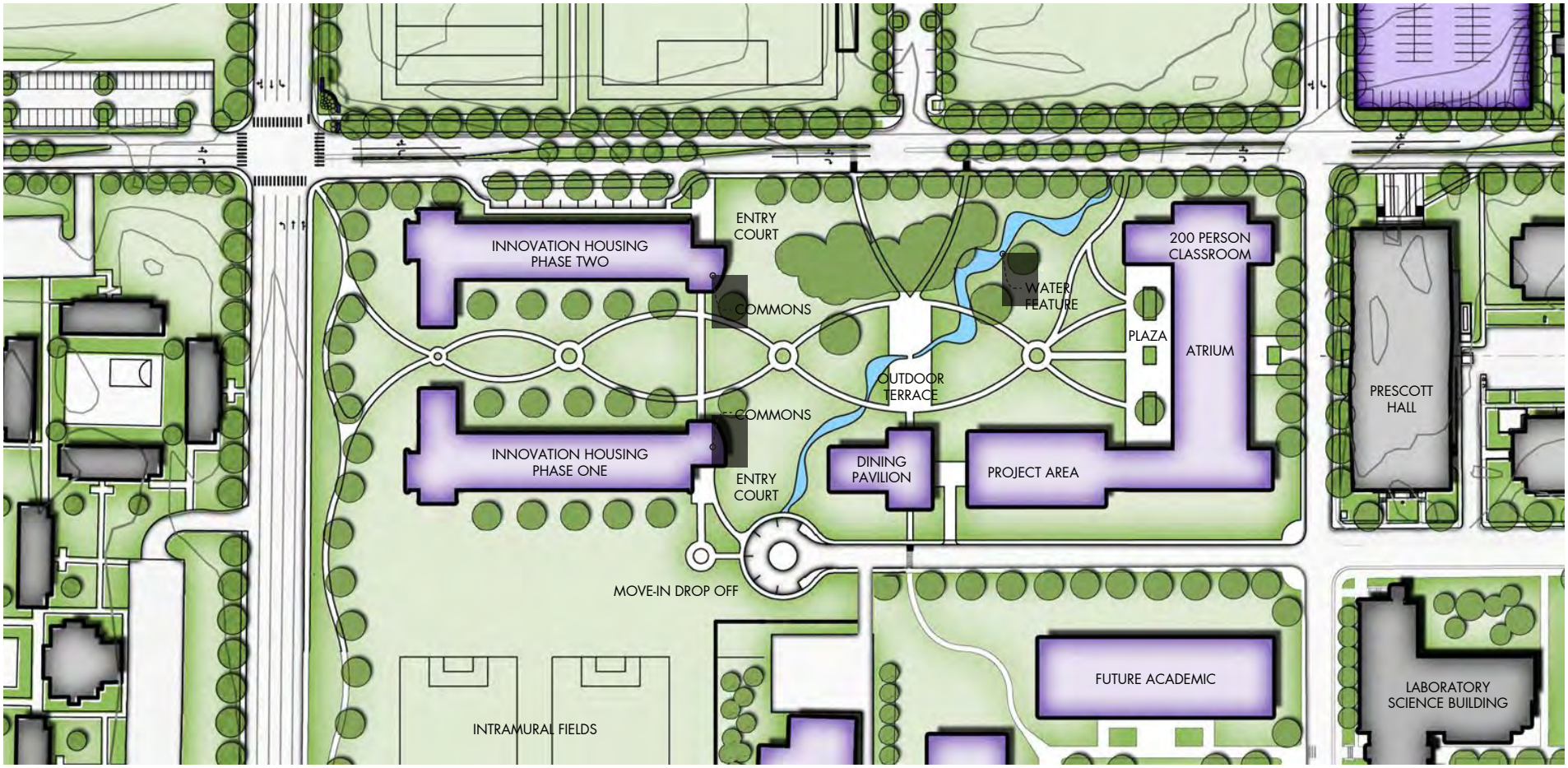


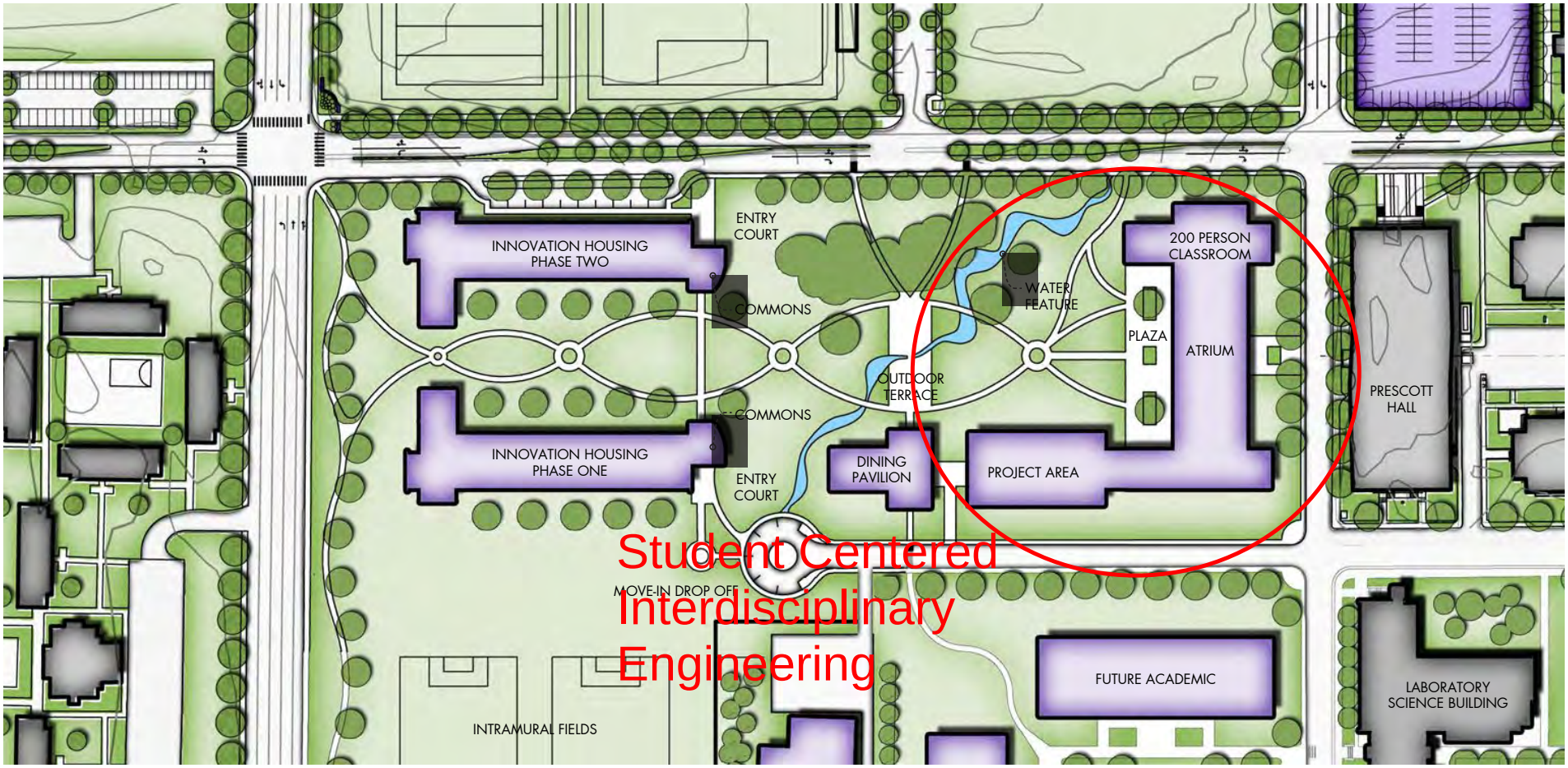
ACADEMIC EXPANSION

As academic space is required in the future, the replacement of buildings with low assessment scores should be considered. The opportunity for new building sites is primarily focused on the areas west of Stadium Drive and within the new Laboratory Science Building Block. It is envisioned that the Laboratory Science Building currently under construction could be flanked by other related science buildings along West 8th Street and along West 10th Street. This block could be developed as a "Science" Quadrangle with a Biology building and a Physics | Physical Science building on the north and south respectfully.

The next building to be developed on the campus is anticipated to be the new Engineering building. A desire of the university for the Engineering Building is that it present a progressive and engaging image at the forefront of the university. The development of the proposed quadrangle to the west of the new Laboratory Science Building is a long-term vision, as it is envisioned that Southwest Hall will be retained for the immediate future and significant infrastructure and maintenance relocations will be required in the remaining area. Given the significance of the Engineering Building to the University, a highly visible site was selected at the primary entry to the campus from Willow Avenue along University Drive. The future engineering building is proposed to be located on Stadium Drive opposite Prescott Hall. The proposed site extends the existing engineering focused Quad, which includes Bruner, Clement, Brown and Prescott, westward into Sherlock Park. While the front of the building will address Prescott Hall and the Stadium Drive, the highly visible western side will engage Sherlock Park and provide a distinctive image at this keynote entry into the campus. The band practice area currently utilizing Sherlock Park is proposed to be relocated to the front lawn of the Walton House across from the Bryan Fine Arts Building.


NEW ENGINEERING BUILDING


ENTRY COURT
INNOVATION HOUSING PHASE TWO
COMMONS
200 PERSON CLASSROOM
WATER FEATURE
PLAZA
ATRIUM
OUTDOOR TERRACE
PRESCOTT HALL
COMMONS
INNOVATION HOUSING PHASE ONE
DINING PAVILION
PROJECT AREA
ENTRY COURT
MOVE-IN DROP OFF
FUTURE ACADEMIC
LABORATORY SCIENCE BUILDING
INTRAMURAL FIELDS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COMMONS
WATER FEATURE
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ATRIUM
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PRESCOTT HALL
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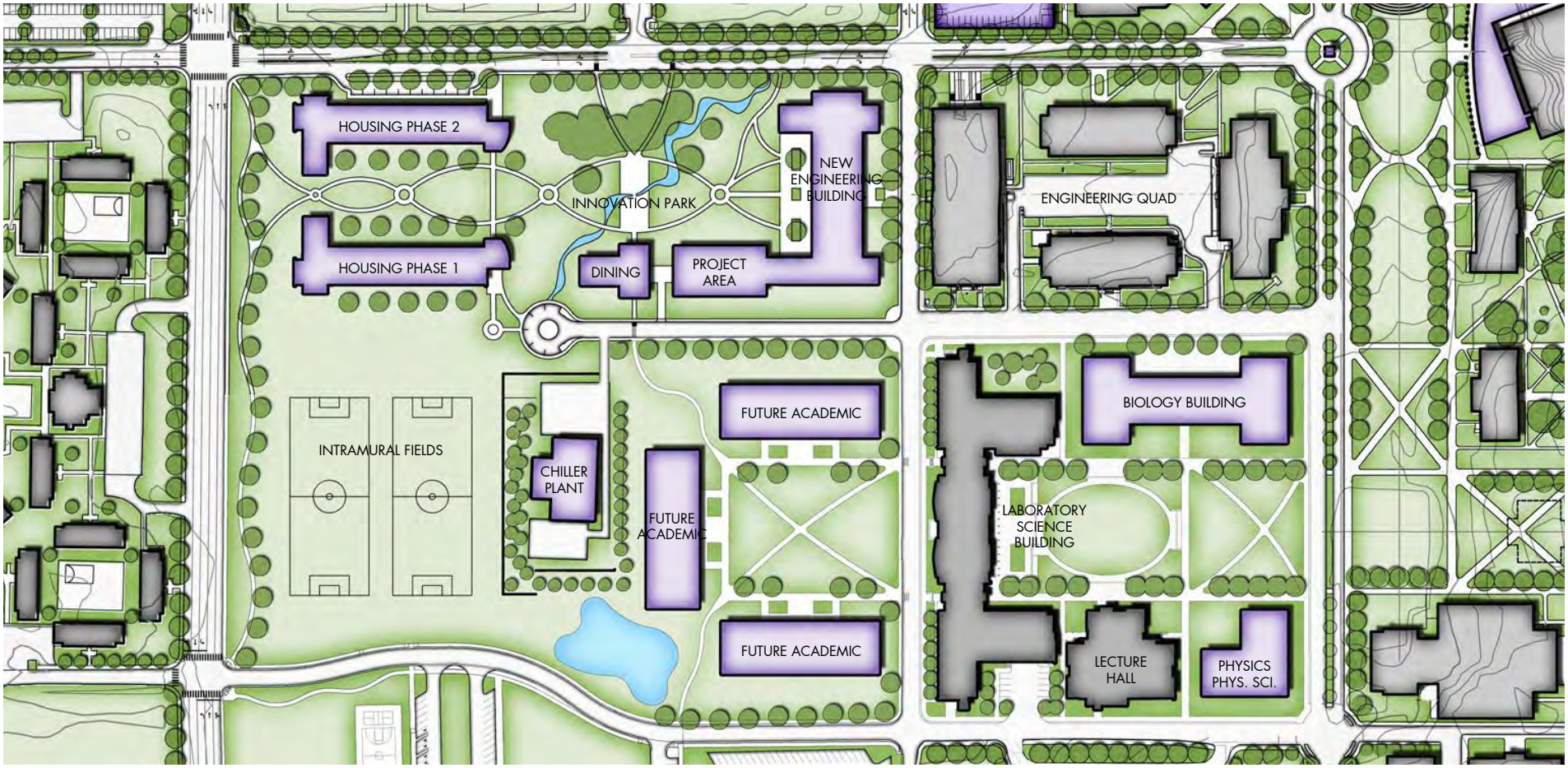
Student Centered
Interdisciplinary
Engineering
FUTURE ACADEMIC
LABORATORY SCIENCE BUILDING
INTRAMURAL FIELDS


HOUSING PHASE 2
HOUSING PHASE 1
INNOVATION PARK
NEW ENGINEERING BUILDING
DINING
PROJECT AREA
ENGINEERING QUAD
INTRAMURAL FIELDS
CHILLER PLANT
FUTURE ACADEMIC
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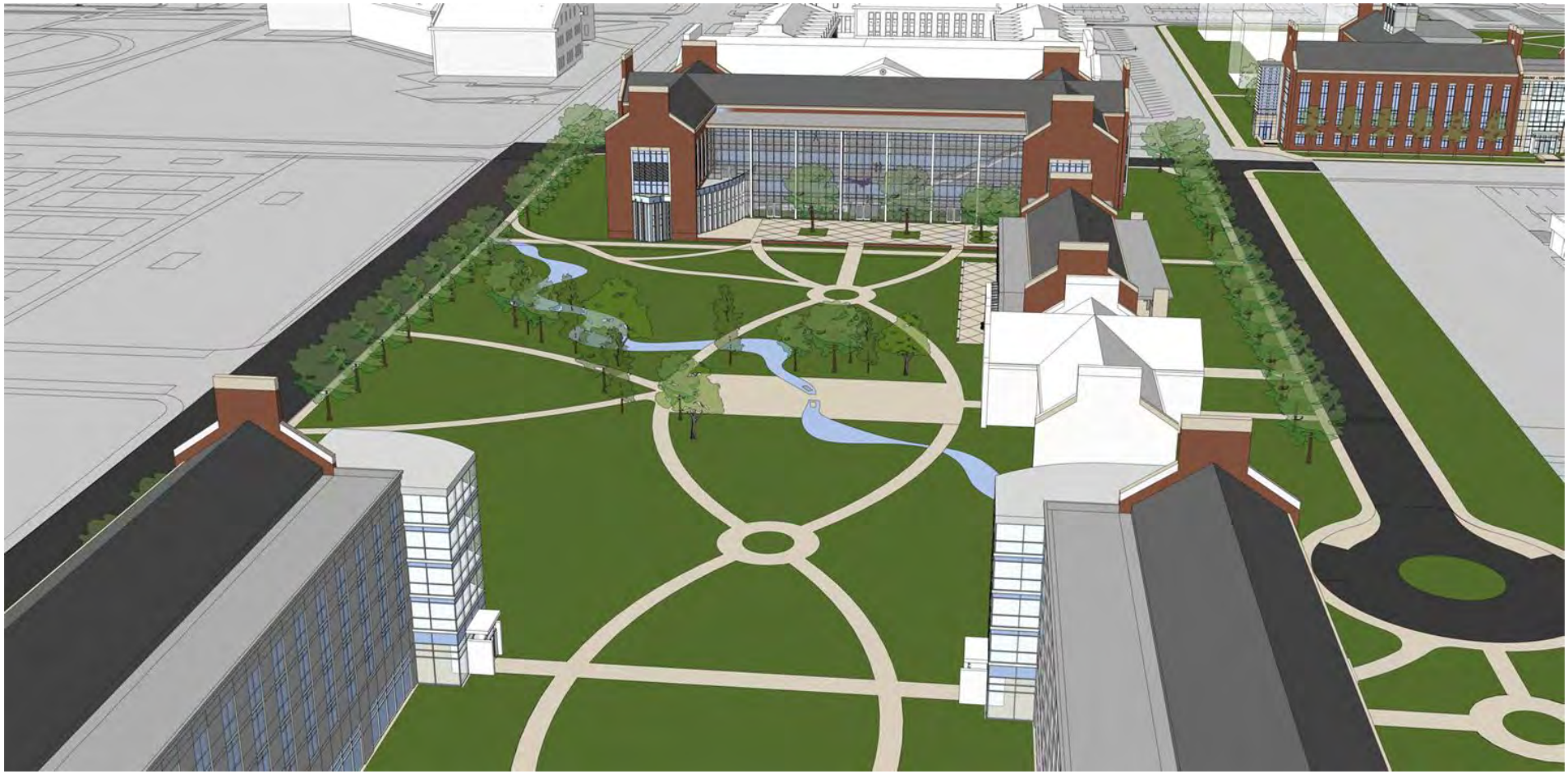
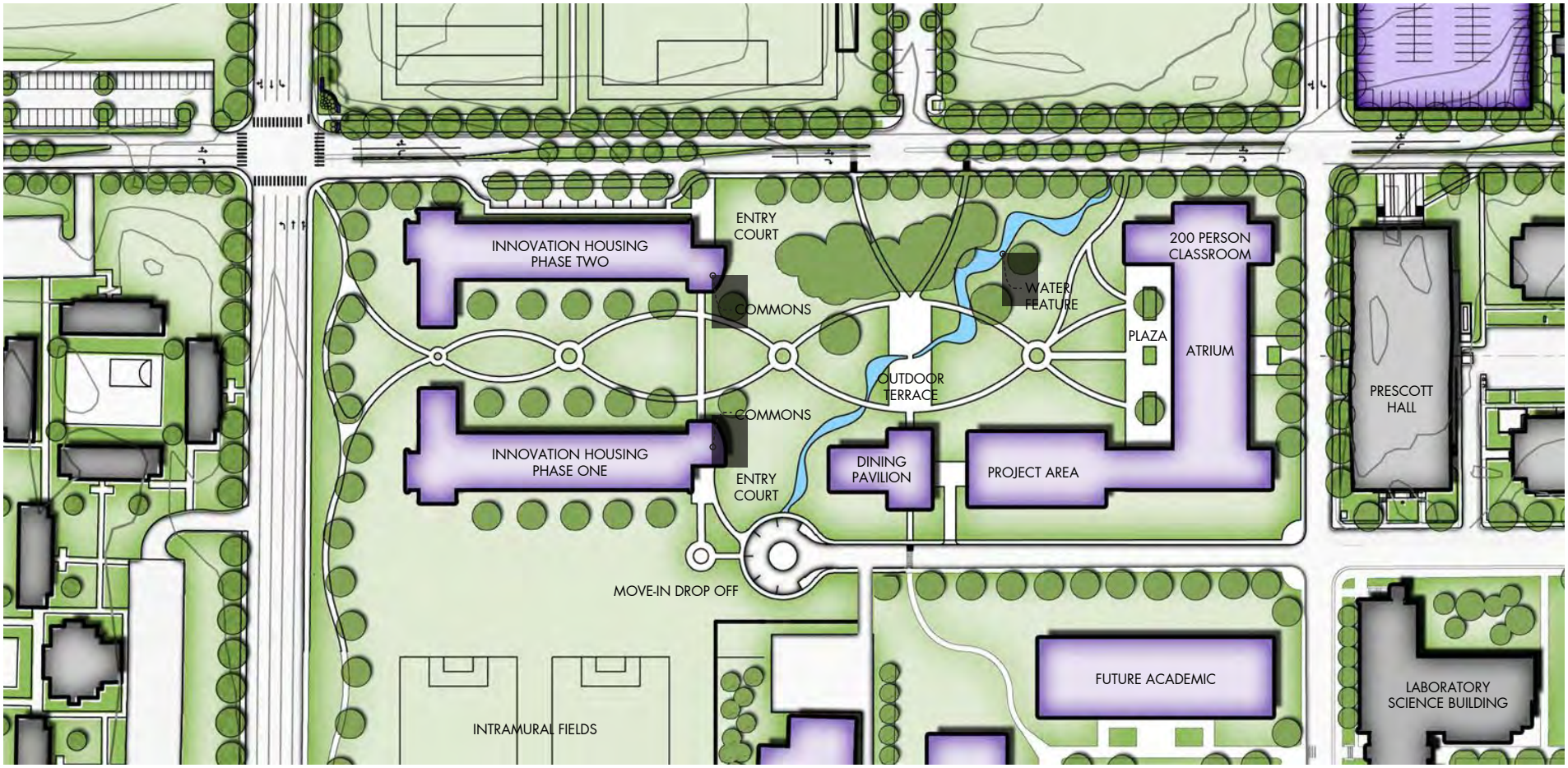
BIOLOGY BUILDING
LABORATORY SCIENCE BUILDING
LECTURE HALL
PHYSICS PHYS. SCI.




