



Audit & Business Committee

June 20, 2019

Roaden University Center, Room 282

8:00 a.m.

AGENDA

- I.** Call to Order
- II.** Approval of Minutes
- III.** Tenure Recommendations
- IV.** Faculty Promotions – Informational Item
- V.** Capital Budget
 - A.** Update on FY2019-20 Capital Budget
 - B.** Approval of Disclosed Projects & FY2020-21 Capital Budget
- VI.** 2019-20 Student Fees
 - A.** Maintenance and Mandatory Fees
 - B.** Non-mandatory Online& Alternative Delivery Fee
- VII.** 2018-19 Estimated and 2019-20 Proposed Budgets
- VIII.** Five-Year Strategic Financial Plan Update
- IX.** Presidents Emeriti Contracts
- X.** TTU Policy 132 (Conflict of Interest) – Review of Substantive Revisions
- XI.** Adjournment of Open Session and Call to Order of Executive Closed Session to Discuss Audits, Investigations, Litigation, and Matters Deemed Not Subject to Public Inspection Pursuant to T.C.A. § 4-35-108(b)(1)-(3)
- XII.** Adjournment



**Board of Trustees Meeting
Audit & Business Committee
March 21, 2019
Roaden University Center Room 282**

MINUTES

AGENDA ITEM 1—CALL TO ORDER

The Tennessee Tech Board of Trustees Audit & Business Committee met on March 21, 2019, in Roaden University Center Room 282. Trustee Teresa Vanhooser called the meeting to order at 10:04 a.m.

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

- Teresa Vanhooser
- Rhedona Rose
- Purna Saggurti

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

AGENDA ITEM 2—Approval of Minutes of December 6, 2018

Trustee Vanhooser asked for approval of the minutes of the December 6, 2018 Audit & Business Committee meeting. Trustee Vanhooser asked if there were questions or comments regarding the minutes. There being none, Trustee Saggurti moved to recommend approval of the December 6, 2018 Audit & Business Committee minutes. Trustee Rose seconded the motion. The motion carried unanimously.

AGENDA ITEM 3- Dennis Estate

Dr. Stinson advised the Dennis Estate was a gift that Tennessee Tech University had been designated as the beneficiary. The trust was established by BJ & Cleo Nash Dennis in 1993. The gift was approximately \$1,200,000 and was designated to be used for scholarships for graduates of Upperman High School. Dr. Stinson requested the committee to designate the funds as a quasi-endowment and to allow the university to use the Foundation's investment mechanism, Common Fund, to invest these funds. In accordance with the estate the university would retain ownership of the assets. Trustee Jones wanted it clarified why the funds did not go directly to the foundation and came to the Tennessee Tech Board of Trustees. Dr. Stinson advised the estate attorney and trust documents indicated it must go to the university. The donors did not designate the gift as an endowment therefore the university cannot establish an endowment. However, the Board can designate funds as a quasi-endowment which the funds would be treated as if they were an endowment and the earnings would be used to fund the scholarship, which allows for a longer period of time to provide the scholarship. Trustee Jones asked if this would always be housed under the university and outside of the foundation. Dr. Stinson advised he was correct and the university had a policy in place that allowed use of the foundation investment mechanism for private gift funds and for endowment funds that are designated to the university. Trustee Vanhooser asked for a motion to place the Dennis Estate on the Board's regular agenda. Trustee Saggurti moved to recommend. Trustee Rose seconded the motion. The motion carried unanimously.

AGENDA ITEM 4— Credit Card Processing Fees

Dr. Stinson explained as part of the Five-Year Financial Strategic Plan it was discussed to look into the credit card processing fees. The university historically paid a range \$430,000-\$500,000 in processing fees annually. Effective July 1, 2019 anyone that uses credit cards to make a payment will have an associated fee with the use. The fee was 2.85%. An estimated 25% of all payments received were via credit cards, which was roughly \$29,000,000. \$63,000,000 of payments were covered by financial aid with the remainder of payments being paper check or cash. The estimated implementation cost was \$8,700. If opted to use an ACH validator there was an associated annual cost of \$16,000. Several other LGI institutions have already passed the credit card processing fee thru to the student. Trustee Vanhooser indicated this was an informational item and no vote was required.

AGENDA ITEM 5—Approval of Policy 122(Rental of Tennessee Tech Property) and Rule

Dr. Stinson stated Policy 122 was related to short term rental of Tennessee Tech properties by non-affiliated users. The policy established the process an individual would follow should they desire to rent a facility, priority of use, associated payments and agreements with renters. Trustee Vanhooser asked for a motion to place Policy 122(Rental of Tennessee Tech Property) and Rule on the Board's regular agenda. Trustee Saggurti moved to recommend. Trustee Rose seconded the motion. Ms. Carpenter took a roll call vote and the motion carried unanimously.

AGENDA ITEM 6—Update on Governor's Budget as Proposed

Dr. Stinson gave an update on the status of the governor's budget as it had been proposed by the Governor for fiscal year 2019-20. State appropriations increase of \$4,053,800 which consisted of

outcome-based formula \$2,653,800, Carnegie classification \$900,000 and year 3 of 4 NSF-CEROC grant \$500,000. State appropriations base was adjusted from outcomes reallocation of \$814,300. Should the Legislature approve the budget as proposed the total state appropriations would be \$59,888,700. The Governor's budget also included \$7,910,000 funding for capital outlay and maintenance, consisting of \$3,060,000 roof replacement phase 3, \$4,650,000 multiple building upgrades and \$200,000 ADA Compliance. Dr. Stinson stated there were questions surrounding whether the capital maintenance would be fully funded as it still had to be approved by the Legislature. The Governor's Budget had picked up the top two projects for each LGI and discussion were still being conducted. The engineering building project received \$3,250,000 as planning funds. The total Capital Outlay & Maintenance was \$11,160,000.

Trustee Vanhooser asked if we would have more firm figures before June meeting. Dr. Stinson responded she expected to assuming the Legislature had passed the budget and finished their process. Trustee Vanhooser stated this was an informational item and no vote was necessary.

Trustee Geist asked if there was a forecast between now and June meeting in terms of budget regarding any alignments or changes in the academic or administration units coming into the fiscal year. Dr. Stinson advised nothing coming into the fiscal year.

AGENDA ITEM 7A—Approval of 2019-20 Non-Mandatory Fees

Dr. Stinson clarified that non-mandatory fees were not required of all students and were not subject to THEC binding rates. There was a process in place to vet requests before they come to the Board. Twenty proposals were received but only bringing forward two fee requests. Factors considered for requests include: had the unit been able to support some extraordinary costs associated with the activity that they were requesting the fee to now support, new initiative that had extraordinary costs that cannot be addressed through new revenues generated by the program and if activity was a self-supporting activity such as housing.

The first fee requested was the Nursing DNP Graduate Fee of \$150. The School of Nursing proposed this fee as part of a joint program with ETSU which aligned TTU's fee with those of ETSU and operational needs of the program including faculty, staff and preceptors.

Trustee Jones asked how many hours did a normal DNP student take. Dean Hanna advised six to nine hours per semester. Trustee Jones stated the fee sounded high and requested Trustee Geist to comment. Trustee Geist stated it aligned with ETSU and other DNP programs in the state. Trustee Jones asked how many current DNP students. Dean Hanna responded there were 17 students this current semester with the potential of 11 or 12 more to be admitted in fall 2019. Dean Hanna advised the program began in fall 2017.

The second fee that was requested was a two percent housing increase for residence halls and Tech Village apartments. Housing was an auxiliary enterprise and had to cover its own costs. Repairs and renovations of older halls were being continued. Larger renovations were funded thru debt so there were related debt service requirements. A comparison with other universities had been conducted. Belmont, Austin Peay State University and UT Knoxville were higher than our rates. The overall occupancy rate for residence halls was 95% for fall 2018. New Hall North had an occupancy rate of

95.3% and New Hall South had 93.9%. A comparison to apartment housing in Cookeville was also conducted and Tech housing was within the market. Several apartments were within walking distance of campus, utilities were extra off-campus, most apartments required a 9 month lease, most were unfurnished and 24 hour security was not provided.

Trustee Vanhooser asked for a motion to place the 2019-20 Non-Mandatory Fees on the Board's regular agenda. Trustee Saggurti moved to recommend. Trustee Rose seconded the motion. Ms. Carpenter took a roll call vote. The motion carried unanimously.

AGENDA ITEM 7B—Approval of 2019-20 Non-Mandatory On-line Fee for Consideration at June Committee Meeting

Dr. Stinson previously stated that an estimated 20 fee proposals had been received, the majority were online courses or programs. Requests ranged from \$25- \$198 per credit hour. These requests were proposed in lieu of mandatory fees. Mandatory fees included Technology Access Fee, online programs are some of the biggest users of that technology. The plan was to take a comprehensive look at how online offerings were structured and have a consistent fee structure and possibly bring back at June meeting. Trustee Vanhooser advised this was an informational item only.

AGENDA ITEM 7C—Mandatory Fees

Dr. Stinson advised this was an informational item and to begin the process of mandatory fees which included the maintenance fee and other fees that all students pay. At the December 2018 meeting the Board had approved a list of factors to consider when setting tuition and fee levels and was provided in Diligent. Dr. Stinson presented slides with HOPE information, levels of student debt compared to other LGI's, total cost of attendance comparison for 2018-19 and estimated 2019-20. THEC recommended binding range at 0-2.5%. The maximum on maintenance would be \$196 and the maximum on maintenance and mandatory fees would be \$228. The anticipated increase was 2.3% or \$90 which equated to \$7 per credit hour. Only one increase was considered in mandatory fees which was the Technology Access Fee of \$17.50 per semester. Dr. Stinson also provided slides and information in Diligent showing comparison of 2018-19 maintenance and mandatory fees between the LGI's, historical comparisons from 2012-2019 of all LGI's and 2018-19 tuition comparison to out-of-state peers. The Technology Access Fee can only be spent for technology that directly touches students. It cannot be used for office computers or for support of administrative software. Justifications for increase included: to create a sustainable equipment refresh plan, provide new technology for new science building and provide supplies and support for technology within classrooms.

Trustee Stites asked if people that were not members of the Tennessee Tech community were allowed continued use of TTU email as a part of policy. Dr. Stinson advised conversation were in progress to address that but those costs are not associated with this requested fee increase. Dr. Stinson advised that the cost to support the emails for retirees are beginning to be significant for the software needed to protect the university. Dr. Stinson stated that traditionally nationwide in higher education former employees were allowed to have email after retirement. At that time there were not significant costs but now costs to provide that benefit are increasing. Trustee Stites wanted to know how long it would take for a decision to be made. Dr. Stinson advised goal was July 1. Trustee Jones wanted to know if the

plan was to remove those emails. Dr. Stinson advised that currently people that retire were not being allowed to keep their Tech email. Trustee Jones expressed concerns for security purposes.

In FY2018-19 105 project proposals came from the colleges and academic support units and were primarily related to multimedia classrooms, student software and licensing, student lab hardware refresh and checkout accessories. Only 46 projects were funded.

Dr. Stinson advised that graduate maintenance and out-of-state tuition were not subject to THEC binding rates. Graduate maintenance anticipated increase was 2.4%. No increase in out-of-state tuition was anticipated. Out-of-state tuition comparison between Tennessee and national peers was provided in Diligent.

Dr. Stinson discussed new resources and uses for 2019-20 based on the Governor's proposed budget and revenue generated from a 2.3% maintenance fee increase. Resources anticipated to address needs came out to \$5,872,100. The needs that were included were those identified in the Five-Year Strategic Financial Plan Committee: cost of two percent salary improvements \$1,830,100, dedicated funds to re-establish operating fund balance \$2,668,820 and \$1,662,180 cost increases other than salaries. The total anticipated needs for FY218-19 was \$6,161,100. The difference between resources and needs were \$(289,000).

Trustee Stites wanted to know where deferred maintenance was accounted for. Dr. Stinson advised part of the financial plan was to re-establish the transfers to R & R which would address deferred maintenance, which was a part of \$2,668,820. Trustee Vanhooser stated projected enrollments needed to be considered along with one-time costs versus long term costs when thinking about next year's budget until enrollment trends upward.

AGENDA ITEM 8—Update and Discussion of University Metrics

President Oldham stated a metrics dashboard was nearing completion and included eight categories: student success, financial, enrollment, athletics, sponsored research, advancement, faculty and complete college act funding formula. The dashboard would display a key metric header for a category. Key metrics could include a category, recent year trend, base line comparison, multi-year average, national standard, goals set by the university and other data. Trustee Harper wanted to make sure recruiters that were coming to campus, how many jobs were being offered and placement was an included metric. Trustee Harper also wanted the colleges to have access to their granular data. Trustee Jones wanted to know if the dashboard would be publicly available. President Oldham advised that was the intent as none of the information was not publicly available to begin with.

AGENDA ITEM 9—Five-Year Strategic Financial Plan Update

Dr. Stinson gave an update on the controlling expenses progress report. \$1,490,000 lapsed salaries were put into Investment Pool, pilot projects were completed in Athletics and Library on centralizing computer replacements, \$400,000 credit card discount, reviewing process in place for professional and software contracts, and review process for temporary/part-time positions with a goal of saving \$300,000. Dr. Stinson advised Dr. Bruce had been discussing with Deans on reviewing course delivery methods, financial feasibility of new programs, realigning colleges' budgets with budget model, class

schedules with class size, faculty work load and compensation and effective scheduling of large classrooms.

Dr. Stinson introduced Dr. Joe Chappell to discuss the cost of education model. Dr. Chappell stated the model was a combination of student, faculty, and financial data in a reporting structure to analyze the revenues and expenditures of the university, colleges, departments, levels, disciplines, etc. Data included in the model was: student course enrollment, major, concentration, faculty instructional load and distribution of responsibilities, faculty salaries, student accounts receivable and general ledger. The model distributed 85% of net tuition revenues to the department of the course and the remaining 15% went to the department of the student's major. All department and college revenues/expenditures were distributed to their respective units and based on credit hour production. University level revenues and expenditures were distributed as a function of credit hour production. Examples of output was provided in Diligent. Dr. Chappell ended his presentation with stating the results of the cost of education model were intended to provide information for meaningful discussion regarding the balance of expenditures and revenues associated with colleges, departments, disciplines, etc. The model could help identify areas of efficiency and opportunities for improvement and could provide a basis for strategic reallocation decisions combined with other information.

AGENDA ITEM 10—Notice of Responsibility

Trustee Vanhooser advised state law required the Audit & Business Committee formally reiterated on a regular basis to the Board, Management and Staff their responsibilities for preventing, detecting, and reporting fraud, waste and abuse. The Notice of Responsibility was provided in Diligent.

AGENDA ITEM 11 —Adjournment of Open Session & Call to Order of Executive Closed Session

There being no further business, the meeting adjourned at 12:06 p.m. After a short break, the Executive Closed Session began at 12:14 p.m. All Tennessee Tech Board Trustees were present.

The following were also present for the meeting:

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

AGENDA ITEM 12—Adjournment

There being no further business, the Executive Closed Session adjourned at 12:50 p.m.

Approved,

Audit & Business Committee Chair

DRAFT



Agenda Item Summary

Date: June 20, 2019

Division: Planning and Finance

Agenda Item: Tenure Recommendations

Review

Action

No action required

PRESENTERS: Dr. Lori Bruce

PURPOSE & KEY POINTS:

Recommendations and supporting documentation for granting tenure to eligible faculty members.

Tennessee Tech University
Board of Trustees



FACULTY TENURE RECOMMENDATIONS FOR 2019 – 2020

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

	Name	Department/Division	Current Rank
1	Adams, Stephanie	Library	Associate Professor
2	Anton, Steven	Mechanical Engineering	Assistant Professor*
3	Bhattacharya, Indranil	Electrical & Computer Engineering	Assistant Professor*
4	Boles, Tammy	Environmental Studies	Assistant Professor*
5	Carrick, Ann Marie	Chemistry	Instructor*
6	Carroll, William	Chemistry	Assistant Professor*
7	Datta, Tania	Civil Engineering	Assistant Professor*
8	Davis, Christopher	Mathematics	Assistant Professor*
9	Gallop, David	Art, Craft, & Design	Assistant Professor*
10	Greathouse, Paula	Curriculum & Instruction	Assistant Professor*
11	Hales, Alma	Economics, Finance, & Marketing	Assistant Professor*
12	Hill, Colin	Music	Assistant Professor*
13	Holley, Adam	Physics	Assistant Professor*
14	Johnson, Perry	Art, Craft, & Design	Assistant Professor*
15	Mahmoud, Mohamed	Electrical & Computer Engineering	Associate Professor
16	Mabry, Jennifer	Nursing	Assistant Professor*
17	Melichar, Mark	Economics, Finance, & Marketing	Assistant Professor*
18	Michael, Anthony	Counseling & Psychology	Assistant Professor*

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19	Rajabali, Mustafa	Physics	Assistant Professor*
20	Rezsnyak, Chad	Chemistry	Assistant Professor*
21	Veerapen, Padmini	Mathematics	Associate Professor
22	Villalba, Manuel	Foreign Languages	Assistant Professor*
23	Wendt, Stephanie	Teacher Education	Associate Professor
24	Wilbanks, Robert	Accounting	Assistant Professor*

Tennessee Tech University
Board of Trustees



FACULTY TENURE UPON HIRE RECOMMENDATIONS FOR 2019 – 2020

Recommended personnel are listed alphabetically by last name.

	Name	Department/Division	Current Rank
1	MacKenzie, Allen	Electrical & Computer Engineering	Chair/Professor
2	Pech, Wesley	Economics, Finance & Marketing	Chair/Professor
3	Slater, Joseph	College of Engineering	Dean/Professor
4	Smith, Darron	College of Agriculture & Human Ecology	Dean/Professor

Allen B. MacKenzie

Curriculum Vitae

Education

Ph.D. in Electrical and Computer Engineering, Cornell University, May 2003. Dissertation: *Game Theoretic Analysis of Power Control and Medium Access Control*. Advisor: Professor Steven B. Wicker.

B.Eng. in Electrical and Computer Engineering and Mathematics, Vanderbilt University, May 1999, *summa cum laude* and Founder's Medal.

Professional Experience

Professor, Bradley Department of Electrical and Computer Engineering, Virginia Tech, 2018–present.

Associate Professor, Bradley Department of Electrical and Computer Engineering, Virginia Tech, 2010–2018.

E.T.S. Walton Visiting Professor, CTVR / the telecommunications research centre, Trinity College Dublin, Ireland, 2012–2013.

Assistant Professor, Bradley Department of Electrical and Computer Engineering, Virginia Tech, 2003–2010.

Awards and Honors

Selected to participate in Virginia Tech's Academic Leaders Program, 2018.

E.T.S. Walton Visitor Award from the Science Foundation of Ireland to support a year-long sabbatical at Trinity College Dublin, 2012–2013.

Elevated to Senior Member, IEEE, 2008.

Dean's Award for Outstanding New Assistant Professor, College of Engineering, Virginia Tech, 2006.

Faculty Early Career Development (CAREER) Award, National Science Foundation, 2005.

Selected to attend National Effective Teaching Institute, American Society for Engineering Education, 2004.

Graduate Research Fellowship, National Science Foundation, 2000–2003.

Founder's Medal in Engineering, awarded to the top student in the College of Engineering, Vanderbilt University, 1999.

Leadership Highlights

A member of the Commerce Spectrum Management Advisory Committee of the United States Department of Commerce, serving a two year term from 2016–2018. This committee advises the Assistant Secretary of Commerce for Communications and Information on major spectrum policy issues for the benefit of the American people.

An experienced campus leader who has served as Area Chair of the ECE Communications Area for many years (planning the course timetable and making teaching recommendations), is serving as Associate Director of Wireless @ Virginia Tech, a major research center, and is serving as Associate Faculty Principal for the Residential College at West Ambler Johnston.

An active contributor to the research community, currently serving as an Area Editor for *IEEE Transactions on Communications* (after a two-year term as Associate Editor) and an Associate Editor for *IEEE Transactions on Cognitive Communications and Networking*. Previously served as an Associate Editor for *IEEE Transactions on Mobile Computing* (2011–2016) and a guest editor for a special topic in *IEEE Communications Magazine* in 2011.

Also involved in conference organization, currently serving as Workshop Co-Chair for the *IEEE International Conference on Communications*, 2020, and having previously served as the Tutorials Co-Chair for *IEEE DySPAN* 2014, the Dynamic Spectrum Management Track Chair for Crowncom 2014, and the Poster and Travel Grants Chair for *IEEE DySPAN* (2011), in addition to serving as a technical program committee member for many conferences.

Research and Scholarship Highlights

An active and influential researcher with more than 100 journal, refereed conference, and book chapter publications, many of which are highly cited, yielding an h-index of 28.¹

Participated in \$7.5M in sponsored research projects with personal responsibility of \$2.7M.

One of the first researchers to describe a “cognitive network.” The two papers first describing this concept, a conference paper in *IEEE DySPAN* 2005 and a magazine article in *IEEE Communications Magazine* in 2006, have now been cited 705 and 532 times, respectively.

A pioneering researcher in using game theory to analyze wireless networks, with a short tutorial monograph, *Game Theory for Wireless Engineers*, that has been cited 489 times and four articles on the subject that have been cited more than 270 times each (from *IEEE Communications Surveys and Tutorials*, 2005; *IEEE Infocom*, 2003; *IEEE Communications Magazine*, 2001; and *IEEE Globecom*, 2001).

An innovative researcher that works with experimental networks, including a unique project that created and ran a competition in ad hoc networking (the MANIAC Challenge, see *IEEE Communications Magazine* paper from 2012), a project that has created open source networking software for the research community (the FINS Framework, see *IEEE Transactions on Mobile Computing* paper from 2016), and work on moving carrier sensing functions to the FPGA in a SDR (see *IEEE Transactions on Computers* paper from 2015).

Teaching Highlights

A versatile teacher that has taught a variety of subjects (including courses on probability and random processes, programming, communications theory, and networking) at a variety of levels (from second-year undergraduate signals and systems and programming courses to many graduate courses).

A course and curriculum developer that has created innovative communications and networking concentrations for the electrical and computer engineering degrees at Virginia Tech and has guided the substantial revision of core undergraduate and graduate courses to modernize their content and teaching approaches.

An innovative teacher that organized international graduate courses on millimeter wave communications and networking and dynamic spectrum access networks, including students from Virginia Tech, Trinity College Dublin, and Queen’s University Belfast and attracted guest speakers from around the world.

A contributor to continuing education by giving tutorials at conferences and symposia and by leading short courses for researchers at Trinity College Dublin and the University of Oulu (Finland). Most recently, presented a half-day tutorial titled “Resource Allocation in Wireless Networks under Uncertainties: A Stochastic Optimization Framework” at the IEEE International Conference on Communications (ICC), 2017.

Publications

Books

1. W. H. Tranter and A. B. MacKenzie, *A Tutorial on Queueing and Trunking with Applications to Communications*. Morgan and Claypool, 2012.
2. A. B. MacKenzie and L. A. DaSilva, *Game Theory for Wireless Engineers*. Morgan and Claypool, 2006.

¹All citation counts and reference statistics are taken from Google Scholar; last updated 2018-08-01.

Book Chapters

1. J. Neel, J. H. Reed, and A. B. MacKenzie, "Cognitive radio network analysis," in *Cognitive Radio Technology*, 2nd ed., B. Fette, Ed. Elsevier, 2009, ch. 15, pp. 483–533.
2. R. W. Thomas, D. H. Friend, L. A. DaSilva, and A. B. MacKenzie, "Cognitive networks," in *Cognitive Radio, Software Defined Radio, and Adaptive Wireless Systems*, H. Arslan, Ed. Dordrecht, The Netherlands: Springer, 2007, pp. 17–41.
3. D. H. Friend, R. W. Thomas, A. B. MacKenzie, and L. A. DaSilva, "Distributed learning and reasoning in cognitive networks," in *Cognitive Networks: Towards Self-Aware Networks*, Q. Mahmoud, Ed. Wiley, 2007.
4. J. Neel, J. H. Reed, and A. B. MacKenzie, "Cognitive radio network analysis," in *Cognitive Radio Technology*, B. Fette, Ed. Elsevier, 2006, ch. 15, pp. 501–579.

Journal & Magazine Articles

1. A. E. Hilal and A. B. MacKenzie, "A distributed coalition game model for cooperation in MANETs," *Ad Hoc Networks*, vol. 85, pp. 46–59, March 2019.
2. A. Nabil, A. V. Padaki, M. J. Abdel-Rahman, M. E. Nainay, A. B. MacKenzie, and J. H. Reed, "On optimal resource allocation in multi-RAT wireless networks with receiver characteristic awareness," 2018, to appear in *IEEE Transactions on Cognitive Communications and Networking*.
3. E. Mazied, M. Y. ElNainay, M. J. Abdel-Rahman, S. F. Midkiff, H. Rakha, M. Rizk, and A. B. MacKenzie, "The wireless control plane: An overview and directions for future research," 2018, to appear in *Journal of Network and Computer Applications*.
4. W. Affi, M. J. Abdel-Rahman, M. Krunz, and A. B. MacKenzie, "Full-duplex or half-duplex: A bayesian game for wireless networks with heterogeneous self-interference cancellation capabilities," *IEEE Transactions on Mobile Computing*, vol. 17, no. 5, pp. 1076–1089, May 2018.
5. S. Chatterjee, M. J. Abdel-Rahman, and A. B. MacKenzie, "Optimal base station deployment with downlink rate coverage probability constraint," *IEEE Wireless Communications Letters*, vol. 7, no. 3, pp. 340–343, June 2018.
6. Z. Khan, J. Lehtomäki, A. V. Vasilakos, A. B. MacKenzie, and M. Juntti, "Adaptive wireless communications under competition and jamming in energy constrained networks," *Wireless Networks*, vol. 24, no. 1, pp. 151–171, 2018.
7. Y. E. Sagduyu, Y. Shi, A. B. MacKenzie, and Y. T. Hou, "Regret minimization for primary/secondary access to satellite resources with cognitive interference," *IEEE Transactions on Wireless Communications*, vol. 17, no. 5, pp. 3512–3523, May 2018.
8. A. S. Shahfigh, B. Lorenzo, S. Glisic, J. Pérez-Romero, L. A. DaSilva, A. B. MacKenzie, and J. Röning, "A framework for dynamic network architecture and topology optimization," *IEEE/ACM Transactions on Networking*, vol. 24, no. 2, pp. 717–730, 2016.
9. J. Reed, A. Abdallah, A. B. MacKenzie, L. A. DaSilva, and M. S. Thompson, "The FINS framework: Design and implementation of the flexible internetwork stack (FINS) framework," *IEEE Transactions on Mobile Computing*, vol. 15, no. 2, pp. 489–502, 2016.
10. H. Ahmadi, A. Farhang, N. Marchetti, and A. B. MacKenzie, "A game theoretic approach for pilot contamination avoidance in massive MIMO," *IEEE Wireless Communications Letters*, vol. 5, no. 1, pp. 12–15, February 2016.

11. P. D. Francesco, S. McGettrick, U. K. Anyanwu, J. C. O'Sullivan, A. B. MacKenzie, and L. A. DaSilva, "A split MAC approach for SDR platforms," *IEEE Transactions on Computers*, vol. 64, no. 4, pp. 912–924, April 2015.
12. M. S. Thompson, A. S. Abdallah, J. M. Reed, A. B. MacKenzie, and L. A. DaSilva, "The FINS framework: An open-source, userspace networking subsystem for linux," *IEEE Network*, vol. 28, no. 5, pp. 32–37, September–October 2014.
13. X. Chen, H. Zhang, A. B. MacKenzie, and M. Matinmikko, "Predicting spectrum occupancies using a non-stationary hidden markov model," *IEEE Wireless Communications Letters*, vol. 3, no. 4, pp. 333–336, August 2014.
14. M. W. Baidas and A. B. MacKenzie, "Many-to-many space-time network coding for amplify-and-forward cooperative networks: Node selection and performance analysis," *EURASIP Journal on Wireless Communications and Networking*, vol. 2014, no. 48, March 2014.
15. —, "Altruistic coalition formation in cooperative wireless networks," *IEEE Transactions on Communications*, vol. 61, no. 11, pp. 4678–4689, November 2013.
16. M. Baidas, A. B. MacKenzie, and R. M. Buehrer, "Network-coded bi-directional relaying for amplify-and-forward cooperative networks: A comparative study," *IEEE Transactions on Wireless Communications*, vol. 12, no. 7, pp. 3238–3252, July 2013.
17. R. E. Irwin, A. B. MacKenzie, and L. A. DaSilva, "Resource-minimized channel assignment for multi-transceiver cognitive radio networks," *IEEE Journal on Selected Areas in Communications*, vol. 31, no. 3, pp. 442–450, March 2013.
18. A. B. MacKenzie and L. A. DaSilva, "Application of signal processing to addressing wireless data demand [in the spotlight]," *IEEE Signal Processing Magazine*, vol. 29, no. 6, pp. 168, 163–166, November 2012.
19. M. W. Baidas and A. B. MacKenzie, "An auction mechanism for power allocation in multi-source, multi-relay cooperative wireless networks," *IEEE Transactions on Wireless Communications*, vol. 11, no. 9, pp. 3250–3260, September 2012.
20. M. S. Thompson, A. B. MacKenzie, L. A. DaSilva, and G. Hadjichristofi, "A mobile ad hoc networking competition: A retrospective look at the MANIAC challenge," *IEEE Communications Magazine*, vol. 50, no. 7, pp. 121–127, July 2012.
21. J. Deaton, S. Ahmad, U. Shukla, R. Irwin, L. DaSilva, and A. MacKenzie, "Evaluation of dynamic channel and power assignment for cognitive networks," *Wireless Personal Communications*, vol. 57, no. 1, pp. 5–18, 2011.
22. R. S. Komali, R. W. Thomas, L. A. DaSilva, and A. B. MacKenzie, "The price of ignorance: Distributed topology control in cognitive networks," *IEEE Transactions on Wireless Communications*, vol. 9, no. 4, pp. 1434–1445, 2010.
23. J. Suris, L. Dasilva, Z. Han, A. MacKenzie, and R. Komali, "Asymptotic optimality for distributed spectrum sharing using bargaining solutions," *IEEE Transactions on Wireless Communications*, vol. 8, no. 10, pp. 5225–5237, October 2009.
24. R. Menon, R. M. Buehrer, A. B. MacKenzie, and J. H. Reed, "Interference avoidance in networks with distributed receivers," *IEEE Transactions on Communications*, vol. 57, no. 10, pp. 3078–3091, October 2009.
25. A. B. MacKenzie, J. H. Reed, P. Athanas, C. W. Bostian, R. M. Buehrer, L. A. DaSilva, S. W. Ellingson, Y. T. Hou, M. Hsiao, J.-M. Park, C. Patterson, S. Raman, and C. R. C. M. da Silva, "Cognitive radio and networking research at virginia tech," *Proc. of the IEEE*, vol. 97, no. 4, pp. 660–688, April 2009.

26. R. Menon, A. B. MacKenzie, J. E. Hicks, R. M. Buehrer, and J. H. Reed, "A game-theoretic framework for interference avoidance," *IEEE Transactions on Communications*, vol. 57, no. 4, pp. 1087–1098, April 2009.
27. S. V. Ginde, A. B. MacKenzie, R. M. Buehrer, and R. S. Komali, "A game-theoretic analysis of link adaptation in cellular radio networks," *IEEE Transactions on Vehicular Technology*, vol. 57, no. 5, pp. 3108–3120, September 2008.
28. R. S. Komali, A. B. MacKenzie, and R. P. Gilles, "Effect of selfish node behavior on efficient topology design," *IEEE Transactions on Mobile Computing*, vol. 7, no. 9, pp. 1057–1070, September 2008.
29. R. W. Thomas, D. H. Friend, L. A. DaSilva, and A. B. MacKenzie, "Cognitive networks: Adaptation and learning to achieve end-to-end performance objectives," *IEEE Communications Magazine*, pp. 51–57, December 2006.
30. V. Srivastava, J. Neel, A. B. MacKenzie, R. Menon, L. A. DaSilva, J. E. Hicks, J. H. Reed, and R. P. Gilles, "Using game theory to analyze wireless ad hoc networks," *IEEE Communications Surveys and Tutorials*, vol. 7, no. 4, pp. 46–56, 2005.
31. A. B. MacKenzie and S. B. Wicker, "Game theory and the design of self-configuring, adaptive wireless networks," *IEEE Communications Magazine*, vol. 39, no. 11, pp. 126–131, Nov. 2001.

Peer Reviewed Conference Papers

1. K. Teague, M. J. Abdel-Rahman, and A. B. MacKenzie, "Joint base station selection and adaptive slicing in virtualized wireless networks: A stochastic optimization framework," in *Proc. of the International Conference on Computing, Networking and Communications (ICNC)*, January 2019.
2. S. Chatterjee, M. J. Abdel-Rahman, and A. B. MacKenzie, "Virtualization framework for cellular networks with downlink rate coverage probability constraints," to appear in *IEEE Global Telecommunications Conference (Globecom)*, 2018.
3. K. V. Cardoso, M. J. Abdel-Rahman, A. B. MacKenzie, and L. A. DaSilva, "Virtualization and programmability in mobile wireless networks: Architecture and resource management," in *Proc. of the International Workshop on Mobile Edge Communications*, 2017.
4. M. J. Abdel-Rahman, E. Mazied, K. Teague, A. B. MacKenzie, and S. Midkiff, "Robust controller placement and assignment in software-defined cellular networks," in *Proc. of the International Conference on Computer Communications and Networks (ICCCN)*, 2017.
5. S. Chatterjee, M. J. Abdel-Rahman, and A. B. MacKenzie, "Optimal distributed allocation of almost blank subframes for LTE/WiFi coexistence," in *Proc. of the International Workshop on Resource Allocation, Cooperation, and Competition in Wireless Networks (RAWNET)*, 2017.
6. M. N. Soorki, M. J. Abdel-Rahman, A. B. MacKenzie, and W. Saad, "Joint access point deployment and assignment in mmwave networks with stochastic user orientation," in *Proc. of the International Workshop on Resource Allocation, Cooperation, and Competition in Wireless Networks (RAWNET)*, May 2017.
7. M. N. Soorki, A. B. MacKenzie, and W. Saad, "Millimeter wave network coverage with stochastic user orientation," in *Proc. of the IEEE Annual International Symposium on Personal, Indoor, and Mobile Radio Communications (PIMRC)*, 2017.
8. M. J. Abdel-Rahman, E. Mazied, A. B. MacKenzie, S. F. Midkiff, M. Rizk, and M. Y. ElNainay, "On stochastic controller placement in software-defined wireless networks," in *Proc. of the IEEE Wireless Communications and Networking Conference*, 2017.