INNOVATION HOUSING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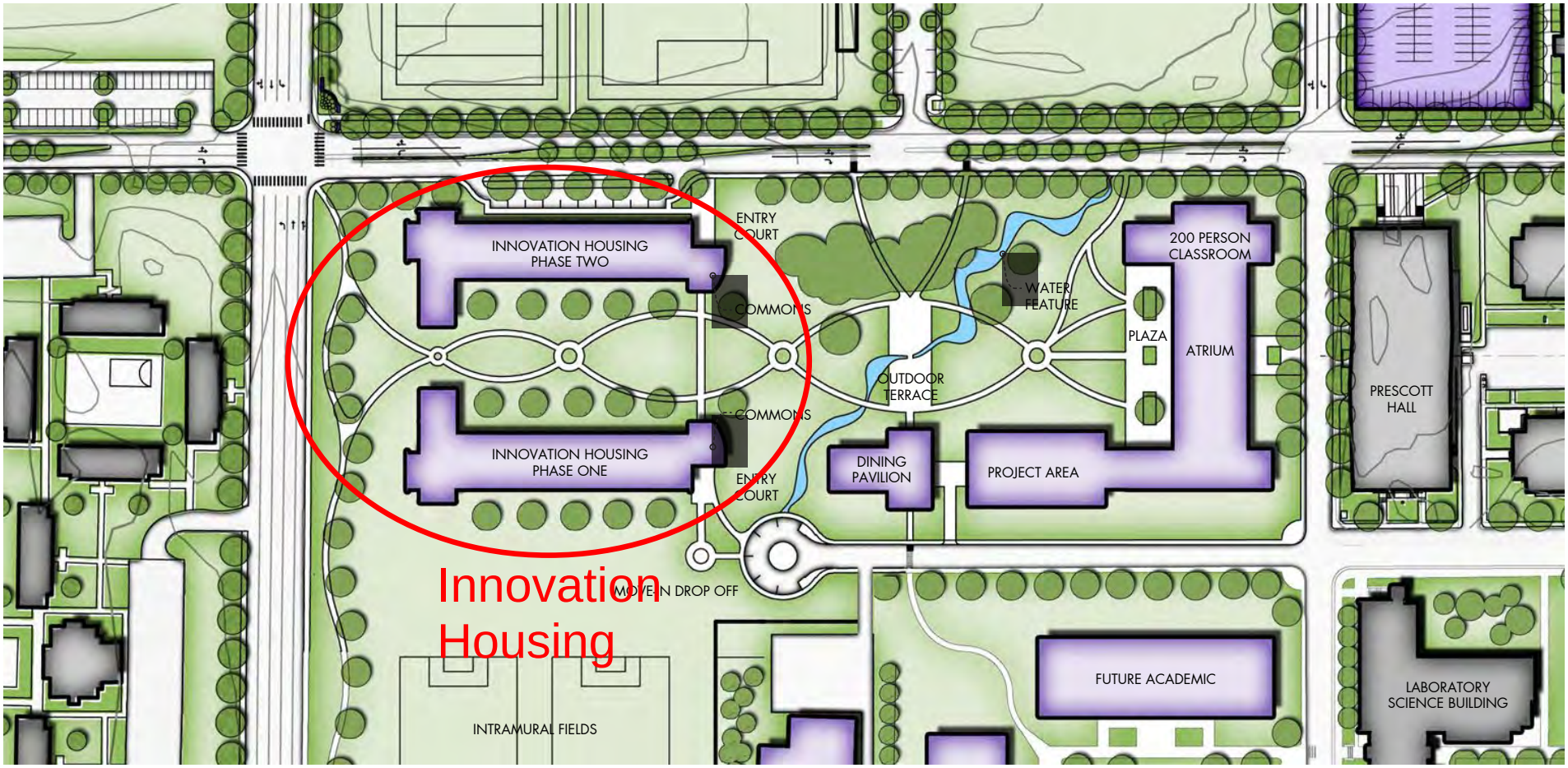
INTRAMURAL FIELDS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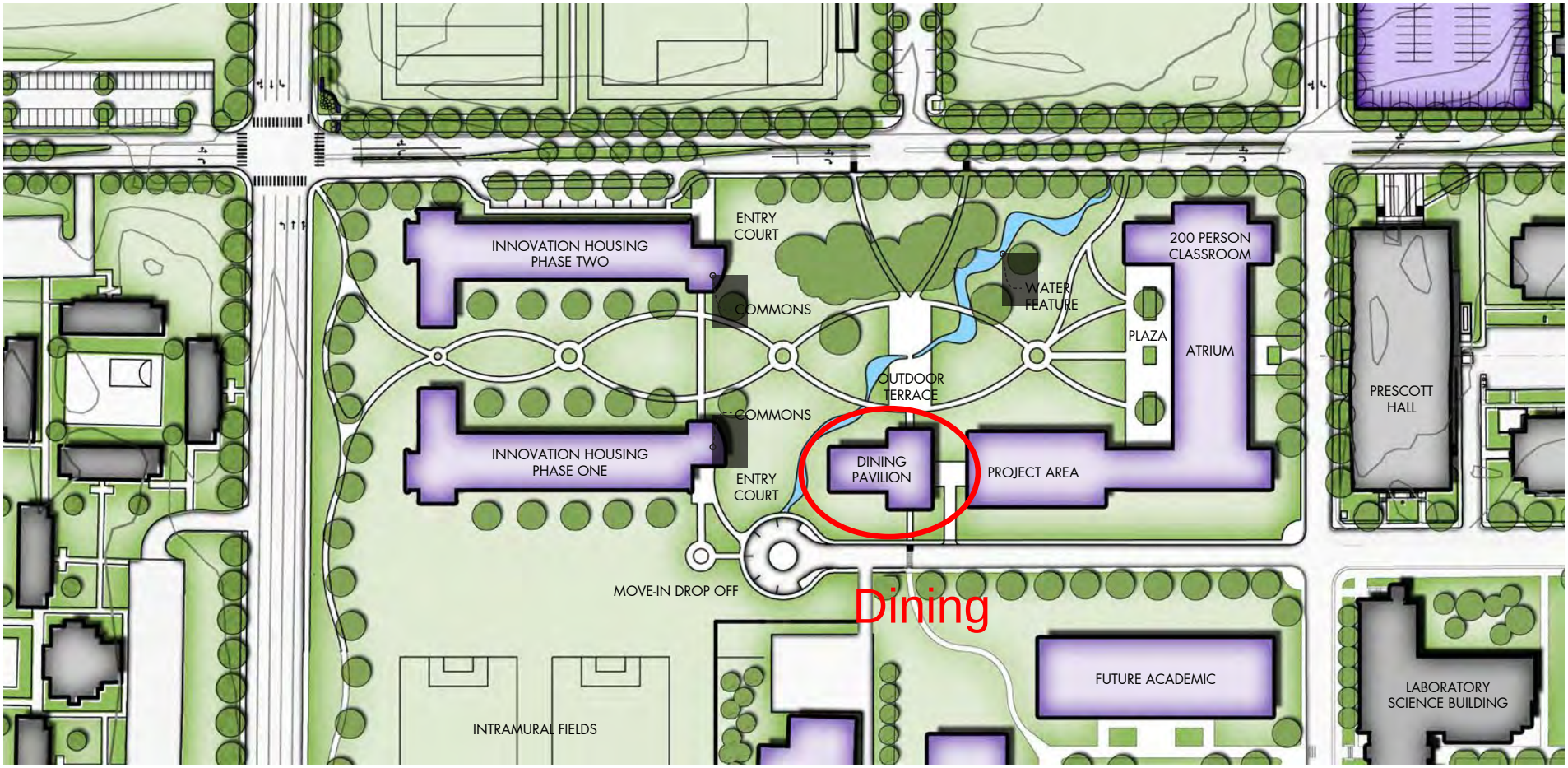
PROJECT AREA
PRESCOTT HALL
FUTURE ACADEMIC
LABORATORY SCIENCE BUILDING
Innovation Housing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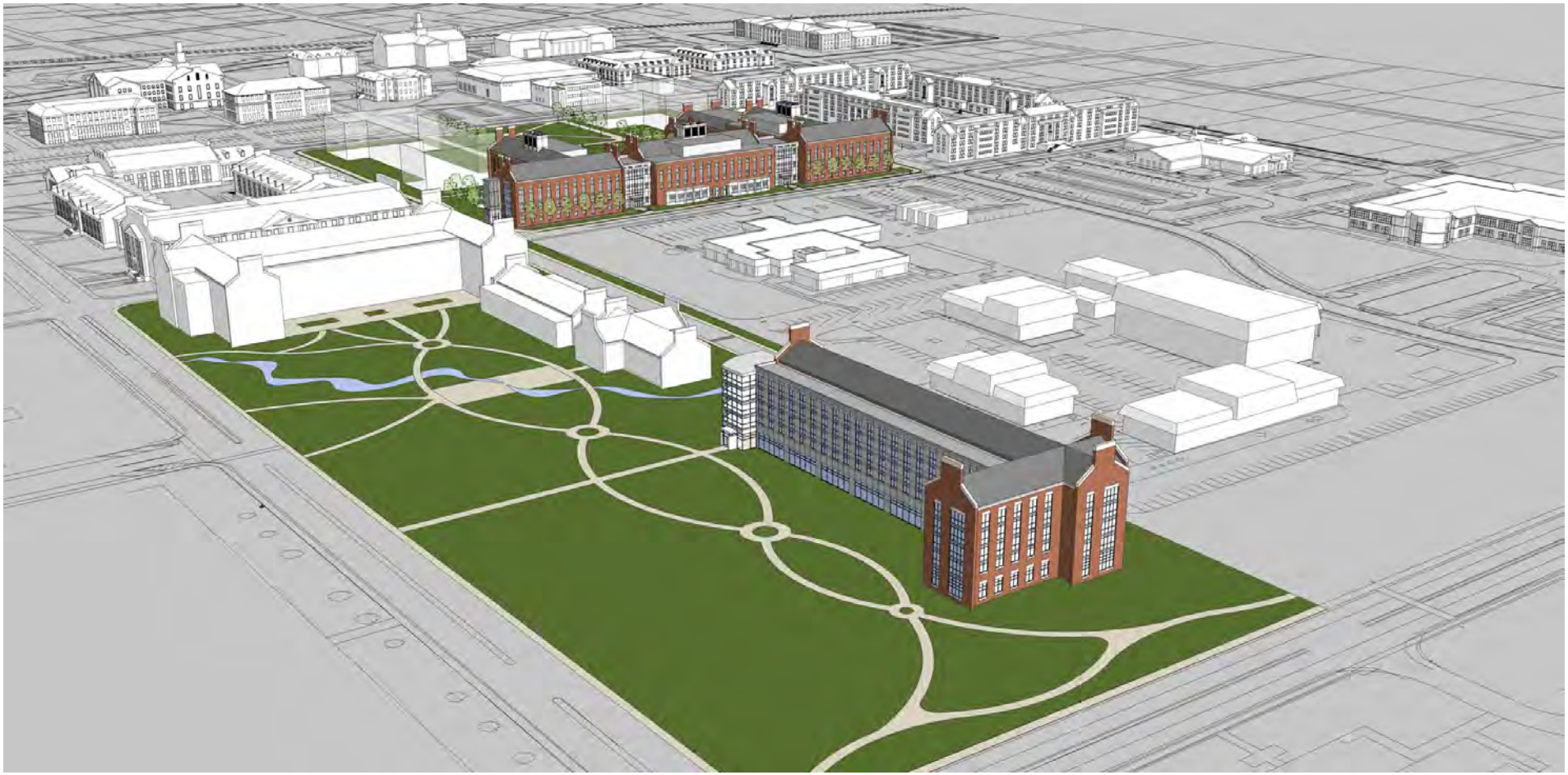

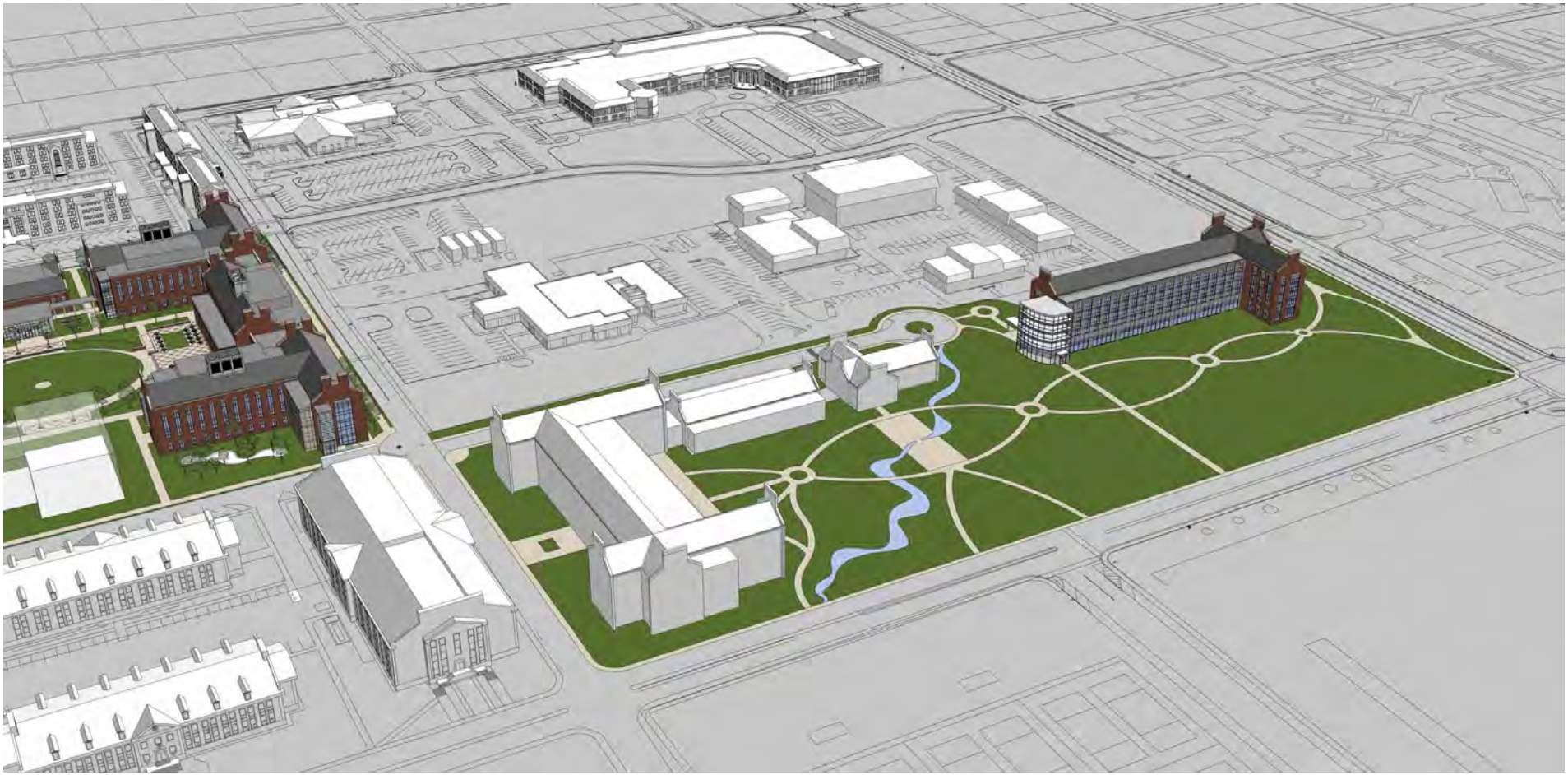

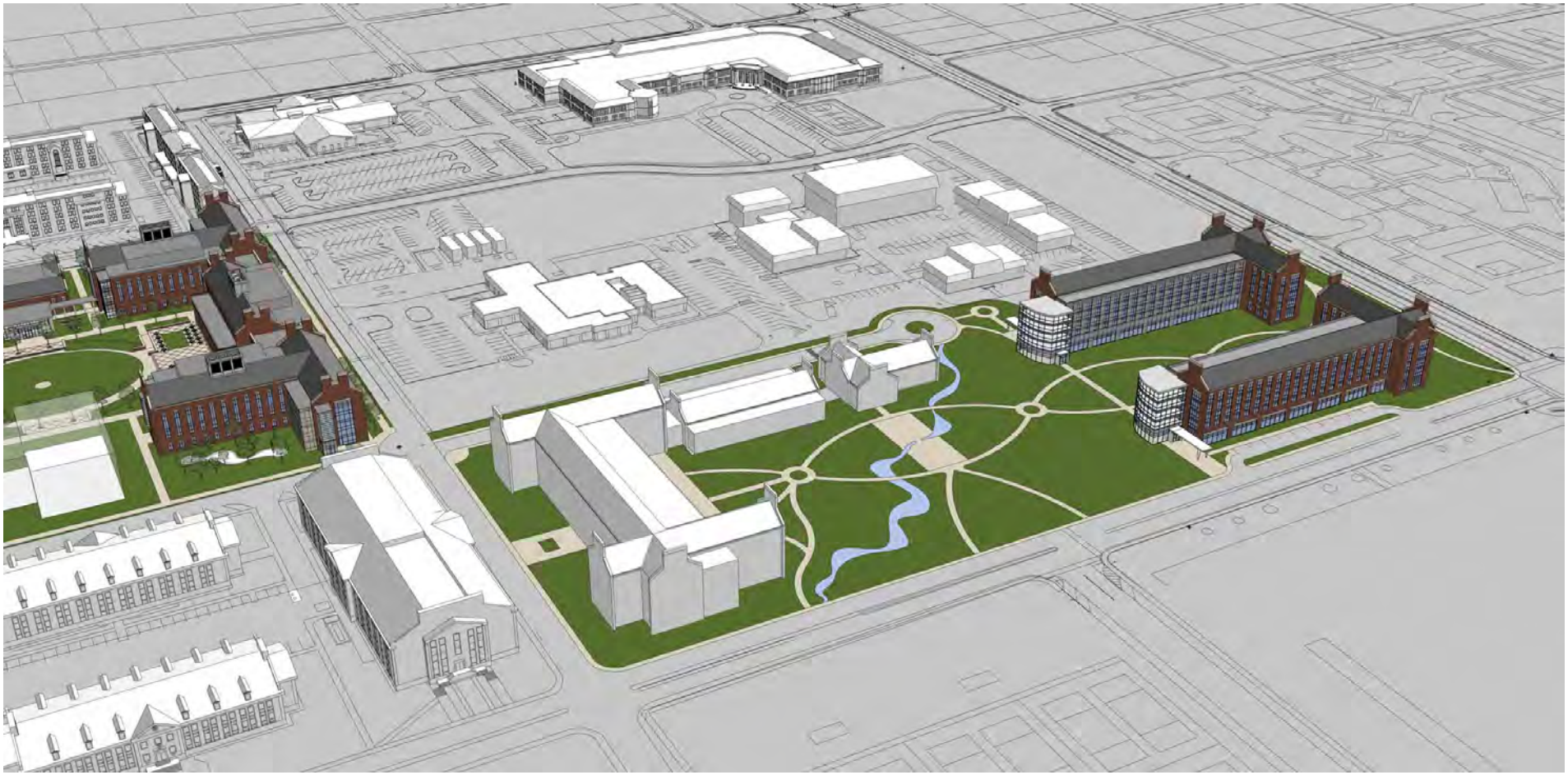


creativity
concept

Agenda Item Summary

Date: June 26, 2018

Division: Planning and Finance

Agenda Item: Capital Budget

☐ **Review** ☒ **Action** ☐ **No action required**

PRESENTERS: Dr. Claire Stinson, Vice President for Planning and Finance

PURPOSE & KEY POINTS: Review and approval of the FY 2019-20 Capital Budget Request and one project for the FY 2018-19 Disclosure Amendment.

This project is an addition to the TTU submittal for the 2018-19 Capital Budget.

The scope of work in this renovation includes the following:

- Complete replacement of the mechanical and plumbing systems, electrical switchgear and related service components.
- Renovate the bathrooms and replace plumbing fixtures.
- Add an auxiliary natural gas hot water system for use during steam outages.
- Update materials & finishes throughout building.
- Provide additional code compliant exits from ground floors.
- Abate asbestos materials as necessary.

Instructions for Preparation of

FY 2019-20

Capital Outlay, Maintenance, and Disclosure Funding Requests

Revised 03.09.2018

TENNESSEE HIGHER EDUCATION COMMISSION
Suite 1900, Parkway Towers
404 James Robertson Parkway
Nashville, Tennessee 37243-0830
615-741-3605

Table of Contents

Submittal Documents:

- Optional: Cover Letter
- Academic Programs - Support Documentation for Capital Outlay Project FY 2019-20 (attached)
- FY 19-20 Capital Outlay Request.xlsx (attached)
    - Project Submittal Documents
        - 1. State Goals and Drive to 55, Narrative – p. 8
        - 2. Master Plan and Strategic Plan, Narrative– p. 9
        - 3. Project Description and Impact on Campus – p. 10
            - DB70 THEC 2019-20 – (Inst Proj).xlsx, sheets 3a-f (attached)
        - 4. Space Needs – p. 11
            - DB70 THEC 2019-20 – (Inst Proj).xlsx, sheets 4a-c (attached)
            - THEC Space Guide – Universities.xlsx (attached)
            - THEC Space Guide – Community Colleges.xlsx (attached)
            - THEC Space Guide – TCATs.xlsx (attached)
        - 5. External Funding – p. 12
            - DB70 THEC 2019-20 – (Inst Proj).xlsx, sheets 5a,b (attached)
- FY19-20 Capital Maintenance Request.xlsx (attached)
- FY19-20 Capital Disclosure.xlsx (attached)

Introduction

Process Overview

The goal of the higher education capital program is to develop and maintain physical facilities so that each institution can fulfill its mission and, in accordance with the Public Agenda for Higher Education, increase the number of Tennesseans with a postsecondary credential. To assure fair and equitable funding consistent with the Tennessee Higher Education Commission's (THEC) capital program objectives, and the Department of Finance and Administration's Capital Budget requirements, the Commission's recommendations are based upon a prioritization process that incorporates five criteria detailed below.

All outlay projects will be evaluated by THEC staff, and may include a campus site visit to review project plans and discuss details with institution and board officials. THEC will compile information and evaluator feedback on the top priorities from the eight governing boards (six LGIs, TBR, and UT), which will be used to establish a statewide priority list. The Commission will establish the priority ranking of governing-board recommended projects that are consistent with the THEC Capital Projects policy. Because the capital process is meant to respond to state and institutional needs, all projects will be assessed and scored annually. Projects that are recommended, but are not granted funding in a fiscal year, should be resubmitted for rescoring the next budget cycle if the project remains a priority for the institution. Previously recommended projects are not guaranteed recommendation in the following fiscal year.

Timeline

For the 2019-20 budget cycle, governing boards must submit project proposals to THEC by **July 16, 2018**. After evaluation, THEC staff will include the prioritized statewide capital outlay and maintenance lists as part of the overall 2019-20 budget request that will be presented to the Commission for action at the **November 7, 2018** meeting.

Capital Outlay Evaluation Criteria and Objectives

1. Capital projects will be linked to state goals and the Drive to 55, including:
    a. Increasing degree production, particularly at the undergraduate level;
    b. Enhancing research and/or workforce development;
    c. Emphasizing focus populations, as identified in the outcomes-based funding formula; and
    d. Identifying and addressing education and workforce needs of local and regional economies.
2. Capital projects should enhance campus mission and distinction and should be envisioned in the institution's current Master Plan.

3. Institutional facility condition and needs, as analyzed by the THEC Space Planning Guidelines, should be a factor in determining institutional priorities.
4. Boards should develop project proposals that include a programmatic plan, which may include academic planning and early ideas regarding the uses and layout of buildings impacted by each project.
5. External funding should be a factor in project priority, but should not inappropriately determine institutional or system priorities. The capital match program identifies a minimum percentage of project costs to be borne by the campus, ideally from private fundraising. Non-state funds raised above the minimum percentage garner additional points in the scoring process.
6. The Commission will be proactive when appropriate to identify types of capital projects that are consistent with statewide goals.
7. All projects, whether major renovations or new construction, regardless of sector or formula/non-formula status, should have a fair chance to receive funding.

Capital Outlay Scoring Matrix

The points assigned to each evaluation criteria are detailed below.

Prioritization Criteria	All Universities, CC, and Nonformula Units	TCATs
1. State Goals & the Drive to 55	**25**	**25**
2. Strategic Plan and Campus Master Plan	**25**	**25**
3. Project Description and Impact on Campus	**21**	**25**
4. Space Needs	**21**	**25**
Space Needs, Sheets 4a, 4b, 4c (except 4a boxes L and M)	10	12
Summary Results of Facility Condition, Sheet 4a Box L	8	10
Migration Plan, Sheet 4a Box M	3	3
5. External Funding	**8**	**0**
TOTAL	**100**	**100**

The components required to assess each criterion are described in full in the **Project Assessment Materials** section found on page 8 of this document.

External Funding (Match) Thresholds for Capital Outlay Projects

Projects submitted by all Universities and Community Colleges must meet a minimum match requirement to be evaluated. The minimum match requirement differs by sector and project type, as detailed below. There are no match requirements for TCATs. Further, the External Funding score will be based upon a ratio of the project's minimum match requirement to the project's maximum scorable match, meaning that a project with only the minimum match will receive zero points, but, as a project's match approaches the maximum scorable match level, points will accumulate proportionately up to the Maximum Score. The minimum match requirement and the maximum scorable match by sector and project are reported below.

Outlay funding shall include an institutional matching component that is no less than the amount pledged by the institution in the capital outlay budget proposal the institution submits to the Tennessee Higher Education Commission. Matching funds may include gifts, grants, institutional funds, student fees, and other non-state sources.

No more than one-third (1/3) of the total pledged institutional match shall consist of Tennessee State School Bond Authority financing, the term of which shall not exceed five (5) years. Obligations resulting from such financing shall be reduced as the matching funds from gifts, grants, institutional funds, student fees, and other non-state sources are raised and recognized.

The match component for new construction projects (not renovations) shall consist of gifts to the institution in the following percentage of the total pledged match:

- 30% for all Community Colleges and Nonformula Units;
- 40% for "Doctoral: Moderate Research" and "Masters: Larger or Medium" Universities; and
- 50% for "Doctoral: Higher Research" and "Doctoral: Highest Research" Universities.

Match Requirement of Total Project Cost FY 2019-20 (3)						
	Community Colleges and Nonformula Units		Univ.: Moderate Research/ Masters (1)		Univ.: Higher and Highest Research (2)	
Project Type	Min	Max	Min	Max	Min	Max
Major Renovation – no gift minimum	0%	5%	2%	10%	4%	15%
New Construction (Includes gift minimum as noted below)	2%	10%	5%	15%	10%	25%
New Construction Gift Minimum	30% of 2%	30% of 10%	40% of 5%	40% of 15%	50% of 10%	50% of 25%

1. Includes universities classified as "Doctoral: Moderate Research" (East Tennessee State, Middle Tennessee State, Tennessee State, and Tennessee Technological Universities) or "Master's: Larger or Medium" (Austin Peay State University, UT Chattanooga, and UT Martin) by the Carnegie basic classification system.
2. Includes universities classified as "Doctoral: Higher Research" or "Doctoral: Highest Research" by the Carnegie basic classification system. The two public Tennessee universities identified as such are University of Memphis and UT Knoxville.
3. There is no match requirement for TCAT's.

Outlay Request Requirements

Priority lists for all requested outlay projects must be submitted on the attached MS-Excel **FY19-20 Capital Outlay Request spreadsheet, tab "Outlay Requests"** in order to be considered for inclusion in the THEC appropriations recommendation. Governing boards must identify the project type, square footage, project cost, and level and source of external funding.

Governing Board Priorities

Governing boards must report projects in descending priority order. Priority orders will not be altered. Governing boards that serve multiple institutions (Tennessee Board of Regents and the University of Tennessee System), however, may identify a band of their top projects (up to three) so that, in the event that the third-ranked project within the band scores higher than the second-ranked project within that same band, the third-ranked project may be prioritized by THEC above the second-ranked project. TBR and UT may create subsequent bands—banding up to three projects in each—for projects prioritized after the initial band.

Projects will only be scored on the basis of the Project Assessment Materials as defined in these instructions. If an outlay project was submitted in the FY2018-19 budget cycle and it was not funded, an institution may choose to resubmit the project for FY2019-20, or may submit a new priority project. If it is resubmitted, the submittal must be formatted according to the FY2019-20 instructions.

THEC Policy reserves the right to limit the number of projects reviewed and scored in a given funding cycle. For the FY2019-20 funding cycle, THEC requests one capital outlay project per each LGI, 5 projects from the University of Tennessee System, and 5 projects from the Tennessee Board of Regents.

Capital Outlay Out-Years

In accordance with preliminary capital budget instructions from the Department of Finance and Administration, each governing board will submit a capital budget request that contains the capital outlay projects to be requested for each of the four planning years through FY2023-24. **These capital projects should be listed in the appropriate fields on the tab labeled "Outlay Requests" in the FY19-20 Capital Outlay Request spreadsheet.** Governing boards do not need to identify banded priority projects for out-years.

Submittal Format and Delivery

Seven (7) hardcopies of all required submittal documents.
Email and deliver all documents to THEC by **July 16, 2018** to:

Patti.Miller@tn.gov, and Steven.Gentile@tn.gov

Please replace "Institution" in the file name of the DB70 with the letter name of your institution. Please include the letter name of your institution in the file name of other electronic submittal files.

Project Assessment Materials

Cover Letter from Institution – Optional

Academic Programs - Support Documentation for Capital Outlay Project FY 2019-20

Provide requested data in the form titled "Academic Programs - Support Documentation for Capital Outlay Project FY 2019-20.

Evaluation Criteria

1. **State Goals & the Drive to 55:**
   25 points

   Over the last several years, two landmark initiatives—the Complete College Tennessee Act of 2010 and the Drive to 55—have provided the policy foundation for Tennessee higher education. The core elements of THEC's 2015-2025 Master Plan reflect the priorities of the CCTA and the Drive to 55, namely:

   "The overriding function of the Plan is to direct higher education to be accountable for increasing the educational attainment levels of Tennesseans, while also: addressing the state's economic development, workforce development, and research needs...."

   "Although this Plan places certificate training and undergraduate education at the center of the state's college completion policy agenda for the decade 2015-2025, the state continues to acknowledge the critical need for academic programs of distinction at the graduate and professional level to fully address Tennessee's economic development, workforce, and research needs."

   Capital project proposals should develop a narrative of no more than 2 pages, 8.5" x 11" (Times New Roman, 12 pt.) that details the connections between the project and statewide goals. (A limited number of supplemental graphic documents on 8.5" x 11" pages, such as campus plans, graphs, and photographs, may be in addition to the 2 page narrative.) Of note is that certain types of projects, particularly renovations, may not have obvious and tangible impacts on numerical state goals. Institutions should still provide information that links the requested renovation project to state goals.

The THEC Master Plan can be found here:
https://www.tn.gov/content/dam/tn/thec/bureau/research/other-research/master-plan/MasterPlan2025.pdf

Project narratives should address the following as applicable:

- Projected impact on credential production or enhancement in quality of existing credential production;
- Expansion of research and/or public service mission; and
- Labor and workforce dynamics, including any appropriate analysis of local or regional supply/demand data.