9. W. Affi, M. J. Abdel-Rahman, M. Krunz, and A. B. MacKenzie, "Coexistence in wireless networks with heterogeneous self-interference cancellation capability," in *Proc. International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks (WiOpt)*, 2016.
10. M. J. Abdel-Rahman, M. AbdelRaheem, A. B. MacKenzie, K. Cardoso, and M. Krunz, "On the orchestration of robust virtual LTE-U networks from hybrid half/full-duplex Wi-Fi APs," in *Proc. IEEE Wireless Communications and Networking Conference (WCNC)*, 2016.
11. A. S. Abdallah, A. B. MacKenzie, V. Marojevic, R. B. Bacchus, A. Riaz, D. Roberson, J. Kalliovaara, J. Hallio, and R. Ekman, "Detecting the impact of human mega-events on spectrum usage," in *Proc. IEEE Consumer Communications and Networking Conference (CCNC)*, January 2016.
12. M. J. Abdel-Rahman, K. V. Cardoso, A. B. MacKenzie, and L. A. DaSilva, "Dimensioning virtualized wireless access networks from a common pool of resources," in *Proc. IEEE Consumer Communications and Networking Conference (CCNC)*, 2016.
13. Y. E. Sagduyu, Y. Shi, A. B. MacKenzie, and T. Hou, "Regret minimization-based robust game theoretic solution for dynamic spectrum access," in *Proc. IEEE Consumer Communications and Networking Conference (CCNC)*, January 2016.
14. M. J. Abdel-Rahman, M. AbdelRaheem, and A. B. MacKenzie, "Stochastic resource allocation in opportunistic LTE-A networks with heterogeneous self-interference cancellation capabilities," in *Proc. IEEE Symposium on New Frontiers in Dynamic Spectrum Access Networks (DySPAN)*, 2015.
15. A. S. Abdallah and A. B. MacKenzie, "A cross-layer controller for adaptive video streaming over IEEE 802.11 networks," in *Proc. IEEE International Conference on Communications (ICC)*, June 2015.
16. V. K. Sastry, A. B. MacKenzie, L. A. DaSilva, B. Lorenzo, and S. Glisic, "Data offloading for multi-hop cellular networks," in *Proc. IEEE Annual Symposium on Personal, Indoor, and Mobile Radio Communication (PIMRC)*, Washington, DC, 2014.
17. T. Taher, R. Attard, A. Riaz, D. Roberson, J. Taylor, K. Zdunek, J. Hallio, R. Ekman, J. Paavola, J. Suutala, J. Rönning, M. Matinmikko, M. Höyhty, and A. B. MacKenzie, "Global spectrum observatory network setup and initial findings," in *Proc. of the International Conference on Cognitive Radio Oriented Wireless Networks (CROWNCOM)*, June 2014.
18. C. W. Patterson, A. B. MacKenzie, S. Glisic, B. Lorenzo, J. Rönning, and L. A. DaSilva, "An economic model of data offloading between mobile network operators and WLAN operators," in *Proc. of the International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks (WiOpt)*, May 2014.
19. P. D. Francesco, S. McGettrick, U. K. Anyanwu, J. C. O'Sullivan, A. B. MacKenzie, and L. A. DaSilva, "A split architecture for random access MAC for SDR platforms," in *Proc. of the International Conference on Cognitive Radio Oriented Wireless Networks (CrownCom)*, Washington, DC, July 2012.
20. R. E. Irwin, A. B. MacKenzie, and L. A. DaSilva, "Traffic-aware channel assignment for multi-radio wireless networks," in *Proc. of the International IFIP TC 6 Networking Conference (NETWORKING)*, Prague, May 2012, pp. 331–342.
21. M. Baidas, A. B. MacKenzie, and R. M. Buehrer, "Performance analysis of network-coded bi-directional relaying for amplify-and-forward cooperative wireless networks," in *Proc. of the IEEE International Wireless Communications and Mobile Computing Conference (IWCMC)*, Limassol, August 2012, pp. 222–227.
22. A. E. Hilal and A. B. MacKenzie, "Mitigating the effect of mobility on cooperation in wireless ad hoc networks," in *Proc. IEEE International Conference on Wireless and Mobile Computing, Networking, and Communications (WiMob)*, Barcelona, October 2012, pp. 365–372.

23. M. W. Baidas and A. B. MacKenzie, "On the impact of power allocation on coalition formation in cooperative wireless networks," in *Proc. IEEE International Conference on Wireless and Mobile Computing, Networking, and Communications (WiMob)*, October 2012, pp. 488–495.
24. M. Baidas and A. B. MacKenzie, "Auction-based power allocation for multi-source multi-relay cooperative wireless networks," in *Proc. IEEE Global Telecommunications Conference (GLOBECOM)*, December 2011.
25. R. E. Irwin, A. B. MacKenzie, and L. A. DaSilva, "Resource-minimized channel assignment for multi-transceiver wireless networks," in *Proc. IEEE Global Telecommunications Conference (GLOBECOM)*, December 2011.
26. Y. Shi and A. B. MacKenzie, "Distributed algorithms for resource allocation in cellular networks with coexisting femto- and macrocells," in *Proc. IEEE Global Telecommunications Conference (GLOBECOM)*, December 2011.
27. M. S. Thompson, A. B. MacKenzie, and L. A. DaSilva, "A method of proactive MANET routing protocol evaluation applied to OLSR protocol," in *Proc. ACM Workshop on Wireless Network Testbeds, Experimental Evaluation, and Characterization (WiNTECH)*, September 2011.
28. A. S. Abdallah, M. D. Horvath, M. S. Thompson, A. B. MacKenzie, and L. A. DaSilva, "Poster abstract: Facilitating experimental networking research with the fins framework," in *Proc. ACM Workshop on Wireless Network Testbeds, Experimental Evaluation, and Characterization (WiNTECH)*, September 2011.
29. M. W. Baidas and A. B. MacKenzie, "Auction-based power allocation for many-to-one cooperative wireless networks," in *Proc. IEEE International Wireless Communications and Mobile Computing Conference (IWCMC)*, July 2011.
30. A. S. Abdallah, A. B. MacKenzie, L. A. DaSilva, and M. S. Thompson, "On software tools and stack architectures for wireless network experiments," in *Proc. IEEE Wireless Communications and Networking Conference (WCNC)*, Cancun, Mexico, March 2011.
31. M. Baidas and A. B. MacKenzie, "Space-time network coding with optimal node selection for amplify-and-forward cooperative networks," in *Proc. IEEE Consumer Communications and Networking Conference (CCNC)*, Las Vegas, Nevada, January 2011.
32. F. Ge, A. Radhakrishnan, M. Y. ElNainay, Q. Chen, C. W. Bostian, and A. B. MacKenzie, "Software radio-based decentralized dynamic spectrum access networks: A prototype design and experimental results," in *Proc. IEEE Global Telecommunications Conference (GLOBECOM)*, Miami, Florida, December 2010.
33. Y. Shi, A. B. MacKenzie, L. A. DaSilva, K. Ghaboosi, and M. Latva-aho, "On resource reuse for cellular networks with femto- and macrocell coexistence," in *Proc. IEEE Global Telecommunications Conference (GLOBECOM)*, Miami, Florida, December 2010.
34. C. H. M. de Lima, K. Ghaboosi, M. Bennis, A. B. MacKenzie, and M. Latva-aho, "A stochastic association mechanism for macro-to-femto handover," in *Proc. Asilomar Conference on Signals, Systems, and Computers*, November 2010, pp. 1570–1574.
35. S. Namal, K. Ghaboosi, C. H. M. de Lima, M. Bennis, A. B. MacKenzie, and M. Latva-aho, "Joint admission control & interference avoidance in self-organized femtocells," in *Proc. Asilomar Conference on Signals, Systems, and Computers*, November 2010, pp. 1067–1071.
36. M. Nazir, M. Bennis, K. Ghaboosi, A. B. MacKenzie, and M. Latva-aho, "Learning based mechanisms for interference mitigation in self-organized femtocell networks," in *Proc. Asilomar Conference on Signals, Systems, and Computers*, November 2010, pp. 1886–1890.

37. M. S. Thompson, A. E. Hilal, A. S. Abdallah, L. A. DaSilva, and A. B. MacKenzie, "The MANIAC challenge: Exploring MANETs through competition," in *Proc. of the International Workshop on Wireless Networks: Communication, Cooperation, and Competition (WNC3)*, May 2010.
38. H. Liu, A. B. MacKenzie, and B. Krishnamachari, "Bargaining to improve channel sharing between selfish cognitive radios," in *Proc. IEEE Global Telecommunications Conference (GLOBECOM)*, Honolulu, Hawaii, November–December 2009.
39. M. D. Silvius, A. B. MacKenzie, and C. W. Bostian, "Rendezvous MAC protocols for use in cognitive radio networks," in *Proc. IEEE Military Communications Conference (Milcom)*, Boston, Massachusetts, October 2009.
40. S. A. Ahmad, J. Deaton, U. Shukla, R. Irwin, L. A. DaSilva, and A. B. MacKenzie, "A comparison of channel assignment techniques with power control in ad hoc networks," in *Proc. of the International Workshop on Cognitive Networks and Communications (COGCOM)*, 2009.
41. R. S. Komali, A. B. MacKenzie, and P. Mähönen, "On selfishness, local information, and network optimality: A topology control example," in *Proc. of the International Conference on Computer Communications and Networks (ICCCN)*, 2009.
42. R. Komali and A. MacKenzie, "Analyzing selfish topology control in multi-radio multi-channel multi-hop wireless networks," in *Proc. IEEE International Conference on Communications (ICC)*, June 2009, pp. 1–6.
43. M. D. Silvius, R. Rangnekar, A. B. MacKenzie, and C. W. Bostian, "The smart radio channel change protocol: A primary user avoidance technique for dynamic spectrum sharing cognitive radios to facilitate co-existence in wireless communication networks," in *Proc. of the International Conference on Cognitive Radio Oriented Wireless Networks (CrownCom)*, Hannover, Germany, June 2009.
44. A. Bell, S. Raman, A. B. MacKenzie, P. Plassman, C. Wyatt, L. A. DaSilva, L. Nazhandali, and M. Agah, "Increasing the enrollment, retention, and satisfaction of first-year students in electrical engineering, computer engineering, and computer science," in *Proc. ASEE Annual Conference and Exposition*, Austin, Texas, June 2009.
45. M. Y. ElNainay and A. B. MacKenzie, "Effect of non-cooperation on dynamic spectrum cognitive networks," in *Proc. of the International Wireless Communications and Mobile Computing Conference (IWCMC)*, Leipzig, Germany, June 2009, pp. 121–125.
46. M. Y. ElNainay, F. Ge, Y. Wang, A. E. Hilal, Y. Shi, A. B. MacKenzie, and C. W. Bostian, "Channel allocation for dynamic spectrum access cognitive network using localized island genetic algorithm," in *Proc. of the International Conference on Testbeds and Research Infrastructures for the Development of Networks and Communities (TridentCom)*, April 2009.
47. K. Ghaboosi, A. B. MacKenzie, L. A. DaSilva, A. S. Abdallah, and M. Latva-Aho, "A channel selection mechanism based on incumbent appearance expectation for cognitive networks," in *Proc. IEEE Wireless Communications and Networking Conference*, Budapest, April 2009, p. 6.
48. L. A. DaSilva, A. B. MacKenzie, C. R. C. M. da Silva, and R. W. Thomas, "Requirements of an open platform for cognitive networks experiments," in *Proc. IEEE Dynamic Spectrum Access Networks (DySPAN)*, Chicago, October 2008.
49. M. Y. ElNainay, D. H. Friend, and A. B. MacKenzie, "Channel allocation & power control for dynamic spectrum cognitive networks using a localized island genetic algorithm (short paper)," in *Proc. IEEE Dynamic Spectrum Access Networks (DySPAN)*, 2008.

50. D. H. Friend and A. B. MacKenzie, "Environmentally-friendly secondary network topology control for minimizing outage potential," in *Proc. IEEE Dynamic Spectrum Access Networks (DySPAN)*, Chicago, October 2008.
51. V. Srivastava, A. E. Hilal, M. S. Thompson, J. N. Chattha, A. B. MacKenzie, and L. A. DaSilva, "Characterizing mobile ad hoc networks — The MANIAC challenge experiment," in *Proc. of the ACM International Workshop on Wireless Network Testbeds, Experimental Evaluation, and Characterization (WiNTECH)*, San Francisco, September 2008.
52. A. E. Hilal, J. N. Chattha, V. Srivastava, M. S. Thompson, A. B. MacKenzie, and L. A. DaSilva, "Interactions between cooperation strategies in mobile ad hoc networks," in *Proc. ACM Workshop on Wireless Network Testbeds, Experimental Evaluation, and Characterization (WiNTECH)*, San Francisco, California, September 2008, pp. 99–100.
53. V. Srivastava, R. S. Komali, A. B. MacKenzie, and L. A. DaSilva, "Cooperation-aware topology control (invited paper)," in *Proc. International Symposium on Wireless Personal Multimedia Communications (WPMC)*, September 2008.
54. S. Raman, M. Agah, L. DaSilva, A. B. MacKenzie, C. Maxey, and A. Bell, "A first year engineering experience in wireless sensor networks for electrical/computer engineering and computer science students," in *Proc. ASEE Annual Conference and Exposition*, Pittsburg, PA, June 22–25 2008.
55. R. S. Komali and A. B. MacKenzie, "Impact of selfish packet forwarding on energy-efficient topology control," in *Proc. WiOpt: Modeling and Optimization in Mobile, Ad Hoc and Wireless Networks*, April 2008.
56. M. D. Silvius, F. Ge, A. Young, A. B. MacKenzie, and C. W. Bostian, "Smart radio: Spectrum access for first responders," in *Proc. of the SPIE Defense and Security Symposium: Wireless Sensing and Processing III*, vol. 6980, no. 1, 2008, pp. 698 008–1 – 698 008–12.
57. D. H. Friend, M. Y. ElNainay, Y. Shi, and A. B. MacKenzie, "Architecture and performance of an island genetic algorithm-based cognitive network," in *Proc. IEEE Consumer Communications and Networking Conference*, Las Vegas, January 10-12 2008, pp. 993–997.
58. R. Menon, A. B. MacKenzie, R. M. Buehrer, and J. H. Reed, "Joint power control and waveform adaptation for distributed networks," in *Proc. IEEE Global Telecommunications Conference (GLOBECOM)*, Washington, DC, November 2007, pp. 694–699.
59. T. W. Rondeau, A. B. MacKenzie, C. W. Bostian, K. E. Nolan, L. E. Doyle, C. Doerr, D. Grunwald, G. Minden, J. Evans, and D. Raychaudhuri, "International collaboration for a cognitive radio testbed," in *Proc. of the Software Defined Radio Technical Conference*, 2007.
60. J. Neel, R. Menon, A. B. MacKenzie, J. H. Reed, and R. P. Gilles, "Interference reducing networks," in *Proc. of the International Conference on Cognitive Radio Oriented Wireless Networks and Communications (CrownCom)*, 31 July – 3 August 2007.
61. R. W. Thomas, R. S. Komali, L. A. DaSilva, and A. B. MacKenzie, "Joint power and channel minimization in topology control: A cognitive network approach," in *Proc. IEEE International Conference on Communications*, Glasgow, Scotland, June 24–28 2007, pp. 6538–6543.
62. J. E. Suris, L. A. DaSilva, Z. Han, and A. B. MacKenzie, "Cooperative game theory for distributed spectrum sharing," in *Proc. IEEE International Conference on Communications*, Glasgow, Scotland, June 2007, pp. 5282–5287.
63. R. Menon, A. B. MacKenzie, R. M. Buehrer, and J. H. Reed, "A game-theoretic framework for interference avoidance in ad hoc networks," in *Proc. of IEEE Global Conference on Communications*, 2006.

64. T. W. Rondeau, B. Le, D. M. Maldonado, D. Scaperoth, A. B. MacKenzie, and C. W. Bostian, "Optimization, learning, and decision making in a cognitive engine," in *Proc. of the Software Defined Radio Technical Conference*, Orlando, Florida, 2006.
65. L. A. DaSilva, A. B. MacKenzie, and G. C. Hadjichristofi, "Poster abstract: Mobile ad hoc network interoperability (MANIAC) challenge: Objectives and architecture," in *Proc. of the ACM International Symposium on Mobile Ad Hoc Networking (MobiHoc)*, 2006.
66. R. S. Komali and A. B. MacKenzie, "Distributed topology control in ad-hoc networks: A game theoretic perspective," in *Proc. IEEE Consumer Communications and Networking Conference*, vol. 1, January 2006, pp. 563–568.
67. R. W. Thomas, L. A. DaSilva, and A. B. MacKenzie, "Cognitive networks," in *First IEEE International Symposium on New Frontiers in Dynamic Spectrum Access Networks (DySPAN)*, November 2005, pp. 352 – 360.
68. J. Neel, R. Menon, A. B. MacKenzie, and J. H. Reed, "Using game theory to analyze physical layer cognitive radio algorithms," in *presented to the Conference on Economics, Technology, and Policy of Unlicensed Spectrum*, May 2005.
69. R. Menon, A. B. MacKenzie, R. M. Buehrer, and J. H. Reed, "Game theory and interference avoidance in decentralized networks," in *Proc. of the Software Defined Radio Technical Conference and Product Exposition*, November 2004.
70. J. E. Hicks, A. B. MacKenzie, J. A. Neel, and J. H. Reed, "A game theory perspective on interference avoidance," in *Proc. of IEEE Globecom*, vol. 1, 2004, pp. 257–261.
71. A. B. MacKenzie and S. B. Wicker, "Stability of multipacket slotted aloha with selfish users and perfect information," in *INFOCOM 2003. Twenty-second Annual Joint Conference of the IEEE Computer and Communications Societies*, vol. 3, 2003, pp. 1583–1590.
72. —, "Game theory in communications: Motivation, explanation, and application to power control," in *Proceedings of Globecom 2001*, vol. 2, 2001, pp. 25–29.
73. —, "Selfish users in aloha: A game theoretic approach," in *Proc. of the Fall IEEE Vehicular Technology Conference*, vol. 3, October 2001, pp. 1354–1357.

Invited Presentations

1. "Network Utility, Virtualization, and Resource Allocation in Future Wireless Networks," Queen's University Belfast, 28 April 2016.
2. "Some Thoughts on Future Wireless Networks," Virginia Tech, 28 August 2015.
3. "The Future of Wireless Resource Management: Bootstrapping and Automated Negotiation," Queen's University Belfast, 20 June 2013.
4. "The Future of Wireless Resource Management: Bootstrapping and Automated Negotiation," National University of Ireland, Maynooth, 9 May 2013.
5. "The Future of Wireless Resource Management: Bootstrapping and Automated Negotiation," Dublin Institute of Technology, 30 April 2013.
6. "The Future of Wireless Resource Management: Bootstrapping and Automated Negotiation," University College Cork, 11 February 2013.
7. "The Future of Wireless Resource Management: Bootstrapping and Automated Negotiation," Dublin City University, 22 January 2013.

8. "The Future of Wireless Resource Management: Bootstrapping and Automated Negotiation," CTVR, Trinity College Dublin, 26 October 2012.
9. "Dynamic Spectrum Access Networks: From Dream to Reality," CTVR, Trinity College Dublin, 29 June 2009.
10. "Dynamic Spectrum Access Networks: From Dream to Reality," Summer Research Institute, School of Computer and Communication Sciences, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland, 26 June 2009.
11. "Dynamic Spectrum Access Networks: From Dream to Reality," RWTH Aachen University, Aachen, Germany, 25 June 2009.
12. "Building and Analyzing Cognitive Radio Networks," Graduate Seminar, Old Dominion University, 28 March 2008.
13. "RF/System Requirements for Cognitive Radio," presented at the *IEEE International Microwave Symposium*, 2007 (with C. W. Bostian and S. Raman).
14. "Analyzing Cognitive Radio Networks with Game Theory," MIT Lincoln Labs, Boston, Massachusetts, 12 July 2006.
15. "Analyzing Cognitive Radio Networks with Game Theory," Cornell University, Ithaca, New York, 10 July 2006.
16. "Analyzing Cognitive Radio Networks with Game Theory," Electrical Engineering Department, University of Southern California, Los Angeles, 27 June 2006.
17. "Analyzing Cognitive Radio Networks with Game Theory," Electrical Engineering Department, University of California Los Angeles, 26 June 2006.

Sponsored Research Projects

1. "NSC-16-RPP-04: LTE Output Power Characterization and LTE Output Power Aggregation Models," National Spectrum Consortium (VT is subcontract from Draper), \$995,409 from 2/2017–8/2018, Co-PI with 10% responsibility (\$99,541).
2. "NeTS: Medium: Implications of Receiver RF Front End Nonlinearity on Network Performance: Fundamentals, Limitations, and Management Strategies," National Science Foundation, \$830,356 from 5/2016–5/2019, Co-PI with 20% responsibility (\$166,071).
3. "NeTS: Small: Enabling Cellular Networks to Exploit Millimeter-wave Opportunities (NEMOs)," National Science Foundation, total project is \$1.4M with researchers in Ireland and the UK, VT portion is \$499,293 from 10/2015–9/2018, PI with 50% responsibility (\$249,647).
4. "Collaborative Research: Virtualized Wireless Networks and Their Impact on Capacity Markets," National Science Foundation, \$400,000 from 1/2015–12/2017, PI with 50% responsibility (\$200,000). Collaborative research with the University of Pittsburgh.
5. "Collaborative Research: EAGER: Global Spectrum Opportunity Assessment," National Science Foundation, \$124,056 from 2/2013 – 1/2016, PI with 100% responsibility.
6. "Game Theoretic Cross-Layer Control Mechanism for Tactical Networks," US Army CERDEC, \$69,768 from 6/2011 – 2/2013, PI with 100% responsibility.
7. "Economic Models for Collaborative Access Network Provisioning: US-Finland Collaboration," National Science Foundation, \$290,000 from 9/2011 – 8/2013, PI with 50% responsibility (\$145,000).
8. "NeTS: Small: Collaborative Research: The Flexible Internetwork Stack (FINS) Framework," National Science Foundation, \$348,641 from 9/2009 – 9/2012, PI with 90% responsibility (\$313,777). REU supplement of \$16,000 also obtained.

9. "Reasoning and Learning in Adaptive Wireless Networks," BBN Technologies (subcontract on DARPA-funded project), initial phase of \$219,870 from 9/2007 to 12/2008, Co-PI with 25% responsibility (\$54,968). A second phase of \$319,187 from 4/09 to 3/10 with MacKenzie as PI with 25% responsibility (\$79,797).
10. "A Discovery-Based First Year Electrical and Computer Engineering Course Emphasizing Real-World Projects that Benefit Society," National Science Foundation, \$150,000 from 1/2007 to 12/2008, 11% responsibility (\$16,500).
11. "Network Advisory Board for DARPA WANN Team," M/A-Com (subcontract on DARPA-funded project), \$25,000 from 12/2006 - 6/2007, 50% responsibility (\$12,500).
12. "NeTS-ProWIN: An Enabling Technology for Wireless Networks - The VT Cognitive Engine," National Science Foundation, \$749,796 from 9/2005 to 8/2008, 23% responsibility (\$172,453).
13. "A Prototype Public Safety Cognitive Radio for Universal Interoperability," National Institute of Justice. Initial project was for \$419,995 from 10/05 - 3/07, 33% responsibility (\$138,598). A first continuation was funded at \$725,000 from 2/2007 - 1/2008, 20% responsibility (\$145,000). A second continuation was funded at \$500,000 from 2/2008 to 1/2009, 20% responsibility (\$100,000).
14. "NeTS-NBD: Mobile Ad Hoc Networking Interoperability and Cooperation Challenge (MANIAC Challenge)," National Science Foundation, \$450,000 from 8/2005 to 7/2008, 50% responsibility (\$225,000).
15. "CAREER: Game Theoretic Models of Cooperation in Wireless Networks," National Science Foundation, \$400,000 from 6/2005 to 5/2012, 100% responsibility (\$400,000).

Courses Taught

1. ECE 2704: Signals and Systems (Fall 2018)
2. ECE 6604: Advanced Topics in Communications: Millimeter Wave Communications and Networking (Spring 2018)
3. ECE 3614: Introduction to Communication Systems (Fall 2017, Fall 2016, Fall 2015, Fall 2014, Spring 2014, Spring 2005, Fall 2003)
4. ECE 4614: Telecommunication Networks (Spring 2017, Spring 2014, Spring 2012, Spring 2010, Spring 2009, Spring 2007)
5. ECE 5544: Coding Theory (Spring 2017, Spring 2015, Fall 2009, Fall 2007, Spring 2004)
6. ECE 5634: Information Theory (Spring 2016, Fall 2013, Fall 2008, Fall 2006)
7. ECE 5605/BMES 5525: Stochastic Signals and Systems I (Fall 2015, Fall 2011, Fall 2005, Fall 2004)
8. ECE 2574: Introduction to Data Structures and Algorithms (Spring 2011)
9. ECE 5984: Special Studies: Cognitive Radios, Cognitive Networks, and Dynamic Spectrum Access (Spring 2008)
10. ECE 5565: Network Architectures and Protocols I (Fall 2005)
11. ECE 5606: Stochastic Signals and Systems II (Co-taught, Spring 2005)

Graduate Students Advised

1. Shubhajeet Chatterjee, Ph.D. expected 2019.
2. Kory Teague, M.S. 2018, with U.S. Naval Research Laboratory.
3. Amr Abdelfattah, Ph.D. 2017.
4. Sai Nisanth Bodepudi, M.S. 2017 (co-advised with Harpreet Dhillon).
5. Abdallah S. Abdallah, Ph.D. 2016, Assistant Professor at Penn State Behrend.

6. Ji (Tracey) Wang, M.S., 2016 (co-advised with Luiz DaSilva).
7. Cameron W. Patterson, M.S. 2014.
8. Varuni K. Sastry, M.Eng. 2014.
9. Ramakrishnan Kalyanaraman, M.Eng. 2014.
10. Jonathan Reed, M.S. 2014.
11. Amr Hilal, Ph.D. 2013, Head of Informatics Lab, Virginia Tech Library.
12. William Rogers, M.S. 2013, Engineer at BIT Systems.
13. Ryan Irwin, Ph.D. 2012 (co-advised with Luiz DaSilva), Engineering Fellow at Insight Data Science.
14. Frank Bieberly, M.S. 2012, Engineer at MIT Lincoln Labs.
15. Mohammed Baidas, Ph.D. 2012, Associate Professor at Kuwait University.
16. Uchenna Anyanwu, M.S. 2012.
17. Yongsheng Shi, Ph.D. 2010, Engineer at Qualcomm.
18. Umesh Shukla, M.S. 2010, Engineer at Apple.
19. Mark Silvius, Ph.D., 2009, Assistant Professor at Air Force Institute of Technology (co-advised with Charles Bostian).
20. Mustafa ElNainay, Ph.D. 2009, Professor at Alexandria University, Egypt.
21. Daniel H. Friend, Ph.D. 2009, Associate at Zeta Associates.
22. Ramakant S. Komali, Ph.D. 2008, Engineer at Cisco Systems.

Postdoctoral Associates Advised

1. Mohammad J. Abdel-Rahman, 2015–2017.

Other Teaching Activities

Designed an innovative research-focused special topics course (ECE 6604: Advanced Topics in Communications: Millimeter Wave Communications and Networking) with participation from students and faculty from Trinity College Dublin and Queen's University Belfast and leading researchers in this emerging area as guest speakers. This course was taught during Spring 2018.

Taught a nine-session short course titled "Game Theory for Wireless Engineers" at Trinity College Dublin during the 2012-2013 academic year.

Taught two invited short courses at the Centre for Wireless Communications, University of Oulu, Finland. In February 2008, taught a three-day short course titled "Cognitive Radios and Cognitive Networks" with Luiz DaSilva. In May 2009, taught a two-day short course titled "Resource Management for Dynamic Spectrum Access" also with Luiz DaSilva.

Designed an innovative research-focused special topics course (ECE 5984: Special Studies: Cognitive Radios, Cognitive Networks, and Dynamic Spectrum Access) with a significant international component (including participation from students at Trinity College, Dublin) and leading researchers in this emerging area as guest speakers. This course was taught during Spring 2008.

Developed a module to teach first-year electrical and computer engineering and computer science students about medium access control in a wireless network under NSF support. This module, which included a significant hands-on component and emphasized the importance of communications systems to society, was part of a redesign of ENGE 1104: Engineering Our Digital Future. This project was selected as an IEEE Real World Engineering Project, and is now available on the RWEF website.

Participated in major course revisions, including revisions of of ECE 3614: Introduction to Communication Systems, ECE 4614: Telecommunication Networks, and ECE 5544: Coding Theory.

Selected Professional Service

Area Editor, *IEEE Transactions on Communications*, 2013–present.

Associate Editor, *IEEE Transactions on Cognitive Communications and Networking*, 2014–present.

Workshops Co-Chair, *IEEE International Conference on Communications*, 2020

Associate Editor, *IEEE Transactions on Mobile Computing*, 2011–2016.

Tutorials Co-Chair, *IEEE International Symposium on Dynamic Spectrum Access Networks (DySPAN)*, 2014.

Dynamic Spectrum Management Track Chair, *International Conference on Cognitive Radio Oriented Wireless Networks (Crowncom)*, 2014.

Associate Editor, *IEEE Transactions on Communications*, 2011–2013.

Guest Editor, *IEEE Communications Magazine*, feature topic on Game Theory, September 2011.

Poster and Travel Grants Chair, IEEE International Symposium on Dynamic Spectrum Access Networks (DySPAN), 2011.

Co-chair, GameNets 2006: Workshop on Game Theory for Networks, Piza, Italy, Oct. 14, 2006.

Proposal Reviewer, National Science Foundation, Science Foundation of Arizona, Academy of Finland (Suomen Akatemia), and Army Research Office.

Member of Technical Program Committee for numerous international conferences, workshops and symposia.

Reviewer for numerous top-tier international journals.

Selected University Service

Area Chair of Communications Area, 2013–present, 2010–2012.

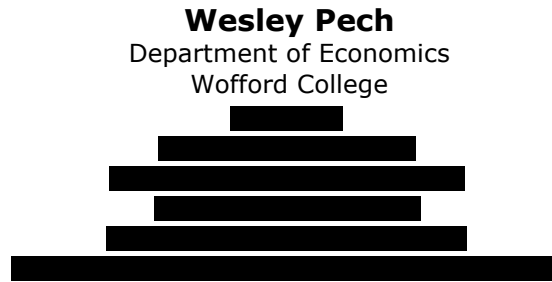
Associate Director of Wireless @ Virginia Tech, 2015–present.

Member, ECE Curriculum Committee, 2013–present, 2010–2012.

Co-Chair, Faculty Search Committee in Wireless, 2013–2014.

Graduate Recruiting Representative, Communications Area, 2013–2014, 2009–2010, 2008–2009.

EE Subcommittee Chair, ECE Curriculum Committee, 2011–2012.



Wesley Pech

Department of Economics
Wofford College

Positions Held

Associate Professor of Economics, Wofford College, 2015-

Assistant Professor of Economics, Wofford College, 2008-2015

Education

Ph.D. in Economics, University of Massachusetts, Amherst, 2008

IFREE Visiting Graduate Student Workshop in Experimental Economics, George Mason University, Arlington, VA, 2007

Institute for Humane Studies (IHS) Graduate Student Workshop on *Institutions and Human Nature*, University of Virginia, Charlottesville, VA, 2005

B.A. in Economics, Federal University of Parana, Parana, Brazil, 2003

Fields of Research

- Game Theory
- Behavioral Economics
- Economics of Crime
- Sports Economics
- Economics of Education

Teaching

Wofford College, 2008-present

Regular Courses

Advanced Game Theory (cross-listed with the Mathematics department)

Game Theory

Microeconomic Theory

Behavioral Economics

Sports Economics

Economics of Crime

Econometrics

Quantitative Critical Thinking

Economics of Education

Independent Studies

Mathematical Modelling in Economics

Publications, articles under review, and working papers

The Role of a Principal and Different Contract Types in Promoting Efficiency in Team Production: An Experimental Investigation, 2018. *Working Paper*.

Team Production, Residual Claimancy, and Inequity Aversion, 2018, under review at *Industrial Relations*.

Is the Beauty Premium Accessible to All? An Experimental Investigation (with Angela Povoá), 2018, under review at the *Journal of Economic Psychology*.

Manipulation of Beliefs: Implicit Deception in an Ultimatum Game Framework (with Angela Póvoa), 2018, forthcoming in *Business Ethics: A European Review*.

The Role You Play Changes Your Attitudes: Self-Serving Bias in a Public Goods Game with Punishment, 2018, under review at *Economics Letters*.

A Game-theoretic Model of Penalty Kicks in Soccer: The Case of the *Paradinha*, 2018, under review at *Journal of Sports Economics*.

Is Trust Reference-Dependent? An Experimental Analysis of Social Capital in Three Different Countries (with Angela Povoá), 2018, under review at *Journal of Behavioral and Experimental Economics*.

Gender Influence in the Decision-Making process: The Ultimatum Game (with Angela Póvoa, Maickel Maffezzolli, and Wesley da Silva), 2017, *Brazilian Administration Review*, 21(4), July-August, 2017.

A Game-Theoretic Model of Smoking Bans, 2017. *Working Paper*.

Incorporating Behavioral Models of Social Preferences into an Intermediate Microeconomic Theory Course, 2017, *Working Paper*.

Inflation, Unemployment, and Well-Being: A Behavioralist Assessment of the Inflation Targeting Regime (with Marcelo Milan), 2015, *Revista Paranaense de Desenvolvimento*, Curitiba, 36(128), 49-64.

Trust and Trustworthiness: A Game Theory Transcontinental Experiment (with Philip Swicegood); 2013, *International Business & Economics Research Journal*, 12(3), 311-318.

Behavioral Economics and the Basic Income Guarantee: A Critical Evaluation; 2010, *Basic Income Studies*, 5(2), 1-17.

Behavioral Economics and the Economics of Keynes (with Marcelo Milan); 2009, *Journal of Behavioral and Experimental Economics (formerly the Journal of Socio-Economics)*, 38(6), 891-902.

Work in Progress

Curriculum Vitæ: Wesley Pech

November, 2018

Should Punishment Fit the Crime? The Interaction between Deterrence and Incapacitation in a Model of Criminal Behavior

A Model of Soccer Diving

A Model of Online Dating

Bootleggers and Baptists revisited

Teaching Schelling's Collective Action Games in Microeconomics

Are Doping and Training Intensity Substitutes or Complements in Individual Sports?

Time-Consistent Individuals May Generate Time-Inconsistent Social Welfare Functions

A Model of Multidimensional Status

The Economics of Hunger Strikes

A Countersignaling Model of Mocking Behavior

Books

Critical Thinking (in Portuguese), with Mauricio Maurer. Manuscript submitted to Editora Record.

Advising

Main advisor of students who have been admitted to PhD programs in Economics (University of California-Davis, Clemson University, University of Colorado-Boulder, University of Notre Dame, Iowa State University, University of Massachusetts-Amherst, University of Georgia, University of Kentucky)

Economics Major Advisor (2009-)

Senior Seminar Coordinator (2015-)

Freshman Advisor (2009-2011), (2011-2013), (2016-2018), (2018-2020)

Service

Rank and Tenure Committee (Social Science Representative) (2017-)

Faculty Development Committee (2011-2014)

Cultural Affairs Committee (2010-2013)

Awards

Wofford College Summer Research Grant, 2017 (\$5,000)

Wofford College Summer Research Grant, 2014 (\$5,000)

Healey Research Grant, awarded to conduct laboratory experiments on the effects of control and residual claimancy on firm productivity, 2011 (\$11,305) (with Michael Carr and Philip Mellizo)

Winner of the 2010 Basic Income Grant Essay Prize

Curriculum Vitæ: Wesley Pech

November, 2018

Wofford College Summer Research Grant, 2010 (\$5,000)

William R. Waters Research Grant, awarded to conduct laboratory experiments on the effects of wealth inequality on the perception of intentions, 2009 (\$5,000)

Wofford College Summer Research Grant, 2009 (\$5,000)

Reviewer and Referee Assignments

Southern Economic Journal, Journal of Economic Behavior and Organization, Journal of Institutional Economics

Joseph C. Slater, Ph.D., P.E.



Education

<i>Institution</i>	<i>Concentration</i>	<i>Degree/Date</i>
State University of New York at Buffalo	Mechanical Engineering	Ph.D., 1993
State University of New York at Buffalo	Aerospace Engineering	M.S., 1992
State University of New York at Buffalo	Aerospace Engineering	B.S., 1989

Professional Credentials

Professional Engineer State Board of Registration for Professional Engineers and Surveyors, Ohio. Registration Number-66936, 2002.

Professional Experience

<u>Position</u>	<u>Institution</u>	<u>Dates</u>
Chair- Department of Mechanical and Materials Engineering	Wright State University	6/16-present
Director- Aerospace Professional Development Center	Wright State University	10/12-12/14
Director, Master of Science Engineering, Aerospace Systems Engineering	Wright State University	10/12-present
Associate Dean for Defense Aerospace Studies	Wright State University	12/11-12/13
Interim Associate Dean for Defense Aerospace Studies	Wright State University	8/11-11/11
Professor	Wright State University	9/08-Present
Associate Professor	Wright State University	9/99-8/08
Assistant Professor	Wright State University	9/93-8/99

Postdoctoral Research Assistant	State University of New York at Buffalo	6/93-8/93
Research Assistant	State University of New York at Buffalo	6/89-5/93

Professional Memberships

- American Society of Mechanical Engineers, Fellow
- American Institute of Aeronautics and Astronautics, Associate Fellow
- American Society for Engineering Education, Member
- Tau Beta Pi

Honors, Awards & Recognitions

<u>Organization</u>	<u>Award</u>	<u>Dates</u>
ASME	Fellow	2015
AIAA, Structural Dynamics, Mechanics, and Materials Organizing Committee	Outstanding service in organizing the SDM conference	2013
AIAA, Structural Dynamics, Mechanics, and Materials Organizing Committee	Outstanding service in organizing the SDM conference	2011
Dayton Affiliate Societies Council	Outstanding Engineers & Scientists Award, Education	2011
AIAA, Structural Dynamics, Mechanics, and Materials Organizing Committee	Outstanding service in assisting the SDM organizing committee in implementing ScholarOne for the first time	2010
Wright Lab/AFRL	Summer Faculty Fellowship	1994, 1995, 1999, 2000, 2009, 2010
Wright State University, College of Engineering & Computer Science	Faculty Service Award	2006, 2010

Wright State University, College of Engineering & Computer Science	Outstanding Teaching Award Finalist	1999, 2004, 2007, 2008
DARPA	Certificate of Award for outstanding contributions to the ISAT program	8/2007
Wright State University, College of Engineering & Computer Science	Nominee for Wright State University Distinguished Professor of Service	2005
AIAA	Associate Fellow	2001
Phillips Lab	Summer Faculty Fellowship	1996
SUNY Buffalo	Presidential Fellowship	1989-1993
NASA Langley	Graduate Fellowship	1989-1992

Professional Experience Elaborated

Wright State University

Chair (2016-present), Professor (2008-present), Associate Professor (1999-2008), Assistant Professor (1993-1999) - Department of Mechanical and Materials Engineering

- Director (and founder) of MS in Aerospace Systems Engineering (2013-present)
- Directed \$1.5M in research programs in the areas of modeling, control, and system identification of mechanical, aerodynamic, thermal, and electrical systems. Resulted in almost 70 technical articles and one book chapter.
- Wrote proposal and led development (Functional PI) of Ohio Mean's Interns and Co-ops I program resulting in \$1.3M in state funding. Led team to obtain commitment letters for over \$3.1M for internships in under one week.
- Led development of proposal for Ohio Mean's Interns and Co-ops II program resulting in \$800G (after planned reallocation of OMIC I funds from external expenditure to internal investment) in state funding. Led team to obtain commitment letters for over \$2.5M for internships in under one week.
- Supervised 18 graduate student (16 MS, 2 PhD) to completion as major advisor. A substantial number of students have become leaders in their industry or faculty (Manager at Goodrich Aerospace, Senior Director - Engineering at Ingersoll Rand, Master Engineer at Orbital Sciences Corporation, Assistant Professor at Petroleum Institute).
- Dayton Area's Affiliate Societies Council (that includes AIAA, ASME and other professional societies) recognized my contributions through the Outstanding Engineering and

Scientist Award for Education in 2011.