Data sources that may help address the above descriptions included, but are not limited to:

- THEC *Master Plan for Tennessee Postsecondary Education 2015-2025* https://www.tn.gov/content/dam/tn/thec/bureau/research/other-research/master-plan/MasterPlan2025.pdf
- THEC/Boyd Center for Business and Economic Research labor supply/demand reports (e.g., http://cber.haslam.utk.edu/pubs/mnm130c.pdf or https://www.tn.gov/content/dam/tn/thec/bureau/research/other-research/supply-demand/Academic%20Supply%20and%20Occupational%20Demand%20-%20Final.pdf)
- Tennessee Department of Labor and Workforce Development Occupations in Demand reports (https://www.tn.gov/workforce/topic/occupations-in-demand); and
- Data provided by the Tennessee Department of Economic and Community Development's Center for Economic Research in Tennessee (CERT) (https://www.tn.gov/ecd/).

2. Strategic Plan and Campus Master Plan
25 points

Capital project proposals should develop a narrative of no more than 2 pages, 8.5" x 11" (Times New Roman, 12 pt.) that links the project with the institution's strategic plan and campus facilities master plan. (A limited number of supplemental graphic documents on 8.5" x 11" pages, such as campus plans, graphs, and photographs, may be in addition to the 2 page narrative.) The proposal should provide:

- relevant objectives from the strategic plan—with web links to the strategic plan where appropriate;
- how the project aligns with state objectives;
- specific references of the proposed project in the current master plan; and
- an assessment of alternatives to the project that were considered during the planning process to meet the academic and space needs of the institution.

3. Project Description and Impact on Campus

21 points – Universities and Community Colleges
25 points – TCATs

Capital outlay proposals should include figures and narratives in the spaces provided in the DB70 spreadsheets. The Project Description and Impact on Campus section:

1) provides an overview of the project,
2) serves as confirmation of the Governing Board's understanding of the project, and
3) confirms the level of pre-planning conducted in advance of the submittal.

Governing boards should ensure that each capital outlay project is sufficiently developed and addresses all of the elements below.

a. DB70
   - The Project Description is an overview of the scope of the project.

b. Project Support Documentation 1:
   - Program Scope – Describe the end use of the project, and provide additional details on the scope of the project.
   - Evidence of Physical Facility Need – Describe the deficiency being remedied by the project, whether it is lack of adequate space, inadequate conditions, growing demand, systems in need of repair, etc. The focus of the need in this section is on space needs, space condition, or other physical factors that create the need for the project.
   - Historical Profile – Provide history of the facility and program. On existing structures, provide dates of original construction, additions and renovations, etc.
   - Related Requirements – Provide details of issues or actions related to the project, but not included in the project scope.

c. Project Support Documentation 2:
   - Cost Information Basis for SF Cost and Other Costs - Describe method for determining estimated construction costs, soft costs, AV, IT, Commissioning, specialty consultants, programming and administrative costs.
   - Project Schedule – Provide a preliminary schedule for the project.
   - Total FTE Supported by this Project – Describe number of students or program participants who will directly or indirectly by served by the project. Describe FTE supported by the project, number of majors in programs associated with the project, number of people impacted by the projected research, and/or number of program participants affected by non-formula projects.

- Campus or Program Impact - Describe any other costs or program related impact of the project otherwise not described in this section.

d. Schedule of Movable Equipment: Itemize equipment planned for the project and estimated cost. The total should equal the total on the DB70 sheet for movable equipment. Equipment may be summarized in lump sum by categories, such as furnishings, AV, IT (describe IT elements included), lab or discipline specific equipment, signage, site furnishings. Explain the basis for estimating the equipment costs in narrative box I.
e. First-Year Operating Costs: Ongoing costs to maintain the building and its academic programs/research. Costs may be defined by previously approved expenses and revenue, and/or new funding needed as a result of the proposed project. If needed add explanation of anticipated operating costs in the narrative box.
f. Bond Questionnaire

Optional: Any preliminary concept sketches that provide an overview of the project.

4. **Space Needs - THEC Space Guideline, Facility Assessment and Migration Plan**
   See attached Excel THEC Space Guides spreadsheets: Universities, Community Colleges, and TCATs
   See attached Project DB70, 4a Space Needs, 4b Space Tabulation, and 4c Space Detail.

21 points – Universities and Community Colleges
25 points – TCATs
See Capital Outlay Scoring Matrix for point details.

- **Space Needs**: Capital project proposals should include a space-needs analysis in the attached DB70 spreadsheet, 4a Space Needs.
  - Complete the full THEC Space Guide based on the campus data (not project data), and then transfer the summary totals to the 4a Space Needs sheet, "Modeled" and "Exist E&G SF". Complete the "Net Change" column on sheet 4b Tabulation of Affected Space, and enter the summary information in the "Net Change NASF" column on 4a Space Needs sheet.
  - Complete the narrative box "K" in the 4a Space Needs sheet. The narrative may address space needs for formula space, or space needs for non-formula space. Include relevant space needs documented by the Master Plan. The proposal may include any other space utilization studies if appropriate. If the Space Guidelines do not apply to the project (e.g., for non-formula units) or only partially applies, proposals should provide the details of the identified need outside the guidelines that drives this project (e.g., research).

  - Complete Program Summary on sheet 4c Space Detail. Itemize space by name, room use, description, net area, number of same-type spaces, total net area. Sheet will provide subtotals by formula space type. This information provides more details about the project, and is an indicator of the institution's advance planning efforts and understanding of the program.
- **Summary Results of Facility Condition**: See 4a Space Needs sheet, box L, Summary Results and Data of Physical Facilities Survey.
  Include a current facilities assessment (e.g., a Facility Survey Score) and the general condition of any existing building that will be impacted by this project—including any buildings that will be vacated after project completion, renovated or demolished. Identify condition of the major systems of relevant buildings (i.e. HVAC, roof, envelope, and others) and identify which ones will be addressed by the project.
- **Migration Plan**: See 4a Space Needs, box M, Migration Plan.
  Provide a migration plan for buildings and programs impacted by the project. It should include the future planned use of space vacated as a result of new construction. In the case of renovations, describe any temporary provisions for dislocated occupants. Clarify how much of the migration plan and associated construction are included in the scope of the current project.

A limited number of supplemental sheets for graphics or photos may be provided in support of this section.

5. **External Funding (See FY19-20 Capital Outlay Request spreadsheet, tab "External Funding")**
   8 points - Universities and Community Colleges
   0 points - TCATs

   Enter match funds committed for the project on sheet 5a Funding Analysis in the DB70. If the project is a mix of new construction and renovation, the basis for the match required is the total project cost for each portion of the project. Sheet "5b Required for Mix – Grouper" is required for all projects with a mix of new construction and renovation. Enter the total project cost for each type of construction – new or renovation – to calculate the percentage mix of the project, and min/max required for the match on sheet 5a.

   All institutions including TCATs must fill out the top section of sheet 5a if funding sources other than outlay are pledged for the project.

Maintenance Request Requirements

A capital maintenance project is a rehabilitation project that keeps a facility or asset in efficient operating condition or is needed to restore a facility to an acceptable condition but does not include programmatic renovation, demolition, or new construction. These projects are of a non-recurring nature, beyond the scope of ordinary repairs, and do not appreciably prolong the previously estimated service life or increase the estimated value of the building. In general, ordinary repair and maintenance projects, and other projects below $100,000, will be funded through operating appropriations rather than capital maintenance.

Each governing board is allocated a proportion of the total higher education capital maintenance request based upon the Sherman-Dergis Formula. This industry-standard formula calculates an estimated annual renewal cost for each campus, based on the aggregated age, size, and type (e.g., fine arts vs. engineering) of E&G space as reported on the FY2018-19 Schedule D. Each governing board's proportion is equal to the sum of the respective individual campus' renewal costs divided by the total higher education renewal cost. For planning purposes, the FY2019-20 maintenance pool request will be set at **$120,000,000**. Should THEC alter the total request, the calculated proportions for each governing board will remain the same, but the governing board maintenance requests will change *pro rata*.

Maintenance Request Submission

All maintenance requests must be submitted on the tab labeled "Maintenance Request" in the attached FY19-20 Capital Maintenance Request spreadsheet. Select the appropriate governing board from the drop-down menu—the 2019-20 Maintenance Allocation for the selected governing board will automatically populate. In the space provided, insert the name of the institution, project, project cost, and detailed project description. Insert more rows if your board is requesting more than 20 maintenance projects. Total Project Cost must **not** exceed the 2019-20 Maintenance Allocation for your governing board. If the total maintenance request exceeds the allocation for your board, THEC staff may alter individual project budgets to comply with the overall budget recommendation. **Please provide the first sheet, 3a "DB70 Form – Project Request", from the DB70 Spreadsheet for each maintenance project. The other forms are not required for maintenance projects unless they are needed to describe the project.**

Capital Maintenance Out-Years

In accordance with the Department of Finance and Administration's Capital Budget Instructions, each governing board will submit a capital budget request that contains the capital maintenance projects to be requested for each of the four planning years through FY2023-24. **These capital projects should be listed in the appropriate fields on the tab labeled "Maintenance Request."** The projects listed are not confined to any calculated pools as these are preliminary estimates.

Disclosed Projects Requirements

Each governing board must submit a list of all anticipated capital projects to be funded from sources other than state appropriations, such as institutional funds, auxiliary funds, reallocation of existing capital funds, Tennessee State School Bond Authority funds, or gift funds, for FY2019-20. All Capital Improvement projects in excess of $100,000 must be disclosed to THEC. All Capital Maintenance projects in excess of $500,000 must be disclosed to THEC. Capital Improvement and Capital Maintenance are defined by the State Building Commission (Policy Item 2.01).

All disclosure projects must be submitted on the tab labeled "2019-20 Disclosure" in the attached FY19-20 Capital Disclosure spreadsheet.

Quarterly Submission

Should unforeseen opportunities or needs arise that require disclosure *during* a fiscal year, governing boards may disclose such projects each quarter, in coordination with requests from THEC. THEC will request quarterly submissions for disclosed projects in June, September, December, and March for projects intended to be initiated in the three months that follow. *THEC reserves the right to request a governing board hold a disclosed project of significance—one that requires master plan guidance—to the following fiscal year submission.*

Projects funded by TSSBA funds can only be disclosed during the annual process.

Emergency Projects

If an event occurs which requires a campus or unit to immediately engage in a capital project exceeding the aforementioned thresholds to avoid immediate danger to persons or property or when absolutely essential and indispensable to campus operations, governing boards may initiate the project immediately but must disclose it in the subsequent quarterly submission. Emergency performance of capital improvement or renovations are subject to appropriate State Building Commission, Department of Finance & Administration, and other State policies and procedures, including review and approval.

Department of Finance & Administration Requirements

In accordance with the Department of Finance and Administration's Capital Budget Instructions, each governing board must submit additional materials (including four USB flash drive with all completed DB70 forms and data) by the end of September 2018. These instructions have yet to be distributed by the Department of Finance and Administration but THEC will coordinate with all governing boards this portion of the submission when instructions are released.

CAPITAL OUTLAY PROJECTS

FY 2019-20 thru 2023-24

							A	B	C = B / A	D = A - B
Fiscal Year	**Priority**	**Institution**	**Project Name**	**Project Type**	**New Square Footage**	**Reno. Or Replaced Square Footage**	**Project Cost**	**Committed External Funds**	**Percent Match***	**State Funds Request**
2019-20	**1**	TTU	Engineering & Research Building	New Construction	100,000		$55,000,000	$2,750,000	5%	$52,250,000
2019-20	**2**								0%	$0
2019-20	**3**								0%	$0
2019-20	**4**								0%	$0
2019-20	**5**								0%	$0

Out-Years

Fiscal Year	Priority	Institution	Project Name	Project Type	New Square Footage	Reno. Or Replaced Square Footage	Project Cost	Committed External Funds	Percent Match	State Funds Request
2020-21	1	TTU	Biology Building	New Construction	100,000	59,679	$60,000,000	$3,000,000	5%	$57,000,000
2020-21	2								0%	$0
2020-21	3								0%	$0
2020-21	4								0%	$0
2020-21	5								0%	$0
2021-22	1	TTU	Academic Classroom/Office Building	New Construction	50,000	43,555	$19,500,000	$925,000	5%	$18,575,000
2021-22	2								0%	$0
2021-22	3								0%	$0
2021-22	4								0%	$0
2021-22	5								0%	$0
2022-23	1	TTU	Facilities Services Complex	New Construction	70,000	43,886	$10,100,000	$505,000	5%	$9,595,000
2022-23	2								0%	$0
2022-23	3								0%	$0
2022-23	4								0%	$0
2022-23	5								0%	$0
2023-24	1	TTU	Memorial Gym Update	Major Renovation		87,181	$15,400,000		0%	$15,400,000
2023-24	2								0%	$0
2023-24	3								0%	$0
2023-24	4								0%	$0
2023-24	5								0%	$0

Office of the President

TENNESSEE TECH

<Date>

Executive Director Mike Krause
Tennessee Higher Education Commission
Suite 1900, Parkway Towers
404 James Robertson Parkway
Nashville, TN 37243-0830

Dear Mr. Krause,

Tennessee Tech University requests funding for a new College of Engineering building to serve the bold, fearless, and confident students who are choosing Tech for experiences that will transform their lives and our state.

As the state's premier STEM university, Tech considers construction of a new engineering building a high priority. To fulfill our distinctive mission as the state's technological university, the building is vital to the growth of our education, service, and research across all engineering disciplines and to promote interdisciplinary interaction.

As College of Engineering enrollment increases, the new building is a critical component in our plans to meet workforce and economic needs. This new building will impact more than 10,000 students of all disciplines annually through its modern, student-centered, interdisciplinary space. The new building will offer open, flexible, re-configurable spaces. The design will facilitate hands-on, interdisciplinary collaborative learning through "maker" spaces, design project space, and wet-and-dry-laboratories. The building will house faculty and graduate student offices with lab spaces that support undergraduate and some graduate research.

In the new building, visitors will be able to see the day-to-day work of students and inter-disciplinary teams. Tech will take advantage of the new construction to increase innovation and entrepreneurial activities into research and the classroom.

The proposed new construction will provide an additional 60,000 net assignable square feet for the College of Engineering's educational use.

Tennessee Tech / Box 5007 Cookeville, TN 38505 / 931-372-3241 / F: 931-372-6332 / www.tntech.edu/president

DRAFT

Tech's College of Engineering produces career-ready graduates in a variety of fields. The College offers ABET-accredited Bachelor of Science programs in Chemical, Civil, Electrical, Computer, and Mechanical Engineering, as well as Computer Science and Manufacturing Engineering Technology. Graduate programs are available for students in Chemical, Civil, Electrical, and Mechanical Engineering; and in Computer Science. The college is home to state-funded Centers of Excellence in the areas of Energy Systems, Manufacturing, and Water research, along with an NSF-funded Cybersecurity Education Center.

A new College of Engineering building will allow us to provide new transformative experiences for students. While we provide those experiences, Tech will increase its impact on the state and nation. The University appreciates THEC's consideration and support.

Sincerely,

Philip B. Oldham
President

DB70 Form - Project Request

1 Department: Tennessee Higher Education Commission
Institution: Tennessee Tech University
Project: Engineering Building
City/County: Cookeville/Putnam

2 Fiscal Year: 2019/ 2020

3		New		Reno/Maint
X	Capital Outlay			
	Capital Maintenance	100,000	Gross Sq.Ft.	0
	Disclosure	0	Net Sq.Ft.	0
X	Designer Required	420.00	Cost/Sq.Ft.	0.00

4 Project Description:
Construct a student centered interdisciplinary engineering building for the College of Engineering.

5

Total Project	Allocation				
		Estimated Building Construction Cost:			42,000,000
42,000,000.00	42,000,000.00	Building Construction			
787,500.00	787,500.00	Site & Utilities			
0.00	0.00	Built-in Equipment			
42,787,500.00	42,787,500.00	**Bid Target**			
2,139,500.00	2,139,500.00	Contingency:	5.00	5.00	percent
44,927,000.00	44,927,000.00	**MACC** (Maximum Allowable Construction Cost)			
2,418,213.00	2,418,213.00	Fee:	35/LogP-1.15 =	5.38253903	New
4,000,000.00	4,000,000.00	Movable Equipment			
1,800,000.00	1,800,000.00	first other	Lab/Engr/Commissioning		
600,000.00	600,000.00	second other	A/V,Vibration C		
1,254,787.00	1,254,787.00	Administration & Miscellaneous			
55,000,000.00	55,000,000.00	**Total Cost**			

6 Funding Request:

THIS REQUEST		
52,250,000.00	52,250,000.00	STATE funds
0.00	0.00	FEDERAL funds
2,750,000.00	2,750,000.00	Local and Institutional Funds — Match - Gifts

7 Sources of Available Funding:

	fund year	description
already approved for existing SBC project	0.00	
0.00	0.00	
plus This Request	0.00	
55,000,000.00	0.00	

8 SBC Action: If an existing project, SBC Project No.: n/a

9 Designer: tba

Project Support Documentation - 1

Department: Tennessee Higher Education Commission
Institution: Tennessee Tech University
Project: Engineering Building

A. Program Scope:

The new building will be a modern, student-centered, interdisciplinary space used by all departments in the College of Engineering. The building has been programmed around the concept of open, flexible, and re-configurable spaces to promote multi-purpose use and collaborative learning. The building will be designed to facilitate hands-on, interdisciplinary, and collaborative learning through “Maker” spaces, design project space, and labs. Larger, more visible classrooms, active student labs, and student display space will peak interest and increase prominence for the Engineering program and its activities.

B. Evidence of Physical Facility Need:

The College of Engineering is currently housed in eight buildings, which together total 205,726 NASF. This number differs slightly from our programming document due to inclusion of temporary space being utilized by the College. Preliminary programming estimates the required NASF for the current program to be 257,408. This is a deficit of 51,682 NASF. The new engineering building will correct this current shortfall. Currently 24,431 SF of existing Engineering space is located in East Stadium. This space is assigned to engineering in the PFI, but it is virtually unusable and certainly not suited as outstanding technical spaces due to moisture intrusion issues. If the condition of the stadium space is taken into account, the deficit of space would more accurately be 76,113 NASF. The average age of TTU’s engineering buildings is 64 years, demonstrating TTU’s responsible use of capital investment.

The State’s recent recurring $3 million funding for the College of Engineering, starting in fiscal year 2019, will be most impactful if facilities are improved. By leveraging the funding investment from the state in a modern facility, programs will be bolstered to more effectively benefit students. TTU plans to build upon the state’s investment in a new engineering facility both by making efficient use of space in the new facility and renovating existing spaces to refresh and enhance the learning experience of students across disciplines in the College of Engineering. The new building will house flexible, forward-looking spaces while the initial investment in our original buildings will be respected and modernized for continued use.

There are no alternatives the University should consider other than the construction of additional space.

C. Historical Profile:

The Engineering program is currently housed across eight buildings. Building names and construction dates are: Brown - 1967; Bruner - 1966; Clement - 1965; Prescott - 1971; Lewis - 1921; Foundry - 1943; East Stadium - 1966; Foundation Hall - 1932. The average age of existing engineering facilities is 64 years. No major renovations or additions have occurred in these buildings.

D. Related Requirements:

Capital maintenance funding will be requested for the renovations of Brown and Bruner Halls through TTU's multi-phased Several Buildings Upgrade project, SBC 166/011-04-2016. The demolition of Lewis Hall and the Foundry are not included in the scope of this project request.

Project Support Documentation - 2

Department: Tennessee Higher Education Commission
Institution: Tennessee Tech University
Project: Engineering Building

E. Cost Information - Basis for SF Cost and Other Costs:

As suggested by the Dober Lidksy Mathey report, the cost of engineering buildings can range from $400-450 per square foot. Construction cost is estimated at $420 per square foot, and is based on the square foot costs of two new buildings currently under construction on campus, a Laboratory Sciences Building and a Recreation Center. Commissioning was estimated at $2.16/sq.ft., and was based on the commissioning fee for the Lab Sciences project. Remaining consultant costs (A/V, Vibration, Lab, etc.) were derived from similar costs budgeted for the Lab Sciences Building. Administrative & miscellaneous expenses were set at 50% of the designers fee.

F. Project Schedule:

The anticipated project schedule is 12 – 15 months for design and 18 months for construction.

G. Total Campus FTE , FTE directly Impacted, Majors: (current & projected)

Total campus FTE, Fall 2017 = 9,019
FTE directly impacted, 2,834 students in the College of Engineeering, and over 10,000 students of all disciplines annually.
Majors, current = 11 (Engineering)
Based on enrollment numbers from Institutional Research, Engineering enrollment increased 66% over the last ten years at the undergraduate level, or slightly over 5% per year on average. At the graduate level, there has been an increase of 45% over the last ten years, an average of approximately 4% per year. It should be noted that the introduction of “Tennessee Promise” tempered the undergraduate growth rate to some extent. It is reasonable to expect a continued average growth of 2.5% per year in the undergraduate program and 3% per year in the graduate program. Using these growth rates, enrollment in the College of Engineering is predicted to have 3,260 undergraduates and 280 graduates, or approximately 3,540 total enrollment in ten years.

H. Other Campus or Program Impact:

Schedule of Movable Equipment

Department: Tennessee Higher Education Commission
Institution: Tennessee Tech University
Project: Engineering Building

Total Equip: **4,000,000.00**

	Description of Equipment Types	Life	Qty	Unit Cost	Total Cost
	Classroom, Lab, Office Furnishings and Equipment	20	1	4,000,000.00	4,000,000.00
					0.00
					0.00
					0.00
					0.00
					0.00
					0.00
					0.00
					0.00
					0.00
					0.00
					0.00
					0.00
					0.00
					0.00
					0.00
					0.00
					0.00
					0.00
					0.00
					0.00

I. Explanation of Equipment Costs:

The preliminary programming study was recently completed. Planning has not progressed to the point of developing detailed equipment lists. This estimate is based upon previous projects and two current projects under construction. We estimated $39.72/square foot, which is the same as originally budgeted for our Lab Science Building.

First-Year Operating Costs

Department: Tennessee Higher Education Commission
Institution: Tennessee Tech University
Project: Engineering Building

	Existing Budgeted Costs	New & Future Costs Required for Program Support
Regular Salaries:	0	0
Longevity:	0	0
Overtime:	0	0
Benefits:	0	0
Personnel Total:	**0**	**0**

	Existing Budgeted Positions	New & Future Position Requests
Positions:		
Full-Time:	0	0
Part-Time:	0	0
Seasonal:	0	0
Total Positions:	**0**	**0**

Utilities and Maintenance	Existing	New
Utilities base rate:	**4.45**	**4.50**
Maintenance base rate:	**6.15**	**6.04**
Square footage:	**0**	100,000
Util & Maint Total	0	1,054,000

Operational Costs:	**0**	**0**
Custodial Services	**0**	**106,000**
	0	**0**
Operational Total:	**0**	**106,000**

Revenues to defray costs:	Existing	New
Tuition:	0	0
Fees:	0	0
Grants:	0	0
Counties:	0	0
Cities:	0	0
Non-Government:	0	0
Current Services:	0	0
Inter-Departmental:	0	0
Reserves:	0	0
	0	0
	0	0
	0	0
	0	0
State Total	**0**	**0**

Federal Revenue:	0	**0**
	0	**0**
Federal Total	**0**	**0**

Total Expense:	**0**	**106,000**	Total Revenue:	**0**	**0**

Bond Questionnaire

Department: Tennessee Higher Education Commission
Institution: Tennessee Tech University
Project: Engineering Building

1. Intended Use: In your own words, state the intended use of the project (public use, office space, restricted use, etc.)

The project will provide educational and general space for students, faculty and public use.

2. Operator: Who will be the operator of the project upon completion (state agency, private contractor, non-profit organization, etc.)

The facility will be operated under the aegis of the above-named Institution.

3. Users: Who are the intended users of the project (students, faculty, staff and general public, etc.)

Principal users will be public employees of the above-named Institution and students pursuing academic credit.

4. Contracts: Describe any leases, incentive payment contracts, or management contracts to be entered into in connection with the operation of the completed project. Indicate the portion of the project to which contracts relate, as well as the anticipated length and payments to vendor.

None anticipated.

5. Loans: Will any debt proceeds be used to make or finance loans to any private entity ? If so, indicate the amounts of such loans, the length and payment terms.

No.

6. Income: Indicate any expected payments (direct or indirect) to be made by non-governmental entities, separately, and in the aggregate, to the state or any other government entity, with respect to the project.

None.

7. Private Use: Indicate whether any of the following activities will take place at the project. Indicate whether the activities are operated by a private entity or will indirectly benefit a private entity. Include all incidental private uses. For each direct or indirect private use.

	Number	Square Footage	Vendor	
Vending Machines:	6	300	X	300
ATM & Pay Phones:	0	0		0
Newsstands:		0		0
Pharmacies:		0		0
Bookstores:		0		0
Laundry Services:		0		0
Provision of Health Care Services:		0		0
Cafeterias:		0		0
Other Food Service Areas:		0		0
Non-Qualifying Laboratory Research Space:		5,900		0
Office Space:		11,120		0
Other Private Use:		0		0
Square Footage not accounted in the list above:		82,680		
Total Square Footage in Project:		100,000		300
Percent of project intended for private use:				0.3%

Space Needs

Department: Tennessee Higher Education Commission
Institution: Tennessee Tech University
Project: Engineering Building

Date of Data: 5/23/2018
Space Guideline Compiled by: TTU Capital Projects Office

Summary NASF - Info from THEC Space Guideline					This Project		
Part	Equiv FICM	Modeled	Exist E&G SF	Difference from Model	Net Change NASF	Result Net E&G SF	Difference from Model
I - Classrooms	1xx	150,064	178,548	28,484	15,250	193,798	43,734
II - ClassLab	210, 215	253,692	181,482	-72,210	10,530	192,012	-61,680
III - Open Lab	220, 225	42,209	29,144	-13,065	14,940	44,084	1,875
IV - Research	250, 255	41,221	85,159	43,938	5,900	91,059	49,838
V - Office	3xx	246,967	325,609	78,642	11,120	336,729	89,762
VI - Library	4xx	45,236	76,665	31,429	400	77,065	31,829
VII - Phys Ed	520 523 525	160,860	252,261	91,401	0	252,261	91,401
Totals:		**940,249**	**1,128,868**	**-188,619**	**58,140**	**1,187,008**	**246,759**
		Input Data from THEC Guideline	Input Data from THEC Guideline		Input NASF Info from This Project		

The three digit numbers are from the "Postsecondary Education Facilities Inventory and Classification Manual (FICM)" 2006

K. Notes or Comments on Above Data, or Describe Need for Non-Formula Space

Currently 24,431 SF of existing Engineering space is located in East Stadium. This space is underneath concrete bleachers and constantly battles severe moisture issues. This space is assigned to engineering in the PFI, but it is virtually unusable and certainly not suited as outstanding technical spaces due to moisture intrusion issues. No departments can effectively utilize the space, however, engineering space use numbers are skewed since the space is assigned to them. This should be considered when assessing current space for the College of Engineering. If the condition of the stadium space is taken into account, the deficit of space would more accurately be 76,113 NASF.

L. Summary Results and Date of Physical Facilities Survey:

The Engineering program is currently housed across eight buildings, offering a combined net assignable square footage of 199,387. Foundry and Lewis Hall are identified for eventual demolition per the masterplan. The current Physical Facility Survey Review Team Scores are below 60% for four of eight buildings. All eight buildings are below a rating of 65%. A rating of 60% is defined as system salvageable, major upgrade or significant replacement of components required. Physical Facility Survery review dates range from 2014-2017.

M Migration Plan

Upon completion of the new Engineering building, vacated spaces in Clement and Prescott Halls will be renovated then backfilled by Engineering, as additional space is required for current College of Engineering programs. Lewis Hall and the Foundry will be demolished. The current space assessment will help to determine if the Foundry and MIT instructional shops should be located in separate buildings due to the nature of their operations. Building occupants will be relocated to surge space in Foundation Hall while their respective buildings are being renovated.

Tabulation of Affected Space

Department: Tennessee Higher Education Commission
Institution: Tennessee Tech University
Project: Engineering Building

Space Description	Net Assignable Square Feet				
		Renovation			
	Demolition	Former Use	New Use	New Construction	Net Increase
Classrooms 100's	0	0	0	15,250	15,250
Class Lab / Studio 210, 215	0	0	0	10,530	10,530
Open Laboratories 220, 225	0	0	0	14,940	14,940
Research 250, 255	0	0	0	5,900	5,900
Offices 300's	0	0	0	11,120	11,120
Study facilities 400's	0	0	0	400	400
Physical education 520, 523, 525	0	0	0	0	0
Subtotal THEC Formula Space All of the above FICM Use Codes	**0**	**0**	**0**	**58,140**	**58,140**
General use facilities 600's	0	0	0	2,000	2,000
Non Formula Use	0	0	0	0	0
	Demolition	Former Use	New Use	New	Total
Sub-Total Net Assignable:	**0**	**0**	**0**	**60,140**	**60,140**
plus Non-Assignable:	0	0	0	39,860	39,860
Total Gross:	**0**	**0**	**0**	**100,000**	**100,000**

The three digit numbers are from the “Postsecondary Education Facilities Inventory and Classification Manual (FICM)” 2006

Space Detail Information

Department: Tennessee Higher Education Commission
Institution: Tennessee Tech University
Project: Engineering Building

Space Name	Room Use	Activity Description	Occupant Count	Area (NASF)	Number of Spaces	Area (NASF)
Classrooms	100's	refer to attached spreadsheet				0
						0
						0
						0
Classroom Total	(All 100s)		**0**	**0**	**0**	**0**
Laboratories	200's					0
						0
						0
						0
						0
ClassLab Total	(All 200s)		**0**	**0**	**0**	**0**
Office	300's	Office	0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
Office Total	(All 300s)		**0**	**0**	**0**	**0**
Study Facilities	400's		0	0	0	0
			0	0	0	0
			0	0	0	0
Study Fac. Total	(All 400s)		**0**	**0**	**0**	**0**
Special Use	500's		0	0	0	0
			0	0	0	0
			0	0	0	0
Special Use Total	(All 500s)		**0**	**0**	**0**	**0**
General Use	600's		0	0	0	0
			0	0	0	0
			0	0	0	0
General Use Total	(All 00s)		**0**	**0**	**0**	**0**
Support	700's		0	0	0	0
Health	800's		0	0	0	0
			0	0	0	0
Support & Health	(700s & 800s)		**0**	**0**	**0**	**0**
		Grand Total Net SF:	0	0	0	0

Tennessee Tech UNIVERSITY

College of Engineering - Student Centered Interdisciplinary Resource v5

Space ID	Space Type	Name of Space	Stations	NO. OF ROOMS	NASF	TOTAL NASF	Essential	Desirable	Enhancement
CLASSROOMS									
	110	Classroom	200	1	4,000	4,000			
	110	Classroom	125	1	2,750	2,750			
	110	Classroom	80	3	2,000	6,000			
	110	Classroom	50	2	1,250	2,500			
						15,250			
LABORATORIES									
	210	Instructional Lab with hoods	28	2	1,680	3,360			
	210	Instructional Lab with hoods	28	2	1,680	3,360			
	210	Instructional Lab	28	2	1,680	3,360			
	215	Lab Support		3	150	450			
						10,530			
COLLABORATION ROOMS/SMALL GROUP STUDY									
	350	Collaboration Room	28	1	700	700			
	350	Collaboration Room	18	1	450	450			
	350	Collaboration Room	12	1	360	360			
	350	Small Group Rooms	6	8	180	1,440			
						2,950			
FACULTY & STUDENT RESEARCH LABORATORIES									
	250	Research Lab, Core Research		2	1,000	2,000			
	250	Research Lab		1	900	900			
	250	Research Lab		2	600	1,200			
	250	Research Lab		3	300	900			
	255	Lab Support, Precision Instrumentation		1	300	300			
	255	Research Lab Support		4	150	600			
						5,900			
DESIGN/COMPUTATIONAL STUDIOS									
	220	Studio, Design/Computation	40	1	1,600	1,600			
	220	Studio, Design/Computation	28	1	1,120	1,120			
	225	Studio Support		1	150	150			
						2,870			
OFFICES									
Student Success Center									
	311	Office, Director	1	1	120	120			
	311	Office, Assistant Director	1	1	120	120			
	311	Office, Admin Assistant	1	1	100	100			
	311	Office, Advisor	1	6	120	720			
	315	Office Support		2	30	60			
	350	Conference Room	18	1	450	450			
	220	Lab/Studio, Tutoring Room	24	1	720	720			
	225	Lab/Studio Support		1	350	350			
						2,640			
Shared Grad Student Offices									
	312	Grad Student Office Areas (Shared Bullpen)	8	10	320	3,200			
						3,200			
Faculty Offices									
	310	Office, Faculty	1	15	120	1,800			
	310	Office, Adjunct Faculty, Shared	2	4	120	480			
	315	Office Support		2	50	100			
	311	Office, Technician	2	1	120	120			
						2,500			

STUDENT PROJECT AREAS						
	220	Student Project Area - Clean				
	220	Student Project Area - Dirty		1	8,500	8,500
	220	Student Project Area - Electronics				
	220	Student Project Area - Quiet/Writing				
	220	Student Project Area - Specific Projects		5	300	1,500
	225	Support Areas, Storage		5	200	1,000
						11,000
ATRIUM, COMMUTER LOUNGE, STUDENT CLUBS, STUDY						
	650	Atrium		1	2,000	2,000
	312	Engineering Student Club, Office & Support	6	5	180	900
	410	Study Room	20	1	400	400
						3,300
					Total NASF	**60,140**
					Target based on $40 M Construction Cost	60,000
					Difference	140
					GSF Difference	**233**
					Construction Cost Difference at $400/GSF	**$ 93,333**
Not Included in the NASF but included in the GSF						
		Corridors		-	-	-
		Elevators		-	-	-
		Lobbies		-	-	-
		Loading Dock		-	-	-
		Mechanical Spaces		-	-	-
		Public Restrooms		-	-	-
		Stairways		-	-	-
		Thickness of Walls/Structure		-	-	-

THEC - Space Allocation Guidelines ver 0916

Data Input and Calculation Spreadsheet - UT and TBR Universities

2017

Name of Institution: **Tennessee Tech University**

Date of Data: Fall 2016

Change shaded cells only:

blue	Data inputs (institutions)
salmon	Guidelines / planning inputs (THEC)

NASF totals rounded up to next whole square foot.

Enrollment Data		
Students	**FTE**	**Headcount**
On-ground	8,442	
Online	685	
Living on campus		2,618

Part I – Classrooms

Class Size	# of sections	Weekly CR Hours
1-8	315	933
9-14	116	330
15-20	312	809
21-26	309	827
27-32	161	445
33-47	358	1,085
48-74	133	351
75-126	48	127
127+	31	89

Sta util = 60% (fixed) **Hrs per week:** 30 Institutions enter 30 hrs for Day session or 17 for Evening.

Classroom Stations	NASF / Sta	NASF per CR	Number of CRs	Total NASF
12	26	312	32	9,984
20	25	500	11	5,500
30	21	630	27	17,010
40	18	720	28	20,160
50	18	900	15	13,500
60	18	1,080	37	39,960
100	17	1,700	12	20,400
150	16	2,400	5	12,000
275	14	3,850	3	11,550
			Total CR NASF:	**150,064**

Part II - Scheduled Labs and Studios

Lower Div (100+200 level)

Discipline	# of sections	Weekly Lab Hours	Total Enrollment
A	4	8	88
B	24	42	402
C	165	396	2,754
D	165	406	4,873
E	61	116	1,163

Sta util: 80% **Hrs per week:** 20

Mean Section Size	Stations per Lab	NASF / Sta	NASF per Lab	Number of Labs	Lab+Studio NASF	Support Allocation	Support NASF	Total NASF
22.0	28	150	4,200	1	4,200	40%	1,680	5,880
17.0	22	100	2,200	3	6,600	35%	2,310	8,910
17.0	22	75	1,650	20	33,000	30%	9,900	42,900
30.0	38	60	2,280	21	47,880	25%	11,970	59,850
19.0	24	40	960	6	5,760	20%	1,152	6,912
				Total Lower Div NASF:	97,440		27,012	124,452

Upper Div + Grad (300+ level)

Discipline	# of sections	Weekly Lab Hours	Total Enrollment
A	31	73	486
B	20	51	277
C	190	734	1,775
D	99	328	1,396
E	37	148	405

Sta util: 75% **Hrs per week:** 15

Mean Section Size	Stations per Lab	NASF / Sta	NASF per Lab	Number of Labs	Lab+Studio NASF	Support Allocation	Support NASF	Total NASF
16.0	22	150	3,300	5	16,500	40%	6,600	23,100
14.0	19	100	1,900	4	7,600	35%	2,660	10,260
9.0	12	75	900	49	44,100	30%	13,230	57,330
14.0	19	60	1,140	22	25,080	25%	6,270	31,350
11.0	15	40	600	10	6,000	20%	1,200	7,200
				Total Upper Div NASF:	99,280		29,960	129,240

Grand Total Scheduled Lab and Studio NASF: **253,692**

Part III - Open Labs, Studios, Collaboration	
Student enrollment, on-ground (FTE)	8,442
Student enrollment, online (FTE)	685

NASF / FTE	Total NASF
5	**42,209**
0	**0**

Grand Total Open Labs, Studios, Collaboration NASF: **42,209**

Part IVa Research – by Res Expenditure		
	3-year Average Research Expenditure $	
Discipline	On-campus	Off-campus
A	$2,017,000	
B	$6,059,000	
C	$168,000	
D	$1,474,000	

Inflation since 2012: 8.8%

NASF / $1M	Adjusted NASF / $1M	NASF On-campus Factor	NASF Off-campus Factor	Total NASF
		100%	25%	
6,350	5,791	11,681	0	11,681
5,250	4,788	29,011	0	29,011
3,450	3,146	529	0	529
			Total Research Lab NASF by Res$:	41,221
2,600	2,371	3,496	0	3,496
			Total Research Office NASF by Res$:	3,496

Part IVb Research – by Research FTE				
Indicate FTE by Teaching Load or Contra	Teaching Load			
Personnel Category	Discipline Group – FTE			
	A	B	C	D
Faculty	25.2	10.5	26.8	17.2
PhD, Post Doc	49.0	6.7	4.3	19.0
Non-Faculty	19.8	12.5	11.8	40.5
GRA / GTA	33.0	15.0	25.0	21.0
Undergrad	24.7	107.1	143.0	34.1
Vis / Adj	0.0	0.0	0.0	0.0

Research Lab

Research Lab NASF / FTE			Research Lab NASF	Lab Support NASF	Total Lab + Supt NASF
A	B	C			
600	450	300	27,909	10,123	38,033
300	225	150	16,853	6,601	23,454
300	225	150	10,523	3,891	14,414
100	75	75	6,300	2,276	8,577
50	50	50	13,740	4,513	18,254
300	225	150	0	0	0
Support Allocations: 40%	35%	30%			
			Total Research Lab NASF by Research Personnel FTE:		102,732

Research Office

Res Office NASF / D	Research Office NASF	Office Support NASF	Total Office + Supt NASF
50	860	172	1,032
50	950	190	1,140
50	2,025	405	2,430
50	1,050	210	1,260
50	1,705	341	2,046
50	0	0	0
20%			
		Tot Research Office NASF by Res Personnel FTE:	7,908

Part V - Personnel Requiring Office			
Personnel Category	Total FTE	NASF / FTE	Total NASF
President, Chancellor	1.0	350	350
Provosts, Vice President	7.0	240	1,680
Dean	9.0	180	1,620
Assoc. Dean, Dept. Chair	50.0	150	7,500
Professor, Assoc, Asst	317.0	150	47,550
Other Faculty	99.0	100	9,900
Professional Staff	338.8	130	44,038
Clerical	207.2	120	24,864
Staff, Technician	130.5	100	13,053
GTA (Headcount)	131.0	60	7,860
GRA (Headcount)	87.0	40	3,480
Other Students (Headcount)	2,539.0	10	25,390
Other: Auditor, etc.	0.0	100	0
		Subtotal NASF:	187,285
		Support Allocation: 30%	56,186
		Total Office NASF by FTE:	243,471

Part VI - Library and Study	
Total volumes and volume-equivalents	269,267
Tot volomes in compact shelving	0
Cartographic collection	25,194
Student enrollment, on ground (FTE)	8,442
Student enrollment, online (FTE)	685
Students living on campus (HC)	2,618
Total Student enrollment, on-ground (HC)	0
Headcount-to-FTE conversion factor	0.00
Estimated FTE living on campus	0

	Volumes	NASF per Volume	Total NASF
First 150,000 Volumes:	150,000	0.10	15,000
Next 150,000 Volumes:	119,267	0.09	10,735
Next 300,000 Volumes:	0	0.08	0
Next 600,000 Volumes:	0	0.07	0
Next 1,200,000 Volumes:	0	0.06	0
Next 2,400,000 Volumes:	0	0.05	0
Above 4,800,000 Volumes:	0	0.04	0
Compact Shelving	0	0.03	0
Cartographic Collection	25,194	0.02	504
		NASF for Volumes:	26,239

Number of Tables, Carrels, and Groups

	% of FTE Enrollment	Number of T, C, & Gs
Living on-campus:	25.0%	0
On ground, off-campus:	5.0%	423
Online:	5.0%	35
Total T, C, & Gs:		458

NASF for Tables, Carrels, Groups

	% of T, C, & Gs	Number of T, C, & Gs	NASF per Station	Total NASF
% Standard:	45%	206	25	5,153
% Enhanced / Group:	25%	115	35	4,008
% Reserved / Assignable:	20%	92	35	3,206
% Group Study:	10%	46	35	1,603
			NASF for Readers:	13,970

Space for Technical Services

	Sub-total Books and Reader Space:	40,209
Add'l NASF, % of Sub-total for Technical Services:	12.5%	5,027
	Total Library and Study NASF:	**45,236**

Part VII - Physical Education and Recreation	
Student Enrollment, on-ground (FTE)	8,442
Per-institution Minimum NASF, <4000 FTE Students:	40,800
Per-institution Minimum NASF, 4000+ FTE Students:	68,000
Additional NASF Per FTE :	11
Institution Mimimum NASF:	68,000
Per FTE Allocation:	92,860
Total Physical Education and Recreation NASF:	**160,860**

Summary NASF

Part	Modeled	Exist E&G	Difference	Equiv FICM
I - Classrooms	150,064	178,548	28,484	1xx
II - Lab / Studio	253,692	181,482	-72,210	210, 215
III - Open Lab	42,209	29,144	-13,065	220, 225
IV - Research	102,732	85,159	-17,573	250, 255
V - Office	251,379	325,609	74,230	3xx
VI - Library	45,236	76,665	31,429	4xx
VII - Phys Ed	160,860	252,261	91,401	520, 523, 525
Totals:	**1,006,172**	**1,128,868**	**122,696**	

THEC

DOBER LIDSKY MATHEY
CREATING CAMPUS SOLUTIONS

Funding Analysis

Department: Tennessee Higher Education Commission
Institution: Tennessee Tech University
Project: Engineering Building

	2,750,000 **Total Match Funding**			
	Amount	Non-Appropriated Category		Specifics of Source
0%	0	Plant Funds (Auxiliary)		
0%	0	Plant Funds (Non-auxiliary)		
0%	0	Land Sale Proceeds		
0%	0	Access Fees		
0%	0	Student Fees		
100%	2,750,000	Gifts		Gifts
0%	0	Local Government		
0%	0	Federal Funds		
0%	0	5-Year Bond Funds		
0%	0			

Community College & Non-Formula Units

		Minimum	Maximum
Total Project Cost			
Total Match			
Renovation	100%	-	-
New		-	-
		-	**-**
		Eligible Check	-
		Ratio above minimum	#DIV/0!
		Maximum Points	8.00
		Calculated Points	**#DIV/0!**

Match Requirement

Min	Max	
0%	5%	Reno
2%	10%	New

Moderate Research University - APSU ETSU MTSU TSU TTU UTC UTM

		Minimum	Maximum
Total Project Cost	55,000,000		
Total Match	2,750,000		
Renovation	0%	-	-
New	100%	2,750,000	8,250,000
		2,750,000	**8,250,000**
		Eligible Check	-
		Ratio above minimum	0%
		Maximum Points	8.00
		Calculated Points	**-**

Match Requirement

Min	Max	
2%	10%	Reno
5%	15%	New

High Research University - UoM UTK

		Minimum	Maximum
Total Project Cost	-		
Total Match	-		
Renovation	100%	-	-
New	0%	-	-
		-	**-**
		Eligible Check	-
		Ratio above minimum	#DIV/0!
		Maximum Points	8.00
		Calculated Points	**#DIV/0!**

Match Requirement

Min	Max	
4%	15%	Reno
10%	25%	New

Capital Maintenance Request: FY2019-20

Governing Board: Tennessee Tech
2019-20 Maintenance Allocation: $6,170,000

Fiscal Year	Priority*	Institution	Project	Project Cost	Project Description
2019-20	1	TTU	Several Bldgs. Roof Replacements	$ 3,060,000	Roof replacements and related roof component repairs
2019-20	2	TTU	Several Buildings Upgrades	$ 3,110,000	Building Systems and FFE Upgrades
2019-20	3				
2019-20	4				
2019-20	5				
2019-20	6				
2019-20	7				
2019-20	8				
2019-20	9				
2019-20	10				
			Total Project Cost	$ 6,170,000	

* Requests are not limited to 10. Insert more rows if there are more projects to recommend. Total costs must fall within allocation.

Capital Maintenance Out-Years: FY 2020-21 through 2023-24

Fiscal Year	Priority	Institution	Project	Project Cost	Project Description
2020-21	1	TTU	Several Buildings Upgrades	$ 9,400,000	Building Systems and FFE Upgrades
2020-21	2	TTU	Building Controls Upgrade Phase 1	$ 3,000,000	Upgrade HVAC Controls Campus Wide
2020-21	3				
2020-21	4				
2020-21	5				
2020-21	6				
2020-21	7				
2020-21	8				
2020-21	9				
2020-21	10				
2021-22	1	TTU	Volpe Library HVAC Upgrades	$ 9,800,000	HVAC Upgrades

2021-22	2	TTU	Building Controls Upgrade Phase 1	$ 3,000,000	Upgrade HVAC Controls Campus Wide
2021-22	3				
2021-22	4				
2021-22	5				
2021-22	6				
2021-22	7				
2021-22	8				
2021-22	9				
2021-22	10				
2022-23	1	TTU	Derryberry Hall Upgrades	$ 10,170,000	Building Systems and FFE Upgrades
2022-23	2				
2022-23	3				
2022-23	4				
2022-23	5				
2022-23	6				
2022-23	7				
2022-23	8				
2022-23	9				
2022-23	10				
2023-24	1	TTU	Clement Hall Upgrades	$ 10,550,000	Building Systems and FFE Upgrades
2023-24	2				
2023-24	3				
2023-24	4				
2023-24	5				
2023-24	6				
2023-24	7				
2023-24	8				
2023-24	9				
2023-24	10				

DB70 Form - Project Request

1 Department: Tennessee Higher Education Commission
Institution: Tennessee Tech University
Project: Roof Replacements - Phase 3
City/County: Cookeville/Putnam

2 Fiscal Year: 2019/ 2020

3

		New		Reno/Maint
	Capital Outlay			
X	Capital Maintenance	0	Gross Sq.Ft.	0
	Disclosure	0	Net Sq.Ft.	0
X	Designer Required	0.00	Cost/Sq.Ft.	0.00

4 Project Description:

Replace roofs on several buildings. A detailed scope of work is included in three attached Roof Observation Reports from Richard C. Rinks & Associates, Inc. Generally speaking the scope of work will include roof replacement, repair or replace flashing, decking, coping and other roof components as needed. Repair masonry above the roof and dormers as required. Replace the cupola and clock on Derryberry Hall. Repair/replace other cupolas as needed. Additional roofs to be replaced that are not included in the Rinks' reports are Health & P.E Bldg.(Memorial Gym), Lewis Hall, Matthews/Daniel Hall, Ag. Pavilion (2 bldgs.) on the main campus and Cool Wing, Clay, and Glass & Metals at the Craft Center.

5

Total Project	Allocation				
		Estimated Building Construction Cost:			0
2,500,000.00	2,500,000.00	Building Construction			
0.00	0.00	Site & Utilities			
0.00	0.00	Built-in Equipment			
2,500,000.00	2,500,000.00	**Bid Target**			
250,000.00	250,000.00	Contingency:	10.00	10.00	percent
2,750,000.00	2,750,000.00	**MACC** (Maximum Allowable Construction Cost)			
227,462.00	227,462.00	Fee:	35/LogP-1.15 =	6.61709180	Renovation
0.00	0.00	Movable Equipment			
0.00	0.00	first other			
0.00	0.00	second other			
82,538.00	82,538.00	Administration & Miscellaneous			
3,060,000.00	3,060,000.00	**Total Cost**			

6 Funding Request:

THIS REQUEST		
3,060,000.00	3,060,000.00	STATE funds
0.00	0.00	FEDERAL funds
0.00	0.00	Local and Institutional Funds

7 Sources of Available Funding:

		fund year	description
already approved for existing SBC project	340,000.00	15/16	Current - Cap. Maint.
	1,110,000.00	2015	G.O. Bonds - Cap. Maint.
4,850,227.00	280,227.00		Plant Funds (non aux)
plus This Request	3,120,000.00	17/18	Current - Cap. Maint.
7,910,227.00	0.00		

8 SBC Action: If an existing project, SBC Project No.: 166/011-07-2015

9 Designer: Kaatz Binkley Jones Morris Architects, Inc.

Project Support Documentation - 1

Department: Tennessee Higher Education Commission
Institution: Tennessee Tech University
Project: Roof Replacements - Phase 3

A. Program Scope:

Detailed scope is included in the Rinks reports, and includes roof replacements, repair/replace flashing, decking, coping and other roof components as needed. Repair masonry above the roof and dormers as required. Replace the cupola and clock on Derryberry Hall. Repair/replace other cupolas as needed. Roofs identifed in the Rinks report are: Brown, Bruner, Clement, Derryberry, Foster, Foundation, Jere Whitson, Volpe Library, Pennebaker, South, Southwest, T.J. Farr, Univ. Police, Univ. Services. Additional bldgs. not included in the Rinks' reports are Matthews/Daniel, Health & P.E. Bldg, Lewis, Ag. Pavilion (2 bldgs.) on the main campus and Cool Wing, Clay, and Glass & Metals at the Craft Center.

B. Evidence of Physical Facility Need:

From the Rinks Report--"Many of the buildings have wood fiber and gypsum decks that are not ideal roofing substrates, especially to receive shingles. The shingles are oxidized and deteriorated. Numerous shingles have blown off; many have been replaced. The shingles have suffered granule loss and the fiberglass is exposed in numerous locations. The tube-lok nails used on wood fiber decks are backing out and are exposed in some locations. Several shingles, brick walls and flashings have been caulked. The decks have deflected in some locations. Some of the rooftop equipment is rusted. Some rooftop equipment has been damaged. Some details are improper. We observed evidence of ponding on the low slope roofs."

C. Historical Profile:

Refer to the attached Rinks Reports(3) and the tab titled Roof Data Sheet for list of buildings, roof area, type, age, etc. Roofs for eight additonal buildings not included in the Rinks reports are also included in this scope of work.

D. Related Requirements:

Future projects will be required to correct all deficient roofs identified in the reports. An architectural consultant will be required for repairs to the clock tower and cupolas. Masonry and stone consultants may also be required.

As identified in the Rinks reports, roof replacement needs are numerous. Future projects will be necessary to complete the roof replacements and make other recommended corrections.