- Wright State's College of Engineering and Computer Science recognized my service impact by awarding me the Service Excellence Award twice, in 2006 and 2010.
- Developed and coordinated what has become one of the largest STEM outreach programs at WSU from 2000 to the present. Served as a STEM Fellow at the Montgomery County Regional STEM Center developing K12 STEM lesson plans meeting Ohio Department of Education guidelines (2008-2010).
- Received a Certificate of Award for Outstanding Contributions to the ISAT Program for work on the DARPA Innovative Satellite Antenna Program performing non-publishable research and analysis.
- Served as advisor to SWE for ten years personally advising many of the members, developing leadership skills, and providing and assisting with outreach opportunities targeting bringing young women into STEM fields.
- Served for several years as an *Associate Editor for Shock and Vibration* and the *International Journal of Modeling and Simulation*.
- Awarded two medals for service beyond supporting the AIAA SDM conference through transition to a new software system, overcoming and debugging the conference system, and serving on the AIAA conference software advisory committee, and a third for later service.
- Created the for-credit internship program within CECS, addressing a long observed need for both academically formalized experiential learning and greater support for connecting our students to industry. Developed a fiscally sustainable model for the intern program (see prior bullet) and programmed (with N. Klingbeil) the office to ensure greater interaction between intern office and students.
- Increased research activity to 100% of all tenured/tenure-track faculty in the department through encouragement and mentoring efforts.
- Substantially increased research proposal activity by building a supportive culture and environment.

Scholarship

Printed Scholarship

Journal Papers

1. Gillaugh, D. L., Kaszynski, A. A., Brown, J. M., Johnston, D. A., and Slater, J. C., "Accurate Strain Gauge Limits Through Geometry Mistuning Modeling," *J. Propul. Power*, Vol. 34, No. 6, November 2018, pp. 1401–1408
2. Gillaugh, D. L., Kaszynski, A. A., Brown, J., Beck, J., and Slater, J. C., "Mistuning Evaluation Comparison via As-Manufactured Models, Traveling Wave Excitation, and

- Compressor Rigs,” *Journal of Engineering for Gas Turbines and Power*, Vol. 141, No. 6, 11 2018, pp. GTP-18-1617. Available from: <http://dx.doi.org/10.1115/1.4042079>
3. Beck, J. A., Brown, J. M., Kaszynski, A. A., Slater, J. C., and Cross, C. J., “Mistuned Response Prediction of Dual Flow-Path Integrally Bladed Rotors With Geometric Mistuning,” *Journal of Engineering for Gas Turbines and Power*, Vol. 137, No. 6, 2015. Available from: <http://dx.doi.org/10.1115/1.4028795>
 4. Beck, J. A., Brown, J. M., Scott-Emuakpor, O. E., Cross, C. J., and Slater, J. C., “Dynamic Response Characteristics of Dual Flow-Path Integrally Bladed Rotors,” *Journal of Sound and Vibration*, Vol. 336, 2015, pp. 150 – 163. Available from: <http://dx.doi.org/10.1016/j.jsv.2014.10.011>
 5. Scott-Emuakpor, O. E., Schwartz, J., George, T. J., Holycross, C., Cross, C. J., and Slater, J. C., “Bending Fatigue Life Characterisation of Direct Metal Laser Sintering Nickel Alloy 718,” *Fatigue & Fracture of Engineering Materials & Structures*, Vol. 38, No. 9, Feb 2015, pp. 1105–1117. Available from: <http://dx.doi.org/10.1111/ffe.12286>
 6. Beck, J. A., Brown, J. M., Kaszynski, A. A., Cross, C. J., and Slater, J. C., “Geometric Mistuning Reduced-Order Models for Integrally Bladed Rotors With Mistuned Disk-Blade Boundaries,” *Journal of Turbomachinery*, Vol. 137, No. 7, 2015, pp. 11
 7. Beck, J. A., Brown, J. M., Cross, C. J., and Slater, J. C., “Component-Mode Reduced-Order Models for Geometric Mistuning of Integrally Bladed Rotors,” *AIAA Journal*, Vol. 52, No. 7, July 2014, pp. 1345–1356
 8. Beck, J. A., Brown, J. M., Cross, C. J., Slater, J. C., and Lamont, G. B., “Framework for Creating Digital Representations of Structural Components Using Computational Intelligence Techniques,” *AIAA Journal*, Vol. 52, No. 4, April 2014, pp. 855–866
 9. Beck, J. A., Brown, J. M., Slater, J. C., and Cross, C. J., “Probabilistic Mistuning Assessment Using Nominal and Geometry Based Mistuning Methods,” *Journal of Turbomachinery-Transactions of the ASME*, Vol. 135, No. 5, September 2013
 10. Shiryayev, O. V., Slater, J. C., and Brown, J., “Feasibility of Using Nonlinear Response Features for Crack Detection in Turbomachinery Components,” *AIAA Journal*, Vol. 51, No. 9, 2013, pp. 2290 – 2294. Available from: <http://dx.doi.org/10.2514/1.J052189>
 11. Shiryayev, O. V. and Slater, J. C., “Detection of Fatigue Cracks Using Random Decrement Signatures,” *Structural Health Monitoring*, Vol. 9, No. 4, 2010, pp. 347–360
 12. Shiryayev, O. V. and Slater, J. C., “Improved Structural Damage Identification Using Random Decrement Signatures: Application to FEM Data,” *Structural Control and Health Monitoring*, Vol. 15, No. 7, 2008, pp. 1006–1020

13. Balagangadhar, R. and Slater, J. C., "On the Convergence of Nonlinear Modes of a Finite Element Model," *Shock and Vibration*, Vol. 15, No. 6, 2008, pp. 655–664
14. Shirayayev, O. V., Page, S. M., Pettit, C. L., and Slater, J. C., "Parameter Estimation and Investigation of a Bolted Joint Model," *Journal of Sound and Vibration*, Vol. 307, No. 3-5, 2007, pp. 680–697
15. Shirayayev, O. V. and Slater, J. C., "Panel Flutter Model Identification Using the Minimum Model Error Method on the Forced Response Measurements," *ASME Journal of Vibration and Acoustics*, Vol. 128, No. 5, October 2006, pp. 635–645
16. Shirayayev, O. V. and Slater, J. C., "Aeroelastic System Identification Using the Minimum Model Error Method," *AIAA Journal of Guidance, Control, and Dynamics*, Vol. 29, No. 4, August 2006, pp. 936–943
17. Mortara, S. A., Slater, J. C., and Beran, P. S., "Analysis of Nonlinear Aeroelastic Panel Response Using Proper Orthogonal Decomposition," *Journal of Vibration and Acoustics-Transactions of the ASME*, Vol. 126, July 2004, pp. 416–421
18. Slater, J. C., Pettit, C. L., and Beran, P. S., "In-Situ Subspace Evaluation in Reduced Order Modelling," *Shock and Vibration*, Vol. 9, No. 3, 2002, pp. 105–122
19. Slater, J. C., Pettit, C. L., and Beran, P. S., "In-Situ Residual Tracking in Reduced Order Modelling," *Shock and Vibration*, Vol. 9, No. 3, 2002, pp. 105–121
20. Slater, J. C., Minkiewicz, G., and Blair, A. J., "Forced Response of Bladed Disk Assemblies – A Survey," *The Shock and Vibration Digest: Center for Intelligent Materials Systems and Structures*, Vol. 31, No. 1, 1999, pp. 17–24
21. Slater, J. C., "Application of the Nyquist Stability Criterion on the Nichols Chart," *Journal of Guidance Control and Dynamics*, Vol. 22, No. 2, March 1999, pp. 360–362
22. Wang, Y. and Slater, J. C., "A Comparison of Conventional and Impedance Methods for Modeling Piezoelectric Materials Actuation in Smart Structures," *Journal of Vibration and Acoustics*, Vol. 120, No. 3, 1998, pp. 685–688
23. Slater, J. C. and Inman, D. J., "On the Effect of Weak Non-Linearities on Linear Controllability and Observability Norms, an Invariant Manifold Approach," *Journal of Sound and Vibration*, Vol. 199, No. 3, January 1997, pp. 417–429
24. Slater, J. C., "A Numerical Method for Determining Nonlinear Normal Modes," *Nonlinear Dynamics*, Vol. 10, No. 1, 1996, pp. 19–30
25. Schulz, M. J., Thyagarajan, S. K., and Slater, J. C., "Inverse Dynamic Design Technique for Model Correction and Optimization," *AIAA Journal*, Vol. 33, No. 8, August 1995, pp. 1486–1491
26. Slater, J. C. and Inman, D. J., "Nonlinear Modal Control Method," *Journal of Guidance, Control, and Dynamics*, Vol. 18, No. 3, 1995, pp. 433–440

27. Banks, H. T., Wang, Y., Inman, D. J., and Slater, J. C., "Approximation and Parameter-Identification for Damped 2nd-Order Systems with Unbounded Input Operators," *Control-Theory and Advanced Technology*, Vol. 10, December 1994, pp. 873–892
28. Slater, J. C. and Inman, D. J., "Transfer Function Modeling of Damping Mechanisms in Distributed Parameter Models," *Mechanics Research Communications*, Vol. 20, No. 4, 1993, pp. 287–292

Books/Chapters

1. Cooley, P. E., Slater, J. C., and Shirayayev, O. V., *Simulating Fatigue Cracks in Healthy Beam Models for Improved Identification*, chap. 7: Fatigue of Materials II: Advances and Emergences in Understanding, Springer, 2012, pp. 87–101. Available from: <https://doi.org/10.1002/9781118533383.ch7>
2. Slater, J. C. and Agnes, G. S., *Nonlinear Modal Control Techniques and Applications in Structural Dynamic Systems*, Vol. 14, chap. 3: Structural Dynamic Systems, Computational Techniques and Optimization: Dynamic Analysis and Control Techniques, Gordon and Breach International Series in Engineering, Technology and Applied Science, 1999, pp. 107–168

Papers in Published Proceedings

1. Gillaugh, D. L., Kaszynski, A. A., Brown, J. M., Beck, J. A., and Slater, J. C., "Mistuning Evaluation Comparison via As-Manufactured Models, Traveling Wave Excitation, and Compressor Rigs," *ASME Turbo Expo 2018: Turbomachinery Technical Conference and Exposition*, No. GT2018-76888, 2018, p. V07CT35A039. Available from: <http://dx.doi.org/10.1115/GT2018-76888>
2. Slater, J. C. and Tidball, M. E., "Identification of Nonlinear Constitutive Properties of Damping Coatings," *2018 AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, 2018, p. 0184
3. Tidball, M. E., Slater, J. C., Brown, J. M., Langley, B., and George, T. J., "Modeling and Analysis of Damping Performance of Hard Coatings in Turbomachinery," *58th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, 2017, p. 1979
4. Gillaugh, D. L., Kaszynski, A. A., Brown, J. M., Johnston, D. A., and Slater, J. C., "Accurate Strain Gage Limits Through Geometry Mistuning Modeling," *58th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, 2017, pp. AIAA 2017-0865. Available from: <https://doi.org/10.2514/6.2017-0865>
5. Park, S., Shin, S., Kim, Y., Matson, E. T., Lee, K., Kolodzy, P. J., Slater, J. C., Scherreik, M., Sam, M., Gallagher, J. C., Fox, B. R., and Hopmeier, M., "Combination of Radar and Audio Sensors for Identification of Rotor-Type Unmanned Aerial Vehicles (UAVs)," *2015 IEEE SENSORS - Proceedings*, Busan, Korea, Republic of, 2015. Available from: <http://dx.doi.org/10.1109/ICSENS.2015.7370533>

6. Cooley, P. E. and Slater, J. C., "Investigation of a Vibration-Based Damage Identification Technique for Breathing Fatigue Cracks," *56th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, 2015, pp. AIAA 2015–0693
7. Henry, E. B., Brown, J. M., and Slater, J. C., "A Fleet Risk Prediction Methodology for Mistuned IBRs using Geometric Mistuning Models," *17th AIAA Non-Deterministic Approaches Conference*, 2015, pp. AIAA 2015–1144
8. Cooley, P. E. and Slater, J. C., "Experimental Investigation of a Perturbation Model for the Nonlinear Response of a Fatigue Cracked Beam," *55th AIAA/ASME/ASCE/AHS/SC Structures, Structural Dynamics, and Materials Conference*, 2014. Available from: <http://dx.doi.org/10.2514/6.2014-0490>
9. Scott-Emuakpor, O., George, T. J., Beck, J., Schwartz, J., Holycross, C., Shen, M. H., and Slater, J., "Material Property Determination of Vibration Fatigued DMLS and Cold-Rolled Nickel Alloys," *Proceedings of the ASME Turbo Expo*, Vol. 7A, International Gas Turbine Institute, Dusseldorf, Germany, 2014. Available from: <http://dx.doi.org/10.1115/GT2014-26247>
10. Beck, J. A., Slater, J. C., Brown, J. M., and Cross, C. J., "Dynamic Response Characteristics of Dual Flow-Path Integrally Bladed Rotors," *52nd Aerospace Sciences Meeting*, 2014, pp. AIAA 2014–0098
11. Scott-Emuakpor, O., Schwartz, J., George, T. J., Holycross, C., and Slater, J., "Bending Fatigue Life Comparison Between Dmls and Cold-Rolled Nickel Alloy 718," *Machinery Failure Prevention Technology (MFPT) Society Annual Conference, Virginia Beach, VA, May*, 2014, pp. 20–22
12. Yelamarthi, K., Slater, J., Wu, J., and Mawasha, P. R., "Engineering Management in an Interdisciplinary Senior Design Project," *Balkan Region Conference on Engineering and Business Education*, Vol. 1, De Gruyter Open, 2014, pp. 153–156
13. Beck, J. A., Brown, J. M., Cross, C. J., and Slater, J. C., "Geometric Mistuning Reduced Order Models for Integrally Bladed Rotors With Mistuned Disk-Blade Boundaries," *Proceedings of the ASME Turbo Expo*, Vol. 7 B, San Antonio, TX, United States, 2013. Available from: <http://dx.doi.org/10.1115/GT2013-94361>
14. Beck, J. A., Brown, J. M., Cross, C. J., and Slater, J. C., "Component Mode Reduced Order Models for Geometric Mistuning of Integrally Bladed Rotors," *AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, 2013
15. Cooley, P. E., Slater, J. C., and Shirayayev, O. V., "Improving Spectral Signature Profiles for Fatigue Crack Identification in Beams," *54th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, 2013, p. 1498
16. Beck, J. A., Brown, J. M., Cross, C. J., and Slater, J. C., "Probabilistic Mistuning Assessment Using Nominal and Geometry Based Mistuning Methods," *Proceedings of the ASME Turbo Expo*, Vol. 7, Copenhagen, Denmark, 2012, pp. 1085 – 1097. Available from: <http://dx.doi.org/10.1115/GT2012-68533>

17. Cooley, P. E., Slater, J. C., and Shirayayev, O. V., "Fatigue Crack Modeling and Analysis in Beams," *53rd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference 20th AIAA/ASME/AHS Adaptive Structures Conference 14th AIAA*, 2012, p. 1874
18. Erford, M., Henry, E., Nay, J., and Slater, J., "Analysis of a Free-Fall Ballute Vehicle," *53rd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference 20th AIAA/ASME/AHS Adaptive Structures Conference 14th AIAA*, 2012, p. 1516
19. Slater, J. C. and Doman, D., "Proper Modes for Modeling Flapping Dynamics of Ornithopters," *53rd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference 20th AIAA/ASME/AHS Adaptive Structures Conference 14th AIAA*, 2012, p. 1981
20. Shirayayev, O., Gaerke, J., Cooley, P., and Slater, J., "Application of the Campbell Diagram Concept to Identification of Fatigue Cracks in Bladed Disk Assemblies," *52nd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference 19th AIAA/ASME/AHS Adaptive Structures Conference*, 2011, p. 1938. Available from: <https://doi.org/10.2514/6.2011-1938>
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Conference Presentations (without paper)

1. Slater, J.C., "Mousai: An Open Source Harmonic Balance Solver for Nonlinear Systems," 13th ASME Dayton Engineering Sciences Symposium, Oct. 30, 2017, Dayton, OH.
2. Henry, E., and Slater, J.C., "Flight Dynamics System Identification of a Free Falling Ballute," 38th AIAA Dayton-Cincinnati Aerospace Sciences Symposium, Dayton, OH, USA, 2013.
3. Cooley, P., Slater, J.C., and Shirayayev, O.V., "Improving Spectral Signature Profiles for Fatigue Crack Identification in Beams," 38th AIAA Dayton-Cincinnati Aerospace Sciences Symposium, Dayton, OH, USA, 2013.
4. Cooley, P., Slater, J.C., and Shirayayev, O.V., "Simulating Fatigue Cracks in Healthy Models for Improved Identification," 8th Annual Dayton Engineering Science Symposium, Dayton, OH, USA, 2012. Best Paper: Solid Mechanics
5. Beck, J. A., Brown, J. M, and Slater, J. C., "Probabilistic Mistuning Assessment using Frequency and Geometry Based Mistuning Methods, 6th Annual Propulsion - Safety and Affordable Readiness Conference, Jacksonville, FL, USA, 2011.
6. Sharra, B, and Slater, J.C., "Zero Tension Release Mechanism," 5th Annual Dayton Engineering Science Symposium, October 2009.
7. Snyder, J, Slater, J.C., and Shirayayev, O.V., "High Altitude Balloon Free Fall Capsule Test," 5th Annual Dayton Engineering Science Symposium, October 2009.

8. Beck, J. A., Brown, J. M., and Slater, J. C., "Stochastic Mistuning Simulation of Integrally Bladed Rotors Using Component Mode Synthesis Methods," 34th AIAA Dayton-Cincinnati Aerospace Sciences Symposium, Dayton, OH, USA, 2009.
9. Shiryayev, O.V., and Slater, J.C., "Supplementary Investigations on Detection of Fatigue Cracks Using Randomdec Signatures from Experimental Data," 34th Dayton-Cincinnati Aerospace Sciences Symposium, Dayton, OH, Feb. 2009.
10. Meier, M., Shiryayev, O.V., and Slater, J.C., "Investigation of Nonlinear Vibration Features for Crack Detection in Fan and Turbine Blades and Disks," 34th Dayton-Cincinnati Aerospace Sciences Symposium, Dayton, OH, Feb. 2009, **Best Technical Presentation award.**
11. Shiryayev, O.V., and Slater, J.C., "Structural Health Monitoring Using Random Decrement Signatures: Experimental Results," 33rd Dayton-Cincinnati Aerospace Sciences Symposium, Dayton, OH, Feb. 2008.
12. Allen, C., and Slater, J.C., "Global Optimization of an Aircraft Thermal Management Systems Using a Genetic Algorithm," 33rd Dayton-Cincinnati Aerospace Sciences Symposium, Dayton, OH, Feb. 2008.
13. Nicholson, B., Page, S., Dong, H., and Slater, J.C., "Design of a Flapping Quad-Winged Micro Air Vehicle," 37th AIAA Fluid Dynamics Conference and Exhibit, no. AIAA-2007-4337, AIAA, June 2007.
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15. Shiryayev, O.V., and Slater, J.C., "Structural Health Monitoring Using Randomdec Signatures: Application To FEM Data," 32nd Annual Dayton-Cincinnati Aerospace Science Symposium, March, 2007.
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17. Shiryayev, O.V., Wolff, J.M., and Slater, J.C., "Power Extraction From Turbine Engines - Numerical Simulations," 2nd Annual Dayton Engineering Sciences Symposium, October 2006.
18. Esperanza, C., Page, S.M., and Slater, J.C., "Investigation of Vibrational Behavior Control Using Magneto-Rheological Fluids," 2nd Annual Dayton Engineering Sciences Symposium, October 2006.
19. Maddux, M., "Using In-Situ Error Tracking For Mode Selection in Proper Orthogonal Decomposition Reduced Order Modeling," 2nd Annual Dayton Engineering Sciences Symposium, October 2006.
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28. Yelamarthi, K., Mawasha, P.R., Wolff, J.M., Slater, J.C., and Wu, Z., "Wright State University High Altitude Balloon Project," The Great Midwestern Space Grant Region's Small Balloon Conference, September 2006.
29. Shiryayev, O.V., Wolff, J.M. and Slater, J.C., "Turbine Engine Modeling," 31st Dayton-Cincinnati Aerospace Sciences Symposium, March, 2006.
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33. El-Ashry, M., Slater, J.C., Young, D., and Seetharaman, G., "3-D Displays Based on Deformable Polydimethylsiloxane (PDMS) Lenticulars," *Materials Science & Technology 2005 Conference and Exhibition*, ASM/ACerS/AWS/AIST/TMS, Sept. 25-28, Pittsburg,

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47. Wang, Y., and Slater, J.C., "Analysis of Piezoelectric Actuators Using a PDE Model," *1995 ASME Design Technical Conference*.

Other Miscellaneous Presentations given since 2000

1. Slater, J.C., "Wright State University High Altitude Balloon Team: Our Lab is at 100,000 ft.," AIAA Dayton-Cincinnati chapter *Lunch 'n' Learn*, March 22, 2013.
2. Slater, J.C., "Insect-Inspired Mechanism for Ornithopter Flight Control", AFRL/VA, 2010.
3. Slater, J.C., Shiryayev, O.V., and Page, S.M., "Structural Damping and Joints - Guessing is No Longer an Option," Dayton chapter of the Society of Tribology and Lubrication Engineers, Jan. 11, 2006.
4. Slater, J.C., "In-Situ Subspace Evaluation in Reduced Order Modeling," AFRL/VA, 2000.

Other Public Visibility

1. "Wright State University Explores New Methods For Damage Detection in Turbomachinery Components," *Insight (ABAQUS Magazine)*, 2010, No. 1.

Professional Conference Presentations by my Students (without advisor attribution)

1. Maddux, M., "Using In-Situ Error Tracking For Mode Selection in Proper Orthogonal Decomposition Reduced Order Modeling," 2nd Annual Dayton Engineering Sciences Symposium, October 2006.
2. Corbett, M., Williams, J., and Holtkamp, J., "Design of a High Altitude Balloon Payload," 2nd Annual Dayton Engineering Sciences Symposium, October 2006.
3. Holtkamp, J.C., Williams, J.M., and Corbett, M., "Design of High Altitude Balloon," 31st Dayton-Cincinnati Aerospace Sciences Symposium, March, 2006.
4. Corbett, M., "High Altitude Balloon Flight Path Prediction," 31st Dayton-Cincinnati Aerospace Sciences Symposium, March, 2006.

Published Software - technical

1. Slater, J.C., "Engineering Vibration Toolbox for Matlab 7.x," 2006, for use with *Engineering Vibration*, Prentice Hall.
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3. Slater, J.C., "Engineering Vibration Toolbox, 2nd Edition," *Engineering Vibration*, Prentice Hall.

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4. Slater, J.C., and Leitner, J.A., *ctrb.m* and *obsv.m* of the MATLAB *Controls Toolbox*, 1996.
5. Slater, J.C., and Leo, D.J., “Vibration Toolbox,” *Engineering Vibration*, Prentice Hall, New York, 1993.

Funded Grants and Contracts

1. Slater, J.C., and Cooley, P.E., “Fatigue Crack Identification from Nonlinear Spectral Features in Bladed Disks,” DAGSI, \$27,000, 11/20/14 (continuation).
2. Sudkamp, T., Slater, J.C., and Miller, J., *Ohio Means Interns and Co-ops: Ohio Board of Regents*, \$800G + industry cost share of \$2.5M (TBD), 2014.
3. Slater, J.C., “OMIC - D’Angelo Technologies, LLC,” \$2,851, 7/13.²
4. Slater, J.C., “Turbine Engine Integrity Research,” Universal Technology Corporation, \$21,420, 1/13.
5. Sudkamp, T., Slater, J.C., and Miller, J., *Ohio Means Interns and Co-ops: Ohio Board of Regents*, \$1,304,631 + industry cost share of \$1.7M-\$3.2M (TBD), responsible for over 90% of internship commitments, 1/13-12/13.
6. Slater, J.C., and Cooley, P.E., “Fatigue Crack Identification from Nonlinear Spectral Features in Bladed Disks,” DAGSI, \$69,480, 6/12-6/13.
7. Fendley, R.D., and Slater, J.C., “WSARC Defense Aerospace Graduate Studies Institute Project,” State of Ohio, \$4,000,000, 7/11-6/13.
8. Slater, J.C., and Gaerke, J.P., “Application of the Campbell Design Concept to Identification of Fatigue Cracks in Bladed Disk Assemblies,” DAGSI, \$57,853, 6/10-5/11.
9. Slater, J.C., and Shirayayev, O.V., “Sensitivity Studies of Nonlinear Response for Crack Detection in Fan and Turbine Disks,” UTC/AFRL, \$50,000, 8/09-5/10.
10. Shirayayev, O.V., and Slater, J.C., “Vibration Tests of ITCN BCIT Card Cage Assembly,” ITCN Inc., \$2,021, 5/09-12/09.
11. Mawasha, P.R., Slater, J.C., Wolff, J.M., and Wu, Z., “Enhancing Integrated Technology and Interdisciplinary Based Engineering Education Through the High Altitude Balloon (HAB) Experience,” NSF CCLI, \$147,568, 9/08-8/11.
12. Shirayayev, O.V., and Slater, J.C., “Investigation of Candidate Features for Crack Detection in Fan and Turbine Disks,” UTC, \$48,496, 8/08-11/08.
13. Meier, M., and Slater, J.C., “Crack Detection in Blades Using Random Decrement Signatures From Experimental Data,” DAGSI, \$56,720, 3/08-3/09.

¹Name was changed to resolve confusion with another toolbox with a similar name

²Tied to the Ohio Means Interns and Co-ops I program grant.

14. Mawasha, P.R., Wolff, J.M., and Slater, J.C., "Student BalloonSat Program," Ohio Space Grant Consortium, \$10,000, 4/06-4/07.
15. Slater, J.C., "Vibration Control of Turbo-Machinery Blade Vibration," UTC/AFRL, \$40,000, 1/07-11/07.
16. Wolff, J.M., and Slater, J.C., "Engine Health Monitoring via Dynamics Engine Model Failure Diagnostics," PCKA/AFRL, \$52,000, 7/13/06-7/12/07.
17. Slater, J.C., "Semi-Active Vibration Control of Fan Blades," UTC/AFRL, \$25,000, 5/1/06-6/30/07.
18. Slater, J.C., "ISAT Government SEIT Structures Reference Designs and Analytical Models," SAIC/DARPA, \$11,529, 9/13/04-6/30/06.
19. Slater, J.C., "Turbine Engine Modeling," PCKA, \$8,500, 1/12/05-2/28/06.
20. Slater, J.C., Menart, J.A., "Semi-Active Vibration Control of Fan Blades," UTC, \$25,000, 6/1/05-5/31/06.
21. Wolff, J.M., and Slater, J.C., "Power Extraction From a Gas Turbine Engine in Flight," PCKA, \$65,717, 4/1/05-6/30/06.
22. Slater, J.C., "ISAT Government SEIT Structures Reference Designs and Analytical Models," SAIC, \$12,957, 12/01/04-3/31/05.
23. Slater, J.C., "ISAT Government SEIT Structures Reference Designs and Analytical Models," SAIC, \$944, 9/13/04-9/30/05.
24. Slater, J.C., "ISAT Government SEIT Structures Reference Designs and Analytical Models," SAIC, \$18,289, 9/13/04-6/30/06.
25. Slater, J.C., "ISAT Government SEIT Structures Reference Designs and Analytical Models," SAIC, \$13,958, 9/01/04-3/31/05.
26. Wolff, J.M. and Slater, J.C., "Power Extraction From a Gas Turbine Engine in Flight," PCKA, \$70,000, 4/9/04-12/24/05.
27. Slater, J.C., and Wolff, J.M., "Parallel Reduced-Order, Modeling/In Situ Error Correction in CFD," NSF, \$25,740, 6/1/03-5/31/04.
28. Slater, J.C., "Quantifying Uncertainty in Structural Response," Anteon (AFRL/VA/AFOSR), \$156,825, 10/01/02-9/30/04.
29. Slater, J.C., "Validation and Enhancement to Wildcat - POD, AFRL/UTC," \$12,870, 6/03-12/03.
30. Slater, J.C., "Semi-Active Control of Fan Blades, Phase 3," AFRL/UTC, \$24,986, 1/04-12/04.
31. Slater, J.C., "Semi-Active Control of Fan Blades, Phase 2," AFRL/UTC, \$15,876, 6/03-12/03.

32. Slater, J.C., "Semi-Active Control of Fan Blades," AFRL/UTC, \$9,192, 3/03-6/03.
33. Slater, J.C., "Intergovernmental Personnel Agreement," AFIT, \$23,980, 6/02.
34. Slater, J.C., "Intergovernmental Personnel Agreement," AFIT, \$18,430, 9/02-12/02.
35. Slater, J.C., "P-POD: A Python-Based Generic Proper Orthogonal Decomposition Simulation Control Tool," UTC, \$36,405, 5/02.
36. Slater, J.C., "Development of a Novel Method for Evaluating Material Behavior Under Turbine Engine Operating Conditions," DAGSI, \$90,077, 7/1/00-6/30/02.
37. Slater, J.C., "Forced Response Enhancement to the Engine Structural Integrity Program Guidelines II," UTC, \$12,753, 8/11/00-2/15/01.
38. Slater, J.C., "Forced Response Enhancement to the Engine Structural Integrity Program," Universal Technology Corp., \$13,473, 8/99.
39. Slater, J.C., "Turbomachinery Dynamics Experimentation," Universal Technology Corp., \$14,256, 6/1/99.
40. Slater, J.C., "Electromechanical Engraving Device," Ohio Electronic Engravers: extension, \$5,980, 9/1/98.
41. Slater, J.C., "Field-of-View Research IPA," Naval Aeromedical Research Laboratory, \$10,000, 6/1/98.
42. Slater, J.C., "Experimental Study of Wave Propagation," Universal Technology Corp., \$5,000, 6/15/98.
43. Slater, J.C., "Electromechanical Engraving Device," Ohio Electronic Engravers, 3 months, \$7,535, 4/14/98.
44. Slater, J.C., Srinivasan, R., and Weiss, I., "Spring Manufacturer's Institute," SMI, Inc, \$10,080, 7 months, 1/13/98.
45. Slater, J.C., "Analysis of Stress Wave Propagation in Bladed Disk Assemblies," Universal Technology Corp., \$26,372, 6/17/97.
46. Slater, J.C., "A Design Strategy for Preventing High Cycle Fatigue," RDL (AFOSR), \$25,000, 10/25/95.
47. Lieh, J., and Slater, J.C., "Advanced 3D Camera Systems," Ohio Infrastructure Institute, \$80,920, 6/1/94.

Students Advised (MS/PhD)

1. MacKenzie Tidball, "Identification of Nonlinear Constitutive Properties of Damping Coatings," 2018, MS.
2. Emily Henry, "Stochastic Modeling of Geometric Mistuning and Application to Fleet

- Response Prediction,” 2014, MS.
3. Masoud Zarepoor, “Bulls-Eye Structure with a Sub-Wavelength Circular Aperture,” 2013, MS.
 4. Joseph Beck, “Fundamental Understanding of Blisk Analytical Response,” 2013, Ph.D.
 5. Joshua Mark, “Analytical and Experimental Vibration Analysis of Variable Update Rate Waveform Generation,” 2011, MS.
 6. Joseph Beck, “Stochastic Mistuning Simulation of Integrally Bladed Rotors using Nominal and Non-Nominal Component Mode Synthesis Methods,” 2009, MS.
 7. Anusha Anisetti, “Non-linear Shunting of Piezo-actuators for Vibration Suppression,” 2008, MS.
 8. Chris Allen, “Global Optimization of an Aircraft Thermal Management System through Use of a Genetic Algorithm,” 2008, MS.
 9. Oleg Shiryayev, “Improved Structural Health Monitoring Using Random Decrement Signatures,” 2008, PhD.
 10. Jason Hansel, “The Influence of Thickness on the Complex Modulus of Air Plasma Sprayed Ceramic Blend Coatings,” 2008, MS.
 11. Steve Page, “Investigation into the Behavior of Bolted Joints,” 2006, MS.
 12. Mike Maddux, “Using In-Situ Error Tracking For Mode Selection in Proper Orthogonal Decomposition Reduced Order Modeling,” 2006, MS.
 13. Brian Runyon, “The Influence Of Boundary Conditions And Aspect Ratio On Approximate Solutions For Constrained Layer Damping Treatments On Beams And Plates,” 2004, MS.
 14. Anil Valevate, “Semi-Active Vibration Control of a Beam Using Embedded Magneto-Rheological Fluids,” 2004 MS.
 15. Oleg Shiryayev, “Investigation Of The Appropriate Excitation For Identification Of Non-linear Distributed Parameter Systems Using The Minimum Model Error Method,” 2003, MS.
 16. Mohamed Qureshi, “Robust Semi-Active Control of a Dry Friction Damper for a Cantilever Beam,” 2001, MS.
 17. Anil Gopinathan, “Robust Nonlinear System Identification Using Correlation Techniques,” 1999, MS.
 18. Andrew Blair, “A Design Strategy for Preventing High Cycle Fatigue by Minimizing Sensitivity of Bladed Disks to Mistuning,” 1997, MS.
 19. Ramesh Balagangadhar (Kurup), “On the Convergence of Nonlinear Modes Using the Finite Element Method,” 1997, MS.

Consulting

1. Expert witness, Martin, McCarty, Wright & Roach, 2009.
2. Research Scientist, Paul C. Krause and Associates, 2005-2009.
3. Expert Witness, Wheelchair Tip Over Dynamics, Schuck Law Offices, 1999.
4. Deployment and Reorientation Modeling of the Innovative Space Antenna Technology program, SAIC, 2003.

Service and Academic Outreach

Associate Editor:

1. *Shock and Vibration* Journal, 2004-2011.
2. *International Journal of Modeling and Simulation*, 2004-2008.

Professional Society Committees

1. AIAA Structural Dynamics Technical Committee, 2004-present.
Major contributions:
 - (a) AIAA SciTech Aerospace Design & Structures Technical Chair, 2019.
 - (b) AIAA SciTech Aerospace Design & Structures Deputy Technical Chair, 2018.
 - (c) Dynamic Specialists Conference Technical Discipline Chair (formerly called General Chair), 2016 SciTech
 - (d) Dynamic Specialists Conference Technical Chair (**split handling 187 abstracts**, reviews, and organized sessions), 2013 (SDM 54)
 - (e) Representative to SDM Program committee (**split handling 195 abstracts**, reviews, and organized sessions), 2011 (SDM 52)
 - (f) Hosted 2005 Fall Committee Meeting
 - (g) Chair: **website committee**, 2004-2010
 - (h) Member: Outreach committee - Converted award-winning **outreach DVD** for release Spring 2006 (1.0) and Spring 2007 (1.1) to web
 - (i) Chaired sessions (see below)
2. AIAA Dayton-Cincinnati Aerospace Sciences Symposium organizing committee, 2008, 2009, 2010.
 - (a) Publication chair, 2008.
 - (b) Publication co-chair, 2009, 2010.
3. AIAA Conference Software Advisory Committee, 2011-2012.

4. Member AIAA Gossamer Spacecraft Program Committee (2002-present)
Major contributions:
 - (a) Website editor
 - (b) Chaired sessions (see below)
5. Montgomery County Regional STEM Center STEM Fellow.
Developed K12 STEM lesson plans tied to local research and industry needs and meeting Ohio Department of Education guidelines, 2008-2010.

Review Panels

- Proposal review
 1. NASA Large Aperture Research Program, panel **chair**, 2003.
 2. NSF Dynamic Systems & Controls, panel member, 2004.
 3. NASA New Millennium ST-9 Program, panel member, 2005.
- Program review
 1. Western Michigan University: STEP Advisory Board, 2012-present.

Reviewer:

1. Journals
 - (a) AIAA Journal
 - (b) Shock and Vibration
 - (c) AIAA Journal of Guidance, Control and Dynamics
 - (d) ASME Journal of Vibration and Acoustics
 - (e) International Journal of Modeling and Simulation
 - (f) Journal of Engineering for Gas Turbines and Power
 - (g) Journal of Intelligent Material Systems and Structures
 - (h) Journal of Nonlinear Mechanics
 - (i) AIAA Journal of Propulsion and Power
 - (j) Journal of Vibration and Control
 - (k) Mathematical and Computer Modeling
 - (l) Mechanical Systems and Signal Processing
 - (m) Nonlinear Dynamics
2. Books

- (a) Prentice Hall: Engineering Dynamics, 1st Edition, Tongue.
- (b) Prentice Hall: Engineering Mechanics: Statics, 1st Edition, Soutas-Little and Inman
- (c) Prentice Hall: Engineering Vibration, 2nd edition: Statics, Soutas-Little and Inman
- (d) Burkhauser: First Steps in L^AT_EX, George Gratzer
- (e) McGraw Hill: Engineering Dynamics: Gray, Costanza and Plesha 1st draft
- (f) McGraw Hill: Engineering Statics: Gray, Costanza and Plesha 2nd draft
- (g) McGraw Hill: Engineering Dynamics: Gray, Costanza and Plesha 2nd draft

3. Conferences

- (a) International Gas Turbine Institute
- (b) AIAA SDM Conference, 40th, 41st, 42nd, 43rd, 45th, 46th, 47th, 48th, 50th
- (c) AIAA Gossamer Spacecraft Forum, 4th, 5th, 6th
- (d) AIAA Gossamer Spacecraft Forum Best Paper committee, 4th

Conference sessions chaired:

- 1. AIAA SDM-21 at 41st SDM Conference, 2000
- 2. AIAA SDM at 43rd SDM Conference, 2002
- 3. AIAA SDM at 44th SDM Conference, 2003
- 4. AIAA SDM at 45th SDM Conference, 2004
- 5. AIAA SDM-59 at 45th SDM Conference, 2004
- 6. AIAA GSF-6 at SDM Conference 4th Gossamer Spacecraft Forum, 2004
- 7. AIAA SDM-42 at 46th SDM Conference, 2005
- 8. AIAA SDM-59 at 46th SDM Conference, 2005
- 9. AIAA GSF-3 at 46th SDM Conference 6th Gossamer Spacecraft Forum, 2005
- 10. AIAA SDM-26 at 47th SDM Conference, 2006
- 11. AIAA GSF-8 at 47th SDM Conference 7th Gossamer Spacecraft Forum, 2006
- 12. AIAA SDM-9 at 48th SDM Conference, 2007
- 13. AIAA GSF-4 at 48th SDM Conference 8th Gossamer Spacecraft Forum, 2007
- 14. AIAA SDM-75 at 49th SDM Conference, 2008
- 15. AIAA SDM-34 at 50th SDM Conference, 2009

16. AIAA SDM-72 at 50th SDM Conference, 2009
17. MFPT 2009 Session 4A- Health Management for Maintenance and Decision Support, 2009

On-Line Publications

1. \LaTeX on Mac Wiki. 2002-2013
The principle resource for \TeX users on the Macintosh. (removed from web since)
2. Slater, J.C., Getting Started With \TeX on MacOS X, Oct. 2003-2014. (removed from web outdated)
3. [My blog](#) with numerous tech and engineering related articles.

Committee service:

Department

1. Department Faculty Search Committees, 1994-1996, 1997-2002, 2007-2008, 2011-2013
2. Department Curriculum Committee, 1994-1996, 2003-2011 (chair 2006/2007-2011)
 - (a) Introduced program change to eliminate “soft” elective courses that were being misused by students
 - (b) Reviewed and approved Materials Minor program
 - (c) Participated in incorporation of design throughout the program as prescribed by ABET
 - (d) Oversaw largest overhaul of Mechanic and Materials Engineering programs in 14 years.
 - (e) Undergraduate semester transition committee, chair 2009-present
 - (f) Department internal advisory board, 2009-2010
3. Assistant to the Chair position search committee, chair, 2006 (2 times)
4. Student Recruitment position search committee, chair, 2006
5. Department Graduate Admissions Committee, 1997-2002
6. Honors and Awards Committee, 1997-1998

College

1. College Library Committee, 1994-98 (Chair, 1996/97)
 - (a) Initiated library copying service concept.
 - (b) Developed web page for searching local resources focusing on the needs of CECS that streamlines the search process

2. College Curriculum Committee, 1996-1999, 2010 (Scribe 1996/7, Chair 1997-1999, 2010)
 - (a) Invited speakers from Math dept. to speak about courses they teach that are taken by our students (Calc. and DEs).
 - (b) Continued cooperation with Math dept. by initiating dept. by dept. evaluation of skills students need to acquire in Math courses.
 - (c) Oversaw two minors through the committee.
 - (d) Oversaw bulk of semester transition business
3. College PhD Program Coordinating Committee, 1996-2004
4. College PhD Program Student Affairs Committee, 2004-present
 - (a) Assisted in the formulation of the Robotics and Controls Area program requirements.
5. College Teaching Committee, 1997-1999 (Scribe 1997/98)
6. College Steering Committee, 1999-2001, 2003-2009, Chair 2004-2005, 2005-2006, 2008-2009.
 - (a) Developed college bylaws
 - (b) Developed college awards procedures

University

1. NTE faculty Bargaining Agreement Negotiation Committee (Administration)
2. University Undergraduate Curriculum and Policies Committee, 1996-1999, 2010-2011
3. University Legal Subcommittee of Campus-Wide Information System Advisory Committee, 1996-97
4. Graduate Council, 1996-1999
5. Faculty Senate, 1999-2001, *Engineering and Computer Science College Graduation Marshall, Fall 1999*
6. University Ad Hoc Committee for Undergraduate Academic Program Review, 2005-2006
7. University Ad Hoc General Education Semester Transition Committee, 2009

Advising

- Advisor of Society of Women Engineers, WSU student chapter, 2000-2009, 2010-2011.

Software Donated to the Scientific Community

1. MacGzip package, MATLAB code for gzipping and un-gzipping files. (prior to becoming built-in to Matlab)
2. L^AT_EX style, bibliography, and example files for Society of Experimental Mechanics International Modal Analysis Conference. Adopted as standard format for conference papers for IMAC XVII conference.
3. poly2tex.m and matrix2tex.m: These octave/matlab functions take polynomials/matrices and convert them into strings that you can paste into your L^AT_EX document as ready-formatted equations.
4. [array_to_latex](#): A simple Python module for creating LaTeX arrays from NumPy arrays. 32,126 downloads today.
5. [Mousai](#): A Python harmonic balance solver. 17,495 downloads today.
6. [vibrationtesting](#): A Python module for signal processing, modal analysis (from data), model solution (from linear second order matrix form) and model updating. 7,661 downloads today.

Software Donated to Education

1. Trebuchet Designer: A graphical user interface code written in MATLAB for simulating the motion and predicting the projectile trajectory of a trebuchet. The code was written for use in the ME dept. course “Introduction to Engineering Design.”
2. [Vibration Toolbox](#): A selection of 43 MATLAB and Octave codes for use in education of vibration phenomenon. Supported since 1991. Originally sponsored by the author of the corresponding text, it is now maintained pro-bono.
3. [vibrationtoolbox](#): A Python module for vibration education loosely based on the Matlab version from 1991. 24,252 downloads today.

Curriculum Vitae

Darron L. Smith, Ph.D., PAS
 Professor
 Department of Agriculture
 Eastern New Mexico University

EDUCATION

Ph.D.	West Virginia University Major: Reproductive Physiology	2005
B.S.	The Pennsylvania State University Major: Dairy and Animal Science	1999

PROFESSIONAL GOAL

The ultimate goal of my career is to increase students’ ability to learn and become well-rounded graduates. I believe I can accomplish this goal, as an administrator, through the development of policy, with the student in mind, which promotes student retention and success. Further, the education of undergraduate and graduate students with courses designed to promote thought, discussion, and problem solving are key. Finally, through experiential learning, train the students in research techniques that will assist them in future endeavors.

GRANTSMANSHIP

- 2018 Principle Investigator; United States Department of Agriculture Competitive Research Grant entitled: *Promoting Hispanic Students in Sustainable Agriculture, Food Preparation, and Educating the Non-Farm Public on Healthy Eating to Help Combat Childhood Obesity*. Funding Requested **\$249,918.40** for two years. Outcome: **Pending**.
- 2015 Principle Investigator; United States Department of Agriculture Competitive Research Grant entitled: *Sustainable food production, preparation and education for the prevention of childhood obesity and experiential learning opportunities for undergraduates*. Funding Requested **\$249,980.66** for two years. Outcome: **Funded**.
- 2014 Principle Investigator; Sapphire Energy, Inc. sub-award United States Department of Energy, Grant entitled: *The Development of an Animal Feed or Biogas from the Leftover Biomass resulting from the Renewable Petrochemical Process*. Funding Requested **\$130,000.00** for one year. Outcome: **Funded**.
- 2012 Principle Investigator; United States Department of Agriculture Challenge Grant entitled: *Enhancing High School Students Career Awareness and Development through an Experiential Learning Summer Program*. Funding Requested **\$71,045.66** for two years. Outcome: **Funded**.
- 2011 Principle Investigator; Eastern New Mexico University Internal Research Grant, entitled: *Insulin-induced Gene Expression and Proliferation Rates of Separated Corpus Luteal Cells*. Funding Requested **\$2,985.85** for one year. Outcome: **Funded**.

- 2010 Principle Investigator; United States Department of Agriculture Competitive Research Grant entitled: *Enhancing Career Awareness and Develop through Experiential Learning*. Funding Requested **\$280,000.00** for two years. Outcome: **Funded**.
- 2010 Principle Investigator; Eastern New Mexico University Internal Research Grant, entitled: *Effect of Amino Acid Supply and Growth Hormone on Insulin-Like Growth Factor-1 Production and Gene Expression in Cultured Mouse Hepatocytes*. Funding Requested **\$2,965.75** for one year. Outcome: **Funded**.
- 2010 Principle Investigator; Sapphire Energy, Inc. sub-award United States Department of Energy, Grant entitled: *The Development of an Animal Feed or Biogas from the Leftover Biomass resulting from the Renewable Petrochemical Process*. Funding Requested **\$511,524.00** for two years. Outcome: **Funded**.
- 2009 Principle Investigator; Eastern New Mexico University Internal Research Grant, entitled: *Effect of Post-Calving Prostaglandin F_{2α} Injection during the Voluntary Waiting Period, and its effect on Reproductive Performance*. Funding Requested **\$3,000.00** for one year. Outcome: **Funded**.
- 2007 Principle Investigator; Eastern New Mexico University Internal Research Grant, entitled *Effect of Somatotropin (GH) on Concentrations of Insulin-Like Growth Factor 1 (IGF-1) and the Clearance of Progesterone by the Hepatocyte*. Funding Requested **\$2,956.00** for one year. Outcome: **Funded**.
- 2007 Principle Investigator; Eastern New Mexico University Internal Research Grant, entitled *Effect of Insulin-Like Growth Factor 1 (IGF-1) on the Clearance of Progesterone by the Hepatocyte*. Funding Requested **\$1,484.15** for one year. Outcome: **Funded**.
- 2007 Principle Investigator; Perma-Guard Company grant, entitled *Effects of Diatomaceous Earth on Fly Larvae*. Funding Requested **\$3,600.00** for one year. Outcome: **Funded**.
- 2006 Principle Investigator; Eastern New Mexico University Internal Research Grant, entitled *Concentration of progesterone from day1 through 45, post breeding with different VFA or insulin promoting diets in lactating dairy cattle*. Funding Requested **\$2,996.07** for one year. Outcome: **Funded**.
- 2005 Principle Investigator; Eastern New Mexico University Internal Research Grant, entitled *Survey of New Mexico Dairy Producers – Assessment of Past and Future Management Concerns*. Funding Requested **\$3,000** for one year. Outcome: **Funded**.
- 1998 Project Director, TechMix, Inc. Industry grant, entitled *Effects of transportation and electrolyte administration on lamb, pig, and calf behavior, distress and performance traits*. Funding requested **\$2,000** for one year. Outcome: **Funded**.
- 1997 Assisted in the preparation of a Pennsylvania Department of Agriculture Research Funds grant, entitled *Dairy veal calf methods: perceptions, animal well-being, economics*. Funding requested **\$105,000** for three years. Outcome: **Funded**.
- 1996 Assisted in the preparation of a Pennsylvania Department of Agriculture Research Funds grant, entitled *Producer perceptions, management, and animal well-being*. Funding requested **\$126,000** for three years. Outcome: **Funded**.

- 1996 Assisted in the preparation of a Pennsylvania Department of Agriculture Research Funds grant, entitled *Animal handling/transportation methods: perceptions, animal well-being, and economics*. Funding requested **\$108,000** for three years. Outcome: **Funded**.

PROFESSIONAL EXPERIENCE

- 2014- Present Professor, Department of Agriculture, Eastern New Mexico University.
- 2011-Present Chair, Department of Family and Consumer Sciences and Agriculture, Eastern New Mexico University.
- 2009-2014 Associate Professor, Department of Agriculture, Eastern New Mexico University.
- 2005-2008 Assistant Professor, Department of Agriculture, Eastern New Mexico University.
- 2003-2005: Research Instructor, Division of Animal and Veterinary Science, Davis College of Agriculture, Forestry and Consumer Sciences, West Virginia University.
- 1999-2002: Issue Team Leader, Dairy & Livestock Extension Agent, Cornell Cooperative Extension, Jefferson County, NY.
- 1999: Graduate Research Assistant, Department of Animal Science, College of Agriculture, Colorado State University.
- 1996-1998: Project Assistant, Department of Animal Science, College of Agriculture, The Pennsylvania State University.
- 1993-1995: Owner/Operator, Diamond DL Cattle, Kempton, Pennsylvania
- 1988.1993 Farm Manager, Hawk Country Farms, Inc. Kempton, Pennsylvania.
- 1985-1986 Livestock Handler, Joe Miller & Company, Laramie, Wyoming.
- 1982.1984 Assistant Manager, Raytharn Farm, Inc. Jenkintown, Pennsylvania.

PROFESSIONAL ACTIVITIES

Editorial Board, the Professional Animal Scientist **2002-2005**.
Delegate from Pennsylvania to the National American Angus Association Convention **1995**.

COURSES TAUGHT

ANSCI 100 – Issues in Animal Agriculture – (assisted) *Pennsylvania State University*
ANSCI 332 – Artificial Insemination – (assisted) *Pennsylvania State University*
ANPR 251 – Animal Agriculture – *West Virginia University*
ANPR 338 – Livestock Evaluation – *West Virginia University*
ANPR 339 – Advanced Livestock Evaluation – *West Virginia University*
AG 101 – Introduction to Animal Agriculture – *Eastern New Mexico University*
AG 102 – Introduction to Dairy Science – *Eastern New Mexico University*
AG 250 – Feeding and Nutrition – *Eastern New Mexico University*
AG 260 – Animal Breeding/Genetics – *Eastern New Mexico University*
AG 300 – Artificial Insemination – *Eastern New Mexico University*
AG 312 – Ag Yesterday, Today and Tomorrow – *Eastern New Mexico University*
AG 325 – Animal Physiology – *Eastern New Mexico University*

AG 348 – Swine Production – *Eastern New Mexico University*
AG 349 – Small Ruminant Production – *Eastern New Mexico University*
AG 350 – Advanced Dairy Production – *Eastern New Mexico University*
AG 351 – Beef Production – *Eastern New Mexico University*
AG 413 – Experimental Design – *Eastern New Mexico University*
AG 421 – Advanced Feeding and Nutrition – *Eastern New Mexico University*
AG 432 – Animal Health – *Eastern New Mexico University*
AG 433 – Veterinary Science – *Eastern New Mexico University*
AG 450 – Reproductive Physiology – *Eastern New Mexico University*
AG 460 – Research in Animal Science – *Eastern New Mexico University*
AG 569 – Advanced Feeding and Nutrition – *Eastern New Mexico University*
AG 569 – Nutritional Effects on Reproduction - *Eastern New Mexico University*
AG 569 – Embryonic Survival – *Eastern New Mexico University*

SERVICE/LEADERSHIP – ENMU

Department:

- Wrote the Production/Management and Pre-Veterinarian emphases for the new B.S. Degree in Animal and Dairy Science.
- Presented the new curriculum to the University Board of Regents for approval.
- Work as advisor (and developed) the ENMU Pre-Veterinary Club
- Sole student advisor for the B.S in animal and dairy science degree.
- Agriculture Representative to the Library - working to update the Agricultural Journals and texts in the University library.
- Developed and built the Animal Reproduction and Nutrition Laboratory
- Chair of Ag Educator faculty position search
- Chair of Career and Technology faculty position search
- Chair of Bachelor of Applied Arts and Sciences faculty position search

College Service:

- Wrote the CET Research Grant Proposal Application
- Coordinator/Chair of the CET Research Grant (2008 – present)
- Elected as the Chair of the Faculty Evaluation Committee for 2006-2007, 2007-2008 and 2008-2009
- Served on the Grade Dispute Committee appointed by the Dean, College of Education and Technology.
- Member of CET Deans council 2011-present.

University Service:

- Appointment by the President of the University to represent the College of Education and Technology on the search committee for the position of the Vice President of Academic Affairs.
- Appointment by the President of the University to represent the College of Education and Technology on the search committee for the position of the Registrar.
- Appointment by the President of the University to represent the College of Education and Technology on the search committee for the position of the University Grant Writer.
- Appointment by the President of the University to represent the College of Education and Technology on the search committee for the position of the Dean of the College of Education and Technology.

- Appointed by the Vice President of Student Affairs to serve on the search committee for the Transfer/Part-time Student Support Person.
- Appointed by the Vice President of Business Affairs to serve on the search committee for the Chief of Police.
- Appointed by the Vice President of Business Affairs to serve on the search committee for the Director of Physical Plant.
- Elected vice-president of the Faculty Senate for 2008-2009.
- Elected President of the Faculty Senate for 2009-2010.
- Served on the Ad Hoc Freshman Retention Committee 2006-2007.
- Appointed the Chair of the Election Committee 2008-2009
- Elected as the Chair of the Faculty Research and Instructional Development Committee 2007-2008, 2008-2009, 2015-2016
- VP Senate Seat for University Council 2008-2009
- President Senate Seat for University Council 2009-2010
- VP Senate Seat for Budget and Planning Committee 2008-2009
- Appointed to the G.O. Bond Committee (2008)
- Appointed to Work Flow Steering Committee (2008)
- Appointed to Distance Education Task Force (2009)
- Appointed Chair of the International Animal Care and Use Committee (IACUC) (2009-2012)
- Appointed as Representative of the Student Research Conference Committee for Agriculture Sciences (2009-2012)
- Appointed to the Faculty Grievance Committee (2009)
- Elected President for Sigma Xi Research Society 2009-2011
- Appointed the Chair of Enrollment Services Advisement Committee (2011)

Professional/Community Service:

- Elected to the Board of Directors for Habitat for Humanity 2007-2008.
- Elected to the Board of Directors for the Ag Expo Committee 2006-2009.
- Appointed to the Editorial Board of the Professional Animal Scientist Journal
- Presented current Agricultural Information for KEN-TV television interviews.

AD HOC REVIEWER

The Professional Animal Scientist	2000-Present
Innate Immunology	2011-Present

PROFESSIONAL ASSOCIATIONS

Sigma Xi Scientific Research Society
American Society of Animal Science
American Dairy Science Association
American Registry of Professional Animal Scientists
Alpha Sigma Lambda, National Honor Society
Gamma Sigma Delta, National Agriculture Honor Society
National Honor Society

AWARDS

- University-Wide Presidential Award for Outstanding Advising – 2018

- University-Wide Presidential Award for Outstanding Scholarly/Research Activity – 2011
- Finalist for the University-Wide Presidential Award for Outstanding Student Advising – 2010.
- Recognized for 10 years of Outstanding Contribution to ENMU – 2014
- Nominated and Approved for membership in the National Scholars Honor Society - 2008
- Candidate for Graduate Director for the Board of Directors, American Society of Animal Science 2003.
- Regional Finalist for the National Association of County Agricultural Agents Extension Educator Newsletter - 2000.
- Nominee for Pennsylvania State University Outstanding Adult Student Award 1997 and 1998.
- Outstanding Achievement Award in Animal Science, Pennsylvania State University 1997 and 1998.
- Certificate of Appreciation for Outstanding Contribution to the Pennsylvania Governor's School 1996 –1998.
- Pennsylvania State University Beef Quiz Bowl Team, National Runner-up - 1998.
- Top 2 highest indexing bulls at the Pennsylvania Meat Evaluation Center - 1995.
- Pennsylvania Outstanding Young Farmer - 1989.

INVITED PRESENTATIONS:

Invited guest speaker to the Smithsonian Exhibit Tour. “*The Ethics of Using Animals for Human Consumption*”

Invited guest speaker to the ENMU chapter of Sigma Xi. “*Effects of Estradiol on the Uterine Environment and Embryonic Trophectoderm in the Pregnant Gilt*”

Invited guest speaker to the 2006 New Mexico Ag Expo. “*Utilizing Reproduction Records to Evaluate Management*”

Invited Guest speaker to the Portales Kiwanis Club. “*Successful Dairy Cattle Reproduction*”

Guest speaker to the ENMU chapter of Sigma Xi. “*Diet induced alterations of progesterone clearance*”

REFEREED JOURNAL PUBLICATIONS (Total 20):

1. K.L. Foltz, **D.L. Smith** and J.S. Moritz. (2016). Porcine feed intake of corn-soybean based diets supplemented with oil-extracted microalgae and subsequent performance. *The Professional Animal Scientist*. 32:849-853.
2. A.M. Evans, **D.L. Smith** and J.S. Moritz. (2015). Nutrient digestibility and 3-21d bird performance when algae biomass is utilized in broiler starter diet formulation. *J. Appl. Poultry Res.* 24:206–214.
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45. Acree, J.* and **D.L. Smith**. 2008. Calcium propionate and its effects on concentration of insulin in cattle. Eastern New Mexico University 35th Annual Student Research Conference.
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8. **Smith, D.L.**, A.D. Brooks* and J.A. Acree.* Spring 2008. Intensive Grazing Management for Beef Cattle Production. *Keystone Cattlemen* 24-17-77.
9. A.D. Brooks*, **D.L. Smith**, and J.N. Williams.* Winter 2007. Reducing Cold Stress: Eastern New Mexico University. *Keystone Cattlemen* 23-16-76.
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29. **Smith, D.L.** 2001. Exotic-Animal Breeding: Here's a Word of Caution. *Farm & Garden, Watertown Daily Times* 9/8:3.
30. **Smith, D.L.** 2001. Farms Don't Take a Holiday On Labor Day. *Farm & Garden, Watertown Daily Times* 9/1:2.
31. **Smith, D.L.** 2001. Cornell Computers Help Formulate Animal Diets. *Farm & Garden, Watertown Daily Times* 8/25:5.
32. **Smith, D.L.** 2001. Thoughts, Pro and Con, On Animal Cloning. *Farm & Garden, Watertown Daily Times* 8/18:2.
33. **Smith, D.L.** 2001. Recent Brown-Lawn Weather Especially Tough On Farmers. *Farm & Garden, Watertown Daily Times* 8/11:6.

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37. **Smith, D.L.** 2001. Check Out Jefferson Fair’s Livestock Tents. *Farm & Garden, Watertown Daily Times* 7/7:2.
38. **Smith, D.L.** 2001. Home On the Range: Some Grilling Statistics. *Farm & Garden, Watertown Daily Times* 6/23:5.
39. **Smith, D.L.** 2001. Travelers From Foot-and-Mouth Zones Shouldn’t Pet Animals at County Fairs. *Farm & Garden, Watertown Daily Times* 6/2:3.
40. **Smith, D.L.** 2001. Eat Bacon a Bit? That’s Not All, Folks. *Farm & Garden, Watertown Daily Times* 5/26:2.
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48. **Smith, D.L.** 2001. Cows Spring – and So Will the Weather. *Farm & Garden, Watertown Daily Times* 3/17:5.
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52. **Smith, D.L.** 2001. Figure 8 Guides Cows' Schedule. *Farm & Garden, Watertown Daily Times* 1/27:5.
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54. **Smith, D.L.** 2000. Liking Animals Goes a Long Way Toward Understanding Them. *Farm & Garden, Watertown Daily Times* 12/9:2.
55. **Smith, D.L.** 2000. Humans Watch Animals' Food Intake Closer Than Their Own. *Farm & Garden, Watertown Daily Times* 12/2:5.
56. **Smith, D.L.** 2000. Take a Peck at These 10 Turkey Trivia Questions. *Farm & Garden, Watertown Daily Times* 11/11:2.
57. **Smith, D.L.** 2000. Cross-Bred Animals Have Hybrid Vigor. *Farm & Garden, Watertown Daily Times* 11/4:2.
58. **Smith, D.L.**, and M.J. Smith. 2000. European Draft Horses Regain Some Pull in U.S. *Farm & Garden, Watertown Daily Times* 10/14:2.
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60. **Smith, D.L.** 2000. Try the Well-Advertised Other White Meat. *Farm & Garden, Watertown Daily Times* 9/16:5.
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62. **Smith, D.L.** 2000. Be a Burger Meister With These facts. *Farm & Garden, Watertown Daily Times* 8/12:5.
63. **Smith, D.L.** 2000. Be Thankful for Milking Machines. *Farm & Garden, Watertown Daily Times* 7/22:5.
64. **Smith, D.L.** 2000. Summer Stirs Thoughts of Calving. *Farm & Garden, Watertown Daily Times* 7/15:5.
65. **Smith, D.L.** 2000. Most Dairy Farms Not Owned by Big Business. *Farm & Garden, Watertown Daily Times* 6/24:5.
66. **Smith, D.L.** 2000. Young Ones Need Their Milk. *Farm & Garden, Watertown Daily Times* 6/17:5.
67. **Smith, D.L.** 2000. Here's a Short Course On Training a Horse. *Farm & Garden, Watertown Daily Times* 5/27:5.

68. **Smith, D.L.** 2000. Nasty Winters in NNY Haven't Been So Bad Yet. *Farm & Garden, Watertown Daily Times* 5/20:5.
69. **Smith, D.L.** 2000. Goats Have Uses From Meat to Milk to Fabric. *Farm & Garden, Watertown Daily Times* 6/13:5.
70. **Smith, D.L.** 2000. New York Sheep Production Getting Woolier. *Farm & Garden, Watertown Daily Times* 4/22:4.
71. **Smith, D.L.** 2000. Taking Stock of Stock Dogs. *Farm & Garden, Watertown Daily Times* 4/15:4.
72. **Smith, D.L.** 2000. Spring Terms From the Animal World. *Farm & Garden, Watertown Daily Times* 4/1:5.
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76. **Smith, D.L.** 2000. Inspiration Hits Like a Bull at a Gate. *Farm & Garden, Watertown Daily Times* 2/19:3.
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78. **Smith, D.L.** 2000. Agriculture Jobs Range From Banking to Biotech. *Farm & Garden, Watertown Daily Times* 1/29:3.
79. **Smith, D.L.** 2000. Ag Jobs: Forget the Pitchfork Painting. *Farm & Garden, Watertown Daily Times* 1/22:5.
80. **Smith, D.L.** 1999. Cows Are Ready. *Farm & Garden, Watertown Daily Times* 12/31:5.
81. **Smith, D.L.** 1999. Grazing Grounds Unfit for Veggie Crops. *Farm & Garden, Watertown Daily Times* 12/18:5.
82. **Smith, D.L.** 1999. Gifts Animals Provide. *Farm & Garden, Watertown Daily Times* 12/4:4.
83. **Smith, D.L.** 1999. Holiday is Time to Talk Turkey. *Farm & Garden, Watertown Daily Times* 11/20:5.
84. **Smith, D.L.** 1999. More On Mammals That Have to Belch. *Farm & Garden, Watertown Daily Times* 11/13:5.
85. **Smith, D.L.** 1999. Ruminations About Ruminants. *Farm & Garden, Watertown Daily Times* 11/6:5.

86. **Smith, D.L.** 1999. Artificial Insemination Doesn't Mutate Cows. *Farm & Garden, Watertown Daily Times* 10/23:5.
87. **Smith, D.L.** 1999. Chicken Nuggets Not a Poultry Part. *Farm & Garden, Watertown Daily Times* 10/16:5.
88. **Smith, D.L.** 1999. New Clean-Water Farm Regulations. *Farm & Garden, Watertown Daily Times* 10/2:3.
89. **Smith, D.L.** 1999. Milk Helps Backbone of Region's Economy. *Farm & Garden, Watertown Daily Times* 9/11:5.



Agenda Item Summary

Date: June 20, 2019

Division: Planning and Finance

Agenda Item: Faculty Promotions

Review

Action

No action required

PRESENTERS: Dr. Lori Bruce

PURPOSE & KEY POINTS:

Decisions and supporting documentation for granting promotions to eligible faculty members.

Tennessee Tech University
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FACULTY PROMOTION RECOMMENDATIONS FOR 2019 – 2020

Recommended personnel are listed alphabetically by last name.

	Name	Department/Division	Proposed Rank	Current Rank
1	Anton, Steven	Mechanical Engineering	Associate Professor	Assistant Professor
2	Bhattacharya, Indranil	Electrical & Computer Engineering	Associate Professor	Assistant Professor
3	Boles, Tammy	Environmental Studies	Associate Professor	Assistant Professor
4	Brachey, Troy	Mathematics	Senior Instructor	Instructor
5	Brown, Cynthia	Sociology & Political Science	Senior Instructor	Instructor
6	Brown, Stacy	Mathematics	Senior Lecturer	Lecturer
7	Carrick, Ann Marie	Chemistry	Senior Instructor	Instructor
8	Carroll, William	Chemistry	Associate Professor	Assistant Professor
9	Christen, Scott	Communication	Associate Professor	Assistant Professor
10	Coonce, Janet	Chemistry	Senior Instructor	Instructor
11	Datta, Tania	Civil Engineering	Associate Professor	Assistant Professor
12	Davis, Christopher	Mathematics	Associate Professor	Assistant Professor
13	Duvier, Henry	Learning Support	Senior Instructor	Instructor
14	Fisk, William	English	Senior Instructor	Instructor
15	Gallop, David	Art, Craft, & Design	Associate Professor	Assistant Professor
16	Greathouse, Paula	Curriculum & Instruction	Associate Professor	Assistant Professor
17	Hales, Alma	Economics, Finance, & Marketing	Associate Professor	Assistant Professor
18	Hill, Colin	Music	Associate Professor	Assistant Professor

Tennessee Tech University
Board of Trustees



19	Holley, Adam	Physics	Associate Professor	Assistant Professor
20	Johnson, Perry	Art, Craft, & Design	Associate Professor	Assistant Professor
21	Lewald, Ann	Learning Support	Senior Instructor	Instructor
22	Mabry, Jennifer	Nursing	Associate Professor	Assistant Professor
23	Melichar, Mark	Economics, Finance, & Marketing	Associate Professor	Assistant Professor
24	Metz, Jacob	Communication	Senior Instructor	Instructor
25	Michael, Anthony	Counseling & Psychology	Associate Professor	Assistant Professor
26	Moynihan, Susan	English	Senior Lecturer	Lecturer
27	Narimetla, Satya	Mathematics	Senior Instructor	Instructor
28	Pirkle, Richard	Biology	Senior Instructor	Instructor
29	Rajabali, Mustafa	Physics	Associate Professor	Assistant Professor
30	Rezsnyak, Chad	Chemistry	Associate Professor	Assistant Professor
31	Rideout, Jennifer	English	Assistant Professor	Instructor
32	Robinson, Elizabeth	English	Senior Instructor	Instructor
33	Smith, Andrew	English	Senior Instructor	Instructor
34	Stepp, Julie	Curriculum & Instruction	Associate Professor	Assistant Professor
35	Villalba, Manuel	Foreign Languages	Associate Professor	Assistant Professor
36	Wilbanks, Robert	Accounting	Associate Professor	Assistant Professor
37	Winkle, Kimberly	Art, Craft, & Design	Professor	Associate Professor



Agenda Item Summary

Date: June 20, 2019

Division: Planning and Finance

Agenda Item: Capital Budget Update on FY2019-20

Review

Action

No action required

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

PURPOSE & KEY POINTS:

Update on final approved State Capital Budget for FY2019-20.



Agenda Item Summary

Date: June 20, 2019

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 Disclosed Projects & FY 2020-21 Capital Budget Request.

CAPITAL OUTLAY REQUEST FY 2020-21 thru 2024-25

FY	Priority	SPA	Project Name	Project Description**	Project Type	New Square Footage	Reno. Or Replaced SF	A	B	C = B / A	D = A - B
								Project Cost	Committed External Funds	Percent Match	State Funds Request
2020-21	1	TTU	Engineering & Research Building	Construct a student centered interdisciplinary engineering building for the College of Engineering.	New Construction	100,000		\$51,750,000	\$8,250,000	16%	\$43,500,000
2020-21	2									0%	\$0
2020-21	3									0%	\$0
2020-21	4									0%	\$0
2020-21	5									0%	\$0

** Provide a duplicate of the Project Description from the DB70 sheet. Additional brief summary comments may be added for support justification.

Out-Years

FY	Priority	Institution	Project Name	Project Description	Project Type	New Square Footage	Reno. Or Replaced Square Footage	Project Cost	Committed External Funds	Percent Match	State Funds Request
2021-22	1	TTU	Biology Building		New Construction	100,000	59,679	\$60,000,000	\$3,000,000	5%	\$57,000,000
2021-22	2									0%	\$0
2022-23	1	TTU	Academic Classroom/Office Building		New Construction	50,000	43,555	\$19,500,000	\$925,000	5%	\$18,575,000
2022-23	2									0%	\$0
2023-24	1	TTU	Facilities Services Complex		New Construction	70,000	43,886	\$10,100,000	\$505,000	5%	\$9,595,000
2023-24	2									0%	\$0
2024-25	1	TTU	Memorial Gym Update		Major Renovation		87,181	\$15,400,000		0%	\$15,400,000
2024-25	2									0%	\$0

3.1 DB70

1 Department: Tennessee Higher Education Commission
Institution: Tennessee Tech University
Project: Engineering Building
City/County: Cookeville/Putnam

2 Fiscal Year: 2020 / 2021

<input checked="" type="checkbox"/>	Capital Outlay	New		Reno/Maint	0
<input type="checkbox"/>	Capital Maintenance		100,000	Gross Sq.Ft.	0
<input type="checkbox"/>	Disclosure		0	Net Sq.Ft.	0
<input checked="" type="checkbox"/>	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	This Request	Estimated Building Construction Cost:	42,000,000
	42,000,000	42,000,000	Building Construction	
	787,500	787,500	Site & Utilities	
	0	0	Built-in Equipment	
	42,787,500	42,787,500	Bid Target	
	2,139,500	2,139,500	Contingency:	5.00 5.00 percent
	44,927,000	44,927,000	MACC (Maximum Allowable Construction Cost)	
	2,418,213	0	Fee:	35/LogP-1.15= 5.38253903 <input type="text" value="New"/>
	4,000,000	4,000,000	Movable Equipment	
	1,800,000	1,568,213	first other	Lab/Engr/Commissioning
	600,000	350,000	second other	A/V, Vibration Consultants
	1,254,787	904,787	Administration & Miscellaneous	
	55,000,000	51,750,000	Total Cost	

6 Funding Request:	THIS REQUEST	
46,750,000	43,500,000	STATE funds
0	0	FEDERAL funds
8,250,000	8,250,000	Local and Institutional Funds <input type="text" value="Match - Gifts"/>

7 Previous SBC Approved Funding:	fund year	description
already approved for existing SBC project	3,250,000	19/20
3,250,000	0	
plus This Request	0	
51,750,000	0	

8 SBC Action: If an existing project, SBC Project No.:

9 Designer:

3.2 Project Support Documentation sheet 1

Institution: Tennessee Tech University
Project: Engineering Building

A. Architectural Program Scope

The new building will be a modern, student-centered, interdisciplinary space used by all departments in the College of Engineering. The interdisciplinary aspect of the building is intended to provide opportunities across engineering disciplines and throughout a student's entire course of study. 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. The building is also conceived of as a living lab where students can monitor and learn from data collected about the building itself. There is intention to imbed technology and sensors in the building to provide students with opportunities to study and create solutions for real-world design applications at all levels of study.