TTU Roof Replacements
Roof Data
6/2/2014

Bldgs. Included In Rinks Report Roof Replacements - Phase 3

\ Code	Building	Year Blt.	Area Flat	Type	Roof Mfr.	Year	Area Sloped	Type	Mfr.	Year	PFS Score	
BRWN	Brown Hall	1967	0				16000	F.S.	Owens-Corning	1986	30	
BRUN	Bruner Hall	1966	0				16200	F.S.	Owens-Corning	1986	30	
CLEM	Clement Hall	1965	4700	Epdm	Carlisle	1986	15900	F.S.	Owens-Corning	1986	30	
DBRY	Derryberry Hall	1912	466	Epdm		1991	22125	F.S.	Owens-Corning	1991	30	
FOST	Foster Hall	1964	5544	Epdm	Carlisle	2011	10450	F.S.	Owens-Corning	1985	50	
FNDH	Foundation Hall	1932	29971	EPDM & B/U		unknown	30550	shingle		unknown	20	Complete
JWB	Jere Whitson Bldg.	1949	0				12100	F.S.	Johns Manville	1978	30	Complete
LIBR	Volpe Library	1989	8100	Epdm	Carlisle	1989	50400	F.S.	Owens-Corning	1989	50	Complete
PENN	Pennebaker Hall	1968	0				16000	F.S.	Owens-Corning	1985	30	
OKLY	Oakley Hall	1931	6467	Epdm	Gen-Flex	1996	7785	F.S.	Owens-Corning	1996	50	Complete
SWH	Southwest Hall	1973	23500	EPDM		1987/1995	0				40	
FARR	T.J. Farr Bldg.	1928	8946			1981	2888	F.S.	Johns Manville	1981	30	
ROTC	Military Science	1944	2250	Epdm	Carlisle	1980	0				40	
USVC	University Services Bldg.	1929	12300	Epdm	Carlisle	1981	7700	Metal		1981	30	
Additonal Roofs Needing Replacement Not Included in Rinks Report												
DANL	Daniel Hall	1921	8358	Epdm	Carlisle		923	FAS	Owens-Corning	1993	40	
MGYM	Memorial Gym	1929	22100	Epdm	Carlisle		19100	F.S.	Owens-Corning	1993	40	
MATT	Matthews Hall	1951	1047				8358	F.S.	Owens-Corning	1993	40	
CHIL	Chiller Plant	1972	6162	Epdm	Firestone					1995	50	Complete
HOOP	Hooper Eblen Center	1976	74758	Epdm	Firestone					1995	50	
LEWS	Lewis Hall	1921	18838	B/U	Gen-Flex		2997	B/U,F.S.	Owens-Corning	1997	50	
AB	Hyder-Burks Barn	1993	6660	Epdm	Firestone	1993	43927	Steel	Butler	1993		
AA	Hyder-Burks Arena	1995	72085	Epdm	Firestone	1995				1995		
QB	Cool Wing	1979	Rep.				24070	F.S.	Owens-Corning	1993		
QD	Glass/Metals Studio	1979	Rep.				24070	F.S.	Owens-Corning	1993		
QC	Clay Studio	1979	Rep.				24070	F.S.	Owens-Corning	1994		

DB70 Form - Project Request

1 Department: Tennessee Higher Education Commission
Institution: Tennessee Tech University
Project: Several Buildings Upgrades
City/County: Cookeville/Putnam

2 Fiscal Year: 2019/ 2020

3

		New		Reno/Maint
	Capital Outlay			
X	Capital Maintenance	0	Gross Sq.Ft.	0
	Disclosure	0	Net Sq.Ft.	0
X	Designer Required	0.00	Cost/Sq.Ft.	0.00

4 Project Description:

Update systems and spaces in Brown Hall, which was included in the Master Plan follow-up assessment study. Provide system and space upgrades in Bruner Hall and Prescott Hall. Abate asbestos materials as required. Coordinate work with other related projects on campus as needed.

5

Estimated Building Construction Cost: 0

Total Project	Allocation				
2,460,000.00	2,460,000.00	Building Construction			
0.00	0.00	Site & Utilities			
0.00	0.00	Built-in Equipment			
2,460,000.00	2,460,000.00	**Bid Target**			
246,000.00	246,000.00	Contingency:	10.00	10.00	percent
2,706,000.00	2,706,000.00	**MACC** (Maximum Allowable Construction Cost)			
224,119.00	224,119.00	Fee:	35/LogP-1.15 =	6.62586673	Renovation
0.00	0.00	Movable Equipment			
20,000.00	20,000.00	first other	Commissioning		
50,000.00	50,000.00	second other	A/V Equipment		
109,881.00	109,881.00	Administration & Miscellaneous			
3,110,000.00	3,110,000.00	**Total Cost**			

6 Funding Request:

THIS REQUEST		
3,110,000.00	3,110,000.00	STATE funds
0.00	0.00	FEDERAL funds
0.00	0.00	Local and Institutional Funds

7 Sources of Available Funding:

		fund year	description
already approved for existing SBC project	5,340,000.00	16/17	State - Capital Maintenance
	991,687.00	16/17	Plant Funds (non-aux)
12,621,687.00	6,290,000.00	17/18	State - Capital Maintenance
plus This Request	0.00		
15,731,687.00	0.00		

8 SBC Action: If an existing project, SBC Project No.: 166/011-05-2016

9 Designer: Upland Design Group, Inc.

Project Support Documentation - 1

Department: Tennessee Higher Education Commission
Institution: Tennessee Tech University
Project: Several Buildings Upgrades

A. Program Scope:

Update systems and spaces in Brown Hall, which was included in the Master Plan follow-up assessment study. Provide system and space upgrades in Bruner Hall and Prescott Hall. Abate asbestos materials as required. Coordinate work with other related projects on campus as needed.

B. Evidence of Physical Facility Need:

Many updates of systems and spaces within the above buildings were identified as necessary in the recently completed Master Plan Update, 11 March, 2010, and the related Six Academic Buildings - An Assessment, 20 April, 2010. These documents identified needs within the above academic buildings, as well as similar academic buildings, that must be done over time to make the facilities code compliant and adequate for instruction.

C. Historical Profile:

Brown Hall opened in 1967, Bruner Hall opened in 1966, Prescott Hall opened in 1971. Outside of replacing the elevator and electrical system in Bruner, no major updates of systems have taken place in these buildings.

D. Related Requirements:

As needs are numerous in all of the above facilities, future projects will be necessary to address all current issues.

Schedule of Movable Equipment

Department: Tennessee Higher Education Commission
Institution: Tennessee Tech University
Project: Several Buildings Upgrades

Total Equip: **500,000.00**

Description of Equipment Types	Life	Qty	Unit Cost	Total Cost
Classroom, Lab, Office Furnishings and Equipment	20	1	500,000.00	500,000.00
				0.00
				0.00
				0.00
				0.00
				0.00
				0.00
				0.00
				0.00
				0.00
				0.00
				0.00
				0.00
				0.00
				0.00
				0.00
				0.00
				0.00
				0.00
				0.00

I. Explanation of Equipment Costs:

Institution	Project	Disclosure Year	Funding Source	Project Cost	Net New Sq. Ft.	TSSBA	Gifts	Grants	Auxiliary	Contractor Funds	Operating
TTU	Cooper/Dunn Residence Hall Upgrades	2018-2019	Plant Funds (Auxiliary) and TSSBA	$ 6,700,000		$ 6,650,000			$ 50,000		

Capital Disclosure: FY2019-20											
					Funding Source						
	Institution	Project	Project Cost	New Sq. Ft.	Plant-Funds - Non-Auxiliary	Plant Funds - Auxiliary	TSSBA	Gifts	Contractor Funds	Other	Project Description
3	TTU	Hooper Eblen Center Roof Replacemer	$1,550,000	N/A	$ 1,550,000.00						Roof Replacement
4	TTU	Baseball Field Lighting Replacement	$870,000	N/A	$ 870,000.00						Lighting Replacement
5											
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Agenda Item Summary

Date: June 26, 2018

Division: Planning and Finance

Agenda Item: 2017-18 Estimated and 2018-19 Proposed Budgets

☐ **Review** ☒ **Action** ☐ **No action required**

PRESENTERS: Dr. Claire Stinson, Vice President for Planning and Finance

PURPOSE & KEY POINTS:

Review recommendation and approval of Tennessee Tech's FY2017-18 Estimated and FY2018-19 Proposed Budgets.

E&G Revenues - Current Estimate FY2017-18 and Proposed Budget FY2018-19

	Current Estimate FY2017-18	Proposed Budget FY2018-19	% Change Over Current Estimate
Tuition and Fees	$ 97,672,100	$ 97,176,200	-0.51%
State Appropriations	$ 47,030,200	$ 50,365,800	7.09%
Contracts and IDC	$ 971,400	$ 971,400	0.00%
Sales and Services	$ 1,069,300	$ 865,500	-19.06%
Other Activities	$ 3,183,410	$ 3,051,410	-4.15%
Athletics (inlc student fee)	$ 6,403,390	$ 6,303,890	-1.55%
Total Revenues	$ 156,329,800	$ 158,734,200	1.54%

E&G Expenses by Budget Category - Current Estimate FY2017-18 and Proposed Budget FY2018-19

	Current Estimate FY2017-18	Proposed Budget FY2018-19	
Instruction	$ 70,201,200	$ 71,065,100	1.23%
Research	$ 3,569,000	$ 2,577,100	-27.79%
Public Service	$ 2,619,500	$ 2,166,900	-17.28%
Academic Support	$ 12,309,500	$ 12,296,400	-0.11%
Student Services	$ 19,456,700	$ 18,271,300	-6.09%
Institutional Support	$ 16,007,600	$ 15,485,800	-3.26%
Oper. & Maint. of Plant	$ 13,809,500	$ 13,995,800	1.35%
Scholarships & Fellowships	$ 16,705,300	$ 18,088,600	8.28%
Total Expenses	$ 154,678,300	$ 153,947,000	-0.47%

E&G Expenses by Natural Classification - Current Estimate FY2017-18 and Proposed Budget FY2018-19

	Current Estimate FY2017-18	Proposed Budget FY2018-19	
Salaries and Wages	$ 76,290,300	$ 79,227,400	3.85%
Fringe Benefits	$ 31,424,100	$ 31,704,600	0.89%
Travel	$ 2,725,200	$ 1,911,700	-29.85%
Operating & Utilities	$ 27,022,700	$ 22,676,200	-16.08%
Scholarships & Fellowships	$ 16,705,300	$ 18,088,600	8.28%
Capital	$ 510,700	$ 338,500	-33.72%
Total Expenses	$ 154,678,300	$ 153,947,000	-0.47%

E&G Unrestricted Budget Summary - Current Estimate FY2017-18 and Proposed Budget FY2018-19

	Current Estimate FY2017-18	Proposed Budget FY2018-19	
Beginning Fund Balance	$ 11,099,350	$ 8,369,706	-24.59%
E&G Revenues	$ 156,329,800	$ 158,734,200	1.54%
E&G Expenses	$ 154,678,300	$ 153,947,000	-0.47%
Mandatory Transfers	$ 369,900	$ 369,900	0.00%
Non-mandatory Transfers	$ 4,011,300	$ 4,516,200	12.59%
Ending Fund Balance	$ 8,369,650	$ 8,270,806	-1.18%

Auxiliary Budget Summary - Current Estimate FY2017-18 and Proposed Budget FY2018-19

	Current Estimate FY2017-18	Proposed Budget FY2018-19	
Beginning Fund Balance	$ 1,561,750	$ 1,308,294	-16.23%
Aux Revenues	$ 18,341,000	$ 18,342,300	0.01%
Aux Expenses	$ 7,316,400	$ 7,435,000	1.62%
Mandatory Transfers	$ 5,152,300	$ 5,152,300	0.00%
Non-mandatory Transfers	$ 6,125,700	$ 5,755,000	-6.05%
Ending Fund Balance	$ 1,308,350	$ 1,308,294	0.00%

TOTAL Budget Summary - Current Estimate FY2017-18 and Proposed Budget FY2018-19

	Current Estimate FY2017-18	Proposed Budget FY2018-19	
Beginning Fund Balance	$ 12,661,100	$ 9,678,000	-23.56%
Total Revenues	$ 174,670,800	$ 177,076,500	1.38%
Total Expenses	$ 161,994,700	$ 161,382,000	-0.38%
Mandatory Transfers	$ 5,522,200	$ 5,522,200	0.00%
Non-mandatory Transfers	$ 10,137,000	$ 10,271,200	1.32%
Ending Fund Balance	$ 9,678,000	$ 9,579,100	-1.02%

Breakdown of E&G Fund Balance - Current Estimate FY2017-18 and Proposed Budget FY2018-19

	Current Estimate FY2017-18	
	Beginning Fund Balance	**Ending Fund Balance**
Allocation for Encumbrances	$ 270,194	$ 270,194
Allocation for Working Capital	$ 2,944,013	$ 2,944,013
Special Allocations*	$ 7,885,143	$ 5,155,443
Unallocated Balance	$ -	$ -
Total E&G Fund Balance	**$ 11,099,350**	**$ 8,369,650**
*2% to 5% Reserve	$ 6,003,362	$ 3,273,662
*Student Activity Fee	$ 621,069	$ 621,069
*Technology Access Fee	$ 1,076,383	$ 1,076,383
*Specialized Academic Course Fee	$ 184,329	$ 184,329
Total Special Allocations	$ 7,885,143	$ 5,155,443

	Proposed Budget FY2018-19	
	Beginning Fund Balance	**Ending Fund Balance**
Allocation for Encumbrances	$ 270,194	$ 270,194
Allocation for Working Capital	$ 2,944,013	$ 2,944,013
Special Allocations*	$ 5,155,499	$ 5,056,599
Unallocated Balance	$ -	$ -
Total E&G Fund Balance	**$ 8,369,706**	**$ 8,270,806**
*2% to 5% Reserve	$ 3,273,718	$ 3,174,818
*Student Activity Fee	$ 621,069	$ 621,069
*Technology Access Fee	$ 1,076,383	$ 1,076,383
*Specialized Academic Course Fee	$ 184,329	$ 184,329
Total Special Allocations	$ 5,155,499	$ 5,056,599

E&G Transfers - Current Estimate FY2017-18 and Proposed Budget FY2018-19

	Current Estimate FY2017-18	Proposed Budget FY2018-19
	Debt Service and Unexpended Plant	
Debt Service Perf Contract	$ 369,930	$ 369,930
Debt Service Fitness Center	$ 2,065,530	$ 2,021,730
Debt Service Univ Center	$ 91,400	$ 89,460
Debt Service Eblen Center	$ 201,070	$ 196,810
Facilities Development (fee)	$ 887,500	$ 868,000
Parking and Transportation	$ 940,597	$ 973,275
Extraordinary Maintenance	$ 650,000	$ 150,000
Small Projects	$ 977,296	$ 841,000
Total Debt Service & Unexp Plant	$ 6,183,323	$ 5,510,205
	Renewal and Replacement	
IT Computer Equipment	$ 277,110	$ 377,110
Electronic Upgrades	$ 350,000	$ 350,000
Equipment - Departments	$ 243,000	$ 243,000
Reserves	$ (2,672,200)	$ (1,594,170)
Total R&R	$ (1,802,090)	$ (624,060)
GRAND TOTAL All Transfers	**$ 4,381,233**	**$ 4,886,145**

Reserves - Proposed Budget FY2018-19 - Beginning July 1

		Unexpended Plant
Land Purchases	$	1,518,031
New Construction:		
Science Building	$	10,842,023
Fitness & Rec Center	$	9,973,949
Parking & Transportation	$	1,764,497
Residence Hall Rvn & Roof	$	1,693,838
Roaden Center Rvn	$	327,375
Eblen Center Rvn	$	1,027,728
Infrastructure & HVAC	$	1,665,146
Football Digital Board	$	151,109
Volpe Library Expansion	$	100,000
Engineering Master Plan	$	10,000
Extraordinary Maint.	$	1,388,609
Depts. Small Projects	$	75,809
Other Small Projects	$	59,278
Total Unexpended Plant	$	30,597,392
		Renewal and Replacement
Auxiliary - Housing	$	14,831,957
Auxiliary - Other	$	9,272,969
Computer Center	$	2,531,771
Technology Update	$	1,122,847
Telecommunication	$	363,378
Printing & Photo Srv	$	222,218
Motor Pool	$	515,606
Craft Center R&R	$	754,410
Departmental R&R	$	595,422
University Reserve	$	3,179,363
Total R&R	$	33,389,941
GRAND TOTAL All Reserves	**$**	**63,987,333**

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Tennessee Tech University
Summary Of Unrestricted Current Funds Available And Applied
July Budget 2018-19

	Actual 2016-17	October Budget 2017-18	Estimated Budget 2017-18	% Change Over Actual	July Budget 2018-19	% Change Over Actual
Unrestricted Current Fund Balances at Beginning of Period						
Allocation for Encumbrances	740,567	270,200	270,200	-63.5	270,200	-63.5
Allocation for Working Capital	4,046,192	3,335,300	3,335,300	-17.6	3,335,300	-17.6
Special Allocations	10,578,348	8,731,000	8,731,000	-17.5	6,072,500	-42.6
Unallocated Balance	1,426,127	324,600	324,600	-77.2	0	-100.0
Total Unrestricted Current Fund Balances	16,791,234	12,661,100	12,661,100	-24.6	9,678,000	-42.4
Revenues						
Education and General						
Tuition and Fees	96,845,705	98,560,500	97,672,100	00.9	97,176,200	00.3
State Appropriations	42,172,363	47,030,200	47,030,200	11.5	50,365,800	19.4
Federal Grants and Contracts	1,291,184	869,700	869,700	-32.6	869,700	-32.6
Local Grants and Contracts	18,188	3,200	3,200	-82.4	3,200	-82.4
State Grants and Contracts	108,505	59,400	59,400	-45.3	59,400	-45.3
Private Grants and Contracts	32,282	39,100	39,100	21.1	39,100	21.1
Private Gifts	20,976	0	0	-100.0	0	-100.0
Sales & Services of Educ Activities	1,947,215	878,000	1,069,300	-45.1	865,500	-55.6
Sales & Services of Other Activities	9,592,431	8,637,700	8,737,800	-08.9	8,506,300	-11.3
Other Sources	974,416	866,000	849,000	-12.9	849,000	-12.9
Total Education and General	153,003,265	156,943,800	156,329,800	02.2	158,734,200	03.7
Sales & Services of Aux Enterprises						
Sales and Services of Aux Enterprises	16,917,308	17,673,700	18,341,000	08.4	18,342,300	08.4
Total Revenues	169,920,573	174,617,500	174,670,800	02.8	177,076,500	04.2
Expenditures and Transfers						
Education and General						
Instruction	68,403,756	71,337,200	70,201,200	02.6	71,065,100	03.9
Research	2,040,812	3,693,500	3,569,000	74.9	2,577,100	26.3
Public Service	2,729,050	2,379,400	2,619,500	-04.0	2,166,900	-20.6
Academic Support	12,298,538	11,680,800	12,309,500	00.1	12,296,400	00.0
Student Services	20,082,370	18,783,400	19,456,700	-03.1	18,271,300	-09.0
Institutional Support	15,061,102	15,990,800	16,007,600	06.3	15,485,800	02.8
Operation & Maintenance of Plant	12,822,785	13,687,300	13,809,500	07.7	13,995,800	09.1
Scholarships & Fellowships	16,339,882	18,638,900	16,705,300	02.2	18,088,600	10.7
Total Education and General	149,778,295	156,191,300	154,678,300	03.3	153,947,000	02.8
Mandatory Transfers for:						
Principal & Interest	518,243	325,000	369,900	-28.6	369,900	-28.6
Renewals & Replacements	0	0	0		0	

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Tennessee Tech University
Summary Of Unrestricted Current Funds Available And Applied
July Budget 2018-19

	Actual 2016-17	October Budget 2017-18	Estimated Budget 2017-18	% Change Over Actual	July Budget 2018-19	% Change Over Actual
Loan Fund Matching Grant	0	0	0		0	
Total Mandatory Transfers	518,243	325,000	369,900	-28.6	369,900	-28.6
Non-Mandatory Transfers for:						
Transfers to Unexpended Plant Fund	3,227,108	3,015,000	3,455,400	07.1	2,832,300	-12.2
Transfers to Renewal & Replacements	1,183,760	870,100	1,197,900	01.2	1,391,700	17.6
Transfers to Other Funds	2,398,745	2,366,000	2,358,000	-01.7	2,308,000	-03.8
Transfers from Unexpended Plant Fund	0	0	0		0	
Transfers from Renewal & Replacements	0	-3,000,000	-3,000,000		-2,015,800	
Transfers from Other Funds	0	0	0		0	
Total Non-Mandatory Transfers	6,809,613	3,251,100	4,011,300	-41.1	4,516,200	-33.7
Total Education and General	157,106,151	159,767,400	159,059,500	01.2	158,833,100	01.1
Auxiliary Enterprises Expenditures						
Auxiliary Enterprises Expenditures	6,801,561	7,235,800	7,316,400	07.6	7,435,000	09.3
Total Auxiliary Expenditures	6,801,561	7,235,800	7,316,400	07.6	7,435,000	09.3
Mandatory Transfers for:						
Principal & Interest	3,981,250	5,057,900	5,152,300	29.4	5,152,300	29.4
Renewals & Replacements	0	0	0	00.0	0	00.0
Loan Fund Matching Grant	0	0	0	00.0	0	00.0
Total Mandatory Transfers	3,981,250	5,057,900	5,152,300	29.4	5,152,300	29.4
Non-Mandatory Transfers for:						
Tranfers to Unexpended Plant Fund	0	0	0	00.0	0	00.0
Transfers to Renewal & Replacements	6,161,784	5,666,800	6,125,700	-00.6	5,755,000	-06.6
Transfers to Other Funds	0	0	0	00.0	0	00.0
Transfers from Unexpended Plant Fund	0	0	0	00.0	0	00.0
Transfers from Renewal & Replacements	0	0	0	00.0	0	00.0
Transfers from Other Funds	0	0	0	00.0	0	00.0
Total Non-Mandatory Transfers	6,161,784	5,666,800	6,125,700	-00.6	5,755,000	-06.6
Total Auxiliary Enterprises	16,944,595	17,960,500	18,594,400	09.7	18,342,300	08.2
Total Expenditures And Transfers	174,050,746	177,727,900	177,653,900	02.1	177,175,400	01.8
Other						
Prior Period Adjustments	0	0	0	00.0	0	00.0

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Tennessee Tech University
Summary Of Unrestricted Current Funds Available And Applied
July Budget 2018-19

	Actual 2016-17	October Budget 2017-18	Estimated Budget 2017-18	% Change Over Actual	July Budget 2018-19	% Change Over Actual
Other Additions/Deductions	0	0	0	00.0	0	00.0
Total Other	0	0	0	00.0	0	00.0
Unrestricted Current Fund Balances at End of Period						
Allocation for Encumbrances	270,194	270,200	270,200	00.0	270,200	00.0
Allocation for Working Capital	3,335,259	3,335,300	3,335,300	00.0	3,335,300	00.0
Special Allocations	8,731,020	5,945,200	6,072,500	-30.4	5,973,600	-31.6
Unallocated Balance	324,588	0	0	-100.0	0	-100.0
Total Unrestricted Current Fund Balances	12,661,061	9,550,700	9,678,000	-23.6	9,579,100	-24.3

TTU Budget Summary and Budget Analysis Documents

The complete Budget Summary and Budget Analysis documents can be viewed on the Budgeting, Planning, Reporting and Analysis website at:

Direct Link to document – **Summary**: https://www.tntech.edu/assets/usermedia/planning-finance/budgetary-information/Budget_Summary_July_FY18-19.pdf

Direct Link to document – **Analysis**: https://www.tntech.edu/assets/usermedia/planning-finance/budgetary-information/Budget_Analysis_July_FY18-19_1.pdf

Historical Budget documents (FY2011 through FY2018):

Budget **Summary**: https://www.tntech.edu/planning-and-finance/budgeting-and-planning/budgetary-information#julybudgetsummary

Budget **Analysis**: https://www.tntech.edu/planning-and-finance/budgeting-and-planning/budgetary-information#budgetanalysis

Office of the President

TENNESSEE TECH

May 4, 2018

Submitting on behalf of Tennessee Tech University (TTU) a crosswalk of organizational changes/updates with a proposed implementation date of July 1, 2018, as follows:

Academic Affairs

- Realign Study Abroad as a direct report to Academic Support from the Office of International Education
- Name change of Department of Accounting and Business Law to "Department of Accounting"

Enrollment Management & Career Placement

- Realign Career Development to report direct to Student Success
- Align Academic Services to report direct to the Vice President for Enrollment Management & Career Placement
- Realign New Student & Family Programs to report direct to Student Success

Planning and Finance

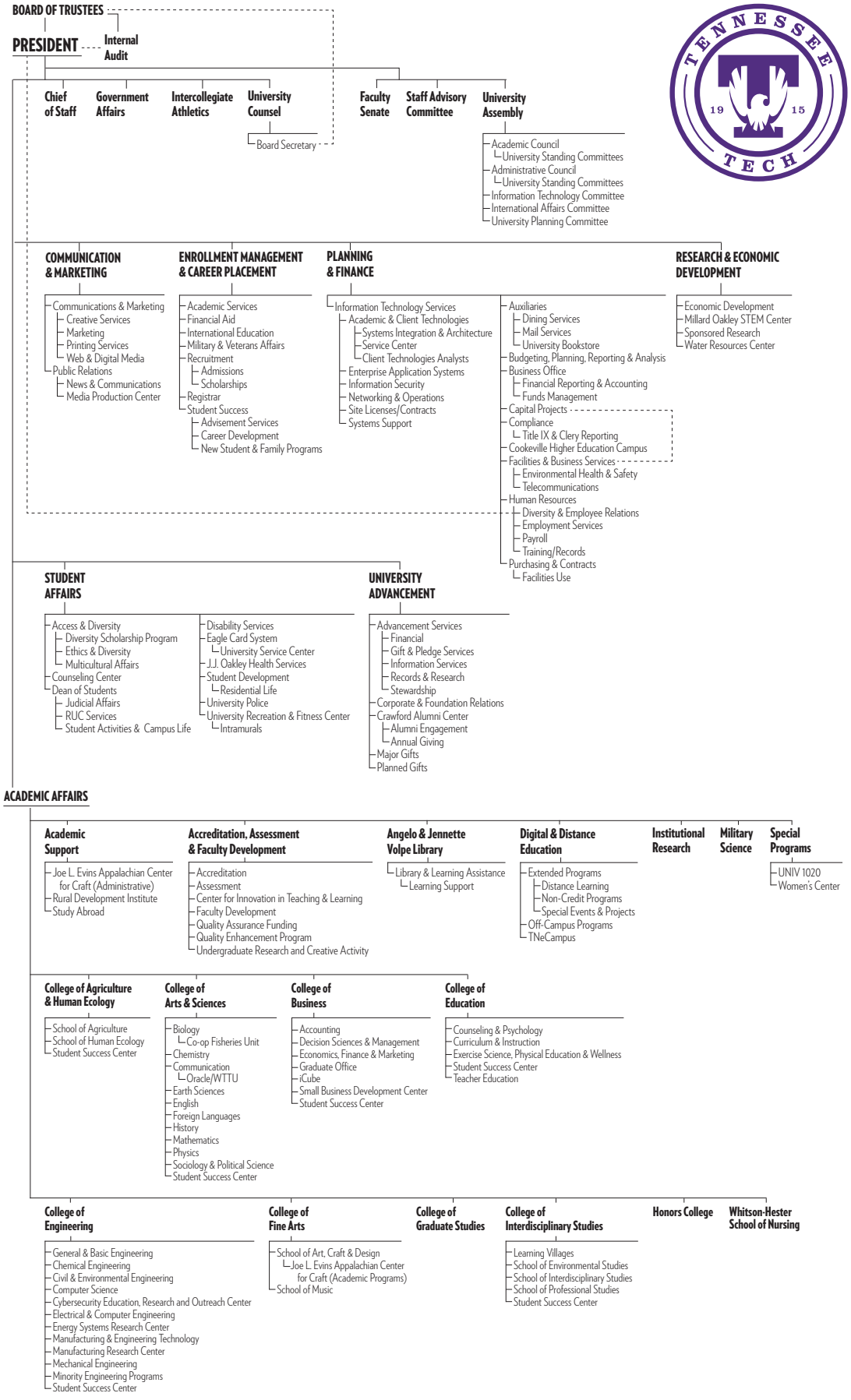
- Align Facilities & Business Services as a direct report to Vice President of Planning and Finance with realignment of Environmental Health & Safety and Telecommunications
- Capital Projects will remain as a standalone direct report to the Vice President for Planning and Finance.
- Name change of Title IX to "Title IX & Clery Reporting"

University Advancement

- Name change of Gift Pledge to "Gift & Pledge Services"
- Name change of Information to "Information Services"

Dr. Philip B. Oldham, President

Tennessee Tech / Box 5007 Cookeville, TN 38505 / 931-372-3241 / F: 931-372-6332 / www.tntech.edu/president


BOARD OF TRUSTEES
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Intercollegiate Athletics
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Board Secretary
Faculty Senate
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University Assembly
Academic Council
University Standing Committees
Administrative Council
University Standing Committees
Information Technology Committee
International Affairs Committee
University Planning Committee
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Communications & Marketing
Creative Services
Marketing
Printing Services
Web & Digital Media
Public Relations
News & Communications
Media Production Center
ENROLLMENT MANAGEMENT & CAREER PLACEMENT
Academic Services
Financial Aid
International Education
Military & Veterans Affairs
Recruitment
Admissions
Scholarships
Registrar
Student Success
Advisement Services
Career Development
New Student & Family Programs
PLANNING & FINANCE
Information Technology Services
Academic & Client Technologies
Systems Integration & Architecture
Service Center
Client Technologies Analysts
Enterprise Application Systems
Information Security
Networking & Operations
Site Licenses/Contracts
Systems Support
Auxiliaries
Dining Services
Mail Services
University Bookstore
Budgeting, Planning, Reporting & Analysis
Business Office
Financial Reporting & Accounting
Funds Management
Capital Projects
Compliance
Title IX & Clery Reporting
Cookeville Higher Education Campus
Facilities & Business Services
Environmental Health & Safety
Telecommunications
Human Resources
Diversity & Employee Relations
Employment Services
Payroll
Training/Records
Purchasing & Contracts
Facilities Use
RESEARCH & ECONOMIC DEVELOPMENT
Economic Development
Millard Oakley STEM Center
Sponsored Research
Water Resources Center
STUDENT AFFAIRS
Access & Diversity
Diversity Scholarship Program
Ethics & Diversity
Multicultural Affairs
Counseling Center
Dean of Students
Judicial Affairs
RUC Services
Student Activities & Campus Life
Disability Services
Eagle Card System
University Service Center
J.J. Oakley Health Services
Student Development
Residential Life
University Police
University Recreation & Fitness Center
Intramurals
UNIVERSITY ADVANCEMENT
Advancement Services
Financial
Gift & Pledge Services
Information Services
Records & Research
Stewardship
Corporate & Foundation Relations
Crawford Alumni Center
Alumni Engagement
Annual Giving
Major Gifts
Planned Gifts
ACADEMIC AFFAIRS
Academic Support
Joe L. Evins Appalachian Center for Craft (Administrative)
Rural Development Institute
Study Abroad
Accreditation, Assessment & Faculty Development
Accreditation
Assessment
Center for Innovation in Teaching & Learning
Faculty Development
Quality Assurance Funding
Quality Enhancement Program
Undergraduate Research and Creative Activity
Angelo & Jennette Volpe Library
Library & Learning Assistance
Learning Support
Digital & Distance Education
Extended Programs
Distance Learning
Non-Credit Programs
Special Events & Projects
Off-Campus Programs
TNeCampus
Institutional Research
Military Science
Special Programs
UNIV 1020
Women's Center
College of Agriculture & Human Ecology
School of Agriculture
School of Human Ecology
Student Success Center
College of Arts & Sciences
Biology
Co-op Fisheries Unit
Chemistry
Communication
Oracle/WTTU
Earth Sciences
English
Foreign Languages
History
Mathematics
Physics
Sociology & Political Science
Student Success Center
College of Business
Accounting
Decision Sciences & Management
Economics, Finance & Marketing
Graduate Office
iCube
Small Business Development Center
Student Success Center
College of Education
Counseling & Psychology
Curriculum & Instruction
Exercise Science, Physical Education & Wellness
Student Success Center
Teacher Education
College of Engineering
General & Basic Engineering
Chemical Engineering
Civil & Environmental Engineering
Computer Science
Cybersecurity Education, Research and Outreach Center
Electrical & Computer Engineering
Energy Systems Research Center
Manufacturing & Engineering Technology
Manufacturing Research Center
Mechanical Engineering
Minority Engineering Programs
Student Success Center
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School of Art, Craft & Design
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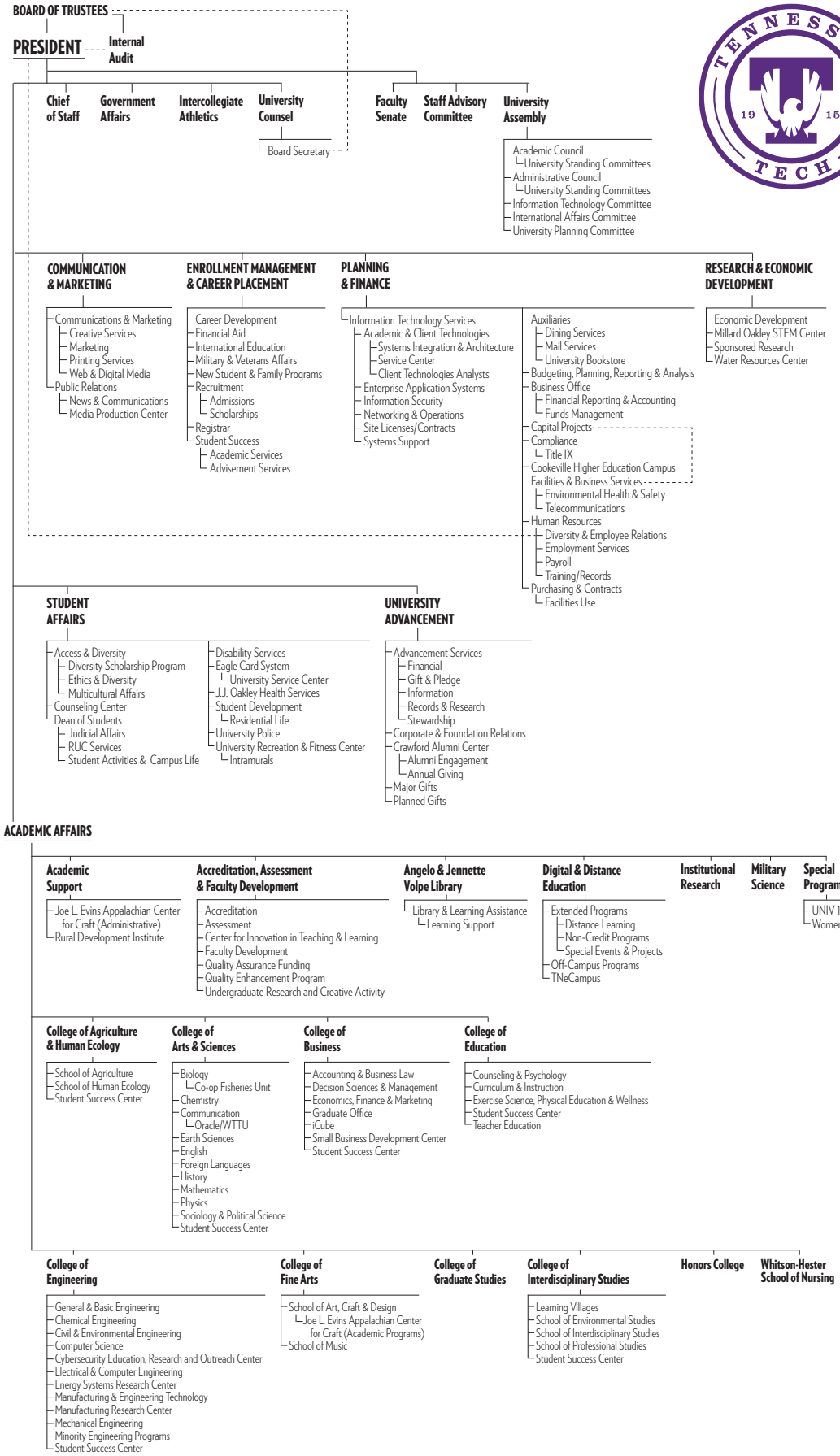
College of Graduate Studies
College of Interdisciplinary Studies
Learning Villages
School of Environmental Studies
School of Interdisciplinary Studies
School of Professional Studies
Student Success Center
Honors College
Whitson-Hester School of Nursing

July 1, 2018


BOARD OF TRUSTEES
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Board Secretary
Faculty Senate
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University Assembly
Academic Council
University Standing Committees
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Information Technology Committee
International Affairs Committee
University Planning Committee
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Creative Services
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Media Production Center
ENROLLMENT MANAGEMENT & CAREER PLACEMENT
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Financial Aid
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Military & Veterans Affairs
New Student & Family Programs
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Admissions
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Service Center
Client Technologies Analysts
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School of Professional Studies
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Honors College
Whitson-Hester School of Nursing

Jan. 1, 2018

Agenda Item Summary

Date: June 26, 2018

Division: Planning and Finance

Agenda Item: Maintenance and Mandatory Fees

☐ **Review** ☒ **Action** ☐ **No action required**

PRESENTERS: Dr. Claire Stinson, Vice President for Planning and Finance

PURPOSE & KEY POINTS:

Recommendation of Tennessee Tech's FY2018-19 maintenance and mandatory fees.

Tennessee Tech University

Mandatory Fees

2018-2019

Tennessee Tech University
Fee Proposal Summary
FY2018-2019

MANDATORY FEES:

Counseling Center:	
Student Mental Health Wellness Fee	**$ 58,000**
SOLO Fee	
(Student Organization Life Opportunity Fund)	**$ 210,000**
Total Increase Per Fee Proposals	**$ 268,000**

TENNESSEE TECH UNIVERSITY
PROPOSED FEE CHANGES
2018-19

Description	Rates Current	Rates Proposed	Rates Increase	Annual Revenue Impact of Fee Change	Prior Fee Increases	Justification
MANDATORY FEES:						
Student Mental Health Wellness Fee						
(To be included as a component of the General Access Fee, charged hourly and reaching a maximum at 7 hours)						
	None	**$3 maximum/semester** **Part-time per hour fee to be included with General Access Fee per hour rate**		**$58,000**	**New fee**	*Continue Suicide Prevention Hotline after current NIH grant funding ends 9/30/18. The Hotline, which is available after hours, on holidays, and on weekends, is answered by licensed mental health professionals. *Enable Counseling Center to continue offering optional online mental health screening questionnaires designed to identify potential problems and offer appropriate referrals. *Provide funding for a portion of the Counseling Center Director's salary currently funded from Health Services.
SOLO Fee	**$20/sem full-time students only**	**$30 maximum/semester** **$3/hr part-time enrollment**		**$210,000**	**Fee established in 2010-11 at current rate**	*Enable scheduling of top-tier concert artists during both Fall and Spring semesters. *Provide 25% support of an administrative level position to plan and execute each concert; work directly with SGA; oversee Homecoming, Tech Activities Board, and student organizations.

Tennessee Tech University

Proposed Maintenance Fee Increase Analysis

For FTE Hours and Per Credit Hour

Fee Description	For FTE				Per Credit Hour			
	Fall 2017	Fall 2018	$ Increase	% Increase	Fall 2017	Fall 2018	$ Increase	% Increase
Maintenance								
In-State Tuition (Undergraduate)	3,828.00	3,930.00	102.00	2.66%	304.00	312.00	8.00	2.6%
In-State Tuition Over Base (Undergraduate)					60.00	62.00	2.00	3.3%
In-State Tution (Graduate)	5,072.00	5,218.00	146.00	2.9%	488.00	502.00	14.00	2.9%
In-State Tution Over Base (Graduate)					96.00	99.00	3.00	3.1%
TN eCampus Fees**								
TN eCampus Tuition (Undergraduate)					304.00	312.00	8.00	2.6%
TN eCampus Course Fee (Undergraduate)					122.00	125.00	3.00	2.5%
TN eCampus Tuition (Graduate)					488.00	502.00	14.00	2.9%
TN eCampus Course Fee (Graduate)					122.00	125.00	3.00	2.5%
Out-of-State Tuition***								
Out-of-State Tuition (Undergraduate)	9,915.00	9,915.00	-	0.0%	661.00	661.00	-	0.0%
Out-of-State Tuition (Graduate)	8,712.00	8,712.00	-	0.0%	726.00	726.00	-	0.0%
E-Rate******								
Undergraduate					152.00	156.00	4.00	2.6%
Graduate					244.00	251.00	7.00	2.9%

* *Base hours for undergraduate is 12 hours and graduate is 10 hours. FTE for Undergraduate is 15 Hours and 12 Hours for Graduate.*
** *Charges are by credit hour with no maximum.*
*** *Charged in addition to In-State Tuition for out-of-state residents.*
**** *Charged in lieu of Out-of-State Tution for exclusively online shcedules.*

2018-19 Binding Tuition Ranges

2018-19 Maintenance and Mandatory Fee Increase Scenario and Comparison - 3.00% Limit

Institutions	2017-18 Maintenance Fee	2017-18 Mandatory Fee	2017-18 Combined	2018-19 Maximums Maintenance Fee	2018-19 Maximums Mandatory Fee	2018-19 Maximums Combined	Combined Increase	Combined % Increase	2018-19 Binding Ranges: Maintenance Fee Minimum	2018-19 Binding Ranges: Maintenance Fee Maximum	2018-19 Binding Ranges: Maintenance + Mandatory Fees Minimum	2018-19 Binding Ranges: Maintenance + Mandatory Fees Maximum	Expected Maintenance	Compliant?	Expected Maint. & Mand.	Compliant?
Austin Peay	$ 6,696	$ 1,529	$ 8,225	$ 6,897	$ 1,575	$ 8,472	$ 247	3.00%	$0 or Less	$ 201	$0 or Less	$ 247		Compliant		Compliant
East Tennessee	$ 7,224	$ 1,791	$ 9,015	$ 7,441	$ 1,845	$ 9,285	$ 270	3.00%	$0 or Less	$ 217	$0 or Less	$ 270		Compliant		Compliant
Middle Tennessee	$ 7,176	$ 1,772	$ 8,948	$ 7,391	$ 1,825	$ 9,216	$ 268	3.00%	$0 or Less	$ 215	$0 or Less	$ 268		Compliant		Compliant
Tennessee State	$ 6,726	$ 1,050	$ 7,776	$ 6,928	$ 1,082	$ 8,009	$ 233	3.00%	$0 or Less	$ 202	$0 or Less	$ 233		Compliant		Compliant
Tennessee Tech	$ 7,656	$ 1,217	$ 8,873	$ 7,886	$ 1,254	$ 9,139	$ 266	3.00%	$0 or Less	$ 230	$0 or Less	$ 266	$ 7,860	Compliant	$ 9,103	Compliant
University of Memphis	$ 8,064	$ 1,637	$ 9,701	$ 8,306	$ 1,686	$ 9,992	$ 291	3.00%	$0 or Less	$ 242	$0 or Less	$ 291		Compliant		Compliant
Chattanooga	$ 4,032	$ 319	$ 4,351	$ 4,153	$ 329	$ 4,482	$ 131	3.00%	$0 or Less	$ 121	$0 or Less	$ 131		Compliant		Compliant
Cleveland	$ 4,032	$ 299	$ 4,331	$ 4,153	$ 308	$ 4,461	$ 130	3.00%	$0 or Less	$ 121	$0 or Less	$ 130		Compliant		Compliant
Columbia	$ 4,032	$ 315	$ 4,347	$ 4,153	$ 324	$ 4,477	$ 130	3.00%	$0 or Less	$ 121	$0 or Less	$ 130		Compliant		Compliant
Dyersburg	$ 4,032	$ 299	$ 4,331	$ 4,153	$ 308	$ 4,461	$ 130	3.00%	$0 or Less	$ 121	$0 or Less	$ 130		Compliant		Compliant
Jackson	$ 4,032	$ 285	$ 4,317	$ 4,153	$ 294	$ 4,447	$ 130	3.00%	$0 or Less	$ 121	$0 or Less	$ 130		Compliant		Compliant
Motlow	$ 4,032	$ 307	$ 4,339	$ 4,153	$ 316	$ 4,469	$ 130	3.00%	$0 or Less	$ 121	$0 or Less	$ 130		Compliant		Compliant
Nashville	$ 4,032	$ 225	$ 4,257	$ 4,153	$ 232	$ 4,385	$ 128	3.00%	$0 or Less	$ 121	$0 or Less	$ 128		Compliant		Compliant
Northeast	$ 4,032	$ 311	$ 4,343	$ 4,153	$ 320	$ 4,473	$ 130	3.00%	$0 or Less	$ 121	$0 or Less	$ 130		Compliant		Compliant
Pellissippi	$ 4,032	$ 339	$ 4,371	$ 4,153	$ 349	$ 4,502	$ 131	3.00%	$0 or Less	$ 121	$0 or Less	$ 131		Compliant		Compliant
Roane	$ 4,032	$ 303	$ 4,335	$ 4,153	$ 312	$ 4,465	$ 130	3.00%	$0 or Less	$ 121	$0 or Less	$ 130		Compliant		Compliant
Southwest	$ 4,032	$ 315	$ 4,347	$ 4,153	$ 324	$ 4,477	$ 130	3.00%	$0 or Less	$ 121	$0 or Less	$ 130		Compliant		Compliant
Volunteer	$ 4,032	$ 293	$ 4,325	$ 4,153	$ 302	$ 4,455	$ 130	3.00%	$0 or Less	$ 121	$0 or Less	$ 130		Compliant		Compliant
Walters	$ 4,032	$ 288	$ 4,320	$ 4,153	$ 297	$ 4,450	$ 130	3.00%	$0 or Less	$ 121	$0 or Less	$ 130		Compliant		Compliant
UT Chattanooga	$ 6,888	$ 1,776	$ 8,664	$ 7,095	$ 1,829	$ 8,924	$ 260	3.00%	$0 or Less	$ 207	$0 or Less	$ 260		Compliant		Compliant
UT Knoxville (admitted after 2013-14)	$ 11,110	$ 1,860	$ 12,970	$ 11,443	$ 1,916	$ 13,359	$ 389	3.00%	$0 or Less	$ 333	$0 or Less	$ 389		Compliant		Compliant
UT Martin (Part-Time & Full-Time w/ 60+ SCH) [1]	$ 7,200	$ 1,418	$ 8,618	$ 7,416	$ 1,461	$ 8,877	$ 259	3.00%	$0 or Less	$ 216	$0 or Less	$ 259		Compliant		Compliant
UT Martin (Full-Time w/ less than 60 SCH) [1]	$ 7,818	$ 1,418	$ 9,236	$ 8,053	$ 1,461	$ 9,513	$ 277	3.00%	$0 or Less	$ 235	$0 or Less	$ 277		Compliant		Compliant
TN Colleges of Applied Tech	$ 3,507	$ 230	$ 3,737	$ 3,612	$ 237	$ 3,849	$ 112	3.00%	$0 or Less	$ 105	$0 or Less	$ 112		Compliant		Compliant
University Avg	**$ 7,656**	**$ 1,547**	**$ 9,203**	**$ 7,885**	**$ 1,593**	**$ 9,479**	**$ 276**	3.00%	**$0 or Less**	**$ 230**	**$0 or Less**	**$ 276**				
Community College Avg	**$ 4,032**	**$ 300**	**$ 4,332**	**$ 4,153**	**$ 309**	**$ 4,462**	**$ 130**	3.00%	**$0 or Less**	**$ 121**	**$0 or Less**	**$ 130**				

1 - The 2017-18 tuition rate for full-time students who have completed fewer than 60 credit hours is a flat rate for 12 hours a semester regardless of how many hours the student is enrolled in. Full-time students who have completed more than 60 credit hours are also charged a flat rate for 12 hours regardless how many hours the student is enrolled in. Part-time students are charged on a per credit hour basis at the 60+ credit hour rate.

2018-19 Binding Tuition Ranges
Maintenance and Mandatory Fee Increase Dynamic Template

Institution	2017-18 Maintenance Fee per SCH (1-12)	2017-18 Maintenance Fee per SCH (12+)	2017-18 Maintenance Fee	2017-18 Mandatory Fee	2017-18 Combined	2018-19 Maintenance Fee per SCH (1-12)	2018-19 Maintenance Fee per SCH (12+)	2018-19 Mandatory Fee *	2018-19 Percent Increases Maintenance Fee	2018-19 Percent Increases Mandatory Fee	2018-19 Percent Increases Combined	2018-19 Total Fees Maintenance Fee	2018-19 Total Fees Mandatory Fee	2018-19 Total Fees Combined	Are these fees compliant with the THEC tuition and tuition and mandatory fee ranges?	
Tennessee Tech	$ 304	$ 60	$ 7,656	$ 1,217	$ 8,873	$ 312	$ 62	$ 1,243	2.66%	2.14%	2.59%	$ 7,860	$ 1,243	$ 9,103	Compliant	Compliant

* Proposed Annual Increase:

SOLO	$20 increase
Student Mental Health Wellness Fee	$ 6 increase

Tennessee Tech University

Impact of Proposed Increase on Maintenance

Analysis - Fall 2017 vs. Fall 2018

Estimated Total Registration Fees by Major	Fall 2017	Fall 2018	Maintenance $ Increase	% Increase
Freshman:				
Agriculture (15 hrs)	$ 3,828.00	$ 3,930.00	$ 102.00	2.66%
Arts & Sciences:				
Non-science concentration (15 hrs)	$ 3,828.00	$ 3,930.00	$ 102.00	2.66%
Science concentration (17 hrs)	$ 3,948.00	$ 4,054.00	$ 106.00	2.68%
Business Administration (15 hrs)	$ 3,828.00	$ 3,930.00	$ 102.00	2.66%
Education:				
Arts (16 hrs)	$ 3,888.00	$ 3,992.00	$ 104.00	2.67%
Music (16 hrs)	$ 3,888.00	$ 3,992.00	$ 104.00	2.67%
Teaching Licensure (15 hrs)	$ 3,828.00	$ 3,930.00	$ 102.00	2.66%
Non-Licensure (15 hrs)	$ 3,828.00	$ 3,930.00	$ 102.00	2.66%
Engineering (16 hrs)	$ 3,888.00	$ 3,992.00	$ 104.00	2.67%
Human Ecology (17 hrs)	$ 3,948.00	$ 4,054.00	$ 106.00	2.68%
Nursing (16 hrs)	$ 3,888.00	$ 3,992.00	$ 104.00	2.67%
Upperclassman: (Junior)				
Agriculture (15 hrs)	$ 3,828.00	$ 3,930.00	$ 102.00	2.66%
Arts & Sciences:				
Non-science concentration (15 hrs)	$ 3,828.00	$ 3,930.00	$ 102.00	2.66%
Science concentration (14 hrs)	$ 3,768.00	$ 3,868.00	$ 100.00	2.65%
Business Administration (15 hrs)	$ 3,828.00	$ 3,930.00	$ 102.00	2.66%
Education:				
Arts (15 hrs)	$ 3,828.00	$ 3,930.00	$ 102.00	2.66%
Music (18 hrs)	$ 4,008.00	$ 4,116.00	$ 108.00	2.69%
Teaching Licensure (18 hrs)	$ 4,008.00	$ 4,116.00	$ 108.00	2.69%
Non-Licensure (15 hrs)	$ 3,828.00	$ 3,930.00	$ 102.00	2.66%
Engineering (16 hrs)	$ 3,888.00	$ 3,992.00	$ 104.00	2.67%
Human Ecology (14 hrs)	$ 3,768.00	$ 3,868.00	$ 100.00	2.65%
Nursing (14 hrs)	$ 3,768.00	$ 3,868.00	$ 100.00	2.65%

A proposed 2.66% increase in undergraduate maintenance fees will result in a per hour rate of $312 and an over base rate of $62.