B. Evidence of Physical Facility Need

Preliminary programming estimates the required NASF for the current program to be 257,408. This is a deficit of 51,682 NASF. 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 65 years, demonstrating TTU's responsible use of capital investment. No major renovations or additions have occurred in these buildings.

D. 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 three of eight buildings. Six of eight buildings are below a rating of 70%. A rating of 60% is defined as system salvageable, major upgrade or significant replacement of components required. A rating below 70% typically indicates a building in need of significant upgrades. Physical Facility Survey review dates range from 2014-2017.

3.3 Project Support Documentation sheet 2

Institution: Tennessee Tech University

Project: Engineering Building

E. Cost Basis for Construction Estimate 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

Designer solicitation, selection and approval 2 months
Designer contract 1 month
Design 12 months
CM/GC solicitation, selection, approval and contract (3 months-runs concurrent with design schedule)
Construction 18 months
Move in 2 months
Project Close Out 1 month
Total estimated project schedule 36 months

G Campus or Architectural Program Impact

N/A

3.5 Business Plan

Institution: Tennessee Tech University

Project: Engineering Building

	Existing Budgeted Salaries	Estimated Future Salaries		Existing Budgeted Positions Count	Estimated Future Position Count
Total Salaries:	0		Full-Time:	0	
			Part-Time:	0	

This information applies to this project

A. Operations Overview

First year utility costs are estimated at \$450,000 (\$4.50/sq.ft. x 100,000 sq. ft.)
 First year maintenance costs are estimated at \$604,000 (\$6.04/sq.ft x 100,000 sq. ft.)
 First year custodial costs are estimated at \$106,000 (\$1.06/sq.ft. x 100,000 sq. ft.)

No additional positions are budgeted at this time.

B. Revenue Sources, Fundraising and Partnerships

The Tennessee Tech University Division of University Advancement, working closely with President Philip B. Oldham, has secured philanthropic commitments of \$1.1M and continues to work a 'Top 20' prospective donor list for this project. Conversations are underway with twelve of these prospects, and key visits (to California, Colorado, Massachusetts) will occur this summer. Dean-Designate Dr. Joseph Slater, who will start on July 1, is already engaged in fundraising for the project. Additionally, President Oldham sent a letter (May) to more than 1,000 supporters of the College of Engineering announcing the new dean and underscoring the opportunity to plan for and build a new facility. The letter indicated that someone from Development would be in touch in the near future, and prioritizing those contacts is underway, with personalized reaches planned for this summer and into the fall. Finally, veteran College of Engineering fundraiser Amanda Fabrizio-Grzesik continues to travel widely to visit prospective donors throughout her territory, principally the Northeast, and she and Vice President for University Advancement Dr. Kevin H. Braswell plan to travel together within and outside of her territory to follow up on her fieldwork.

4.1 Space Needs

Institution: Tennessee Tech University
Project: Engineering Building

Information Compiled By:
 Capital Projects & Planning

A Provide Data From Entire Campus Where Project is Located

Fall 2017 Date of Data

Summary NASF - Info from THEC Space Guideline					This Project	SF Results	
	Equip FICM	Modeled	Exist E&G SF	Difference from Model	Net Change NASF	Result Net E&G SF	Difference from Model
I	Classrooms	1xx 120,662	185,969	65,307	15,250	201,219	80,557
II	ClassLab	210, 215 214,448	183,577	-30,871	10,530	194,107	-20,341
III	Open Lab	220, 225 41,185	25,209	-15,976	14,940	40,149	-1,036
IV	Research	250, 255 101,332	110,015	8,683	5,900	115,915	14,583
V	Office	3xx 247,577	304,586	57,009	11,120	315,706	68,129
VI	Library	4xx 58,817	77,763	18,946	400	78,163	19,346
VII	Phys Ed	520 523 525 158,607	64,598	-94,009	0	64,598	-94,009
Totals:		942,628	951,717	9,089	58,140	1,009,857	67,229
		Input Data from THEC Guideline	Input Data from PFI	- Shows Space under Guideline	Data will Import from the SpaceTab "Net Change NASF"		- Shows Space under Guideline

The three digit numbers are from the "Postsecondary Education Facilities Inventory and Classification Manual (FICM)" 2006

B Notes or Comments on Above Data, or Describe Need for Non-Formula Space

The data above includes our funded Lab Science Bldg. and related Old Maintenance Bldg. demolition. Currently 24,431 SF of existing Engineering space is located in East Stadium. This space is underneath concrete bleachers, constantly battles severe moisture issues, and is virtually unusable and certainly not suited as outstanding technical spaces due to the moisture problems. 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 required (according to the space study) would more accurately be 76,113 NASF.

C Migration Plan

Upon completion of the new Engineering building, vacated spaces in Brown, Clement and Prescott Halls will be renovated then backfilled by Engineering, as additional space is required for current College of Engineering programs. The occupants in these buildings will be relocated to surge space in Foundation Hall while their respective buildings are being renovated.

Once backfill space in the Engineering migration plan has been renovated, Lewis Hall (26,592 sq. ft.) and the Foundry (3,604 sq. ft.) will be demolished so that the proposed Biology Building can be built on the site. 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.

4.2 Tabulation of Affected Space

Institution: Tennessee Tech University
Project: Engineering Building

FICM Space Use Categories	Space Description	Net Assignable Square Feet				
		Demolition	Renovation		New Construction	Net Change NASF
			Former Use	New Use		
100's	Classrooms	0	0	0	15,250	15,250
210, 215	Class Lab / Studio	0	0	0	10,530	10,530
220, 225	Open Laboratories	0	0	0	14,940	14,940
250, 255	Research	0	0	0	5,900	5,900
300's	Offices	0	0	0	11,120	11,120
400's	Study facilities	0	0	0	400	400
520, 523, 525	Physical education	0	0	0	0	0
Subtotal THEC Formula Space		0	0	0	58,140	58,140
600's	General use facilities	0	0	0	2,000	2,000
700's, 800's	All other Assignable SF	0	0	0	0	0

	Demolition	Former Use	New Use	New Const	Net Change
Sub-Total Net Assignable:	0	0	0	60,140	60,140
Efficiency:	#DIV/0!	#DIV/0!	60.1%		
Enter Total Gross SF:	Demolition 0	Total Reno 0		New Const 100,000	

The three digit numbers are from the "Postsecondary Education Facilities Inventory and Classification Manual (FICM)" 2006

Explanation of Data, If Needed

Once backfill space in the Engineering migration plan has been renovated, Lewis Hall (26,592 sq. ft.) and the Foundry (3,604 sq. ft.) will be demolished. It's estimated these demolitions will be delayed until 5-7 years after completion of the Engineering Building. Therefore, these buildings are not included in the table above.

4.3 Outline Architectural Program

Institution: Tennessee Tech University
 Project: Engineering Building

Space Name	Room Use	Activity Description	Area (NASF)	Occupant Count	Number of Spaces	Total Occ. Count	Total Area (NASF)
Classroom	110		4,000	200	1	200	4,000
Classroom	110		2,750	125	1	125	2,750
Classroom	110		2,000	80	3	240	6,000
Classroom	110		1,250	50	2	100	2,500
			0	0	0	0	0
Classroom	(All 100s)	Total Classroom	10,000		7	665	15,250
ClassLab	210	Instructional Lab with Hoods	1,680	28	2	56	3,360
ClassLab	210	Instructional Lab with Hoods	1,680	28	2	56	3,360
ClassLab	210	Instructional Lab with Hoods	1,680	28	2	56	3,360
ClassLab	215	Lab Support	150	0	3	0	450
ClassLab	220	Student Project Area - Clean	0	0	0	0	0
ClassLab	220	Student Project Area - Dirty	8,500	0	1	0	8,500
ClassLab	220	Student Project Area - Electronics	0	0	0	0	0
ClassLab	220	Student Project Area - Quiet/Writing	0	0	0	0	0
ClassLab	220	Student Project Area - Specific Proj	300	0	5	0	1,500
ClassLab	225	Support Areas, Storage	200	0	5	0	1,000
ClassLab	220	Lab/Studio, Tutoring Room	720	24	1	24	720
ClassLab	220	Studio, Design/Computation	1,600	40	1	40	1,600
ClassLab	220	Studio, Design/Computation	1,120	28	1	28	1,120
ClassLab	225	Studio Support	150	0	1	0	150
ClassLab	225	Lab/Studio Support	350	0	1	0	350
ClassLab	250	Research Lab, Core Research	1,000	0	2	0	2,000
ClassLab	250	Research Lab	900	0	1	0	900
ClassLab	250	Research Lab	600	0	2	0	1,200
ClassLab	250	Research Lab	300	0	3	0	900
ClassLab	255	Lab Support, Precision Instrumenta	300	0	1	0	300
ClassLab	255	Research Lab Support	150	0	4	0	600
			0	0	0	0	0
ClassLab	(All 200s)	Total ClassLab	21,380		38	260	31,370

4.3 Outline Architectural Program

Institution: Tennessee Tech University
 Project: Engineering Building

Space Name	Room Use	Activity Description	Area (NASF)	Occupant Count	Number of Spaces	Total Occ. Count	Total Area (NASF)
Office	310	Office, Faculty	120	1	15	15	1,800
Office	310	Office, Adjunct Faculty, Shared	120	2	4	8	480
Office	311	Office, Technician	120	2	1	2	120
Office	311	Office, Director	120	1	1	1	120
Office	311	Office, Assistant Director	120	1	1	1	120
Office	311	Office, Admin Assistant	100	1	1	1	100
Office	311	Office, Advisor	120	1	6	6	720
Office	312	Grad Student Office Areas	320	8	10	80	3,200
Office	312	Engineering Student Club, Office &	180	6	5	30	900
Office	315	Office Support	30	0	2	0	60
Office	315	Office Support	50	0	2	0	100
Office	350	Conference Room	450	18	1	18	450
Office	350	Collaboration Room	700	28	1	28	700
Office	350	Collaboration Room	450	18	1	18	450
Office	350	Collaboration Room	360	12	1	12	360
Office	350	Small Group Rooms	180	6	8	48	1,440
			0	0	0	0	0
Office	(All 300s)	Total Office	3,540		60	268	11,120
Study Facilities	410	Study Room	400	20	1	0	400
			0	0	0	0	0
Study Fac.	(All 400s)	Total Study Facilities	400		1	0	400
Special Use	530		0	0	0	0	0
			0	0	0	0	0
Special Use	(All 500s)	Total Special Use	0		0	0	0
General Use	650	Atrium	2,000	0	1	0	2,000
			0	0	0	0	0
General Use	(All 600s)	Total General Use	2,000		1	0	2,000
Support	750		0	0	0	0	0
Health	830		0	0	0	0	0
			0	0	0	0	0
Support & Health	(700s & 800s)	Total Support & Health	0		0	0	0
Grand Total Net Assignable SF:			37,320		107	1,193	60,140

5.1 External Funding

Department: Tennessee Higher Education Commission

Institution: Tennessee Tech University

Project: Engineering Building

8,250,000 Total Match Funding (No Match Funding required for TCATs)			
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%	8,250,000	Gifts	Gifts
0%	0	Local Government	
0%	0	Federal Funds	
0%		5-Year Bond Funds	
0%	0		
0%	0		

Community College

Total Project Cost	51,750,000		
Total Match	8,250,000	Minimum	Maximum
Renovation	0%	-	-
New Construction	100%	1,035,000	5,175,000
		1,035,000	5,175,000
		Eligible Check	7,215,000
		Ratio above minimum	174%
		Maximum Points	8.00
		Calculated Points	8.00

Match Requirement		
Min	Max	
0%	5%	Reno
2%	10%	New

Moderate Research University - APSU ETSU MTSU TSU TTU UTC UTM

Total Project Cost	51,750,000		
Total Match	8,250,000	Minimum	Maximum
Renovation	0%	-	-
New Construction	100%	2,587,500	7,762,500
		2,587,500	7,762,500
		Eligible Check	5,662,500
		Ratio above minimum	109%
		Maximum Points	8.00
		Calculated Points	8.00

Match Requirement		
Min	Max	
2%	10%	Reno
5%	15%	New

High Research University - UoM UTK

Total Project Cost	51,750,000		
Total Match	8,250,000	Minimum	Maximum
Renovation	0%	-	-
New Construction	100%	5,175,000	12,937,500
		5,175,000	12,937,500
		Eligible Check	3,075,000
		Ratio above minimum	40%
		Maximum Points	8.00
		Calculated Points	3.17

Match Requirement		
Min	Max	
4%	15%	Reno
10%	25%	New



Office of the President

TENNESSEE TECH

June 24, 2019

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 the additional funding required to fully fund our capital outlay request for the construction of 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. Current enrollment in the College of Engineering is 2,834 students. That number is expected to grow to 3,540 in 10 years. Engineering enrollment currently represents 27 percent of the university's total enrollment, the highest percentage of engineers to total enrollment of any university in the state.

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.

Executive Director Mike Krause
June 24, 2019
Page Two

The proposed new construction will provide an additional 60,000 net assignable square feet for the College of Engineering's educational use. In the new building, visitors will be able to see the day-to-day work of students and interdisciplinary teams. Tech will take advantage of the new construction to increase innovation and entrepreneurial activities into research and the classroom.

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

PBO/ds

xc: Claire Stinson
Jim Cobb

Capital Maintenance Request: FY2020-21

Governing Board:	Tennessee Tech	Maintenance Request Level from Governing System Pools tab
2020-21 Maint Allocation:	\$7,870,000	\$150,000,000

FY	Priority*	SPA	Project	Project Description**	Project Cost
2020-21	1	TTU	Fitness Center Upgrades & Repurpose	Provide system and space upgrades in the old student Fitness Center for use by Exercise Science & Physical Wellness and Athletics.	\$ 5,770,000
2020-21	2	TTU	Roof Replacements Phase 4	Replace roofs on several buildings. 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. Repair/replace other cupolas as needed.	\$ 2,100,000
2020-21	3				
2020-21	4				
Total Cost of FY 20-21 Maintenance Projects					\$ 7,870,000

* Requests are not limited to 10. Insert more rows if there are more projects to recommend. Total costs must fall within allocation.
See Note in "Governing System Pools" for instructions regarding allocations at the \$150 million and \$120 million levels.

** Provide a duplicate of the Project Description from the DB70 sheet. Additional brief summary comments may be added for support justification.
a duplicate

Capital Maintenance Out-Years: FY 2020-21 through 2023-24

FY	Priority*	SPA	Project	Project Description	Project Cost
2021-22	1	TTU	Multiple Building Upgrades		\$ 7,300,000
2021-22	2	TTU	Building Controls Upgrade Phase 1		\$ 3,000,000
2021-22	3				
2021-22	4				
2022-23	1	TTU	Volpe Library HVAC Upgrades		\$ 9,800,000
2022-23	2	TTU	Building Controls Upgrade Phase 1		\$ 3,000,000
2022-23	3				
2022-23	4				
2023-24	1		Derryberry Hall Upgrades		\$ 10,170,000
2023-24	2				
2024-25	1		Clement Hall Upgrades		\$ 10,550,000
2024-25	2				

3.1 DB70

1 Department: Tennessee Higher Education Commission
Institution: Tennessee Technological University
Project: Roof Replacements Phase 4
City/County: Cookeville/Putnam

2 Fiscal Year: 2020 / 2021

<input type="checkbox"/>	Capital Outlay	New		Reno/Maint
<input checked="" type="checkbox"/>	Capital Maintenance	0	Gross Sq.Ft.	0
<input type="checkbox"/>	Disclosure	0	Net Sq.Ft.	0
<input checked="" type="checkbox"/>	Designer Required	0.00	Cost/Sq.Ft.	0.00

4 Project Description:

Replace roofs on several buildings. 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. Repair/replace other cupolas as needed.

5	Total Project	This Request	Estimated Building Construction Cost: <input type="text" value="0"/>	
	1,700,000	1,700,000	Building Construction	
	0	0	Site & Utilities	
	0	0	Built-in Equipment	
	1,700,000	1,700,000	Bid Target	
	170,000	170,000	Contingency:	10.00 10.00 percent
	1,870,000	1,870,000	MACC (Maximum Allowable Construction Cost)	
	159,733	159,733	Fee:	35/LogP-1.15= 8.54184947 <input type="text" value="Renovation"/>
	0	0	Movable Equipment	
	0	0	first other	
	0	0	second other	
	70,267	70,267	Administration & Miscellaneous	
	2,100,000	2,100,000	Total Cost	

6 Funding Request:	THIS REQUEST
2,100,000	2,100,000
0	0
0	0
	STATE funds
	FEDERAL funds
	Local and Institutional Funds

7 Previous SBC Approved Funding:	fund year	description
already approved for existing SBC project	485,000	19/20
485,000	0	
plus This Request	0	
2,100,000	0	

8 SBC Action: If an existing project, SBC Project No.: 364/011-xx-2019

9 Designer: NA

3.2 Project Support Documentation sheet 1

Institution: Tennessee Technological University
Project: Roof Replacements Phase 4

A. Architectural 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. Repair/replace other cupolas as needed. Roofs identified in the Rinks reports are: Derryberry, Foster, Pennebaker, Southwest, T.J. Farr, Military Science (University Police), University Services. Additional bldgs. not included in the Rinks' reports are Alumni Hall, Health & P.E. Bldg, Lewis, Johnson, Matthews/Daniel on the main campus, Ag. Pavilion Barn at Shipley Farm, and Cool Wing, Clay, and Glass & Metals Buildings at the Craft Center. Replace dormers on Kittrell and Bartoo Halls and reroof.

Roofs included in the Rinks reports that have been replaced in previous phases are: Brown, Bruner, Chiller Plant, Clement, Foundation, Hyder-Burks Arena, Jere Whitson, Oakley Hall (South), Volpe Library. Derryberry Hall, Pennebaker Hall and T.J. Farr Building are in design in the current phase.

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(2) and the tab titled Roof Data Sheet for list of buildings, roof area, type, age, etc. Roofs for nine additional buildings not included in the Rinks reports are also included in this scope of work.

This work was originally begun under SBC 166/011-xx-2015 assigned to TBR. The university will seek SBC approval to continue this work utilizing the same designer.

D. Summary Results and Date of Physical Facilities Survey

3.3 Project Support Documentation sheet 2

Institution: Tennessee Technological University

Project: Roof Replacements Phase 4

E. Cost Basis for Construction Estimate and Other Costs

The cost estimate for the roof replacement was obtained from a designer assigned to another roof replacement project on campus, and is based on construction estimates for that project.

F. Project Schedule

Designer selection - 1 month

Designer contract - 1 month

Roof Replacement - design, bidding and construction - 12 months

Project closeout - 1 month

G Campus or Architectural Program Impact

N/A

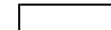
TTU Roof Replacements

**Roof Data
3/25/2019**

Bldgs. Included In Rinks Report

Roof Replacements

\		Year	Area	Roof		Area				PFS		
Code	Building	Blt.	Flat	Type	Mfr.	Year	Sloped	Type	Mfr.	Year	Score	
BRWN	Brown Hall	1967	-				16,000	F.S.	Owens-Corning	1986	30	Complete
BRUN	Bruner Hall	1966	-				16,200	F.S.	Owens-Corning	1986	30	Complete
CLEM	Clement Hall	1965	4,700	Epdm	Carlisle	1986	15,900	F.S.	Owens-Corning	1986	30	Complete
DBRY	Derryberry Hall	1912	466	Epdm		1991	22,125	F.S.	Owens-Corning	1991	30	Design
FOST	Foster Hall	1964	5,544	Epdm	Carlisle	2011	10,450	F.S.	Owens-Corning	1985	50	
FNDH	Foundation Hall	1932	29,971	EPDM & B/U		unknown	30,550	shingle		unknown	20	Complete
JWB	Jere Whitson Bldg.	1949	-				12,100	F.S.	Johns Manville	1978	30	Complete
LIBR	Volpe Library	1989	8,100	Epdm	Carlisle	1989	50,400	F.S.	Owens-Corning	1989	50	Complete
PENN	Pennebaker Hall	1968	-				16,000	F.S.	Owens-Corning	1985	30	Design
OKLY	Oakley Hall	1931	6,467	Epdm	Gen-Flex	1996	7,785	F.S.	Owens-Corning	1996	50	Complete
SWH	Southwest Hall	1973	23,500	EPDM		1987/1995	-				40	
FARR	T.J. Farr Bldg.	1928	8,946			1981	2,888	F.S.	Johns Manville	1981	30	Design
ROTC	Military Science	1944	2,250	Epdm	Carlisle	1980	-				40	
USVC	University Services Bldg.	1929	12,300	Epdm	Carlisle	1981	7,700	Metal		1981	30	
Additional Roofs Needing Replacement Not Included in Rinks Report												
ALUM	Alumni Hall	1969		Epdm	Unknown	Unknown				Unknown		
DANL	Daniel Hall	1921	8,358	Epdm	Carlisle		923	FAS	Owens-Corning	1993	40	
MGYM	Memorial Gym	1929	22,100	Epdm	Carlisle		19,100	F.S.	Owens-Corning	1993	40	
MATT	Mathews Hall	1951	1,047				8,358	F.S.	Owens-Corning	1993	40	
CHIL	Chiller Plant	1972	6,162	Epdm	Firestone					1995	50	Complete
LEWS	Lewis Hall	1921	18,838	B/U	Gen-Flex		2,997	B/U,F.S.	Owens-Corning	1997	50	
JOHN	Johnson Hall	1972	7,320	Epdm	Carlisle	1986	11,552	F.S.	Owens-Corning	1986		
AB	Hyder-Burks Barn	1993	6,660	Epdm	Firestone	1993	43,927	Steel	Butler	1993		
AA	Hyder-Burks Arena	1995	72,085	Epdm	Firestone	1995				1995		Complete
QB	Cool Wing	1979					24,070	F.S.	Owens-Corning	1993		
QD	Glass/Metals Studio	1979					24,070	F.S.	Owens-Corning	1993		
QC	Clay Studio	1979					24,070	F.S.	Owens-Corning	1994		



3.1 DB70

1 Department: Tennessee Higher Education Commission
Institution: Tennessee Tech University
Project: Fitness Center Upgrades & Repurpose
City/County: Cookeville/Putnam

2 Fiscal Year: 2020 / 2021

		New	Reno/Maint
<input type="checkbox"/>	Capital Outlay		
<input checked="" type="checkbox"/>	Capital Maintenance	0 Gross Sq.Ft.	84,748
<input type="checkbox"/>	Disclosure	0 Net Sq.Ft.	0
<input checked="" type="checkbox"/>	Designer Required	0.00 Cost/Sq.Ft.	109.50

4 Project Description:

Provide system and space upgrades in the old student Fitness Center for use by Exercise Science & Physical Wellness and Athletics.

5	Total Project	This Request	Estimated Building Construction Cost:
	9,300,000	4,240,000	9,279,906
	0	0	Building Construction
	0	0	Site & Utilities
	0	0	Built-in Equipment
	9,300,000	4,240,000	Bid Target
	930,000	424,000	Contingency: 10.00 10.00 percent
	10,230,000	4,664,000	MACC (Maximum Allowable Construction Cost)
	763,775	369,739	Fee: 35/LogP-1.15= 7.46602876 Renovation
	500,000	450,000	Movable Equipment
	80,000	80,000	first other Commissioning
	150,000	50,000	second other A/V Equipment
	376,225	156,261	Administration & Miscellaneous
	12,100,000	5,770,000	Total Cost

6 Funding Request:	THIS REQUEST
12,100,000	5,770,000
0	0
0	0
0	0
	STATE funds
	FEDERAL funds
	Local and Institutional Funds

7 Previous SBC Approved Funding:	fund year	description
already approved for existing SBC project	0	
0	0	
plus This Request	0	
5,770,000	0	

8 SBC Action: If an existing project, SBC Project No.: NA

9 Designer: NA

3.2 Project Support Documentation sheet 1

Institution: Tennessee Tech University
Project: Fitness Center Upgrades & Repurpose

A. Architectural Program Scope

The architectural program/reprogramming was been completed by the university's architectural consultant.

B. Evidence of Physical Facility Need

The student Recreation & Fitness Center will move to a new facility in the spring of 2020. The existing building will be used by the Exercise Science & Physical Wellness (EXPW) program. EXPW will allow Athletics some shared use of the space, such as basketball courts for team practice outside of EXPW class meetings. Spaces must be renovated and upgraded to accommodate the programs. Major renovations will be required on the first floor, minor renovations on the second floor. The mechanical, plumbing, electrical, fire protection and fire alarm systems will require major updates.

C. Historical Profile

The building was opened as the university's first student fitness center in 1991.

D. Summary Results and Date of Physical Facilities Survey

The overall building rating is 93.9. The initial survey year was 2008.

3.3 Project Support Documentation sheet 2

Institution: Tennessee Tech University
Project: Fitness Center Upgrades & Repurpose

E. Cost Basis for Construction Estimate and Other Costs

The estimate was prepared by the university's architectural consultant. Capital maintenance funding will be requested in phases to complete the proposed work.

F. Project Schedule

Design 9-12 months
Bidding and Contract 2 months
Construction 16 months

G Campus or Architectural Program Impact

N/A

June 20, 2019, Audit & Business Committee Agenda & Materials - Capital Budget

Disclosure Projects FY19-20 Quarter 1 (July 2019 - September 2019)

Institution	Project	Disclosure Year (Quarter)	Funding Source	Project Cost	New Sq.Ft.	TSSBA	Gifts	Grants	Auxiliary	Gift-in-Place	Plant Funds	Project Description - Match DB70 Project Description
TTU	Roaden University Center West Patio and Landscaping	2019-20 (Q1)	Plant Funds (Aux-Dining)	\$ 405,000					\$ 405,000			Construct a patio with low wall seating and install a fire pit, lighting and landscaping on the west side of the Roaden University Center.
TTU	Dixie Avenue Steam Line Replacement	2019-20 (Q1)	Plant Funds (Aux-Dining)	\$ 305,000					\$ 305,000			Replace the steam and condensate lines which cross Dixie Avenue in front of the University Services Building.
TTU	Hooper Eblen Center Building Envelope Repairs	2019-20 (Q1)	Plant Funds (Aux.-Housing)	\$ 1,440,000					\$ 1,440,000			Complete envelope repairs to prevent water intrusion into the building. NOTE: When this project is brought forward to the SBC the university will ask to combine this project with the previously disclosed roof replacement project for this building. The two scopes of work are related and will be best if coordinated with a single designer and as a single project. The work will most likely be phased.
		2019-20 (Q1)										
		2019-20 (Q1)										
		2019-20 (Q1)										
		2019-20 (Q1)										
		2019-20 (Q1)										
		2019-20 (Q1)										

2019-20 (Q1)
2019-20 (Q1)

3.1 DB70

1 Department: Tennessee Higher Education Commission
Institution: Tennessee Tech University
Project: Dixie Avenue Steam Line Replacement
City/County: Cookeville/Putnam

2 Fiscal Year: 2019 / 2020

3			New		Reno/Maint
	<input type="checkbox"/>	Capital Outlay			
	<input type="checkbox"/>	Capital Maintenance	0	Gross Sq.Ft.	0
	<input checked="" type="checkbox"/>	Disclosure	0	Net Sq.Ft.	0
	<input checked="" type="checkbox"/>	Designer Required	0.00	Cost/Sq.Ft.	0.00

Type:

4 Project Description: If project is new construction, is it in Master Plan?

Replace the steam and condensate lines which cross Dixie Avenue in front of the University Services Building.

5	Total Project	This Request	Estimated Building Construction Cost:
	240,000	240,000	<input type="text" value="0"/>
	0	0	Building Construction
	0	0	Site & Utilities
	0	0	Built-in Equipment
	240,000	240,000	Bid Target
	24,000	24,000	Contingency: 10.00 10.00 percent
	264,000	264,000	MACC (Maximum Allowable Construction Cost)
	27,039	27,039	Fee: 35/LogP-1.15= 10.24205445 <input type="text" value="Renovation"/>
	0	0	Movable Equipment
	0	0	first other
	0	0	second other
	13,961	13,961	Administration & Miscellaneous
	305,000	305,000	Total Cost

6 Funding Request: THIS REQUEST

0	0	STATE funds	0
0	0	FEDERAL funds	
305,000	305,000	Local and Institutional Funds	<input type="text" value="Plant Funds (Aux. - Dining)"/>

7 Previous SBC Approved Funding:

	fund year	description
already approved for existing SBC project	0	
0	0	
plus This Request	0	
305,000	0	

8 SBC Action: If an existing project, SBC Project No.:

9 Designer:

3.2 Project Support Documentation sheet-1

Institution: [Tennessee Tech University](#)
Project: [Dixie Avenue Steam Line Replacement](#)

A. Architectural Program Scope

Replace the steam and condensate lines (2 of each) which cross Dixie Avenue in front of the University Services Building.

B. Evidence of Physical Facility Need

The steam lines have reached the end of their useful life. The condensate return lines are leaking and it was recently discovered the leaks are much worse than originally anticipated. It's been estimated the line replacements would result in energy savings in excess of \$50,000 per month.

The university will soon begin a transportation project to make improvements to Dixie Avenue. The steam and condensate lines must be replaced prior to completing the street improvements and related landscaping.

C. Historical Profile

D. Summary Results and Date of Physical Facilities Survey

3.3 Project Support Documentation sheet-2

Institution: Tennessee Tech University

Project: Dixie Avenue Steam Line Replacement

E. Cost Basis for Construction Estimate and Other Costs

The cost estimate was prepared by Facilities Services staff with assistance from one of our campus engineering consultants.

F. Project Schedule

Designer selection through project closeout estimated at 12 months.

G Campus or Architectural Program Impact

N/A

External Funding

Department: Tennessee Higher Education Commission

Institution: Tennessee Tech University

Project: Dixie Avenue Steam Line Replacement

305,000 Total External Funding			
	Amount	Non-Appropriated Category	Specifics of Source
100%	305,000	Plant Funds (Auxiliary)	Dining
0%	0	Plant Funds (Non-auxiliary)	
0%	0	Land Sale Proceeds	
0%	0	Access Fees	
0%	0	Student Fees	
0%	0	Gifts	
0%	0	Local Government	
0%	0	Federal Funds	
0%		TSSBA Revolving Credit Facility	Specify Term of Loan - 5 yr., 10 yr., etc.
0%	0	TSSBA (Long Term)	
0%	0	Other (Specify)	

Provide additional support information about the funding source(s) as needed:

3.1 DB70

1 Department: Tennessee Higher Education Commission
Institution: Tennessee Tech University
Project: Hooper Eblen Center Building Envelope Repairs
City/County: Cookeville/Putnam

2 Fiscal Year: 2019 / 2020

3			New		Reno/Maint
<input type="checkbox"/>	Capital Outlay				
<input type="checkbox"/>	Capital Maintenance		0	Gross Sq.Ft.	0
<input checked="" type="checkbox"/>	Disclosure	Type: <input type="text" value="Maintenance"/>	0	Net Sq.Ft.	0
<input checked="" type="checkbox"/>	Designer Required		0.00	Cost/Sq.Ft.	0.00

4 Project Description: If project is new construction, is it in Master Plan?

Complete envelope repairs to prevent water intrusion into the building.
 NOTE: When this project is brought forward to the SBC the university will ask to combine this project with the previously disclosed roof replacement project for this building. The two scopes of work are related and will be best if coordinated with a single designer and as a single project. The work will most likely be phased.

5	Total Project	This Request	Estimated Building Construction Cost:	
	1,160,000	1,160,000		<input type="text" value="0"/>
	0	0	Building Construction	
	0	0	Site & Utilities	
	0	0	Built-in Equipment	
	1,160,000	1,160,000	Bid Target	
	116,000	116,000	Contingency:	10.00 10.00 percent
	1,276,000	1,276,000	MACC (Maximum Allowable Construction Cost)	
	112,645	112,645	Fee:	35/LogP-1.15= 8.82794960 <input type="text" value="Renovation"/>
	0	0	Movable Equipment	
	0	0	first other	
	0	0	second other	
	51,355	51,355	Administration & Miscellaneous	
	1,440,000	1,440,000	Total Cost	

6 Funding Request:

	THIS REQUEST	
0	0	STATE funds
0	0	FEDERAL funds
1,440,000	1,440,000	Local and Institutional Funds <input type="text" value="Plant Funds (Aux.-Housing)"/>

7 Previous SBC Approved Funding:

	fund year	description
already approved for existing SBC project	0	
0	0	
plus This Request	0	
1,440,000	0	

8 SBC Action: If an existing project, SBC Project No.:

9 Designer:

3.2 Project Support Documentation sheet-1

Institution: Tennessee Tech University

Project: Hooper Eblen Center Building Envelope Repairs

A. Architectural Program Scope

Cut out and replace caulk joints where required. Remove brick, install through wall flashing with end dams and weeps where required. Tuck point deteriorated mortar joints. Install proper flashing and counter flashing if required. Install a continuous drip along the perimeter of the exposed concrete beam. Remove the exposed aggregate panels and replace with a suitable material.

B. Evidence of Physical Facility Need

Water intrusion has been a problem along the perimeter aluminum storefront, and with the exposed aggregate building panels. The building panels are deteriorating and a replacement material should be identified. Some water intrusion has also occurred along the caulk joints where the brick meet the perimeter concrete beam.

C. Historical Profile

The Hooper Eblen Center was built in 1976.

D. Summary Results and Date of Physical Facilities Survey

The latest PFS summary rating was 74.4 in 2014. The exterior enclosure rating was 3.5 out of 7, or 50%.

3.3 Project Support Documentation sheet-2

Institution: Tennessee Tech University

Project: Hooper Eblen Center Building Envelope Repairs

E. Cost Basis for Construction Estimate and Other Costs

The campus consultant assisted with preparation of the construction estimate.

F. Project Schedule

Unconfirmed at this time but 15 months for designer selection through construction close out seems reasonable based upon what we know.

G Campus or Architectural Program Impact

Special effort will be required to maintain the architectural appearance of the building when selecting a replacement material for the exposed aggregate panels.

External Funding

Department: Tennessee Higher Education Commission

Institution: Tennessee Tech University

Project: Hooper Eblen Center Building Envelope Repairs

1,440,000 Total External Funding			
	Amount	Non-Appropriated Category	Specifics of Source
100%	1,440,000	Plant Funds (Auxiliary)	Housing
0%	0	Plant Funds (Non-auxiliary)	
0%	0	Land Sale Proceeds	
0%	0	Access Fees	
0%	0	Student Fees	
0%	0	Gifts	
0%	0	Local Government	
0%	0	Federal Funds	
0%	0	TSSBA Revolving Credit Facility	Specify Term of Loan - 5 yr., 10 yr., etc.
0%	0	TSSBA (Long Term)	
0%	0	Other (Specify)	

Provide additional support information about the funding source(s) as needed:

3.1 DB70

1 Department: Tennessee Higher Education Commission
Institution: Tennessee Technological University
Project: Roaden University Center West Patio and Landscaping
City/County: Cookeville / Putnam

2 Fiscal Year: 2019 / 2020

<input type="checkbox"/>	Capital Outlay	New		Reno/Maint	1
<input type="checkbox"/>	Capital Maintenance		0	Gross Sq.Ft.	0
<input checked="" type="checkbox"/>	Disclosure	Type: <input type="text" value="Improvement"/>	0	Net Sq.Ft.	0
<input checked="" type="checkbox"/>	Designer Required		0.00	Cost/Sq.Ft.	0.00

4 Project Description: Is project to new construction, to fill master Plan?

Construct a patio with low wall seating and install a fire pit, lighting and landscaping on the west side of the Roaden University Center.