Tennessee Tech University

Impact of Proposed Increase on Maintenance & Mandatory Fees

Analysis - Fall 2017 vs. Fall 2018

Estimated Total Registration Fees by Major	Fall 2017	Fall 2018	$ Increase	% Increase
Freshman:				
Agriculture (15 hrs)	$ 4,696.50	$ 4,826.50	$ 130.00	2.77%
Arts & Sciences:				
Non-science concentration (15 hrs)	$ 4,436.50	$ 4,551.50	$ 115.00	2.59%
Science concentration (17 hrs)	$ 4,819.50	$ 4,938.50	$ 119.00	2.47%
Business Administration (15 hrs)	$ 4,626.50	$ 4,756.50	$ 130.00	2.81%
Education:				
Arts (16 hrs)	$ 4,646.50	$ 4,763.50	$ 117.00	2.52%
Music (16 hrs)	$ 4,701.50	$ 4,818.50	$ 117.00	2.49%
Teaching Licensure (15 hrs)	$ 4,571.50	$ 4,686.50	$ 115.00	2.52%
Non-Licensure (15 hrs)	$ 4,661.50	$ 4,776.50	$ 115.00	2.47%
Engineering (16 hrs)	$ 4,726.50	$ 4,843.50	$ 117.00	2.48%
Human Ecology (17 hrs)	$ 4,846.50	$ 4,965.50	$ 119.00	2.46%
Nursing (16 hrs)	$ 4,679.50	$ 4,796.50	$ 117.00	2.50%
Upperclassman: (Junior)				
Agriculture (15 hrs)	$ 4,676.50	$ 4,806.50	$ 130.00	2.78%
Arts & Sciences:				
Non-science concentration (15 hrs)	$ 4,436.50	$ 4,551.50	$ 115.00	2.59%
Science concentration (14 hrs)	$ 4,651.50	$ 4,764.50	$ 113.00	2.43%
Business Administration (15 hrs)	$ 4,886.50	$ 5,076.50	$ 190.00	3.89%
Education:				
Arts (15 hrs)	$ 4,706.50	$ 4,836.50	$ 130.00	2.76%
Music (18 hrs)	$ 4,891.50	$ 5,012.50	$ 121.00	2.47%
Teaching Licensure (18 hrs)	$ 5,054.50	$ 5,175.50	$ 121.00	2.39%
Non-Licensure (15 hrs)	$ 4,701.50	$ 4,831.50	$ 130.00	2.77%
Engineering (16 hrs)	$ 5,279.50	$ 5,396.50	$ 117.00	2.22%
Human Ecology (14 hrs)	$ 4,679.00	$ 4,792.00	$ 113.00	2.42%
Nursing (14 hrs)	$ 5,119.50	$ 5,232.50	$ 113.00	2.21%

A proposed 2.66% increase in undergraduate maintenance fees will result in a per hour rate of $312 and an over base rate of $62.

Mandatory registration fees include a proposed $10 SOLO Fee increase and $3 General Access Fee (Mental Health Wellness Component) increase.

Business SACF increased by $5 dollars based on a previously approved phased increase.

Agenda Item Summary

Date: June 26, 2018

Division: Planning and Finance

Agenda Item: MSN Non-Mandatory Fees

☐ **Review** ☒ **Action** ☐ **No action required**

PRESENTERS: Dr. Claire Stinson, Vice President for Planning and Finance

PURPOSE & KEY POINTS:

Recommendation for on-line and Specialized Academic Course Fee increase to support development of Tennessee Tech Master in nursing on-line program.

Tennessee Tech University

Non-Mandatory MSN Fees

2018-2019

Tennessee Tech University
Fee Proposal Summary
FY2018-2019

NON-MANDATORY MSN FEES:

Whitson-Hester School of Nursing:

Nursing Graduate Online Fee	$ 72,720
Nursing Graduate Specialized Academic Fee	$ 55,260
Total Increase Per Fee Proposals	$ 127,980

TENNESSEE TECH UNIVERSITY
PROPOSED FEE CHANGES
2018-19

Description	Rates Current	Rates Proposed	Rates Increase	Annual Revenue Impact of Fee Change	Prior Fee Increases	Justification
NON-MANDATORY MSN FEES:						
Nursing Graduate Online Fee						
	None	**$150 / per hour** **Fee to be charged in lieu of TN eCampus Online Fee as courses transition from TN eCampus to TTU Online delivered courses.**		**$72,720**	**New fee**	*Phase out of TN eCampus MSN Program *Development of Tennessee Tech Online MSN Program
Nursing Graduate Specialized Academic Fee						
	$30	**$60 / per hour**	**$30**	**$55,260**	**Fee established in 2009-10 at $25 per hour** **Fee increased in 2012-13 to $30 per hour**	*Phase out of TN eCampus MSN Program *Development of Tennessee Tech Online MSN Program

8-36-714. Requirements to be compensated as president emeritus Continued eligibility requirements Filing of agreement.

(a) The board of trustees of the University of Tennessee may grant to any former president of the University of Tennessee the title president emeritus. The board of regents of the state university and community college system may also grant to any former president of any college or university governed by the board of regents a similar emeritus title. No former president shall receive any compensation or remuneration for holding the emeritus title, unless the following conditions are met:

(1) The remuneration is for time actually spent by the former president in performing services for the University or board of regents;

(2) An agreement is executed between the respective board and the former president which sets forth the duties to be performed by the former president;

(3) The agreement cannot exceed a term of one-year. The board of trustees of the University of Tennessee or the board of regents may enter into additional one-year agreements with the former president. No renewal agreement shall be entered into until the respective board reviews and is satisfied with the emeritus work performed by the former president. Any such renewal must be approved by an affirmative vote of a majority of the respective board;

(4) The former president must reside in the state of Tennessee at the time of the initial appointment and at the time of any subsequent appointment; and

(5) The former president shall not accrue any additional retirement credit as a result of such appointment.

(b) Notwithstanding any other law to the contrary, any former president receiving compensation or remuneration for holding the emeritus title pursuant to this section shall be eligible to continue drawing such person's retirement allowance; provided, that the former president does not work and is not compensated for more than one hundred twenty (120) days or the equivalent of one hundred twenty (120) days during the one-year appointment, or, if working as a teacher, for more than twenty-four (24) quarter credit hours or eighteen (18) semester credit hours during the one-year appointment. If the period exceeds that specified in this subsection (b), the former president's monthly retirement allowance shall be reduced in direct proportion thereto. The retirement system is authorized to obtain reimbursement for any retirement benefits overpaid as a result of any compensation being paid to a former president in excess of that permitted by this section. Such reimbursement may be made by deductions from the former president's monthly benefit.

(c) For each emeritus appointment for which compensation or remuneration will be paid, the board of trustees of the University of Tennessee and the board of regents shall be responsible for filing the agreement with the retirement division which sets forth the name of the person holding the title, and the beginning and ending date of the appointment. The agreement shall be accompanied with documentation showing the amount of compensation to be paid to the person and the number of hours to be worked. The agreement and documentation shall be filed annually, if applicable, and signed by the former president acknowledging the conditions of the appointment. The board of trustees of the University of Tennessee and the board of regents shall further send written notice to the speaker of the senate, the speaker of the house of representatives, the chairs of the senate standing committees on education and on finance, ways, and means, and the chairs of the house standing committees on education and finance, ways, and means of each emeritus appointment for which compensation or remuneration will be paid.

Agenda Item Summary

Date: 06/26/2018

Agenda Item: Internal Audit's Quality Assurance Review

☒ **Review** ☐ **Action** ☐ **No action required**

PRESENTER(S): Ms. Deanna Metts, Director of Internal Audit

PURPOSE & KEY POINTS:

The Institute of Internal Audit (IIA) Standards require an external assessment of the Internal Audit activity once every five years. An independent validation of Internal Audit's self-assessment was performed from April 30 to May 2, 2018 by a team of external reviewers. Their letter attests that they agree with the self-assessment conclusion that Internal Audit generally conforms with the IIA Standards.

Internal Audit and Advisory Services
Independent Validation of Quality Assurance Self-Assessment
May 2, 2018

This Validation of the Self-Assessment of the Tennessee Tech Internal Audit Program was performed in accordance with The Institute of Internal Auditors (IIA) Quality Assessment Manual, 2017 Edition. The primary purpose of a Quality Assessment is to determine the internal audit function's conformance with the International Standards for the Professional Practice of Internal Auditing. There are three possible outcomes of the QA: the internal audit program ***generally conforms, partially conforms or does not conform*** *with the Standards.*

May 2, 2018

Ms. Teresa Vanhooser, Chair of Audit and Business Committee
Dr. Oldham, President, Tennessee Tech University
Deanna Metts, Director of Internal Audit

Greetings:

We were engaged as the validators to conduct an independent Validation of the Self-Assessment Quality Assessment (QA) of the Tennessee Tech Internal Audit Program as required every five years by the Institute of Internal Auditors *International Standards for the Professional Practice of Internal Auditing* (IIA *Standards*). The objectives of the QA were to:

1. Assess conformance with the IIA *Standards;*
2. Assess the effectiveness and efficiency of the Internal Audit activity in providing services to the Board and management of Tennessee Tech University; and
3. To identify opportunities for improving the Internal Audit Program at Tennessee Tech University

Other matters that might have been covered in a full external assessment, such as an in-depth analysis of successful practices based on benchmark data, governance activities, consulting services, and use of advanced technology, were excluded from the scope of this independent validation by agreement with the chief audit executive.

In acting as independent validators, we are fully independent of Tennessee Tech and have the necessary knowledge and skills to undertake this engagement. The validation, conducted April 30, 2018, through May 2, 2018, consisted primarily of reviewing and testing the self-assessment documentation related to the Tennessee Tech Office of Internal Audit self-assessment report issued April 18, 2018. Additionally, we interviewed other audit team members and several key administrators. These interviews helped us gain a better understanding of the internal control environment within which Tennessee Tech's internal auditing operates.

We concur with the Tennessee Tech Internal Audit's conclusions and observations documented in the self-assessment report attached. Implementation of the recommendations contained in the self-assessment report will improve the effectiveness, enhance the value, and support Internal Audit's conformity with the *Standards* and the Code of Ethics. We have reviewed the results of the validation with Deanna Metts, Director of Internal Audit.

Suzanne L. Walker, CPA, CGFM
Director of Internal Audit
Pellissippi State Community College
Knoxville, TN
Team Lead

Julia Hann, CPA, CIA, MBA
Director of Internal Audit
University of North Florida
Jacksonville, FL

Amy Wilegus, CPA, CISA, CRISC, CISSP
Director of Internal Audit
University of Tennessee – Health Science Center
UT Martin
Memphis, TN

REPORT

Internal Audit Quality Self-Assessment Review

April 18, 2018

Office of Internal Audit

This report is intended solely for the internal use of Tennessee Tech University and the Tennessee Tech Board of Trustees. It is not intended to be and should not be used for any other purpose. The distribution of the report to external parties must be approved by the Office of Internal Audit and handled in accordance with institutional policies.

Internal Audit

TENNESSEE TECH

April 18, 2018

Ms. Teresa Vanhooser, Chair
Audit & Business Committee
Tennessee Tech Board of Trustees

Dear Chair Vanhooser:

In accordance with the *International Standards for the Professional Practice of Internal Auditing* (*Standards*), issued by the Institute of Internal Auditors (IIA), as well as the IIA Definition of Internal Auditing, Code of Ethics, and Core Principles for the Professional Practice of Internal Audit (Core Principles), we implemented a Quality Assurance and Improvement Program for the Office of Internal Audit. As required by the *Standards*, this program must include periodic external reviews and internal self-assessments, as well as ongoing internal monitoring covering all aspects of the internal audit activity.

The *Standards* require an external quality assurance review be performed every five years. Our previous external review occurred in the summer of 2013, and the next one is scheduled to be performed in May 2018. Standards indicate that this external review can be accomplished by a full external assessment or a self-assessment with independent validation. We have chosen a self-assessment with independent validation.

Accordingly, we performed an internal self-assessment in March and April of 2018. The results of our assessment indicate we overall generally conform to the internal audit charter, IIA's Definition of Internal Auditing, *Standards*, Code of Ethics, and Core Principles. Any opportunities for improvement were noted. The results of this self-assessment are attached and will be provided to the external reviewers for their independent validation.

Sincerely,

Deanna Metts

Deanna Metts

DLM/js
Enclosure

Tennessee Tech / Foundation Hall 315 / Box 5154 / Cookeville, TN 38505 / 931-372-3045 / tntech.edu/internalaudit

Tennessee Tech University
Report on Internal Audit Quality Self-Assessment Review
April 18, 2018

Introduction

The Tennessee Tech University (TTU) Office of Internal Audit conducted a quality self-assessment of the internal audit activity during March and April of 2018. The principal objective of the quality self-assessment was to determine the internal audit activity's conformity to The Institute of Internal Auditors' (IIA) *International Standards for the Professional Practice of Internal Auditing* (*Standards*), Definition of Internal Auditing, Core Principles for the Professional Practice of Internal Audit (Core Principles), and Code of Ethics.

Requirement for Quality Assessments

Tennessee Code Annotated Section 4-3-304 (9) requires internal audit staffs of higher education institutions comply with the IIA's *Standards for the Professional Practice of Internal Auditing*. Those *Standards* require TTU Internal Audit to have a quality assurance and improvement program, which includes periodic internal and external quality assessments and ongoing monitoring for conformance with the *Standards*. External assessments must be performed at least once every five years by a qualified, independent assessor or assessment team from outside the organization. This external assessment can take the form of a full external assessment or a self-assessment with independent external validation.

TTU Internal Audit's last external assessment was done in August 2013 as part of the Tennessee Board of Regents Internal Audit External Quality Assessment.

Procedures Performed

TTU Internal Audit's external review will take the form of a self-assessment with independent external validation. The external validation will be performed by an independent assessment team and is scheduled for May 2018. This self-assessment review was prepared for that external validation.

Opinion as to Conformity to the Standards

The overall opinion is that TTU Internal Audit generally conforms to the IIA's *International Standards for the Professional Practice of Internal Auditing*, Definition of Internal Auditing, Core Principles for the Professional Practice of Internal Audit, and Code of Ethics. Attachment A provides a detailed list of conformance to individual IIA *Standards*.

Observations

The concept of general conformance to the IIA *Standards* recognizes that there may still be room for improvement. Auditors strive for continuous improvement, and Quality Assurance Reviews provide a natural process for identifying those opportunities. The following recommendation has

the potential to improve TTU Internal Audit in relation to the *Standards* but does not change the overall conclusion that TTU Internal Audit generally complies with the IIA's Definition of Internal Auditing, Code of Ethics, *Standards*, and Core Principles.

Standard 2201.C1 – Planning Considerations for Consulting Engagements

> "Internal Auditors must establish an understanding with consulting engagements about objectives, scope, respective responsibilities, and other client expectations. For significant engagements, this understanding must be documented."

Only one significant consulting engagement was undertaken by TTU Internal Audit during the past five years, and the objectives, scope and responsibilities of Internal Audit's work was agreed upon prior to the engagement through discussion with the client. However, a formal letter of engagement was not prepared and given to the client prior to the engagement to document this agreement. To prevent any potential misunderstandings regarding the extent and scope of the consulting engagement, Internal Audit will issue a formal engagement letter for any future, significant consulting engagements. This letter will outline the objectives, scope, and responsibilities of Internal Audit relative to the consulting engagement.

Since March 2017, TTU has been governed by its own local Board of Trustees rather than the Tennessee Board of Regents. This has allowed TTU Internal Audit to directly interact with the Audit & Business Committee of the Board of Trustees, resulting in full compliance with *Standards 1110 – Organizational Independence* and *1111 – Direct Interaction with the Board*. We anticipate this interaction can become more meaningful through continued direct interaction with the Audit & Business Committee and familiarization of the Audit & Business Committee with the IIA *Standards*.

This report is intended solely for the internal use of Tennessee Tech University and the Tennessee Tech Board of Trustees. It is not intended to be and should not be used for any other purpose. The distribution of the report to external parties must be approved by the Office of Internal Audit and handled in accordance with institutional policies.

Attachment A

Tennessee Tech University
Report on Internal Audit Quality Self-Assessment Review
Evaluation of Conformance to Individual IIA *Standards*
April 18, 2018

	GC	PC	DNC	NA
1. Attribute Standards				
1000 Purpose, Authority and Responsibility (Charter)	✓			
1100 Independence and Objectivity				
1110 Organizational Independence	✓			
1120 Individual Objectivity	✓			
1130 Impairments to Independence or Objectivity	✓			
1200 Proficiency and Due Professional Care				
1210 Proficiency	✓			
1220 Due Professional Care	✓			
1230 Continuing Professional Development	✓			
1300 Quality Assurance Improvement Program				
1310 Quality Program Assessments	✓			
1311 Internal Assessments	✓			
1312 External Assessments	✓			
1320 Reporting on the Quality Program	✓			
1321 Use of 'Conducted in Accordance with Standards'	✓			
1322 Disclosure of Noncompliance				✓
2. Performance Standards				
2000 Managing the Internal Activity				
2010 Planning	✓			
2020 Communication and Approval	✓			
2030 Resource Management	✓			
2040 Policies and Procedures	✓			
2050 Coordination	✓			
2060 Reporting to the Board and Senior Management	✓			
2070 External Service Provider and Organizational Responsibility for Internal Auditing				✓
2100 Nature of Work				
2110 Governance	✓			
2120 Risk Management	✓			
2130 Control	✓			
2200 Engagement Planning				
2201 Planning Considerations	✓			
2210 Engagement Objectives	✓			
2220 Engagement Scope	✓			
2230 Engagement Resource Allocation	✓			
2240 Engagement Work Program	✓			

Attachment A

	GC	PC	DNC	NA
2300 Performing the Engagement				
2310 Identifying Information	✓			
2320 Analysis and Evaluation	✓			
2330 Documenting Information	✓			
2340 Engagement Supervision	✓			
2400 Communicating Results				
2410 Criteria for Communication	✓			
2420 Quality of Communications	✓			
2421 Errors and Omissions	✓			
2430 Use of Conducted in Conformance with the IPPF	✓			
2431 Engagement Disclosure of Noncompliance with *Standards*				✓
2440 Disseminating Results	✓			
2450 Overall Opinoins				✓
2500 Monitoring Progress	✓			
2600 Management's Acceptance of Risks	✓			

References:

The Institute of Internal Auditors: *International Standards for the Professional Practices of Internal Auditing* , Code of Ethics, Core Principles for the Professional Practice of Internal Audit (CP), and Definition of Internal Auditing, 2017 version (Def of IA)

Definitions:

GC - "Generally Complies" means the evaluator has concluded that the relevant structures, policies, and procedures of the activity, as well as the processes by which they are applied, comply with the requirements of the individual Standard, the element of the Code of Ethics in all material respects, CP and Def of IA.

PC - "Partially Complies" means the evaluator has concluded that the activity is making good faith efforts to comply with the requirements of the individual Standard, the element of the Code of Ethics, CP or Def of IA, but falls short of achieving some major objectives. These will usually represent significant opportunities for improvement.

DNC - "Does Not Comply" means the evaluator has concluded that the activity is not aware of, is not making good faith efforts to comply with, or is failing to achieve many/all of the objectives of the individual Standard, the element of the Code of Ethics, CP or Def of IA. These deficiencies will usually have a significant negative impact on the activity's effectiveness and its potential to add value to the organization. These may also represent significant opportunities for improvement, including actions by senior management or the Board.

Audit & Business Committee

June 26, 2018

Tennessee TECH

Capital Budget Discussion

Presentation to Audit & Business Committee
Board of Trustees

June 26, 2018

Capital Outlay Project Request

Engineering & Research Building

- New construction
- 100,000 new square footage (60,000 NASF)
- Project Cost, $55 million
- 5% Match requirement, $2.75 million
- State funds request, $52.25 million
- Modern, student-centered, inter-disciplinary space
- Open, flexible, re-configurable spaces to promote multi-purpose use and collaborative learning

FY2019-2020 Maintenance Pools and Allocations

Governing Boards	Maintenance Pool	Maintenance Allocation
Locally Governed Institutions		
Austin Peay	3.1%	$3,670,000
East Tennessee	7.7%	$9,250,000
Middle Tennessee	6.8%	$8,120,000
Tennessee State	5.2%	$6,220,000
Tennessee Tech	**5.1%**	**$6,170,000**
University of Memphis	12.4%	$14,830,000
Tennessee Board of Regents	19.9%	$23,850,000
UT System	39.9%	$47,890,000
Total	**100.0%**	**$120,000,000**

Capital Maintenance Projects Request

Priority	Project	Project Cost	Project Description
1	Several Buildings Roof Replacement	$3,060,000	Roof replacements and related roof component repairs
2	Several Buildings Upgrades	$3,110,000	Building systems and interior upgrades
	Total Request	**$6,170,000**	

Disclosed Projects

Fiscal Year	Project	Project Cost	Project Description
2018-19	Cooper/Dunn Residence Hall Upgrades	$6,700,000	Residence Hall Upgrade
2019-20	Hooper Eblen Center Roof Replacement	$1,550,000	Roof replacement
2019-20	Baseball Field Lighting Replacement	$870,000	Lighting replacement
	Total Request	**$9,120,000**	

DISCUSSION

Tennessee TECH

Budget Discussion
Estimated (FY2018) and Proposed (FY2019)

Presentation to Audit & Business Committee
Board of Trustees

June 26, 2018

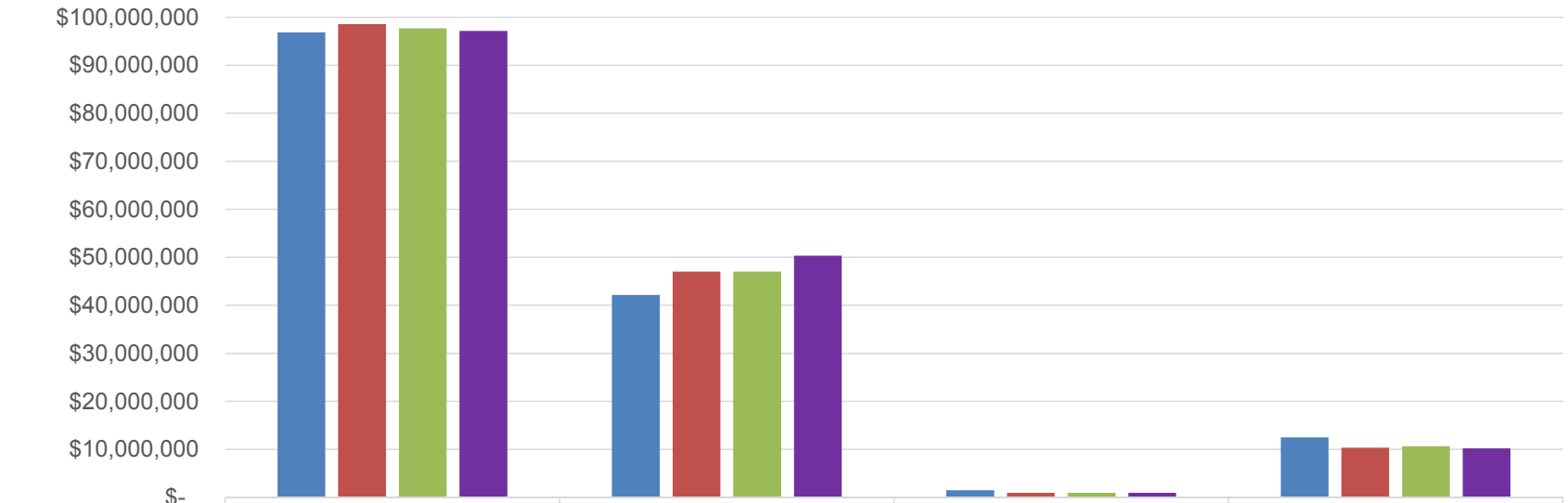
E&G Budget Summary

	Estimated Budget FY2018	Proposed Budget FY2019
Beginning Fund Balance	$11,099,350	$8,369,706
E&G Revenues	$156,329,800	$158,734,200
E&G Expenses	$154,678,300	$153,947,000
Mandatory and Non-mandatory Transfers	$4,381,200	$4,886,100
Ending Fund Balance	$8,369,650	$8,270,806

Auxiliary Enterprises Budget Summary

	Estimated Budget FY2018	Proposed Budget FY2019
Beginning Fund Balance	$1,561,750	$1,308,294
Aux Revenues	$18,341,000	$18,342,300
Aux Expenses	$7,316,400	$7,435,000
Mandatory and Non-mandatory Transfers	$11,278,000	$10,907,300
Ending Fund Balance	$1,308,350	$1,308,294

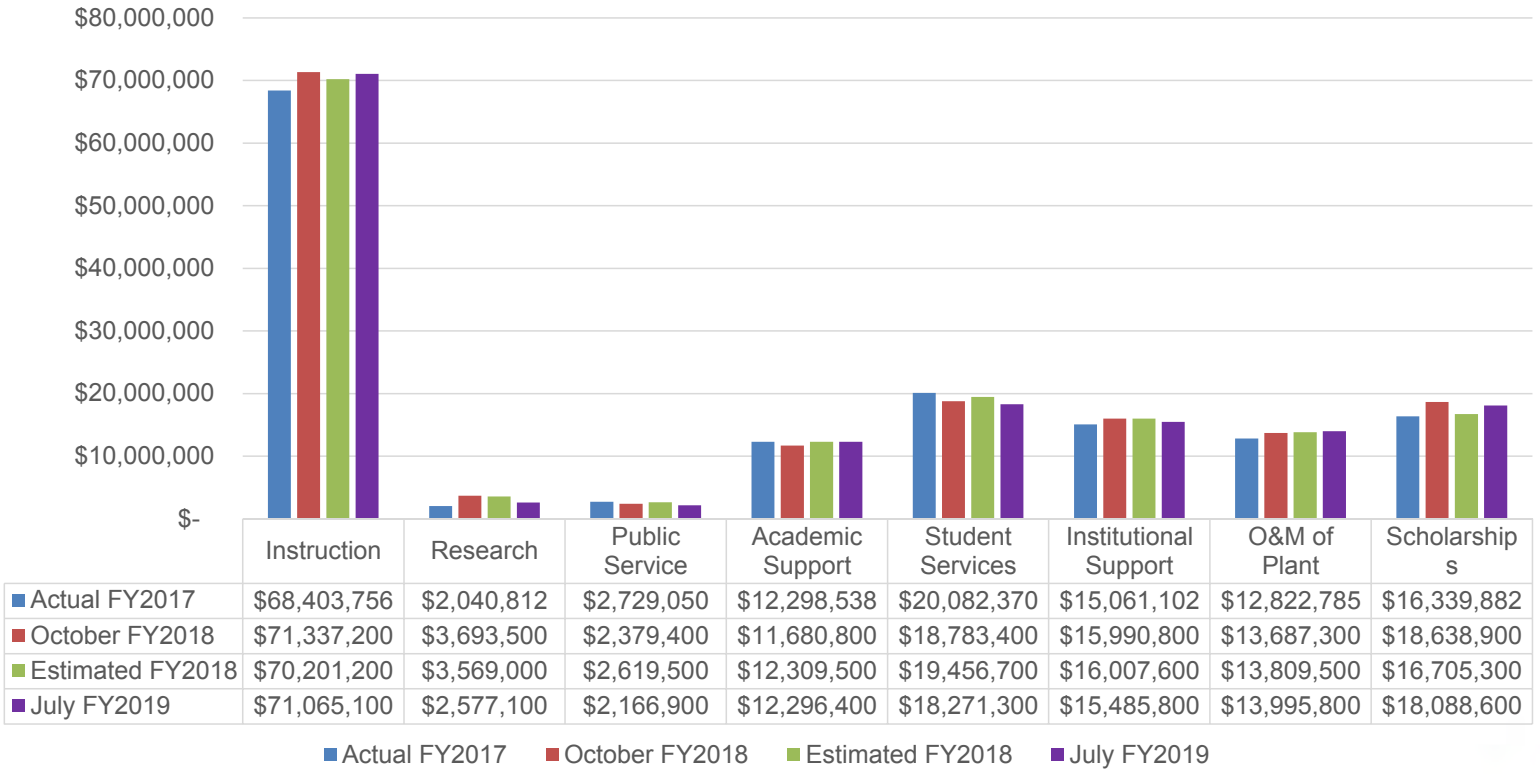
E&G Revenues



	Tuition and Fees	State Appropriations	Grants and Contracts	Sales & Services and Other
Actual FY2017	$96,845,705	$42,172,363	$1,471,135	$12,514,062
October FY2018	$98,560,500	$47,030,200	$971,400	$10,381,700
Estimated FY2018	$97,672,100	$47,030,200	$971,400	$10,656,100
July FY2019	$97,176,200	$50,365,800	$971,400	$10,220,800