5	Total Project	This Request	Estimated Building Construction Cost: <input type="text" value="0"/>	
	330,000	330,000	Building Construction	
	0	0	Site & Utilities	
	0	0	Built-in Equipment	
	-----	-----	Bid Target	
	330,000	330,000	Contingency:	10.00 10.00 percent
	33,000	33,000	MACC (Maximum Allowable Construction Cost)	
	-----	-----	Fee:	35/LogP-1.15= 7.93667598 <input type="text" value="New"/>
	363,000	363,000	Movable Equipment	
	28,810	28,810	first other	
	0	0	second other	
	0	0	Administration & Miscellaneous	
	0	0	Total Cost	
	-----	-----		
	13,190	13,190		
	-----	-----		
	405,000	405,000		

6 Funding Request: THIS REQUEST

0	0	STATE funds	0
0	0	FEDERAL funds	
405,000	405,000	Local and Institutional Funds	<input type="text" value="Plant Funds (Aux-Dining)"/>

7 Previous SBC Approved Funding:

	fund year	description
already approved for existing SBC project	0	
0	0	
plus This Request	0	
405,000	0	

8 SBC Action: If an existing project, SBC Project No.:

9 Designer:

3.2 Project Support Documentation sheet-1

Institution: Tennessee Technological University

Project: Roaden University Center West Patio and Landscaping

A. Architectural Program Scope

Construct a patio with low wall seating and install a fire pit, lighting and landscaping on the west side of the Roaden University Center.

B. Evidence of Physical Facility Need

The patio, lighting and landscaping will complement the recent addition to the west side of the Roaden University Center and is in keeping with the greening of the campus initiative outlined in the University Master Plan. The patio addition will provide students an outdoor seating area adjacent to Starbucks and Swoops Grille.

C. Historical Profile

N/A

D. Summary Results and Date of Physical Facilities Survey

N/A

3.3 Project Support Documentation sheet-2

Institution: Tennessee Technological University

Project: Roaden University Center West Patio and Landscaping

E. Cost Basis for Construction Estimate and Other Costs

The campus civil engineering consultant provided a cost estimate and assisted the campus with developing the project scope.

F. Project Schedule

Designer selection and contract 2 months

Design 2 months

Bid, contract award, contract signing 2 months

Construction 5 months

Project Closeout 1 month

Total Schedule 12 months

G Campus or Architectural Program Impact

2

External Funding

Department: Tennessee Higher Education Commission

Institution: Tennessee Technological University

Project: Roaden University Center West Patio and Landscaping

405,000 Total External Funding			
	Amount	Non-Appropriated Category	Specifics of Source
100%	405,000	Plant Funds (Auxiliary)	Dining
0%	0	Plant Funds (Non-auxiliary)	
0%	0	Land Sale Proceeds	
0%	0	Access Fees	
0%	0	Student Fees	
0%	0	Gifts	
0%	0	Local Government	
0%	0	Federal Funds	
0%		TSSBA Revolving Credit Facility	Specify Term of Loan - 5 yr., 10 yr., etc.
0%	0	TSSBA (Long Term)	
0%	0	Other (Specify)	

Provide additional support information about the funding source(s) as needed:

Capital Disclosure: FY2020-21

	SPA	Project	Project Description**	Project Cost	New Sq. Ft.	Funding Source					
						TSSBA	Gifts	Grants	Auxiliary	Gift-in-Place	Plant Funds
1	TTU	TTU Quillen Field Lighting Upgrade	Install new LED lighting and poles at Bush Stadium/Quillen Field. Replace wiring, related components and equipment as required. New lighting shall comply with NCAA lighting requirements.	\$ 870,000					\$ 870,000		
2											
3											
4											
5											

** Provide a duplicate of the Project Description from the DB70 sheet. Additional brief summary comments may be added for support justification.

3.1 DB70

1 Department: Tennessee Higher Education Commission
Institution: Tennessee Tech University
Project: Quillen Field Lighting Upgrade
City/County: Cookeville/Putnam

2 Fiscal Year: 2020 / 2021

<input type="checkbox"/>	Capital Outlay	New		Reno/Maint
<input checked="" type="checkbox"/>	Capital Maintenance		0 Gross Sq.Ft.	0
<input type="checkbox"/>	Disclosure		0 Net Sq.Ft.	0
<input type="checkbox"/>	Designer Required		0.00 Cost/Sq.Ft.	0.00

4 Project Description:

Install new LED lighting and poles at Bush Stadium/Quillen Field. Replace wiring, related components and equipment as required. New lighting shall comply with NCAA lighting requirements.

5	Total Project	This Request	Estimated Building Construction Cost: <input type="text" value="0"/>	
	700,000	700,000	Building Construction	
	0	0	Site & Utilities	
	0	0	Built-in Equipment	
	700,000	700,000	Bid Target	
	70,000	70,000	Contingency:	10.00 10.00 percent
	770,000	770,000	MACC (Maximum Allowable Construction Cost)	
	71,123	71,123	Fee:	35/LogP-1.15= 9.23679630 <input type="text" value="Renovation"/>
	0	0	Movable Equipment	
	0	0	first other	
	0	0	second other	
	28,877	28,877	Administration & Miscellaneous	
	870,000	870,000	Total Cost	

6 Funding Request:	THIS REQUEST	
0	0	STATE funds
0	0	FEDERAL funds
870,000	870,000	Local and Institutional Funds <input type="text" value="Plant Funds - Aux"/>

7 Previous SBC Approved Funding:	fund year	description
already approved for existing SBC project	0	
plus This Request	0	
870,000	0	

8 SBC Action: If an existing project, SBC Project No.:

9 Designer:

3.2 Project Support Documentation sheet-1

Institution: Tennessee Tech University
Project: Quillen Field Lighting Upgrade

A. Architectural Program Scope

Install new LED lighting and poles at Bush Stadium/Quillen Field. Replace wiring, related components and equipment as required. New lighting shall comply with NCAA lighting requirements.

B. Evidence of Physical Facility Need

The existing lighting does not meet NCAA lighting requirements and the number of poles is inadequate. LED lighting is energy efficient, will cost less to operate, and has extended lamp life.

C. Historical Profile

The existing poles and lighting were installed in 1985.

D. Summary Results and Date of Physical Facilities Survey

N/A

3.3 Project Support Documentation sheet-2

Institution: Tennessee Tech University
Project: Quillen Field Lighting Upgrade

E. Cost Basis for Construction Estimate and Other Costs

Cost estimate was furnished buy our regional MEP consultant, who just completed the LED lighting upgrade for Floyd Stadium at MTSU. Our estimate was derived using actual construction costs from that project.

F. Project Schedule

18 months for design and construction.

G Campus or Architectural Program Impact

External Funding

Department: Tennessee Higher Education Commission

Institution: Tennessee Tech University

Project: Quillen Field Lighting Upgrade

0 Total External Funding			
	Amount	Non-Appropriated Category	Specifics of Source
#DIV/0!	0	Plant Funds (Auxiliary)	
#DIV/0!	0	Plant Funds (Non-auxiliary)	
#DIV/0!	0	Land Sale Proceeds	
#DIV/0!	0	Access Fees	
#DIV/0!	0	Student Fees	
#DIV/0!	0	Gifts	
#DIV/0!	0	Local Government	
#DIV/0!	0	Federal Funds	
#DIV/0!		TSSBA Revolving Credit Facility	Specify Term of Loan - 5 yr., 10 yr., etc.
#DIV/0!	0	TSSBA (Long Term)	
#DIV/0!	0	Other (Specify)	

Provide additional support information about the funding source(s) as needed:



Agenda Item Summary

Date: June 20, 2019

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 FY2019-20 maintenance and mandatory fees.

June 20, 2019, Audit & Business Committee Agenda & Materials - 2019-20 Student Fees

2019-20 Guidance Tuition Ranges¹
 2019-20 Maintenance and Mandatory Fee Increase Scenario and Comparison - 2.50% Limit

Institutions	2018-19			2019-20 Maximums			Combined Increase	Combined % Increase	2019-20 Binding Ranges				Expected Maintenance	Compliant?	Expected Maint. & Mand.	Compliant?
	Maintenance Fee	Mandatory Fee	Combined	Maintenance Fee	Mandatory Fee	Combined			Minimum	Maximum	Maintenance + Mandatory Fees Minimum	Mandatory Fees Maximum				
Austin Peay	\$ 6,888	\$ 1,583	\$ 8,471	\$ 7,060	\$ 1,623	\$ 8,683	\$ 212	2.50%	\$ 0 or Less	\$ 172	\$ 0 or Less	\$ 212	\$ -	Compliant	\$ -	Compliant
East Tennessee	\$ 7,422	\$ 1,855	\$ 9,277	\$ 7,608	\$ 1,901	\$ 9,509	\$ 232	2.50%	\$ 0 or Less	\$ 186	\$ 0 or Less	\$ 232	\$ -	Compliant	\$ -	Compliant
Middle Tennessee	\$ 7,380	\$ 1,826	\$ 9,206	\$ 7,565	\$ 1,872	\$ 9,436	\$ 230	2.50%	\$ 0 or Less	\$ 184	\$ 0 or Less	\$ 230	\$ -	Compliant	\$ -	Compliant
Tennessee State	\$ 6,900	\$ 1,107	\$ 8,007	\$ 7,073	\$ 1,135	\$ 8,207	\$ 200	2.50%	\$ 0 or Less	\$ 172	\$ 0 or Less	\$ 200	\$ -	Compliant	\$ -	Compliant
Tennessee Tech	\$ 7,860	\$ 1,243	\$ 9,103	\$ 8,057	\$ 1,274	\$ 9,331	\$ 228	2.50%	\$ 0 or Less	\$ 196	\$ 0 or Less	\$ 228	\$ 8,040	Compliant	\$ 9,318	Compliant
University of Memphis	\$ 8,064	\$ 1,637	\$ 9,701	\$ 8,266	\$ 1,678	\$ 9,944	\$ 243	2.50%	\$ 0 or Less	\$ 202	\$ 0 or Less	\$ 243	\$ -	Compliant	\$ -	Compliant
Chattanooga	\$ 4,140	\$ 319	\$ 4,459	\$ 4,244	\$ 327	\$ 4,570	\$ 111	2.50%	\$ 0 or Less	\$ 104	\$ 0 or Less	\$ 111	\$ -	Compliant	\$ -	Compliant
Cleveland	\$ 4,140	\$ 299	\$ 4,439	\$ 4,244	\$ 306	\$ 4,550	\$ 111	2.50%	\$ 0 or Less	\$ 104	\$ 0 or Less	\$ 111	\$ -	Compliant	\$ -	Compliant
Columbia	\$ 4,140	\$ 333	\$ 4,473	\$ 4,244	\$ 341	\$ 4,585	\$ 112	2.50%	\$ 0 or Less	\$ 104	\$ 0 or Less	\$ 112	\$ -	Compliant	\$ -	Compliant
Dyersburg	\$ 4,140	\$ 299	\$ 4,439	\$ 4,244	\$ 306	\$ 4,550	\$ 111	2.50%	\$ 0 or Less	\$ 104	\$ 0 or Less	\$ 111	\$ -	Compliant	\$ -	Compliant
Jackson	\$ 4,140	\$ 285	\$ 4,425	\$ 4,244	\$ 292	\$ 4,536	\$ 111	2.50%	\$ 0 or Less	\$ 104	\$ 0 or Less	\$ 111	\$ -	Compliant	\$ -	Compliant
Molloy	\$ 4,140	\$ 305	\$ 4,445	\$ 4,244	\$ 313	\$ 4,556	\$ 111	2.50%	\$ 0 or Less	\$ 104	\$ 0 or Less	\$ 111	\$ -	Compliant	\$ -	Compliant
Nashville	\$ 4,140	\$ 255	\$ 4,395	\$ 4,244	\$ 261	\$ 4,505	\$ 110	2.50%	\$ 0 or Less	\$ 104	\$ 0 or Less	\$ 110	\$ -	Compliant	\$ -	Compliant
Northeast	\$ 4,140	\$ 311	\$ 4,451	\$ 4,244	\$ 319	\$ 4,562	\$ 111	2.50%	\$ 0 or Less	\$ 104	\$ 0 or Less	\$ 111	\$ -	Compliant	\$ -	Compliant
Pellissippi	\$ 4,140	\$ 339	\$ 4,479	\$ 4,244	\$ 347	\$ 4,591	\$ 112	2.50%	\$ 0 or Less	\$ 104	\$ 0 or Less	\$ 112	\$ -	Compliant	\$ -	Compliant
Roane	\$ 4,140	\$ 303	\$ 4,443	\$ 4,244	\$ 311	\$ 4,554	\$ 111	2.50%	\$ 0 or Less	\$ 104	\$ 0 or Less	\$ 111	\$ -	Compliant	\$ -	Compliant
Southwest	\$ 4,140	\$ 319	\$ 4,459	\$ 4,244	\$ 327	\$ 4,570	\$ 111	2.50%	\$ 0 or Less	\$ 104	\$ 0 or Less	\$ 111	\$ -	Compliant	\$ -	Compliant
Volunteer	\$ 4,140	\$ 293	\$ 4,433	\$ 4,244	\$ 300	\$ 4,544	\$ 111	2.50%	\$ 0 or Less	\$ 104	\$ 0 or Less	\$ 111	\$ -	Compliant	\$ -	Compliant
Walters	\$ 4,140	\$ 288	\$ 4,428	\$ 4,244	\$ 295	\$ 4,539	\$ 111	2.50%	\$ 0 or Less	\$ 104	\$ 0 or Less	\$ 111	\$ -	Compliant	\$ -	Compliant
UT Chattanooga	\$ 6,888	\$ 1,776	\$ 8,664	\$ 7,060	\$ 1,820	\$ 8,881	\$ 217	2.50%	\$ 0 or Less	\$ 172	\$ 0 or Less	\$ 217	\$ -	Compliant	\$ -	Compliant
UT Knoxville (admitted after 2013-14)	\$ 11,110	\$ 1,896	\$ 13,006	\$ 11,388	\$ 1,943	\$ 13,331	\$ 325	2.50%	\$ 0 or Less	\$ 278	\$ 0 or Less	\$ 325	\$ -	Compliant	\$ -	Compliant
UT Martin (Part-Time & Full-Time w/ 60+ SCH) ²	\$ 7,416	\$ 1,460	\$ 8,876	\$ 7,601	\$ 1,497	\$ 9,098	\$ 222	2.50%	\$ 0 or Less	\$ 185	\$ 0 or Less	\$ 222	\$ -	Compliant	\$ -	Compliant
UT Martin (Full-Time w/ less than 60 SCH) ²	\$ 8,052	\$ 1,460	\$ 9,512	\$ 8,253	\$ 1,497	\$ 9,750	\$ 238	2.50%	\$ 0 or Less	\$ 201	\$ 0 or Less	\$ 238	\$ -	Compliant	\$ -	Compliant
TN Colleges of Applied Tech	\$ 3,612	\$ 230	\$ 3,842	\$ 3,702	\$ 236	\$ 3,938	\$ 96	2.50%	\$ 0 or Less	\$ 90	\$ 0 or Less	\$ 96	\$ -	Compliant	\$ -	Compliant
University Avg³	\$ 7,805	\$ 1,698	\$ 9,403	\$ 8,000	\$ 1,638	\$ 9,638	\$ 235	2.50%	\$ 0 or Less	\$ 195	\$ 0 or Less	\$ 235				
Community College Avg	\$ 4,140	\$ 304	\$ 4,444	\$ 4,244	\$ 311	\$ 4,555	\$ 111	2.50%	\$ 0 or Less	\$ 104	\$ 0 or Less	\$ 111				

1 - Tuition ranges are guidance until such time that the General Assembly approves a FY20 budget and the Higher Education Commission approves binding ranges.

2 - The tuition rate for full-time students who have completed fewer than 90-credit hours is a flat rate for 12 hours per semester, regardless how many hours the student is enrolled. Full-time students who have completed more than 90-credit hours are also charged a flat rate for 12 hours, regardless how many hours the student is enrolled. Part-time students are charged on a per-credit hour basis at the 90-credit hour rate.

3 - This average incorporates a weighted tuition for UT Martin students to reflect both differentiated tuition levels.

June 20, 2019, Audit & Business Committee Agenda & Materials - 2019-20 Student Fees

2019-2020 THEC Binding Tuition Ranges
Maintenance and Mandatory Fee Increase Dynamic Template

Institution	2018-19		2018-19			2019-20			2019-20 Percent Increases			2019-20 Total Fees			Are these fees compliant with the THEC tuition and tuition and mandatory fee ranges?	
	Maintenance Fee per SCH (1-12)	Maintenance Fee per SCH (12+)	Maintenance Fee	Mandatory Fee	Combined	Maintenance Fee per SCH (1-12)	Maintenance Fee per SCH (12+)	Mandatory Fee*	Maintenance Fee	Mandatory Fee	Combined	Maintenance Fee	Mandatory Fee	Combined		
Tennessee Tech	\$ 312	\$ 62	\$ 7,860	\$ 1,243	\$ 9,103	\$ 319	\$ 64	\$ 1,278	2.25%	2.82%	2.36%	\$ 8,040	\$ 1,278	\$ 9,318	Compliant	Compliant

* Proposed Annual Increase:
Technology Access Fee (TAF): \$17.50 per semester

Tennessee Tech University



Mandatory Fee Proposal 2019-2020

Tennessee Tech University
Fee Proposal Summary
FY2019-2020

MANDATORY FEES:

TAF Fee (Technology Access Fee)	\$17.50 max/sem	\$ 332,160
Total Increase Per Fee Proposal		<u>\$ 332,160</u>

TENNESSEE TECH UNIVERSITY
PROPOSED FEE CHANGES
2019-20

Description	Rates			Annual Revenue Impact of Fee Change	Prior Fee Increases	Justification
	Current 2018-19	Proposed 2019-20	Increase			
MANDATORY FEES:						
Technology Access Fee (TAF) <i>(To be included as a component of the General Access Fee, charged hourly and reaching a maximum at 7 hours)</i>	\$112.50 max/sem	\$130 max/sem	\$17.50	\$332,160	1993-94 \$15 max/sem 1997-98 \$50 max/sem 1998-99 \$100 max/sem 2001-02 \$112.50 max/sem	*Create a sustainable instructional equipment refresh plan. *Provide new technology for new science building. * Address the dramatic increase of technology within classrooms since last fee rate revision.
		Part-time per hour fee to be included with General Access Fee per hour rate				
		Requesting to budget into 1 pool instead of 2				

Tennessee Tech University

Impact of Proposed Increase on Maintenance & Mandatory Fees

Analysis - Fall 2018 vs. Fall 2019

Estimated Total Registration Fees by Major	Fall 2018	Fall 2019	\$ Increase	% Increase
Freshman:				
Agriculture (15 hrs)	\$ 4,826.50	\$ 4,949.00	\$ 122.50	2.54%
Arts & Sciences:				
Non-science concentration (15 hrs)	\$ 4,551.50	\$ 4,659.00	\$ 107.50	2.36%
Science concentration (17 hrs)	\$ 4,938.50	\$ 5,050.00	\$ 111.50	2.26%
Business Administration (15 hrs)	\$ 4,756.50	\$ 4,879.00	\$ 122.50	2.58%
Education:				
Arts (16 hrs)	\$ 4,763.50	\$ 4,873.00	\$ 109.50	2.30%
Music (16 hrs)	\$ 4,818.50	\$ 4,928.00	\$ 109.50	2.27%
Teaching Licensure (15 hrs)	\$ 4,686.50	\$ 4,794.00	\$ 107.50	2.29%
Non-Licensure (15 hrs)	\$ 4,776.50	\$ 4,884.00	\$ 107.50	2.25%
Engineering (16 hrs)	\$ 4,843.50	\$ 4,953.00	\$ 109.50	2.26%
Human Ecology (17 hrs)	\$ 4,965.50	\$ 5,077.00	\$ 111.50	2.25%
Nursing (16 hrs)	\$ 4,796.50	\$ 4,906.00	\$ 109.50	2.28%
Upperclassman: (Junior)				
Agriculture (15 hrs)	\$ 4,806.50	\$ 4,929.00	\$ 122.50	2.55%
Arts & Sciences:				
Non-science concentration (15 hrs)	\$ 4,551.50	\$ 4,659.00	\$ 107.50	2.36%
Science concentration (14 hrs)	\$ 4,764.50	\$ 4,870.00	\$ 105.50	2.21%
Business Administration (15 hrs)	\$ 5,076.50	\$ 5,259.00	\$ 182.50	3.59%
Education:				
Arts (15 hrs)	\$ 4,836.50	\$ 4,959.00	\$ 122.50	2.53%
Music (18 hrs)	\$ 5,012.50	\$ 5,126.00	\$ 113.50	2.26%
Teaching Licensure (18 hrs)	\$ 5,175.50	\$ 5,289.00	\$ 113.50	2.19%
Non-Licensure (15 hrs)	\$ 4,831.50	\$ 4,954.00	\$ 122.50	2.54%
Engineering (16 hrs)	\$ 5,396.50	\$ 5,506.00	\$ 109.50	2.03%
Human Ecology (14 hrs)	\$ 4,792.00	\$ 4,897.50	\$ 105.50	2.20%
Nursing (14 hrs)	\$ 5,232.50	\$ 5,338.00	\$ 105.50	2.02%

A proposed 2.36% increase in undergraduate maintenance fees will result in a per hour rate of \$319 and an over base rate of \$64.

Mandatory registration fees include a \$17.50 per semester General Access Fee (Technology Access Fee - TAF) increase.

Business SACF increased by \$5 dollars based on a previously approved phased increase.

Tennessee Tech University

Impact of Proposed Increase on Maintenance

Analysis - Fall 2018 vs. Fall 2019

Estimated Total Registration Fees by Major	Fall 2018	Fall 2019	Maintenance \$ Increase	% Increase
Freshman:				
Agriculture (15 hrs)	\$ 3,930.00	\$ 4,020.00	\$ 90.00	2.29%
Arts & Sciences:				
Non-science concentration (15 hrs)	\$ 3,930.00	\$ 4,020.00	\$ 90.00	2.29%
Science concentration (17 hrs)	\$ 4,054.00	\$ 4,148.00	\$ 94.00	2.32%
Business Administration (15 hrs)	\$ 3,930.00	\$ 4,020.00	\$ 90.00	2.29%
Education:				
Arts (16 hrs)	\$ 3,992.00	\$ 4,084.00	\$ 92.00	2.30%
Music (16 hrs)	\$ 3,992.00	\$ 4,084.00	\$ 92.00	2.30%
Teaching Licensure (15 hrs)	\$ 3,930.00	\$ 4,020.00	\$ 90.00	2.29%
Non-Licensure (15 hrs)	\$ 3,930.00	\$ 4,020.00	\$ 90.00	2.29%
Engineering (16 hrs)	\$ 3,992.00	\$ 4,084.00	\$ 92.00	2.30%
Human Ecology (17 hrs)	\$ 4,054.00	\$ 4,148.00	\$ 94.00	2.32%
Nursing (16 hrs)	\$ 3,992.00	\$ 4,084.00	\$ 92.00	2.30%
Upperclassman: (Junior)				
Agriculture (15 hrs)	\$ 3,930.00	\$ 4,020.00	\$ 90.00	2.29%
Arts & Sciences:				
Non-science concentration (15 hrs)	\$ 3,930.00	\$ 4,020.00	\$ 90.00	2.29%
Science concentration (14 hrs)	\$ 3,868.00	\$ 3,956.00	\$ 88.00	2.28%
Business Administration (15 hrs)	\$ 3,930.00	\$ 4,020.00	\$ 90.00	2.29%
Education:				
Arts (15 hrs)	\$ 3,930.00	\$ 4,020.00	\$ 90.00	2.29%
Music (18 hrs)	\$ 4,116.00	\$ 4,212.00	\$ 96.00	2.33%
Teaching Licensure (18 hrs)	\$ 4,116.00	\$ 4,212.00	\$ 96.00	2.33%
Non-Licensure (15 hrs)	\$ 3,930.00	\$ 4,020.00	\$ 90.00	2.29%
Engineering (16 hrs)	\$ 3,992.00	\$ 4,084.00	\$ 92.00	2.30%
Human Ecology (14 hrs)	\$ 3,868.00	\$ 3,956.00	\$ 88.00	2.28%
Nursing (14 hrs)	\$ 3,868.00	\$ 3,956.00	\$ 88.00	2.28%

A proposed 2.36% increase in undergraduate maintenance fees will result in a per hour rate of \$319 and an over base rate of \$64.

Tennessee Tech University

Proposed Maintenance Fee Increase Analysis

For FTE Hours and Per Credit Hour

Fee Description	For FTE				Per Credit Hour			
	Fall 2018	Fall 2019	\$ Increase	% Increase	Fall 2018	Fall 2019	\$ Increase	% Increase
Maintenance								
In-State Tuition (Undergraduate)	3,930.00	4,020.00	90.00	2.29%	312.00	319.00	7.00	2.2%
In-State Tuition Over Base (Undergraduate)					62.00	64.00	2.00	3.2%
In-State Tuition (Graduate)	5,218.00	5,344.00	126.00	2.4%	502.00	514.00	12.00	2.4%
In-State Tuition Over Base (Graduate)					99.00	102.00	3.00	3.0%
TN eCampus Fees**								
TN eCampus Tuition (Undergraduate)					312.00	319.00	7.00	2.2%
TN eCampus Course Fee (Undergraduate)					125.00	128.00	3.00	2.4%
TN eCampus Tuition (Graduate)					502.00	514.00	12.00	2.4%
TN eCampus Course Fee (Graduate)					125.00	128.00	3.00	2.4%
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					156.00	160.00	4.00	2.6%
Graduate					251.00	257.00	6.00	2.4%

* 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 Tuition for exclusively online schedules.

Tennessee Tech University

Proposed Graduate Maintenance Fees

Fall 2018 vs. Fall 2019

Graduate In-State Tuition				
	Fall 2018	Fall 2019	Dollars Increase	Percentage Increase
For Base 10 Hours	\$ 5,020	\$ 5,140	\$ 120	2.4%
Hourly rate over base hours	\$ 99	\$ 102	\$ 3	3.0%

Tennessee Tech University
Graduate Student Analysis - Total by Assistantship Type
Spring 2019

Assistantship	College	# Students	Totals	%
Research Assistants	Arts & Science	7		
	Education	14		
	Engineering	82		
	Interdisciplinary Studies	7		
	Total			110
Support Assistants	Arts & Science	2		
	Business	16		
	Education	18		
	Engineering	2		
	Interdisciplinary Studies	6		
	Nursing	1		
	Total			45
Teaching Assistants	Arts & Science	41		
	Business	2		
	Education	26		
	Engineering	57		
	Interdisciplinary Studies	4		
	Nursing	3		
Total			133	11.55%
No Assistantship	Arts & Science	6		
	Business	189		
	Education	331		
	Engineering	79		
	Independent Programs	8		
	Interdisciplinary Studies	134		
	Nursing	117		
	Total			864
Total Graduate Students			1,152	100.00%

Tennessee Tech University
 Graduate Student Analysis - Total by College
 Spring 2019

College	# Students	# Assistantships	%
Arts & Science	56	50	89.29%
Business	207	18	8.70%
Education	389	58	14.91%
Engineering	220	141	64.09%
Independent Programs	8	0	0.00%
Interdisciplinary Studies	151	17	11.26%
Nursing	121	4	3.31%
Totals	1,152	288	25.00%

Tennessee Tech University
 Graduate Student Analysis - Residency Type
 Spring 2019

Student Type	Residency	Domestic	International*	Total
In-State	Border County	1	0	1
	Full-Time/Part-Time	4	1	5
	In-State	969	13	982
	OST - Grad Assistant	32	97	129
	Total In-State	1006	111	1,117
Out-of-State	In-State Non-Verified	0	1	1
	Out-of-State	22	12	34
	Total Out-of-State	22	13	35
Total for All Graduate Students		1028	124	1,152

** Includes residency codes that include non-citizens, permanent resident aliens, asylum seekers, refugees, and resident aliens for tax purposes.*



State of Tennessee

PUBLIC CHAPTER NO. 614

SENATE BILL NO. 1665

By Dickerson, Gresham, Yarbrow

Substituted for: House Bill No. 1684

By Smith, Ragan, Daniel, Moody, Hardaway, Terry, Towns

AN ACT to amend Tennessee Code Annotated, Title 49, Chapter 11; Title 49, Chapter 7; Title 49, Chapter 8 and Title 49, Chapter 9, relative to higher education.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF TENNESSEE:

SECTION 1. Tennessee Code Annotated, Title 49, Chapter 7, is amended by adding the following language as a new part:

49-7-1601.

This part shall be known and may be cited as the "Tuition Transparency and Accountability Act."

49-7-1602.

As used in this part:

(1) "Board" means the trustees of the University of Tennessee or a state university board, as applicable;

(2) "Cost of attendance" means the combined cost of tuition, mandatory fees, room and board, books, and other educational expenses as determined by the financial aid office of the postsecondary institution;

(3) "Predictive cost estimate" means a non-binding estimated cost of attending an undergraduate program at the postsecondary institution based on a student's chosen field of study over a four-year period. A predictive cost estimate may include, but is not limited to, potential tuition and mandatory fee increases, projected increases in tuition based on a student's chosen field of study, and historical trend data; and

(4) "Tuition and mandatory fees" means the charges imposed to attend the relevant institution of higher education as an in-state undergraduate student and all fees required as a condition of enrollment as determined by the board. "Tuition and mandatory fees" does not include fees charged to out-of-state students by institutions of higher education, room and board, or other non-mandatory fees and charges.

49-7-1603.

(a) At least fifteen (15) days prior to holding a meeting to adopt an increase in tuition and mandatory fees, a board shall give public notice of the proposed tuition and mandatory fee increase as an action item on the board's meeting agenda. Individuals shall be permitted to provide comments during the fifteen-day period. The public notice of the proposed tuition and mandatory fee increase shall, at a minimum, include:

(1) An explanation for the proposed tuition and mandatory fee increase;

(2) A statement specifying the purposes for which revenue derived from the tuition and mandatory fee increase will be used; and

SB 1665

(3) A description of the efforts to mitigate the effect of the tuition and mandatory fee increase on students.

(b)(1) By January 1, 2019, each board shall develop a list of factors that shall be considered when developing recommendations to increase tuition and mandatory fees. The factors shall include, at a minimum, the level of state support; total cost of attendance; and efforts to mitigate the financial effect on students.

(2) Each state university and each campus in the University of Tennessee system shall post on its website a summary of the recommendations pursuant to subdivision (b)(1).

49-7-1604.

By February 1 of each year, each governing board shall provide a report to the office of legislative budget analysis, for distribution to the general assembly, with information regarding expenditures of revenues derived from any tuition and fees increase in the previous full academic year. The report shall include how revenues were used, the effect on student financial aid, and the effect on the average total cost of attendance per student.

49-7-1605.

Beginning August 1, 2019, each state university and each campus in the University of Tennessee system shall provide, with a student's letter of acceptance, a predictive cost estimate for students applying for undergraduate degree programs for the 2020-2021 academic year and for academic years thereafter.

SECTION 2. This act shall take effect July 1, 2018, the public welfare requiring it.

SENATE BILL NO. 1665

PASSED: March 19, 2018


RANDY McNALLY
SPEAKER OF THE SENATE


BETH HARWELL, SPEAKER
HOUSE OF REPRESENTATIVES

APPROVED this 2nd day of April 2018


BILL HASLAM, GOVERNOR

State of Tennessee
2018 Public Acts, Chapter 614

T.C.A. § 49-7-1603(b)

(1) By January 1, 2019, each board shall develop a list of factors that shall be considered when developing recommendations to increase tuition and mandatory fees. The factors shall include at a minimum, the level of state support, total cost of attendance, and efforts to mitigate the financial effect on students.

(2) Each state university and each campus in the University of Tennessee system shall post on its website a summary of the recommendations pursuant to subdivision (b)(1)

Mandatory factors:

1. Level of state support
2. Total cost of attendance
3. Efforts to mitigate the financial effect on students

Additional factors to consider:

1. THEC mandatory tuition and fee ranges
2. Comparison to peer institutions, competitor institutions, other LGIs
3. Higher Education Price Index

Tennessee Tech University

Comments Received Pursuant to Tennessee Code Annotated 49-7-1603

On May 24th, 2019 Tennessee Tech University published on its Board of Trustees Website a Notice of Proposed Tuition and Mandatory Fee Increase along with a mechanism for collecting comments regarding the proposed fee increase. On May 26th, 2019 Tennessee Tech University also published a notice of the upcoming June board meeting along with a solicitation for comments relating to the proposed increase in maintenance and mandatory fees. The comment period was closed on June 13, 2019 in accordance with Tennessee Code Annotated 49-7-1603. Below are the comments received:

Date: June 3, 2019 – 3:28PM

Name: [REDACTED]

Email: [REDACTED]

Category: Current Student

Comment: Dear Office of the University Counsel and Board Secretary, Most processes regarding the feasibility of certain policies come with: description of the policy, why the policy is needed, and alternatives to the policy that may also fix or address the needs. The process here regarding tuition increases lacks a good why it's needed, and neglects any alternatives that may be feasible. Year after year fees and tuition climb, with poor justifications of increased spending on increasingly dubious programs that substantially deviate from core academic responsibilities and do not generally help anyone but the person who dreamed up the project. Proposed alternatives would be nice at the very least, even if they will be ignored eventually. Spending restraint would be nice, to reduce the burden on taxpayers and tuition payers, of which I happen to be both. I disagree with the proposed increase but my strenuous objection will be ignored.

Thanks,

[REDACTED]

Date: June 11, 2019 – 3:05PM

Name: Not Submitted

Email: Not Submitted

Category: Other

Comment: Many new bureaucratic positions keep getting created. Watch the ads in the local paper for jobs. Also, some jobs are just being created or open positions are given to "friends". It is ridiculous to pass on fees and tuition to the student when these things are going on. Students are paying for this overhead with no educational benefits at all.



Agenda Item Summary

Date: June 20, 2019

Division: Planning and Finance

Agenda Item: Non-mandatory Online & Alternative Delivery Fee

Review

Action

No action required

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

PURPOSE & KEY POINTS:

Recommendation of Tennessee Tech's Non-Mandatory Online & Alternative Delivery Fee structure.

Tennessee Tech University



Non-Mandatory Fee Proposal 2019-2020

TENNESSEE TECH UNIVERSITY
PROPOSED FEE CHANGES
2019-20

Description	Rates		Annual Revenue Impact of Fee Change	Prior Fee	Justification
	Current 2018-19	Proposed 2019-20			
NON-MANDATORY FEES:					
Online and Alternative Delivery Fee	None	40% of Undergraduate Maintenance Fee	\$128 / per hour	\$1,200,000	Current TN eCampus Online Course Fee is 40% of Undergraduate Maintenance. Provides a consistent and simplified fee structure for online and 2+2 courses. Fee applies to all Tennessee Tech courses taught 100% online and all Tennessee Tech 2+2 courses. Fee charged in lieu of General Access Fee. *General Access Fee (\$62 per hour - proposed)



Agenda Item Summary

Date: June 20, 2019

Division: Planning and Finance

Agenda Item: 2018-19 Estimated and 2019-20 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 FY2018-19 Estimated and FY2019-20 Proposed Budgets.

E&G Revenues - Current Estimate FY2018-19 and Proposed Budget FY2019-20

	Current Estimate FY2018-19		Proposed Budget FY2019-20		% Change Over Current Estimate
Tuition and Fees	\$	95,893,800	\$	94,100,800	-1.87%
State Appropriations	\$	53,528,100	\$	59,187,800	10.57%
Contracts and IDC	\$	971,400	\$	971,400	0.00%
Sales and Services	\$	870,000	\$	855,500	-1.67%
Other Activities	\$	3,613,880	\$	3,679,310	1.81%
Athletics (inc student fee)	\$	6,334,620	\$	6,202,390	-2.09%
Total Revenues	\$	161,211,800	\$	164,997,200	2.35%

E&G Expenses by Budget Category - Current Estimate FY2018-19 and Proposed Budget FY2019-20

	Current Estimate FY2018-19		Proposed Budget FY2019-20		% Change Over Current Estimate
Instruction	\$	73,917,800	\$	74,951,100	1.40%
Research	\$	3,644,000	\$	2,730,200	-25.08%
Public Service	\$	2,565,300	\$	2,224,600	-13.28%
Academic Support	\$	12,370,400	\$	12,661,600	2.35%
Student Services	\$	19,762,100	\$	19,128,000	-3.21%
Institutional Support	\$	15,468,300	\$	16,372,500	5.85%
Oper. & Maint. of Plant	\$	13,872,100	\$	14,458,600	4.23%
Scholarships & Fellowships	\$	16,057,700	\$	17,351,100	8.05%
Total Expenses	\$	157,657,700	\$	159,877,700	1.41%

E&G Expenses by Natural Classification - Current Estimate FY2018-19 and Proposed Budget FY2019-20

	Current Estimate FY2018-19		Proposed Budget FY2019-20		% Change Over Current Estimate
Salaries and Wages	\$	77,588,300	\$	81,844,000	5.48%
Fringe Benefits	\$	31,799,800	\$	34,019,400	6.98%
Travel	\$	2,669,700	\$	2,083,100	-21.97%
Operating & Utilities	\$	29,054,000	\$	24,248,600	-16.54%
Scholarships & Fellowships	\$	16,057,700	\$	17,351,100	8.05%
Capital	\$	488,200	\$	331,500	-32.10%
Total Expenses	\$	157,657,700	\$	159,877,700	1.41%

E&G Unrestricted Budget Summary - Current Estimate FY2018-19 and Proposed Budget FY2019-20

	Current Estimate FY2018-19		Proposed Budget FY2019-20		% Change Over Current Estimate
Beginning Fund Balance	\$	11,468,951	\$	7,687,186	-32.97%
E&G Revenues	\$	161,211,800	\$	164,997,200	2.35%
E&G Expenses	\$	157,657,700	\$	159,877,700	1.41%
Mandatory Transfers	\$	369,900	\$	369,900	0.00%
Non-mandatory Transfers	\$	6,966,000	\$	4,683,900	-32.76%
Ending Fund Balance	\$	7,687,151	\$	7,752,886	0.86%

Auxiliary Budget Summary - Current Estimate FY2018-19 and Proposed Budget FY2019-20

	Current Estimate FY2018-19		Proposed Budget FY2019-20		% Change Over Current Estimate
Beginning Fund Balance	\$	1,583,250	\$	1,448,814	-8.49%
Aux Revenues	\$	18,357,800	\$	18,320,800	-0.20%
Aux Expenses	\$	7,262,100	\$	7,431,100	2.33%
Mandatory Transfers	\$	5,152,300	\$	5,152,300	0.00%
Non-mandatory Transfers	\$	6,077,800	\$	5,737,400	-5.60%
Ending Fund Balance	\$	1,448,850	\$	1,448,814	0.00%

TOTAL Budget Summary - Current Estimate FY2018-19 and Proposed Budget FY2019-20

	Current Estimate FY2018-19		Proposed Budget FY2019-20		% Change Over Current Estimate
Beginning Fund Balance	\$	13,052,200	\$	9,136,000	-30.00%
Total Revenues	\$	179,569,600	\$	183,318,000	2.09%
Total Expenses	\$	164,919,800	\$	167,308,800	1.45%
Mandatory Transfers	\$	5,522,200	\$	5,522,200	0.00%
Non-mandatory Transfers	\$	13,043,800	\$	10,421,300	-20.11%
Ending Fund Balance	\$	9,136,000	\$	9,201,700	0.72%

Breakdown of E&G Fund Balance - Current Estimate FY2018-19 and Proposed Budget FY2019-20

	Current Estimate FY2018-19			
	Beginning Fund Balance		Ending Fund Balance	
Allocation for Encumbrances	\$	186,960	\$	186,960
Allocation for Working Capital	\$	1,787,552	\$	1,787,552
Special Allocations*	\$	9,494,527	\$	5,712,699
Unallocated Balance	\$	-	\$	-
Total E&G Fund Balance	\$	11,469,039	\$	7,687,211
*2% to 5% Reserve	\$	7,019,006	\$	3,237,179
*Student Activity Fee	\$	455,381	\$	455,381
*Technology Access Fee	\$	1,110,158	\$	1,110,158
*Specialized Academic Course Fee	\$	909,981	\$	909,981
Total Special Allocations	\$	9,494,527	\$	5,712,699

	Proposed Budget FY2019-20			
	Beginning Fund Balance		Ending Fund Balance	
Allocation for Encumbrances	\$	186,960	\$	186,960
Allocation for Working Capital	\$	1,787,552	\$	1,787,552
Special Allocations*	\$	5,712,499	\$	5,780,303
Unallocated Balance	\$	-	\$	-
Total E&G Fund Balance	\$	7,687,011	\$	7,754,815
*2% to 5% Reserve	\$	3,236,979	\$	3,304,783
*Student Activity Fee	\$	455,381	\$	455,381
*Technology Access Fee	\$	1,110,158	\$	1,110,158
*Specialized Academic Course Fee	\$	909,981	\$	909,981
Total Special Allocations	\$	5,712,499	\$	5,780,303

E&G Transfers - Current Estimate FY2018-19 and Proposed Budget FY2019-20

	Current Estimate FY2018-19	Proposed Budget FY2019-20
	<u>Debt Service and Unexpended Plant</u>	
Debt Service Perf Contract	\$ 369,930	\$ 369,930
Debt Service Fitness Center	\$ 2,021,730	\$ 2,021,730
Debt Service Univ Center	\$ 89,460	\$ 89,460
Debt Service Eblen Center	\$ 196,810	\$ 196,810
Facilities Development (fee)	\$ 867,000	\$ 845,500
Parking and Transportation	\$ 1,043,275	\$ 1,069,292
Extraordinary Maintenance	\$ 650,000	\$ 650,000
Small Projects	\$ 4,225,276	\$ 841,000
Total Debt Service & Unexp Plant	\$ 9,463,481	\$ 6,083,722
	<u>Renewal and Replacement</u>	
IT Computer Equipment	\$ 77,110	\$ 77,110
Electronic Upgrades	\$ 350,000	\$ 350,000
Equipment - Departments	\$ 593,000	\$ 543,000
Reserves	\$ (3,147,700)	\$ (2,000,000)
Total R&R	\$ (2,127,590)	\$ (1,029,890)
GRAND TOTAL All Transfers	\$ 7,335,891	\$ 5,053,832

Reserves - Proposed Budget FY2019-20 - Beginning July 1		
		<u>Unexpended Plant</u>
Land Purchases	\$	2,977,254
New Construction:		
Science Building	\$	10,214,875
Fitness & Rec Center	\$	19,057,126
Agriculture Facility	\$	235,000
Parking & Transportation	\$	4,359,264
Landscaping	\$	607,486
Residence Hall Rvn & Roof	\$	1,673,779
Roaden Center Rvn	\$	675,348
Eblen Center Rvn	\$	884,085
Infrastructure & HVAC	\$	7,053,358
Football Digital Board	\$	122,605
Volpe Library Expansion	\$	544,914
Engineering Master Plan	\$	797,200
Extraordinary Maint.	\$	2,173,062
Engineering Vehicle	\$	490,000
Depts. Small Projects	\$	327,918
Other Small Projects	\$	17,945
Total Unexpended Plant	\$	52,211,218
		<u>Renewal and Replacement</u>
Auxiliary - Housing	\$	17,674,027
Auxiliary - Other	\$	14,985,511
Computer Center	\$	2,183,178
Technology Update	\$	1,235,510
Telecommunication	\$	405,890
Printing & Photo Srv	\$	235,183
Motor Pool	\$	670,368
Craft Center R&R	\$	886,442
Departmental R&R	\$	443,145
University Reserve	\$	3,100,233
Total R&R	\$	41,819,487
GRAND TOTAL All Reserves	\$	94,030,705

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Tennessee Tech University
Summary Of Unrestricted Current Funds Available And Applied
July Budget 2019-20

	Actual 2017-18	October Budget 2018-19	Estimated Budget 2018-19	% Change Over Actual	July Budget 2019-20	% Change Over Actual
Unrestricted Current Fund Balances						
at Beginning of Period						
Allocation for Encumbrances	270,194	198,800	198,800	-26.4	198,800	-26.4
Allocation for Working Capital	3,335,259	2,306,600	2,306,600	-30.8	2,306,600	-30.8
Special Allocations	8,731,020	10,418,000	10,418,000	19.3	6,630,600	-24.1
Unallocated Balance	324,645	128,800	128,800	-60.3	0	-100.0
Total Unrestricted Current Fund Balances	12,661,118	13,052,200	13,052,200	03.1	9,136,000	-27.8
Revenues						
Education and General						
Tuition and Fees	97,159,435	94,772,200	95,893,800	-01.3	94,100,800	-03.1
State Appropriations	47,219,674	53,528,100	53,528,100	13.4	59,187,800	25.3
Federal Grants and Contracts	1,122,030	869,700	869,700	-22.5	869,700	-22.5
Local Grants and Contracts	0	3,200	3,200		3,200	
State Grants and Contracts	148,277	59,400	59,400	-59.9	59,400	-59.9
Private Grants and Contracts	69,671	39,100	39,100	-43.9	39,100	-43.9
Private Gifts	22,131	0	0	-100.0	0	-100.0
Sales & Services of Educ Activities	1,173,536	862,500	870,000	-25.9	855,500	-27.1
Sales & Services of Other Activities	8,786,549	8,624,800	8,702,500	-01.0	8,635,700	-01.7
Other Sources	1,973,020	1,234,000	1,246,000	-36.8	1,246,000	-36.8
Total Education and General	157,674,323	159,993,000	161,211,800	02.2	164,997,200	04.6
Sales & Services of Aux Enterprises						
Sales and Services of Aux Enterprises	18,467,239	18,332,500	18,357,800	-00.6	18,320,800	-00.8
Total Revenues	176,141,562	178,325,500	179,569,600	01.9	183,318,000	04.1
Expenditures and Transfers						
Education and General						
Instruction	69,303,486	75,207,400	73,917,800	06.7	74,951,100	08.1
Research	2,617,240	3,415,500	3,644,000	39.2	2,730,200	04.3
Public Service	2,279,577	2,468,100	2,565,300	12.5	2,224,600	-02.4
Academic Support	11,547,115	12,064,400	12,370,400	07.1	12,661,600	09.7
Student Services	19,694,821	18,944,200	19,762,100	00.3	19,128,000	-02.9
Institutional Support	15,075,726	15,639,400	15,468,300	02.6	16,372,500	08.6
Operation & Maintenance of Plant	12,679,027	14,391,900	13,872,100	09.4	14,458,600	14.0
Scholarships & Fellowships	15,995,855	17,235,400	16,057,700	00.4	17,351,100	08.5
Total Education and General	149,192,847	159,366,300	157,657,700	05.7	159,877,700	07.2
Mandatory Transfers for:						
Principal & Interest	427,524	369,900	369,900	-13.5	369,900	-13.5
Renewals & Replacements	0	0	0		0	

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Tennessee Tech University
Summary Of Unrestricted Current Funds Available And Applied
July Budget 2019-20

	Actual 2017-18	October Budget 2018-19	Estimated Budget 2018-19	% Change Over Actual	July Budget 2019-20	% Change Over Actual
Loan Fund Matching Grant	0	0	0		0	
Total Mandatory Transfers	427,524	369,900	369,900	-13.5	369,900	-13.5
Non-Mandatory Transfers for:						
Transfers to Unexpended Plant Fund	4,531,925	3,725,300	7,105,600	56.8	3,705,800	-18.2
Transfers to Renewal & Replacements	746,094	700,100	726,900	-02.6	1,670,100	123.8
Transfers to Other Funds	2,404,129	2,308,000	2,308,000	-04.0	2,308,000	-04.0
Transfers from Unexpended Plant Fund	0	0	0		0	
Transfers from Renewal & Replacements	0	-2,668,800	-3,174,500		-3,000,000	
Transfers from Other Funds	0	0	0		0	
Total Non-Mandatory Transfers	7,682,148	4,064,600	6,966,000	-09.3	4,683,900	-39.0
Total Education and General	157,302,519	163,800,800	164,993,600	04.9	164,931,500	04.8
Auxiliary Enterprises Expenditures						
Auxiliary Enterprises Expenditures	7,010,206	7,360,800	7,262,100	03.6	7,431,100	06.0
Total Auxiliary Expenditures	7,010,206	7,360,800	7,262,100	03.6	7,431,100	06.0
Mandatory Transfers for:						
Principal & Interest	5,184,815	5,152,300	5,152,300	-00.6	5,152,300	-00.6
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	5,184,815	5,152,300	5,152,300	-00.6	5,152,300	-00.6
Non-Mandatory Transfers for:						
Transfers to Unexpended Plant Fund	0	0	0	00.0	0	00.0
Transfers to Renewal & Replacements	6,252,874	5,955,200	6,077,800	-02.8	5,737,400	-08.2
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	6,252,874	5,955,200	6,077,800	-02.8	5,737,400	-08.2
Total Auxiliary Enterprises	18,447,895	18,468,300	18,492,200	00.2	18,320,800	-00.7
Total Expenditures And Transfers	175,750,414	182,269,100	183,485,800	04.4	183,252,300	04.3
Other						
Prior Period Adjustments	0	0	0	00.0	0	00.0

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Form I

Page 3
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Tennessee Tech University
Summary Of Unrestricted Current Funds Available And Applied
July Budget 2019-20

	Actual 2017-18	October Budget 2018-19	Estimated Budget 2018-19	% Change Over Actual	July Budget 2019-20	% 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	198,818	198,800	198,800	00.0	198,800	00.0
Allocation for Working Capital	2,306,620	2,306,600	2,306,600	00.0	2,306,600	00.0
Special Allocations	10,418,025	6,603,200	6,630,600	-36.4	6,696,300	-35.7
Unallocated Balance	128,803	0	0	-100.0	0	-100.0
Total Unrestricted Current Fund Balances	13,052,266	9,108,600	9,136,000	-30.0	9,201,700	-29.5

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Page 4
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Tennessee Tech University
Summary Of Unrestricted Current Funds Available And Applied
July Budget 2019-20
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Budget Id:	FY2019
Budget Phase 5:	185A
Budget Phase 2:	192R
Budget Phase 3:	193E
Budget Phase 4:	204P
Fund:	
Begin Page Number:	1
Suppress Zero Amounts:	N

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/businessoffice/pdf/budget/Budget_Summary_July_FY19-20.pdf

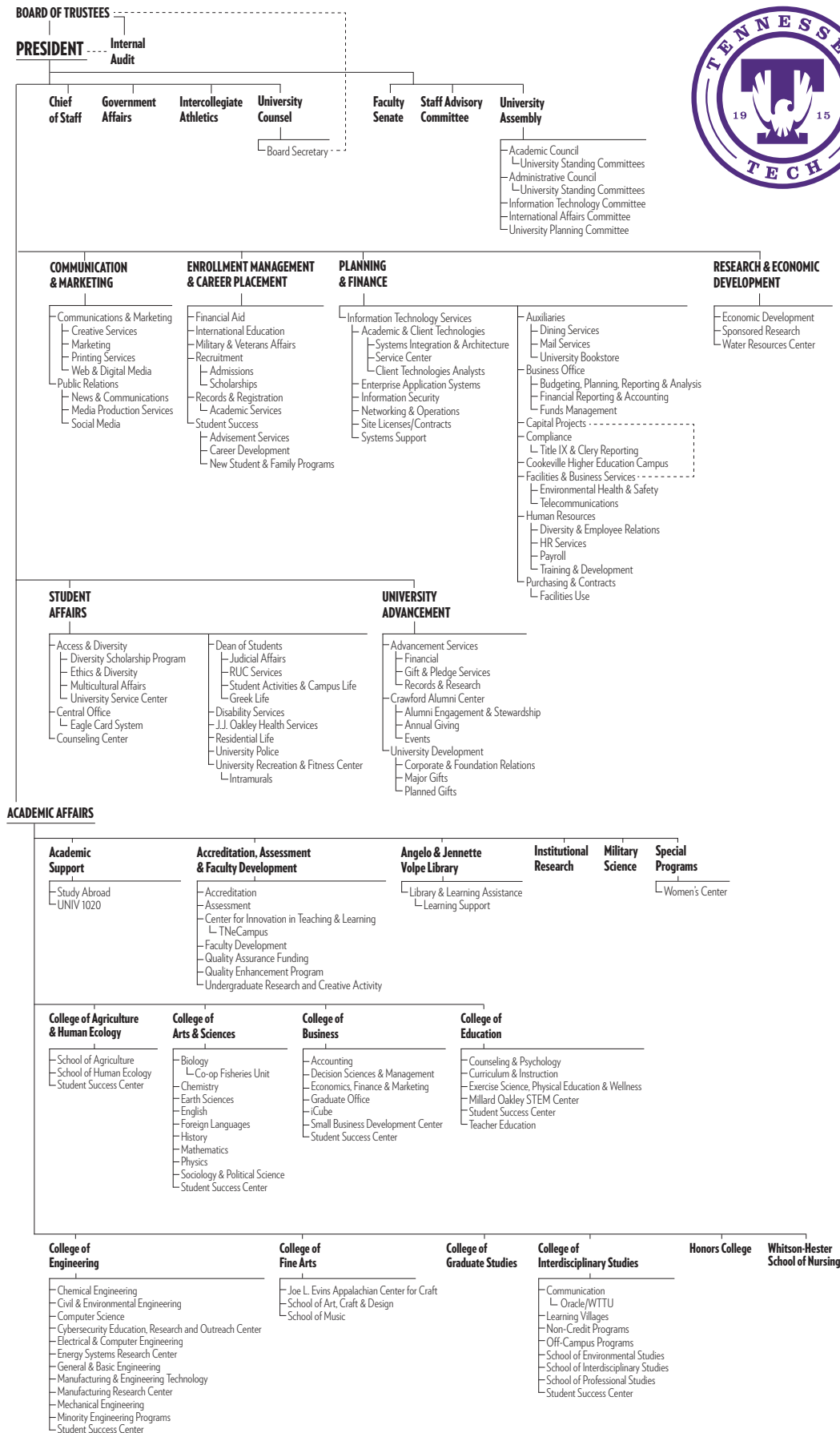
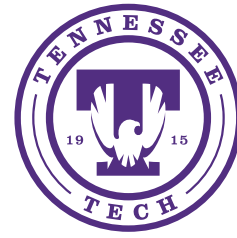
Direct Link to document – **Analysis:**

https://www.tntech.edu/businessoffice/pdf/budget/Budget_Analysis_July_FY19-20.pdf

Historical Budget documents (FY2011 through FY2019):

Budget **Summary:** <https://www.tntech.edu/businessoffice/bpra/budgetary-info.php>

Budget **Analysis:** <https://www.tntech.edu/businessoffice/bpra/budgetary-info.php>





Office of the President

TENNESSEE TECH

May 3, 2019

Submitting on behalf of Tennessee Tech University (TTU) a crosswalk of organizational changes/updates with a proposed implementation date of July 1, 2019, as follows:

Academic Affairs

- Remove Communications, including Oracle/WTTU, from College of Arts & Sciences
- Add Communications, including Oracle/WTTU, to College of Interdisciplinary Studies

Communications & Marketing

- Add Social Media as a unit under Public Relations
- Name change of Media Production Center to Media Production Services

Planning and Finance

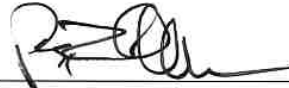
- Name change of Employee Services to HR Services under Human Resources
- Name change of Training/Records to Training & Development under Human Resources
- Remove dotted line from President to Diversity & Employment Relations

Student Affairs

- Realign University Service Center unit under Student Affairs Access & Diversity
- Add Central Office unit under Student Affairs
- Realign Eagle Card System unit to report to Central Office
- Add Greek Life unit under Dean of Students
- Realign Residential Life unit to Student Affairs
- Remove Student Development

University Advancement

- Remove Information Services and Stewardship under Advancement Services
- Remove Stewardship unit under Advancement Services
- Rename Alumni Engagement to Alumni Engagement and Stewardship
- Add Events under Crawford Alumni Center
- Add University Development as a new unit reporting to University Advancement
- Realign Foundation Relations, Major Gifts and Planned Gifts under University Development



Dr. Philip B. Oldham, President



Agenda Item Summary

Date: June 20, 2019

Division: Planning and Finance

Agenda Item: Five-Year Strategic Financial Plan Update

Review

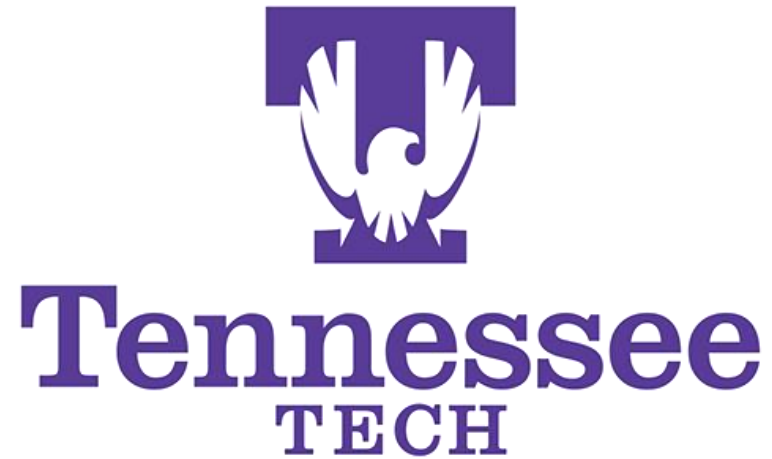
Action

No action required

PRESENTERS: Dr. Phil Oldham, President

PURPOSE & KEY POINTS:

Update on progress towards a Five-Year Strategic Financial Plan.



Update on Data Dashboard Project

Presentation to Audit & Business Committee
Board of Trustees

June 20, 2019



Project Dataset

- Compiled from various university and THEC sources
 - Institutional Research
 - Planning & Finance
 - Athletics
 - University Advancement
 - Research
 - THEC Funding Formula reports

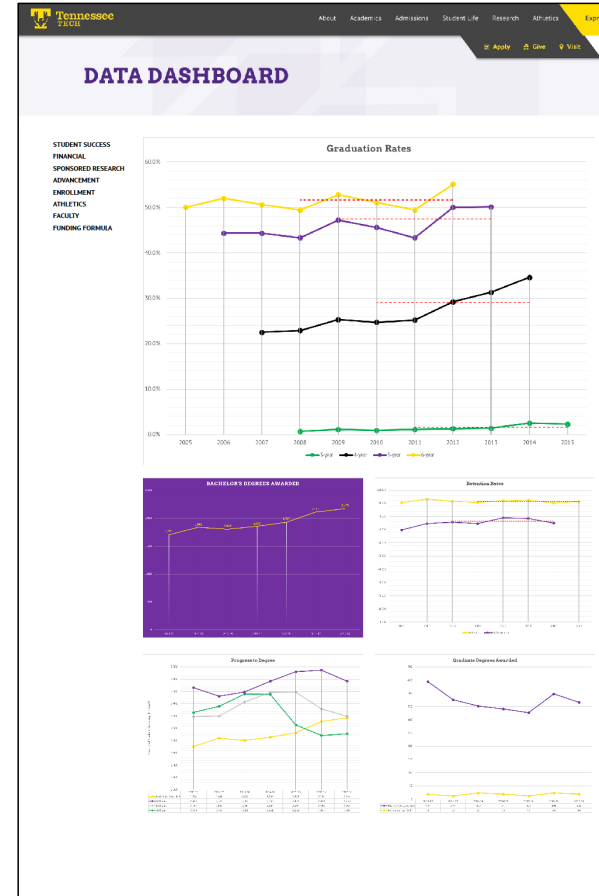
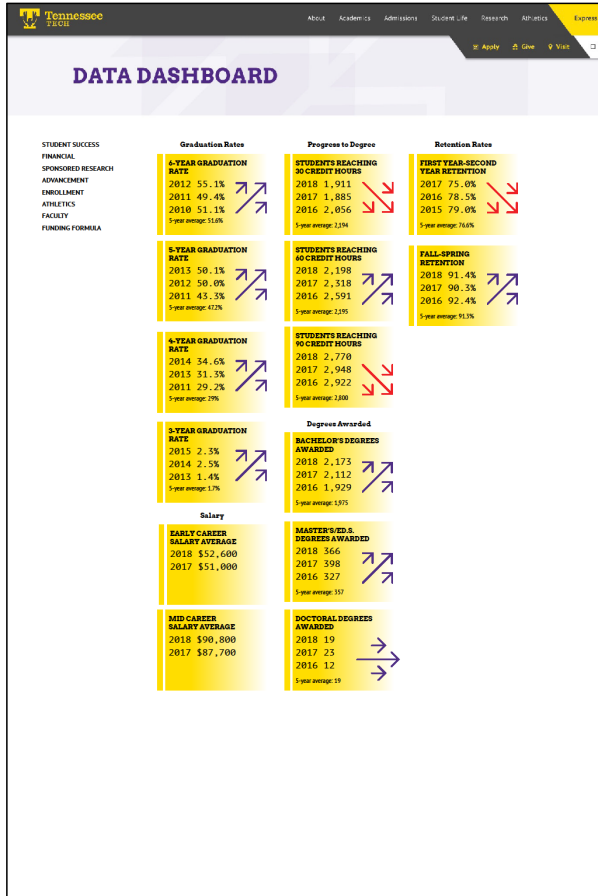


Project Dataset

- More than 100 variables reported annually
- Divided into 8 categories
 - Funding Formula
 - Student Success
 - Sponsored Research
 - Advancement
 - Faculty
 - Financial
 - Athletics
 - Enrollment



Samples: Student Success Section



DATA DASHBOARD

- STUDENT SUCCESS
- FINANCIAL
- SPONSORED RESEARCH
- ADVANCEMENT
- ENROLLMENT
- ATHLETICS
- FACULTY
- FUNDING FORMULA

Graduation Rates

6-YEAR GRADUATION RATE

2012 55.1%
 2011 49.4%
 2010 51.1%
 5-year average: 51.6%

5-YEAR GRADUATION RATE

2013 50.1%
 2012 50.0%
 2011 43.3%
 5-year average: 47.2%

4-YEAR GRADUATION RATE

2014 34.6%
 2013 31.3%
 2011 29.2%
 5-year average: 29%

3-YEAR GRADUATION RATE

2015 2.3%
 2014 2.5%
 2013 1.4%
 5-year average: 1.7%

Salary

EARLY CAREER SALARY AVERAGE

2018 \$52,600
 2017 \$51,000

MID CAREER SALARY AVERAGE

2018 \$90,800
 2017 \$87,700

Progress to Degree

STUDENTS REACHING 30 CREDIT HOURS

2018 1,911
 2017 1,885
 2016 2,056
 5-year average: 2,194

STUDENTS REACHING 60 CREDIT HOURS

2018 2,198
 2017 2,318
 2016 2,591
 5-year average: 2,195

STUDENTS REACHING 90 CREDIT HOURS

2018 2,770
 2017 2,948
 2016 2,922
 5-year average: 2,800

Degrees Awarded

BACHELOR'S DEGREES AWARDED

2018 2,173
 2017 2,112
 2016 1,929
 5-year average: 1,975

MASTER'S/ED.S. DEGREES AWARDED

2018 366
 2017 398
 2016 327
 5-year average: 357

DOCTORAL DEGREES AWARDED

2018 19
 2017 23
 2016 12
 5-year average: 19

Retention Rates

FIRST YEAR-SECOND YEAR RETENTION

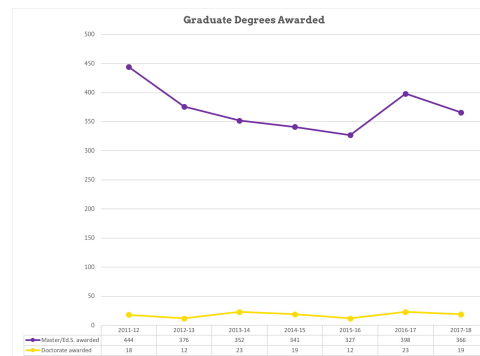
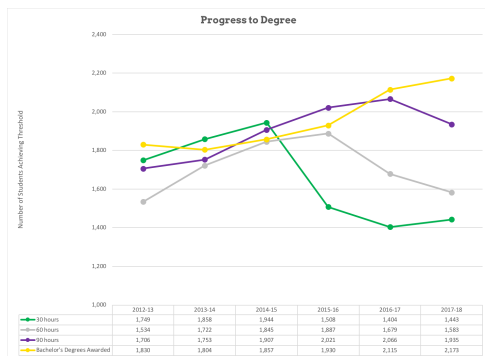
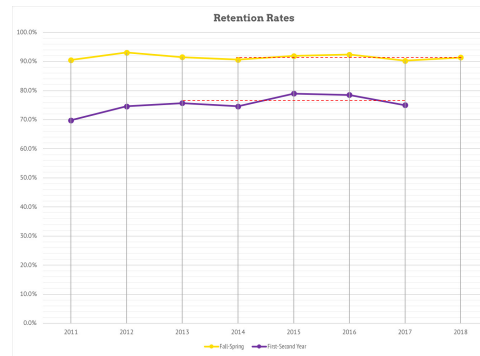
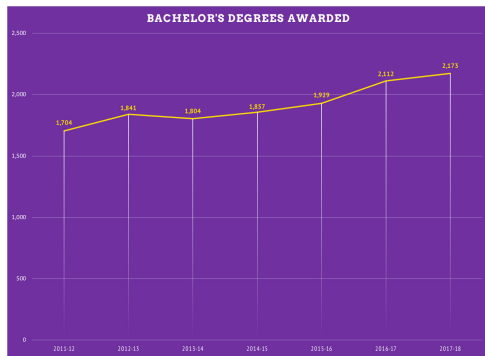
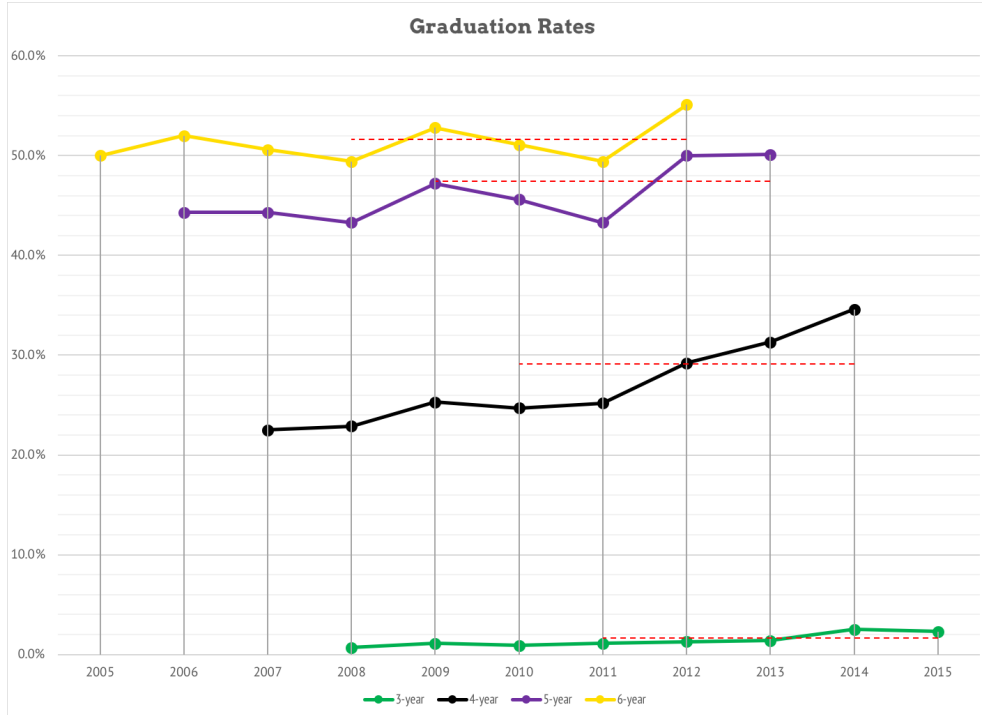
2017 75.0%
 2016 78.5%
 2015 79.0%
 5-year average: 76.6%

FALL-SPRING RETENTION

2018 91.4%
 2017 90.3%
 2016 92.4%
 5-year average: 91.3%

DATA DASHBOARD

- STUDENT SUCCESS
- FINANCIAL
- SPONSORED RESEARCH
- ADVANCEMENT
- ENROLLMENT
- ATHLETICS
- FACULTY
- FUNDING FORMULA



Updates throughout year

- Bulk of updates will be in mid-October when fall census data becomes available
- Financial updates tied to fiscal year and budget cycle
- Data from outside sources (e.g., THEC, NCAA, PayScale) updated when available



Next Steps

- Build actual dashboard website from design models
 - Will be behind university login
 - Explore user-friendly functionality for chart displays



June 20, 2019, Audit & Business Committee Agenda & Materials - Five-Year Strategic Financial Plan Update

FUNDING FORMULA										
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	5-yr avg	% change over set
30 hours		1,749	1,858	1,944	1,508	1,404	1,443		1,631.4	-17.50%
60 hours		1,534	1,722	1,845	1,887	1,679	1,583		1,743.2	3.19%
90 hours		1,706	1,753	1,907	2,021	2,066	1,935		1,936.4	13.42%
Reverse Associate					107	93	114			
Bachelor's Degrees Awarded		1,830	1,804	1,857	1,930	2,115	2,173		1,975.8	18.74%
Master's/Ed.S. Degrees Awarded	444	376	352	341	327	398	364		356.4	-3.19%
Doctoral Degrees Awarded	18	12	23	19	12	23	19		19.2	58.33%
Research		\$11,904,930	\$12,081,470	\$12,327,774	\$12,486,425	\$15,115,327			\$12,783,185.20	26.97%
Degrees per 100 FTE		20.5	19.6	19.7	19.7	22.1	25	26.4	22.56	28.78%
6-year graduation rate	57.9%	60.2%	59.9%	61.9%	60.1%	58.4%	63.9%		60.84%	6.15%

STUDENT SUCCESS										
Progress to degree										
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	5-yr avg	% change over set
Bachelor's awarded	1,704	1,841	1,804	1,857	1,929	2,112	2,173		1,975.00	27.52%
Master's/Ed.S. awarded	444	376	352	341	327	398	366		356.80	-17.57%
Doctorate awarded	18	12	23	19	12	23	19		19.20	5.56%
30 hours		1,749	1,858	1,944	1,508	1,404	1,911		1,725.00	9.26%
60 hours		1,534	1,722	1,845	1,887	1,679	1,583		1,743.20	3.19%
90 hours		1,706	1,753	1,907	2,021	2,066	1,935		1,936.40	13.42%
Graduation rates										
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	5-yr avg	% change over set
3-year	1.1%	0.9%	1.1%	1.3%	1.4%	2.5%	2.3%		1.7%	1.20%
4-year	22.9%	25.3%	24.7%	25.2%	29.2%	31.3%	34.6%		29.0%	11.70%
5-year	44.3%	43.3%	47.2%	45.6%	43.3%	50.0%	50.1%		47.2%	5.80%
6-year	52.0%	50.6%	49.4%	52.8%	51.1%	49.4%	55.1%		51.6%	3.10%
Retention rates										
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	5-yr avg	% change over set
Fall-Spring	90.5%	93.1%	91.5%	90.6%	91.9%	92.4%	90.3%	91.4%	91.3%	0.9%
First Year to Second Year	69.8%	74.6%	75.7%	74.6%	79.0%	78.5%	75.0%		76.6%	5.2%
Salary (PayScale)										
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	5-yr avg	% change over set
Early Career Average						\$51,000	\$52,600			
Mid Career Average						\$87,700	\$90,800			

SPONSORED RESEARCH										
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	5-yr avg	% change over set
Externally funded research (\$)	\$13,084,966	\$11,974,879	\$12,074,067	\$11,197,912	\$13,088,361	\$16,910,722	\$16,371,900		\$13,928,592.40	25.12%
Research awards (#)			129	106	137	153	170		139.00	31.78%
Research proposals (#)			153	163	219	205	186		185.20	21.57%
% of faculty involved in sponsored research			23.5%	19.8%	24.4%	22.1%	25.4%		23.03%	1.96%
# of IP			7	11	16	14	15		12.60	114.29%
# of faculty involved in sponsored research			91	82	103	95	108			18.68%
Full-time faculty			388	414	422	430	425	428		10.31%

ADVANCEMENT										
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	5-yr avg	% change over set
Private gifts			\$4,453,235	\$4,642,606	\$12,651,341	\$23,058,926	\$12,346,310		\$11,430,483.60	177.24%
Endowment	\$38,259,418	\$42,360,780	\$46,514,177	\$45,327,211	\$43,903,449	\$51,390,593	\$55,498,674		\$48,526,820.60	19.32%
Endowment per FTE	\$3,945	\$4,340	\$4,667	\$4,477	\$4,540	\$5,525	\$5,915		\$5,024.98	26.74%
# UG alumni of record				53,389	56,793	58,120	59,555			11.55%
# UG alumni solicited				44,545	56,781	56,709	56,569			26.99%
# UG alumni donors				4,584	2,840	3,758	3,612			-21.20%
Alumni giving (%)				10.29%	5.00%	6.63%	6.39%			-3.91%
Media placement										
PR score										
FTE year for year	9,697	9,761	9,966	10,124	9,671	9,301	9,382			

June 20, 2019, Audit & Business Committee Agenda & Materials - Five-Year Strategic Financial Plan Update