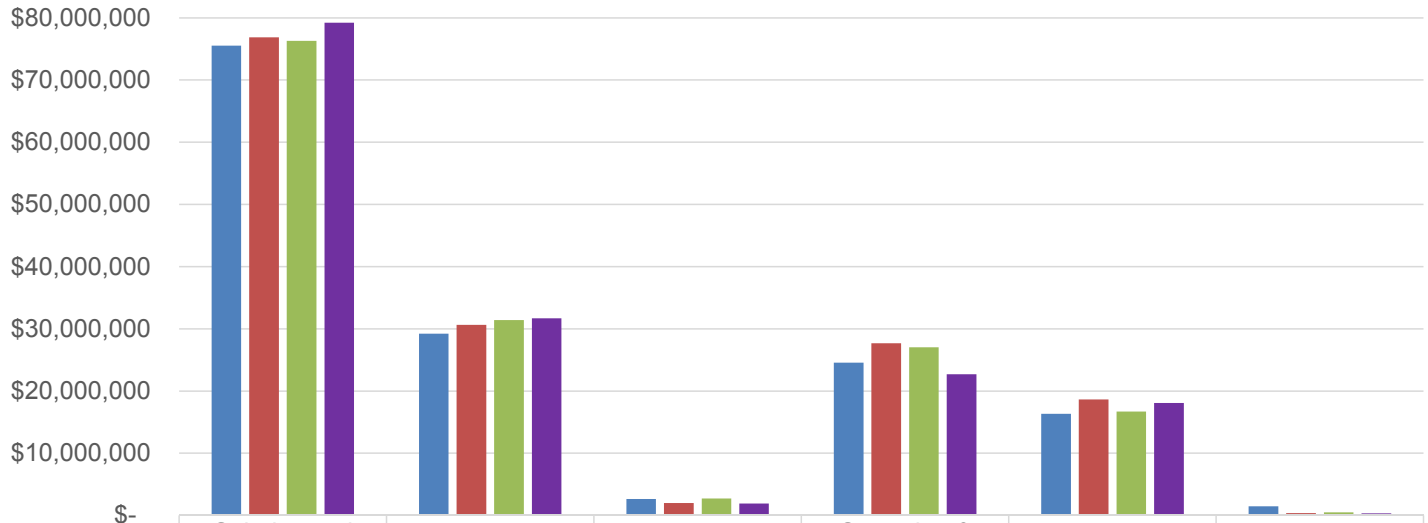
Actual FY2017 October FY2018 Estimated FY2018 July FY2019

E&G Expenses by Functional Categories



	Instruction	Research	Public Service	Academic Support	Student Services	Institutional Support	O&M of Plant	Scholarships
Actual FY2017	$68,403,756	$2,040,812	$2,729,050	$12,298,538	$20,082,370	$15,061,102	$12,822,785	$16,339,882
October FY2018	$71,337,200	$3,693,500	$2,379,400	$11,680,800	$18,783,400	$15,990,800	$13,687,300	$18,638,900
Estimated FY2018	$70,201,200	$3,569,000	$2,619,500	$12,309,500	$19,456,700	$16,007,600	$13,809,500	$16,705,300
July FY2019	$71,065,100	$2,577,100	$2,166,900	$12,296,400	$18,271,300	$15,485,800	$13,995,800	$18,088,600

E&G Expenses by Natural Classification



	Salaries and Wages	Fringe Benefits	Travel	Operating & Utilities	Scholarships	Capital
Actual FY2017	$75,535,248	$29,237,119	$2,626,694	$24,573,939	$16,339,882	$1,465,413
October FY2018	$76,850,500	$30,649,300	$2,008,500	$27,687,200	$18,638,900	$356,900
Estimated FY2018	$76,290,300	$31,424,100	$2,725,200	$27,022,700	$16,705,300	$510,700
July FY2019	$79,227,400	$31,704,600	$1,911,700	$22,676,200	$18,088,600	$338,500

Estimated Budget FY2017-18

Beginning Fund Balance

Total E&G Fund Balance	$11,099,350
Allocation for Encumbrances	$270,194
Allocation for Working Capital	$2,944,013
Special Allocations*	$7,885,143
Unallocated Balance	$0
*2% to 5% Reserve	$6,003,362
*Student Activity Fee	$621,069
*Technology Access Fee	$1,076,383
*Specialized Academic Course Fee	$184,329

Ending Fund Balance

Total E&G Fund Balance	$8,369,650
Allocation for Encumbrances	$270,194
Allocation for Working Capital	$2,944,013
Special Allocations*	$5,155,443
Unallocated Balance	$0
*2% to 5% Reserve	$3,273,662
*Student Activity Fee	$621,069
*Technology Access Fee	$1,076,383
*Specialized Academic Course Fee	$184,329

Proposed Budget FY2018-19

Beginning Fund Balance

Total E&G Fund Balance	$8,369,706
Allocation for Encumbrances	$270,194
Allocation for Working Capital	$2,944,013
Special Allocation*	$5,155,499
Unallocated Balance	$0
*2% to 5% Reserve	$3,273,718
*Student Activity Fee	$621,069
*Technology Access Fee	$1,076,383
*Specialized Academic Course Fee	$184,329

Ending Fund Balance

Total E&G Fund Balance	$8,270,806
Allocation for Encumbrances	$270,194
Allocation for Working Capital	$2,944,013
Special Allocations*	$5,056,599
Unallocated Balance	$0
*2% to 5% Reserve	$3,174,818
*Student Activity Fee	$621,069
*Technology Access Fee	$1,076,383
*Specialized Academic Course Fee	$184,329

Reserves: Unexpended Plant and Renewal & Replacements

Unexpended Plant

Total	$30,597,392
Land Purchases	$1,518,031
New Construction:	
Science Building	$10,842,023
Fitness & Rec Center	$9,973,949
Parking & Transportation	$1,764,497
Residence Hall Rvn & Roof	$1,693,838
Roaden & Eblen Centers Rvns	$1,355,103
Infrastructure – HVAC	$1,665,146
Football Digital Board	$151,109
Extraordinary Maint	$1,388,609
Engineering Master Plan	$10,000
Dept Small Projects	$175,809
Other Small Projects	$59,278

Renewal & Replacements

Total	$33,389,941
Auxiliary – Housing	$14,831,957
Auxiliary – Other	$9,272,969
Computer Center	$2,531,771
Technology Update	$1,122,847
Telecommunications	$363,378
Printing & Photo Srv	$222,218
Motor Pool	$515,606
Craft Center R&R	$754,410
Departmental R&R	$595,422
University Reserve	$3,179,363

New resources and uses 2018-2019

(as presented at the March meeting)

Governor's budget dedicated to 2.5% salary improvements	$1,281,500
Governor's budget dedicated to formula outcomes	$1,327,400
Outcomes formula adjustment	$463,400
Total anticipated increase in state appropriations	$3,072,300
Revenue generated per 2.66% maintenance fee increase	$1,982,700
Resources anticipated to address needs	**$5,055,000**

Cost of 2.5% salary improvements with fringe benefits	$2,216,354
Dedicate funds to re-establish operating fund balance	$2,000,000
Cost increases other than salaries and fringe benefits (2017 HEPI 3.7%)	$1,802,000
Total anticipated needs for FY2018-19	**$6,018,354**

Difference between resources and needs	**$(963,354)**

New resources and uses 2018-2019
(updated since the March meeting)

Cost of 2.5% salary improvements with fringe benefits	$2,216,354
Dedicate funds to re-establish operating fund balance	$2,000,000
New academic program expenditures & start up costs	$402,000
Recurring expense increases included in Proposed Budget	$717,991
Recurring funding requests remaining to be funded	$870,437
FY2018-19 Budget Need	**$6,206,782**
Governor's budget dedicated to 2.5% salary improvements	$1,281,500
Governor's budget dedicated to formula outcomes	$1,327,400
Outcomes formula adjustment	$463,400
**Carnegie classification recognition*	$700,000
FY2018-19 Funds Available due to anticipated increases in state appropriations	**$3,772,300**
Revenue reduction due to early enrollment indicators	$(2,361,359)
FY2018-19 New Resources	**$1,410,941**
Unmet Need	**$(4,795,841)**
Maintenance Fee Increase Needed	**6.43%**
Maintenance Fee Increase Recommended	**2.66%**
Revenue generated per 2.66% maintenance fee increase	**$1,982,700**
Remaining unmet need after maintenance increase	**$(2,813,141)**

18

New resources and uses 2018-2019

(updated since the March meeting – revenue assumptions & projections)

Anticipated Summer FTE decline of 70 (35 in CE FY17-18 and 35 in PB FY18-19)	$(358,698)
Anticipated Fall FTE decline of 94	$(849,478)
Further reduction in TNeCampus graduate revenue sharing	$(250,000)
Reduction in fall to spring revenue projections (90% to 88% estimate)	$(903,183)
	$(2,361,359)

New resources and uses 2018-2019
(updated since the March meeting - continued)

Remaining unmet need after maintenance fee increase	**$(2,813,141)**

Short-term plan to address remaining unmet need:	
Continue to provide required 2% fund balance from one-time resources	$2,000,000
Reduce cost increases for other than salaries and fringe benefits	$813,141
	$2,813,141

Long-term plan to address budget shortfall:	
Right size budget to reflect current enrollments	
Grow enrollments	

Additional note: Dedicated funding for the College of Engineering (earmarked for Engineering only)	**$3,000,000**

DISCUSSION

Tennessee TECH

Maintenance and Mandatory Fees

Presentation to Audit & Business Committee
Board of Trustees

June 26, 2018

THEC Recommendation 2018-2019 Annual Rates

2018-19 Approved Binding Rates			
Maintenance Fee		Maintenance + Mandatory Fees	
Minimum	Maximum	Minimum	Maximum
$0 or less	$230	$0 or less	$266

THEC Recommendation 2018-2019 Annual Rates

2018-19 Maintenance and Mandatory Fee Increase Scenario and Comparison – 3% Limit							
2017-18			2018-19			Combined Increase	Combined % Increase
Maintenance Fee	Mandatory Fee	Maintenance + Mandatory	Maintenance Fee	Mandatory Fee	Maintenance + Mandatory		
$7,656	$1,217	$8,873	$7,886	$1,254	$9,139	$266	3%

Per Semester In-state Maintenance Fee History

	Fall 2014	Fall 2015*	Fall 2016	Fall 2017	Fall 2018**
Undergraduate Maintenance	$3,237	$3,591	$3,690	$3,828	$3,930
Dollar increase over prior year	$189	$354	$99	$138	$102
Percentage increase	6.2%	10.9%	2.8%	3.74%	2.66%
*Collapsed existing mandatory and non-mandatory fees equivalent to $18 per UG hour in Maintenance fees					
**Anticipated maintenance fee to be effective fall 2018					
Rate per credit hour	$257	$285	$293	$304	$312
Dollar increase	$15	$28*	$8	$11	$8

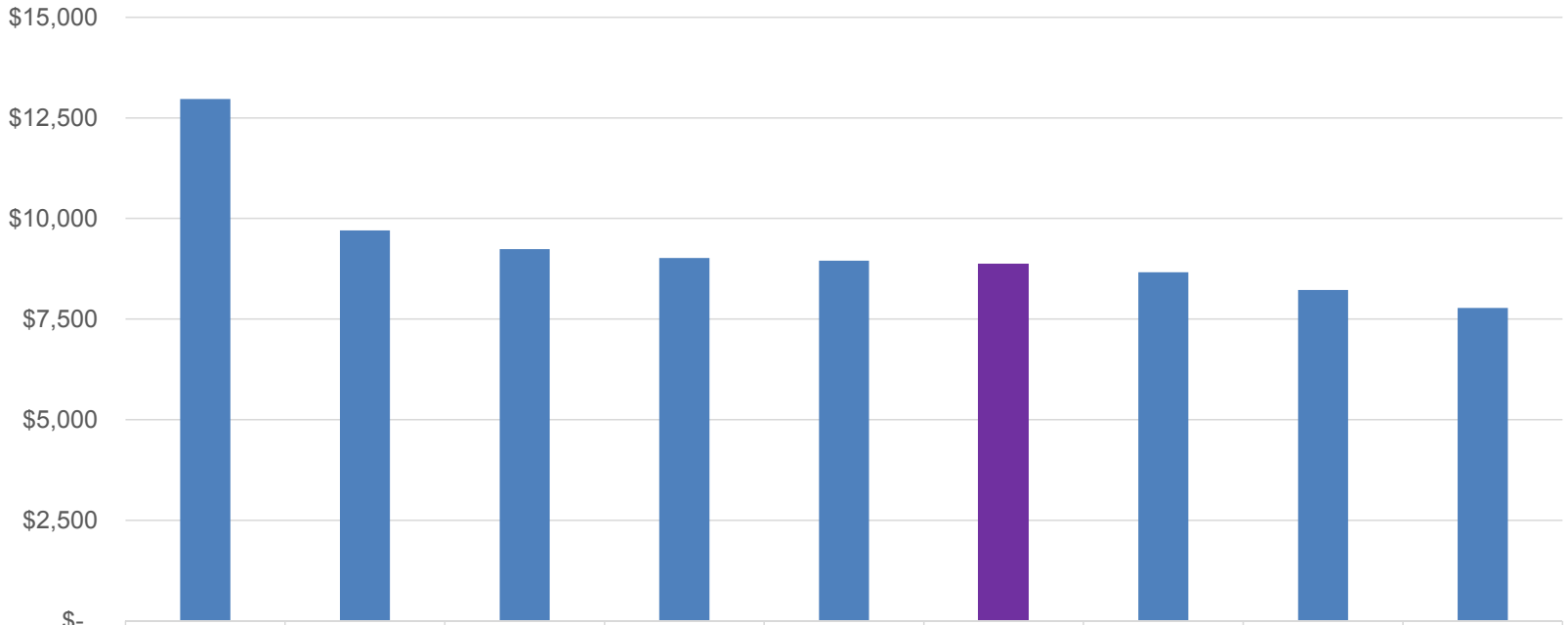
Per Semester Mandatory Fees

	2017-18	2018-19	Dollar Increase	Percentage Increase
Athletic Fee	$248	$248	Zero	Zero
Campus Recreation	$48	$48	Zero	Zero
Technology Access Fee	$112.50	$112.50	Zero	Zero
Facilities Development Fee	$51	$51	Zero	Zero
Debt Service	$129	$129	Zero	Zero
SGA/SOLO	$20	$30	$10	50%
Student Mental Health Wellness	New Fee	$3	$3	100%
Combined Total All Mandatory Fees	$608.50	$621.50	$13	2.14%

Tennessee Institution Anticipated Tuition Increases

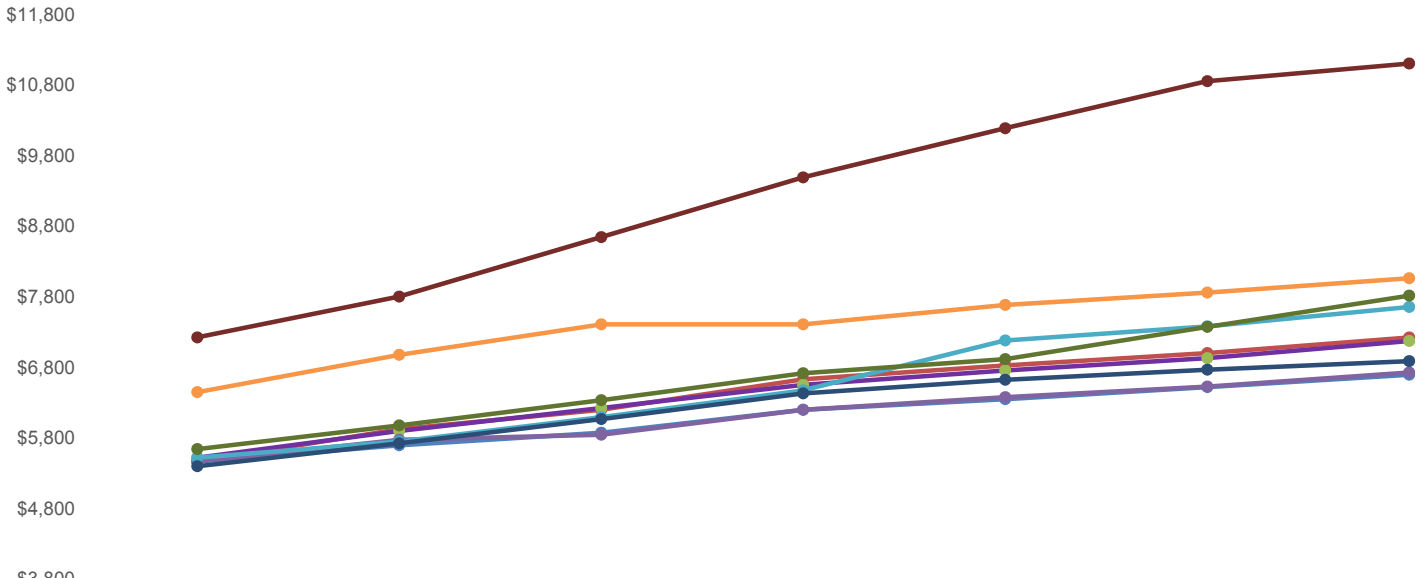
Institution:	Total Increase %:
Austin Peay State University	2.99%
East Tennessee State University	2.91%
Middle Tennessee State University	2.88%
Tennessee State University	2.59%
Tennessee Tech University	**2.66%**
University of Memphis	0.00%
University of Tennessee - Chattanooga	TBD%
University of Tennessee - Knoxville	TBD%
University of Tennessee - Martin	TBD%

Maintenance & Mandatory Fees Comparison 2017-18



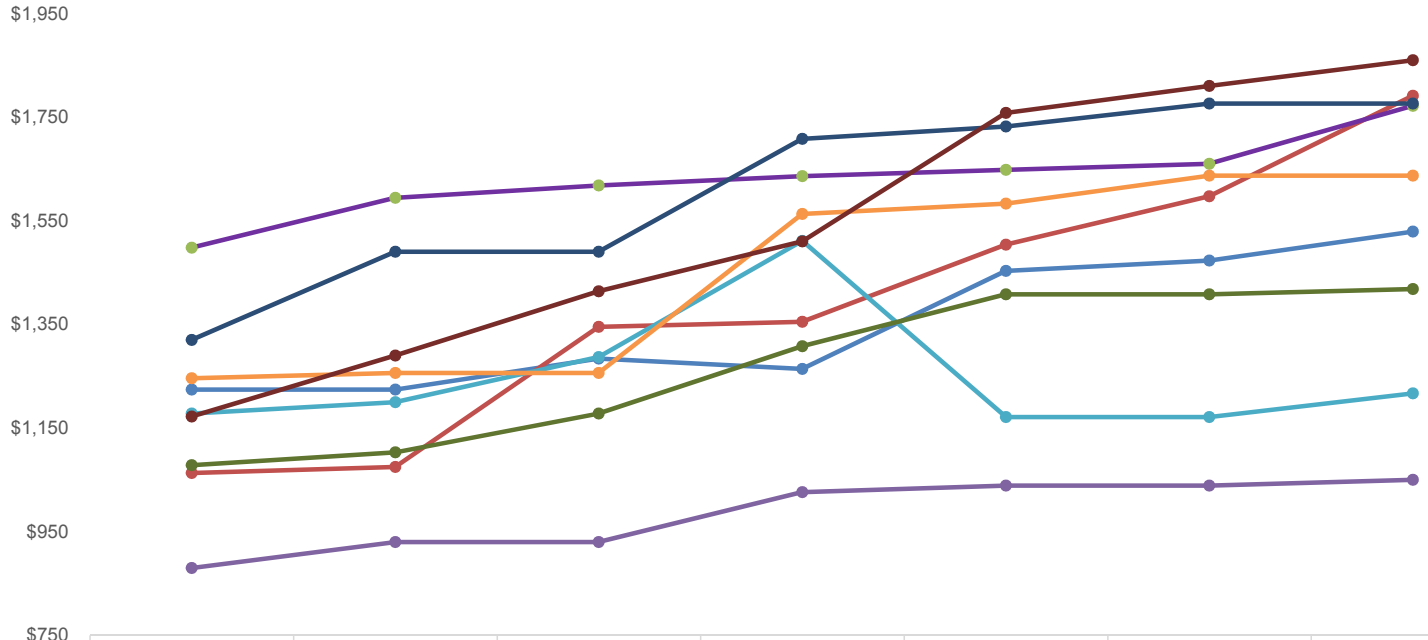
	UT - Knoxville	University of Memphis	UT - Martin	East Tennessee State University	Middle Tennessee State University	Tennessee Tech University	UT - Chattanooga	Austin Peay State University	Tennessee State University
Total Combined	$12,970	$9,701	$9,236	$9,015	$8,948	$8,873	$8,664	$8,225	$7,776

MAINTENANCE FEES COMPARISON (2012-2018)



	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Austin Peay	$5,466	$5,694	$5,874	$6,198	$6,348	$6,522	$6,696
East Tennessee	$5,466	$5,922	$6,198	$6,630	$6,828	$7,002	$7,224
Middle Tennessee	$5,520	$5,898	$6,222	$6,552	$6,756	$6,930	$7,176
Tennessee State	$5,466	$5,772	$5,844	$6,198	$6,378	$6,528	$6,726
Tennessee Tech	$5,520	$5,748	$6,096	$6,474	$7,182	$7,380	$7,656
University of Memphis	$6,450	$6,978	$7,410	$7,410	$7,686	$7,860	$8,064
UT Chattanooga	$5,398	$5,722	$6,065	$6,430	$6,624	$6,768	$6,888
UT Knoxville	$7,224	$7,802	$8,648	$9,493	$10,190	$10,858	$11,110
UT Martin	$5,640	$5,978	$6,336	$6,716	$6,918	$7,375	$7,818

MANDATORY FEES COMPARISON (2012-2018)



	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Austin Peay	$1,224	$1,224	$1,284	$1,264	$1,453	$1,473	$1,529
East Tennessee	$1,063	$1,075	$1,345	$1,355	$1,504	$1,597	$1,791
Middle Tennessee	$1,498	$1,594	$1,618	$1,636	$1,648	$1,660	$1,772
Tennessee State	$880	$930	$930	$1,026	$1,039	$1,039	$1,050
Tennessee Tech	$1,178	$1,200	$1,287	$1,511	$1,171	$1,171	$1,217
University of Memphis	$1,246	$1,256	$1,256	$1,563	$1,583	$1,637	$1,637
UT Chattanooga	$1,320	$1,490	$1,490	$1,708	$1,732	$1,776	$1,776
UT Knoxville	$1,172	$1,290	$1,414	$1,510	$1,758	$1,810	$1,860
UT Martin	$1,078	$1,103	$1,178	$1,308	$1,408	$1,408	$1,418

Fees not subject to THEC binding rates

- Graduate maintenance fee
- Out-of-state tuition
- Non-mandatory fees (approved at the March meeting)

Anticipated graduate maintenance fees

Graduate In-State Tuition				
	Fall 2017	Fall 2018	Dollar Increase	Percentage Increase
For Base 10 Hours	$4,880	$5,020	$140	2.9%
Hourly rate over base hours	$96	$99	$3	3.1%

Out-of-state tuition

- Out-of-state students pay same maintenance and other fees as in-state students, plus an out-of-state tuition rate

- 2017-2018 out-of-state tuition rate
  - Base (12 credit hours) $7,932.00
  - Hourly rate over base $132
  - Tuition and Fees (12 credit hours) $4,256.50

- No increase in out-of-state tuition is anticipated

Out-of-State Tuition Comparison

Tennessee Peers	12 SCH	9 SCH
Lowest to Highest by UG -	**Undergraduate**	**Graduate**
University of Memphis	$10,514.50	$9,740.50
Tennessee Tech University	**$12,188.50**	**$11,496.50**
University of Tennessee - Chattanooga	$12,391.00	$13,069.00
Middle Tennessee State University	$13,174.00	$12,096.00
East Tennessee State University	$13,231.50	$12,370.50

National Peers	12 SCH	9 SCH
Lowest to Highest by UG -	**Undergraduate**	**Graduate**
South Dakota State University	$4,326.00	$5,641.65
Louisiana Tech University	$6,908.00	$5,815.00
Appalachian State University	$9,524.50	$9,135.50
University of Alabama - Huntsville	$10,278.00	$11,348.00
Maine	$11,184.00	$12,573.00
New Mexico State University	$11,350.50	$11,632.50
University of Idaho	$11,906.00	$12,594.00
Murray State	$11,910.00	$13,405.50
Tennessee Tech University	**$12,188.50**	**$11,496.50**

DISCUSSION

Tennessee TECH

Non-mandatory Fees

Presentation to Audit & Business Committee
Board of Trustees

June 26, 2018

Additional Non-Mandatory Fee Proposal 2018-2019

- Whitson-Hester School of Nursing
  - Master of Science in Nursing (MSN Graduate Program)

Nursing Graduate Online Fee* (Current TN eCampus Online Fee is $122)	**$150 / per SCH (new replacement fee)**
Nursing Graduate Specialized Academic Fee (Current Nursing Graduate SACF is $30)	**$30 increase per SCH (total new fee = $60 per SCH)**

**Fee to be charged in lieu of TN eCampus Online fee as courses transition from TN eCampus to TTU Online delivered courses.*

DISCUSSION