FACULTY										
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	5-yr avg	% change over set
Faculty headcount	649	630	650	680	673	676	645	659	666.6	1.54%
Full-time faculty	387	367	388	414	422	430	425	428	423.8	10.59%
Adjunct faculty (part-time) headcount	262	263	262	266	251	246	220	231	242.8	-11.83%
Part-time faculty FTE	87	88	87	89	84	82	73	77	81.0	-11.49%
Faculty FTE	474	455	475	503	506	512	498	505	504.8	6.54%
Tenure/tenure-track	333	317	331	343	346	352	341	345	345.4	3.60%
SCH per FTE faculty		311.9	304.4	291.5	276.2	264.0	268.1	256.4	271.2	-17.79%
Student:Faculty ratio	21.2	22	21.2	20.3	19.1	18.2	18.5	17.7	18.8	-16.51%
Average faculty salary	\$64,582	\$66,565	\$68,977	\$68,042						
Academic programs (#)										
SCH Fall Semester		141894	144612	146619	139779	135189	133508	129466		
Gender										
Male				252	254	256	253	250	253	-0.79%
Female				162	168	174	172	178	170.8	9.88%
Ethnicity										
American Indian/Alaska Native				2	2	2	2	2	2	0.00%
Asian				30	31	34	33	33	32.2	10.00%
African American				11	12	13	12	14	12.4	27.27%
Hispanic				7	7	8	9	9	8	28.57%
Native Hawaiian or Other Pacific Islander				1	1	2	2	2	1.6	100.00%
White				345	347	350	350	350	348.4	1.45%
Two or More Races				8	10	9	9	9	9	12.50%
Ethnicity and Race Unknown				0	0	0	0	0	0	
Nonresident Alien				10	12	12	8	9	10.2	-10.00%
Total				414	422	430	425	428	423.8	3.38%
FINANCIAL										
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	5-yr avg	% change over set
Composite Financial Index	3.35	4.14	4.43	4.5	3.42	2.81	2.35		3.502	
E&G expenditures Per FTE student (October budget)	\$12,366	\$13,403	\$14,155	\$15,034	\$15,823	\$16,162	\$16,648		\$15,564.39	34.62%
Instructional expenditures per FTE student (October budget)	\$5,691	\$6,157	\$6,582	\$7,140	\$7,252	\$7,245	\$7,803		\$7,204.39	37.12%
Budget revenue allocation	\$117,165,500	\$128,435,900	\$138,468,700	\$150,337,000	\$149,927,900	\$152,876,400	\$156,943,800	\$159,993,000	\$149,710,760.00	33.95%
Budget expense allocation	\$119,916,100	\$130,823,300	\$141,069,500	\$152,203,400	\$153,021,100	\$150,325,700	\$156,191,300	\$159,366,300	\$150,562,200.00	30.25%
Budget Expense /Transfer	\$124,795,700	\$136,259,100	\$148,009,200	\$166,150,800	\$163,063,600	\$158,348,900	\$159,767,400	\$163,800,800	\$159,067,980.00	28.02%
Campus improvement expenditures	\$11,152,326	\$14,295,710	\$18,039,898	\$22,348,698	\$29,104,869	\$19,003,779	\$28,531,936		\$23,405,836.10	155.84%
FTE year for year	9,697	9,761	9,966	10,124	9,671	9,301	9,382			
ATHLETICS										
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	5-yr avg	% change over set
NCAA graduation success rate			79	81	83	85	85		82.6	7.59%
Student-Athlete Graduation Rate			57.0%	65.0%	73.0%	71.0%	64.0%		66.0%	7.00%
Student-athlete GPA avg.			3.25	3.16	3.11	3.22	3.21	3.16	3.19	-2.77%
NCAA academic progress rate (APR)			984	979	972	983	976		978.8	-0.81%
OVC Commissioner's Cup			12	9	6	5	6	9	7.0	
Athletic fundraising										

June 20, 2019, Audit & Business Committee Agenda & Materials - Five-Year Strategic Financial Plan Update

ENROLLMENT										
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	5-yr avg	% change over set
University Enrollment (headcount)	11,768	11,469	11,118	11,339	10,900	10,492	10,504	10,186	10,684.2	-13.4%
Undergraduate										
Headcount	9,920	9,957	10,052	10,314	9,801	9,437	9,365	9,006	9,584.6	-9.2%
FTE	8,861	8,955	9,156	9,311	8,837	8,564	8,428	8,153	8,658.6	-8.0%
Apply	4,447	4,844	4,973	4,582	5,786	5,940	7,143	6,913	6,072.8	55.5%
Admit	4,318	4,515	4,633	4,326	3,953	3,992	4,600	5,237	4,421.6	21.3%
Enroll	1,968	2,058	2,176	1,879	1,589	1,608	1,761	1,890	1,745.4	-4.0%
Graduate										
Headcount	1,848	1,512	1,066	1,025	1,099	1,055	1,139	1,180	1,099.6	-36.1%
FTE	681	631	606	579	602	560	591	597	585.8	-12.3%
Apply				1,116	1,291	1,037	873	860	1,035.4	-22.9%
Admit				536	505	450	510	491	498.4	-8.4%
Enroll				273	263	217	293	292	267.6	7.0%
Diversity										
<i>Student Gender</i>										
Male				6,287	6,019	5,664	5,679	5,482	5,826.2	-12.8%
Female				5,052	4,881	4,828	4,825	4,704	4,858.0	-6.9%
<i>Student Age</i>										
<25				9,307	8,935	8,759	8,682	8,466	8,829.8	-9.0%
>25				2,032	1,965	1,733	1,822	1,720	1,854.4	-15.4%
<i>Student Racial/Ethnic Group</i>										
Alaska Native				1	0	0	0	0	0.2	-100.0%
American Indian				16	12	14	12	15	13.8	-6.3%
Asian				147	167	168	152	162	159.2	10.2%
African American				416	398	407	429	382	406.4	-8.2%
Hispanic				252	274	282	313	313	286.8	24.2%
Native Hawaiian or Other Pacific Islander				4	5	5	4	4	4.4	0.0%
White				8,961	8,743	8,528	8,636	8,519	8,677.4	-4.9%
Two or More Races				250	295	313	345	344	309.4	37.6%
Ethnicity and Race Unknown				43	44	61	64	51	52.6	18.6%
Nonresident Alien				1,249	962	714	549	396	774.0	-68.3%
total students				11,339	10,900	10,492	10,504	10,186	10,684.2	-10.2%
Strength of incoming class										
Selectivity (Admit/Apply)	97.1%	93.2%	93.2%	94.4%	68.3%	67.2%	64.4%	75.8%	74.0%	-23.1%
High School GPA Average	3.39	3.46	3.50	3.53	3.60	3.62	3.59	3.63	3.59	7.1%
ACT Composite Average	23.2	23.4	23.4	23.9	24.2	24.4	24.4	24.4	24.26	5.2%



Agenda Item Summary

Date: June 20, 2019

Division: Planning and Finance

Agenda Item: Presidents Emeriti Contracts

Review

Action

No action required

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

PURPOSE & KEY POINTS:

Review and approve the Presidents Emeriti contracts for Dr. Robert Bell and Dr. Angelo Volpe for 2019-20 pursuant to the laws of the State of Tennessee and Tennessee Tech policies.

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.

Tennessee Tech University
NOTICE OF PART-TIME EMPLOYMENT AND AGREEMENT
FOR PRESIDENT EMERITUS

TO: Dr. Robert R. Bell
[REDACTED]
Cookeville, TN 38501

This is to confirm your part-time appointment to a position approved by the Tennessee Tech Board of Trustees as President Emeritus of Tennessee Technological University for a period beginning July 1, 2019, at a monthly salary of \$4114.84 subject to the terms and conditions hereinafter set forth and our acceptance thereof:

1. This appointment is made subject to the laws of the State of Tennessee, the requirements and policies of the Tennessee Tech Board of Trustees and the requirements and policies of Tennessee Tech University.
2. The term of this agreement is July 1, 2019, to June 30, 2020. It may be renewed on an annual basis following review of the emeritus work performed and approval by the Tennessee Tech Board of Trustees.
3. The above stated salary is contingent upon your successful completion of service for the full term of this agreement. The salary will accrue and will be payable monthly. In the event of failure to complete the specific terms of the appointment, salary will be prorated in accordance with the policies of Tennessee Tech University.
4. This appointment and the above-stated salary are in consideration of your faithful performance to the best of your ability of the duties and responsibilities assigned to you as a part-time employee of Tennessee Tech University. These duties include:
 - ❖ Fund raising for Tennessee Technological University (TTU);
 - ❖ Institution-community relations and activities for TTU; including teaching a class, regional development related activities, and working with the Cookeville Regional Medical Center Board;
 - ❖ Consultation for Tennessee Technological University, as requested;
 - ❖ Provide support in inter-institutional, governmental, legislative, and community relations;
 - ❖ Assist as needed with the completion of selected capital projects;
 - ❖ As requested, represent the President and the University at selected functions and professional meetings;
 - ❖ Recruit students and provide advice to prospective students and their parents;
 - ❖ Promote higher education, the Tennessee Tech University Board of Trustees, and Tennessee Tech University on a continuous basis.

5. As a part-time employee, you are not eligible for employment benefits (retirement credit, state insurance plan, annual or sick leave, holiday pay, or longevity credit). Notwithstanding, social security will be deducted from your paycheck unless you are a member of a retirement system or are a rehired annuitant as specified in 26 CFR Part 31.
6. This appointment does not include any assurance, obligation, or guarantee of subsequent employment.
7. This agreement may be terminated without prior notice.
8. By acceptance of this appointment, you agree to abide by the terms of the Drug-Free Workplace Act of 1988 as defined in published institution statements and policy. You also agree to notify TTU-Human Resources of any criminal drug conviction for a violation occurring in the workplace no later than five (5) days after such conviction.
9. You are required to notify the President should you become employed at another state agency/institution.
10. The following special condition shall govern this appointment:

The retired employee accepts employment for up to 120 days during a 12-month period. The number of hours actually worked will be provided to the institution upon request and will be no less than 247 hours.

I accept the appointment described above under the terms and conditions set forth.



APPOINTEE

5.21.19
DATE

An Equal Opportunity/Affirmative Action Employer



PRESIDENT


5/21/2019
DATE

**President Emeritus Report
2018-2019**

During this fiscal year, I performed the following functions (attached) for Tennessee Technological University.

(typed report attached to this work sheet)

I spent at least **306** hours performing the work but less than 120 days.

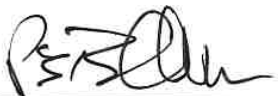


President Emeritus, Dr. Robert R. Bell

5.21.19

Date

I have reviewed the work of **Dr. Robert R. Bell** for 2018-2019, and I am satisfied that it was well performed.



President, Dr. Philip B. Oldham

5/21/2019

Date

**Report of President Emeritus Robert R. Bell
Tennessee Technological University
Functions Performed for 2018-19**

Summary of Activities

1. TTU: Teaching, Scholarship, Advocacy
 - a. Seminar Director, Moderator and instructor for the Spring 2019 TTU/Highlands Leaders Seminar (non-credit) for the School of Interdisciplinary Studies;
 - b. Spoke on topics of economic development and college/career readiness to classes at Cookeville High School, Algood Middle School, Upperman Middle School and Rickman Elementary Schools.
 - c. Participated in the accreditation/authorization reviews for the Doctorate of Nursing Practice for the WH School of Nursing and participated in the SON Dean search process.
 - d. Served as advisor for Mayberry Chair of Excellence, member of the College of Business Board of Trustees, School of Nursing Development Council.
 - e. Chair, Nonprofit Allocation Review Board, Putnam County Commission
 - f. Editorial Review Board Member, *Advanced Management Journal*;
 - g. Presented paper at the International Conference of the Society for the Advancement of Management
 - h. Radio Host for “Regional Educational Matters” Series on Stonecom Broadcasting
 - i. Mentor/Advisor for IMPACT Leadership board
 - j. Mentor/advisor for Dr. Kevin Braswell, Mrs. Leslie Loftis re Development Strategies
2. Regional Development/TECH-REDI/External Relations:
 - a. Member, Highlands Initiative Workforce Development Task Force;
 - b. Chairman, Industrial Development Board, City of Cookeville: Confidential Work with several new companies locating in Cookeville and expansions of existing industry
3. Cookeville Regional Medical Center (CRMC):
 - a. Serve as strategy adviser to the CEO, and serve on the Hospital Performance Excellence and Ethics Committees.
4. Service to the University in other roles as requested.
 - a. Conducted Campus Tours/Orientation newly-relocated business/community leaders.
 - b. Host for President’s Box, TSSAA Blue Cross Bowl, and other volunteer activities at TSSAA.
 - c. Meetings/Lunches, as requested, with Campus Leaders, Foundation Members, and Regents.

Work Report for 2018-2019		
July 2018	Total Hours	31
Pathways to Prosperity—Workforce Development Meetings		3 hrs.
Radio Program, “Education Issues in the Upper Cumberland”		7 hrs.
Regional Development/External Relations: Cookeville Chamber/		7 hrs.
CRMC committees on Performance Excellence, Ethics		3 hrs.
Economic Development/Industrial Board: SAIC, Portobello, Colorobia, Hoerman		9 hrs.
TTU/Highlands Emerging Leadership Course Preparation		2 hrs.
August 2018	Total Hours	20
Economic Dev. meetings, Industrial Development Board, Strategic Planning, Project Orlando		5 hrs.
College of Business/Mayberry discussions/Dr. Reimann (phone, email)		2 hrs.
TTU Highlands Leadership Course meetings at Chamber		4 hrs.
Radio Program: “Education Issues in the Upper Cumberland		6 hrs.
External Relations: Performance Excellence Committee, Ethics Committee CRMC		3 hrs.
September 2018	Total Hours	9
Telephone/email Chancellor Susan Elkins re project for 2019 SAM Meetings		2 hrs.
Education Matters, Stonecom		4 hrs.
Industrial Dev. Board: Project Joe; Portabello		3 hrs.
October 2018	Total Hours	21
Education Matters, Stonecom Broadcasting		8 hours
Meetings, teleconference w/ Dr.Elkins (SAM Ms.)		3 hrs.
Industrial Development Board		4 hrs.
Highlands/TTU Emerging Leader Seminar Planning		2 hrs.
Mentor, Dr. Quenton Cansell, IMPACT Leadership		2 hrs.
DNP Site Visit, WH School of Nursing		2 hrs.

November 2018	Total Hours	19
“Education Matters,” Stonecom Broadcasting Highlands Emerging Leaders Seminar, Planning		7 hrs.
Highlands Workforce Development		2 hrs.
TTU: Collaboration w/ Dr. Elkins on SAM paper		2 hrs.
Highlands Partnership Speaker, Algood Middle School		2 hrs.
CRMC Ethics Comm.; QIP Committee; Meetings with Buffy Key, John Bell, Paul Korth		6 hrs.
December 2018	Total Hours	18
Hosted “Education Matters” Stonecom Broadcasting		4 hrs.
Workforce Development Steering Committee		2 hrs.
Master of Ceremonies, Portabello Economic Development Announcement/Ceremonies		6 hrs.
TTU: Hosting Executive Suite and VIP tent at TSSAA Blue Cross Bowl		6 hrs.
January 2019	Total Hours	32
Chair, NonProfit Allocation Advisory Committee, Putnam County Executive		6 hrs.
Regional Development: Chamber/Highlands/IDB		6 hrs.
Preparation/Taping, “Educational Matters/Local Matters,” Stonecom Broadcasting		4 hrs.
Co-author work on SAM Manuscript (Elkins, Bell)		5 hrs.
“I Heart Tech” Campaign Taping		1 hr.
Highlands Workforce Development: Highlands Leaders Seminar: Economic Development		5 hrs.
WCTE/TTU Partnership—preparation and taping		3 hrs.
CRMC Ethics Committee		2 hrs.
February 2019	Total Hours	45
Preparation/Taping, “Educational Matters/Local Matters”, Stonecom Broadcasting		6 hrs.
Edits on “Regional Leadership” paper for the International meeting of the Society for Advancement of Management; Editorial Board Reviews/Ad. Man. Journal and SAM Annual Meeting		7 hrs.
Represented TTU at Inaugural Ceremonies for new President, Univ. of North Florida		8 hrs.
Participant, TVA Competitive Communities Assessment		2 hrs.
CRMC Performance Excellence Committee		2 hrs.
Regional Development: /IDB Annual Meeting and Chamber Annual Meeting		4 hrs.
Highlands Leaders Seminar—Tourism, Economic Dev.: Jackson, Putnam Counties		8 hrs.

February 2019 (continued)		
Chamber Chairmans' Luncheon		2 hrs.
Chair, Putnam County NonProfit Allocation Advisory Committee to Randy Porter		6 hrs.
March 2019	Total Hours	44
Preparation/Taping, "Educational Matters," Stonecom Broadcasting		5 hrs.
Putnam County Nonprofit Allocation Advisory Committee		7 hrs.
Final editing and presentation of SAM paper, Orlando Florida		9 hrs.
Regional Development: IDB/ Chamber/Highlands		9 hrs.
Speaker: College/Career Ready: Upperman Middle School		2 hrs.
Highlands Leaders Seminar: Overton County, Putnam County		7 hrs.
CRMC Ethics Committee		2 hrs.
Meetings, Mayberry Chair, College of Business		3 hrs.
April 2019	Total Hours	15
Highlands Leaders Seminar, White County		4 hrs.
Preparation/Taping, Educational Matters, Stonecom Broadcastintg		6 hrs.
Reference Call/School of Nursing Dean		1 hr.
Regional Development: Industrial Board—meetings re Baxter-Portabello PILOT projections		2 hrs.
TTU Alumni Awards Ceremony		2 hrs.
May 2019 (Estimated)	Total Hours	18
"Education Issues in the Upper Cumberland" Radio Show		5 hrs.
Industrial Development Board		3 hrs.
Graduation: Highlands Leaders Seminar and Highlands Partnership Annual Meeting		2 hrs.
Three Star Planning Forum, Leslie Town Center		3 hrs.
Meeting with Workforce Development Team and TDOL Commissioner		2 hrs.
CRMC Performance Excellence and Ethics Committees		3 hrs.
June 2019 (Estimated)	Total Hours	8
"Education Issues in the Upper Cumberland"		4 hrs.
Regional Development:IDB/ Chamber/Highlands		4 hrs.

Work Report Summary for President Emeritus Dr. Robert R. Bell Tennessee Technological University	
Total for 2018-19 fiscal year July 1, 2018, through April 30, 2019	280 hours
Projected emeriti activities for the remainder of academic and fiscal year, May – June, 2019	26 hours
Grand total for 2018-19	306 hours

Tennessee Tech University
NOTICE OF PART-TIME EMPLOYMENT AND AGREEMENT
FOR PRESIDENT EMERITUS

TO: Dr. Angelo A. Volpe
[REDACTED]
Cookeville, TN 38501

This is to confirm your part-time appointment to a position approved by the Tennessee Tech Board of Trustees as President Emeritus of Tennessee Technological University for a period beginning July 1, 2019, at a monthly salary of \$2,378.33 subject to the terms and conditions hereinafter set forth and our acceptance thereof:

1. This appointment is made subject to the laws of the State of Tennessee, the requirements and policies of the Tennessee Tech Board of Trustees and the requirements and policies of Tennessee Tech University.
2. The term of this agreement is July 1, 2019, to June 30, 2020. It may be renewed on an annual basis following review of the emeritus work performed and approval by the Tennessee Tech Board of Trustees.
3. The above stated salary is contingent upon your successful completion of service for the full term of this agreement. The salary will accrue and will be payable monthly. In the event of failure to complete the specific terms of the appointment, salary will be prorated in accordance with the policies of Tennessee Tech University.
4. This appointment and the above-stated salary are in consideration of your faithful performance to the best of your ability of the duties and responsibilities assigned to you as a part-time employee of this institution. These duties include:
 - ❖ Fund raising for Tennessee Technological University (TTU);
 - ❖ Institution-community relations and activities for TTU;
 - ❖ Consultation for Tennessee Technological University, as requested;
 - ❖ Consultation for the Tennessee Higher Education Commission (THEC);
5. As a part-time employee, you are not eligible for employment benefits (retirement credit, state insurance plan, annual or sick leave, holiday pay, or longevity credit). Notwithstanding, social security will be deducted from your paycheck unless you are a member of a retirement system or are a rehired annuitant as specified in 26 CFR Part 31.
6. This appointment does not include any assurance, obligation, or guarantee of subsequent employment.
7. This agreement may be terminated without prior notice.

8. By acceptance of this appointment, you agree to abide by the terms of the Drug-Free Workplace Act of 1988 as defined in published institution statements and policy. You also agree to notify the Office of Personnel of any criminal drug conviction for a violation occurring in the workplace no later than five (5) days after such conviction.
9. You are required to notify the President should you become employed at another state agency/institution.
10. The following special condition shall govern this appointment:

The retired employee accepts employment for up to 120 days during a 12-month period. The number of hours actually worked will be provided to the institution upon request and will be no less than 142.7 hours.

I accept the appointment described above under the terms and conditions set forth.


APPOINTEE


DATE

An Equal Opportunity/Affirmative Action Employer


PRESIDENT

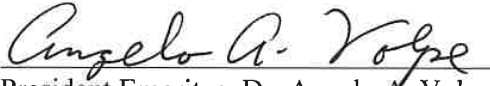

DATE

**President Emeritus Report
2018-2019**

During this fiscal year, I performed the following functions (attached) for Tennessee Technological University.

(typed report attached to this work sheet)

I spent at least 153.5 hours performing the work but less than 120 days.




President Emeritus, Dr. Angelo A. Volpe

5/21/19

Date

I have reviewed the work of Dr. Angelo A. Volpe for 2018-2019, and I am satisfied that it was well performed.



President, Dr. Philip B. Oldham

5/21/2019

Date

**Report of President Emeritus Dr. Angelo A. Volpe
Tennessee Technological University**

Functions Performed for 2018-2019

Summary of Activities

Dr. Angelo Volpe —Work Report for 2018-2019		
July 2018	Total Hours	9
Prepare letter of support for Tiff Rector's nomination for the Case District III Mentor of the year award		1 hr.
Picture taking session and meet and greet new baseball coach at First Tennessee Bank		1 hr.
Attend monthly meeting of the Bryan Symphony Orchestra Board of Directors		2 hrs.
Lunch with Dr. Elizandro to discuss research		1 hr.
Lunch meeting with Board member Barbara Fleming and David Elizandro to discuss research presentation to TTU Board		2 hrs.
Lunch with Dr. Elizandro to discuss up-coming meeting with TTU Board members Barbara Fleming & Johnny Stites		1.5 hrs.
Attend farewell reception for Matt Pope		.5 hr.
August 2018	Total Hours	12
Attend retreat for Bryan Symphony Orchestra Board of Directors		6 hrs.
Lunch meeting with Dr. Elizandro and TTU Board members Barbara Fleming and Johnny Stites to discuss research data which may be of use to the Board		2 hrs.
Mentoring lunch with Assistant Professor Brian Nagy (College of Business)		1 hr.
Lunch meeting with Chris Robbins to discuss computing		1 hr.
Represented Tennessee Tech at wake and funeral service for Mike Lane's father		2 hrs.
September 2018	Total Hours	2.5
Interview with TTU Board members Barbara Fleming and Johnny Stites		1 hr.
Attend quarterly lunch meeting of the TTU Retired Members Association		1.5 hrs.
October 2018	Total Hours	12.5
Meet with TTU faculty member to discuss and prepare a supporting letter for his application for promotion and tenure		1 hr.
Attend Evening of Thanks at Walton House for President's Club members		1.5 hrs.
Attend the 23 rd annual Bacchanal		2.5 hrs.

October 2018 (continued)	
Attend 15 th annual Reunion of Tech Alumni in Gallatin, TN	6 hrs.
Helped BSO to tab and label newsletters	1.5 hrs.
November 2018	Total Hours 25
Attend 44 th annual Tennessee Tech Sports Hall of Fame Dinner and Induction ceremony	2.5 hrs.
Attend annual Homecoming Speech and Debate Team Breakfast	1.5 hrs.
Attend Hall of Fame Induction reception for Rob Schabert	1 hr.
Attend 2018 Friends of the Volpe Library Champagne Gala	3 hrs.
Attend monthly meeting of the Bryan Symphony Orchestra Board of Directors	2 hrs.
Lunch meeting with the Director of the School of Agriculture	1.5 hrs.
Attend Bryan Symphony Orchestra social as a member of the Board of Directors	2 hrs.
Volunteer to help with the Bryan Symphony Orchestra Educational Concert for 500 area elementary school students	2 hrs.
Attend bi-monthly meeting of the Patient and Family Advisory Council of Cookeville Regional Medical Center	2 hrs.
Present lecture to Senior Seminar in the School of Agriculture on Relationship Building and Professionalism in the workplace	2 hrs.
Attend annual Fall Celebration of the TTU College of Business Advisory Board	3.5 hrs.
Prepare a letter of recommendation for a TTU faculty member who is applying for the position of Dean of the College of Agriculture and Human Ecology	2 hrs.
December 2018	Total Hours 9
Attend quarterly lunch meeting of the TTU Retired Members Association	2 hrs.
Business Lunch with Dr. David Larimore	1.5 hrs.
Attend TTU Chemistry Department annual Christmas party	2.5 hrs.
Attend reception for President's Club members at the TTU Alumni Center	1 hr.
Prepare for and be interviewed by Dr. Rich Rhoda for the TBR Oral History Project. Also, business lunch with Dr. Rhoda.	2 hrs.
January 2019	Total Hours 8
Attend monthly meeting of the Bryan Symphony Orchestra Board of Directors	2 hrs.
Lunch meeting with David Elizandro to discuss research papers	1.5 hrs.
Prepare for and be interviewed by WCTE-TV for their 40 th anniversary documentary	1.5 hrs.
Attend bi-monthly meeting of the Patient and Family Advisory Council for Cookeville Regional Medical Center	2.5 hrs.

January 2019 (continued)	
Interviewed for new video series called “Purple or Gold?” for TTU social media platforms	.5 hr.
February 2019	Total Hours 9
Interviewed by Laura Clemons for video series to promote the upcoming “I Heart Tech Students” faculty and staff giving campaign	.5 hr.
Attend monthly meeting of the Bryan Symphony Orchestra Board of Directors	1.5 hrs.
Attend announcement of 2019 football recruits in the Eagles Nest	1 hr.
Attend Engineers Week awards banquet	2.5 hrs.
Attend Tech Faculty Women’s Club chili supper scholarship fundraiser	2.5 hrs.
Lunch meeting with Director of the School of Agriculture to discuss lecture to Senior Seminar	1 hr.
March 2019	Total Hours 11
Attend monthly meeting of the Bryan Symphony Orchestra Board of Directors	1.5 hrs.
Serve as Judge for the WCTE Academic Bowl	2.5 hrs.
Attend lunch for President’s Club members at School of Human Ecology Café	1.5 hrs.
Attend the 2019 EQ Dinner with the TTU College of Business	3 hrs.
Attend bi-monthly meeting of the Patient and Family Advisory Council of Cookeville Regional Medical Center	2.5 hrs.
April 2019	Total Hours 25.5
Attend Football Lettermens’ awards breakfast	1.5 hrs.
Attend monthly meeting of the Bryan Symphony Orchestra Board of Directors	2 hrs.
Prepare and deliver lecture to Dr. Duncan’s Senior Seminar in Agriculture & Human Ecology	1.5 hrs.
Attend Press Conference to introduce the new TTU Head Basketball Coach (men’s)	1 hr.
Attend Alumni Awards Banquet	3.0 hrs.
Introduced Window on the World (WOW) Mandala award recipient	1 hr.
Attend TTU Legacy Gala	3.5 hrs.
Prepare and deliver a speech about my years as President of TTU to the backsliders club of Cookeville First United Methodist Church	1.5 hrs.
Attend Women’s Basketball awards banquet	2.5 hrs.
Attend TTU Chemistry Department awards banquet	3.5 hrs.
Attend College of Arts & Sciences Honors evening and awards banquet	3.0 hrs.
Attend retirement reception for a TTU faculty member	1.5 hrs.

July 2018 – June 2019	Total Hours	18
Phone calls and meetings with TTU personnel, THEC personnel and other members of the THEC Board of Elders		18 hrs.
May 1, 2019 – June 30, 2019 (Estimated)	Total Hours	12

Work Report Summary for President Emeritus Dr. Angelo A. Volpe Tennessee Technological University	
Total for 2018-2019 fiscal year July 1, 2018, through April 30, 2019	141.5 hours
Projected emeriti activities for the remainder of academic and fiscal year: May – June, 2019	12.0 hours
Grand total for 2018-2019	153.5 hours



Agenda Item Summary

Date: June 20, 2019

Division: Internal Audit

Agenda Item: TTU Policy 132(Conflict of Interest) - Review of Substantive Revisions



Review



Action



No action required

PRESENTERS: Teresa Vanhooser, Chair of Audit & Business Committee

PURPOSE & KEY POINTS:

Per the Tennessee Comptroller's Guidelines for Audit Committee Charters, the audit committee is charged with reviewing the Conflict of Interest Policy to ensure that the term "conflict of interest" is clearly defined, the policy is comprehensive, the policy requires annual sign-off, and potential conflicts are adequately resolved and documented. Also, per TTU Policy 132(Conflict of Interest) all substantive revisions are to be reviewed by the Audit & Business Committee.

****If you have any questions or need additional information please contact Deanna Metts, Director of Internal Audit, at dmetts@tntech.edu or 931-372-3664****

**Tennessee Technological University
Policy No. 132**



Effective Date: July 1, 2017

Policy No.: 132

Policy Name: Conflict of Interest

Revised Date: July 1, 2019

I. Purpose

Tennessee Tech employees serve the interests of the State of Tennessee and its citizens and have a duty to avoid activities and situations that, either actually or potentially, put personal interests before the professional obligations they owe to the State and its citizens. This policy is [intended](#) to 1) define the general principles that guide the actions of Tennessee Tech employees, 2) offer illustrations of activities that potentially constitute a Conflict of Interest, 3) make employees aware of disclosure requirements related to conflicts of interest, 4) describe the process by which those disclosures shall be evaluated and decisions rendered, and 5) describe the appeals process regarding such decisions.

II. Review

This policy will be reviewed every four years or whenever circumstances require review, whichever is earlier, by the Conflict of Interest Committee, with recommendations for revision presented to the Administrative Council and University Assembly. All substantive revisions are subject to review by the Board Audit & Business Committee.

III. Scope

This policy applies to all persons employed by Tennessee Tech including full time, part-time, and temporary employees.

IV. Definitions

A. Conflict of Interest: when the personal interests, financial or otherwise, of a person who owes a duty to Tennessee Tech actually or potentially oppose with the person's professional obligations to and the best interests of Tennessee Tech. For the purposes of this policy, a Conflict of Interest with a vendor or contractor also creates a Conflict of Interest with any sub-vendor or sub-contractor of the vendor or contractor.

A-B. Family Member: a spouse or child, dependent or non-dependent, of a person covered by this policy [unless otherwise defined by statute.](#)

V. Policy

A. This policy is intended to be consistent with all pertinent federal and state laws, regulations, and policies, as well as with other Tennessee Tech policies. To the extent that conflicts arise, federal and state laws, regulations, and policies shall take precedence. [The following lists are intended to indicate sources of information that may provide additional guidance regarding conflict of interest situations.](#) The ~~regulations-lists~~ below are not intended to be exhaustive, and additional laws, regulations, and policies may be implicated in a given Conflict of Interest situation.

1. For information and guidance related to federally-funded research and applicable federal regulations, see TTU Policy 735 (Conflict of Interest in Research).
2. Other Federal agencies (e.g., the Veterans' Administration or the Food and Drug Administration) may require as a condition to a contract disclosure and management of conflicts of interest (see, for example, Veterans' Administration Acquisition Regulation 852.209-70).
3. Various statutes contained in the Tennessee Code Annotated (T.C.A.) are pertinent to the issues of conflicts of interest at Tennessee Tech, including but not limited to the statutes listed below. It is significant to note that violation of some of these statutes may lead to criminal penalties.

a. T.C.A. § 8-50-501 (Disclosure statement of conflict of interests by the President of Tennessee Tech);

b. T.C.A. § 12-2-208 (Unlawful purchase of certain confiscated goods);

~~“(a) (1) Except as provided in subsection (b), it is hereby declared unlawful for any state, city or county officer, employee or such officer's or employee's agent to buy or offer to buy any of the property to be sold hereunder except by bid at public auction during the tenure of such person's office or employment, or for six (6) months thereafter.~~

~~(2) Any such person violating or attempting to violate this subsection (a) or subsection (b) shall be dismissed and discharged from such person's respective job or position, and shall forfeit any pay or compensation which might be due such person. In addition thereto, any such sale is hereby expressly declared null and void, and such person shall, in addition, forfeit all right and title in the property.~~

~~(3) A violation of this section is a Class C misdemeanor.~~

~~(b) Notwithstanding subdivision (a)(1), it is declared unlawful for any state, city or county officer, employee or such officer's or employee's agent directly or indirectly involved in the confiscation of such property to buy or offer to buy any of the property to be sold hereunder. It is further declared unlawful for officers and employees designated by the procurement office, in accordance with applicable regulations of the procurement commission, to buy or offer to buy any of the property to be sold hereunder.”~~

c. T.C.A. §§ 12-2-415—417, (Unlawful disposition of surplus property):
§ 12-2-415: “All arrangements, contracts, agreements, trusts, or combinations between persons or corporations made with a view to lessen, or which tend to lessen, full and free competition in the disposal of state surplus personal property, under this part, and all arrangements, contracts, agreements, trusts or combinations between persons or corporations designed to, or which tend to, control the price, which the state receives for such property, or the cost to the purchaser of such property, are declared to be against public policy, unlawful, and void.”

~~§12-2-416: “A violation of § 12-2-415 is a Class E felony.”~~

~~§12-2-417: “A state employee who violates § 12-2-415 shall be punished by removal from employment in the state service and shall be prohibited from such employment for a period of five (5) years, in addition to the penalties provided in § 12-2-416.”~~

~~d. T.C.A. § 12-4-106, (Prohibition against receiving rebates, gifts, money or anything of value – Conflict of interest);~~

~~“(a) No officer or employee of the central procurement office, nor any member of the procurement commission, nor any head of any state department, institution or agency, nor any employee of any state department, institution or agency charged with the responsibility of initiating requisitions, shall accept or receive, directly or indirectly, from any person, firm or corporation to whom any contract for the purchase of goods or services for the state may be awarded, by rebate, gifts, or otherwise, any money or anything of value whatsoever, or any promise, obligation, or contract for future rewards or compensation.~~

~~(b)(1) It is a Conflict of Interest for any person or any company with whom such person is an officer, a director, or an equity owner having an ownership interest greater than one percent (1%) to bid on any public contract for goods or services for a governmental entity if such person or the immediate Family Member of such person is a member of a board or commission having responsibility for letting or approving such contract.~~

~~(2) As used in this subsection (b):~~

~~(A) “Governmental entity” means any state agency, authority, board, commission, department, or office within the executive, legislative or judicial branch of state government or any autonomous state agency, authority, board, commission, department, office, or institution of higher education; and~~

~~(B) “Immediate family” means spouse, dependent children or stepchildren, or relatives related by blood or marriage.”~~

~~e. T.C.A. § 12-4-101—104, (Conflict of Interest related to letting or oversight of contracts);
Personal interest of officers prohibited, Penalty for unlawful interest, Bidding by state employees prohibited, and Penalty for unlawful transactions.~~

~~f. T.C.A. § 12-4-103, (Prohibition against employees bidding or selling merchandise, equipment, materials or similar commodity);~~

~~g. T.C.A. § 12-4-114, (No conflict of interest allowed- in contract procurement or administration);~~

~~h. T.C.A. § 12-4-104, (Penalty for unlawful transactions)~~

~~e. T.C.A. § 8-50-506, Preferred service employees—Financial disclosure.~~

~~§ 12-4-101 (a)(1) “It is unlawful for any officer, committee member, director, or other person whose duty it is to vote for, let out, overlook, or in any manner to superintend any work or any contract in which any municipal corporation, county, state, development district, utility district, human resource agency, or other political subdivision created by statute shall or may be interested, to be directly interested in any such contract. “Directly interested” means any contract with the official personally or with any business in which the official is the sole proprietor, a partner, or the person having the controlling interest. “Controlling interest” includes the individual with the ownership or control of the largest number of outstanding shares owned by any single individual or corporation.~~

~~(b) It is unlawful for any officer, committee member, director, or other person whose duty it is to vote for, let out, overlook, or in any manner to superintend any work or any contract in which any municipal corporation, county, state, development district, utility district, human resource agency, or other political subdivision created by statute shall or may be interested, to be indirectly interested in any such contract unless the officer publicly acknowledges such officer's interest. “Indirectly interested” means any contract in which the officer is interested but not directly so, but includes contracts where the officer is directly interested but is the sole supplier of goods or services in a municipality or county~~

~~§ 12-4-102: “Should any person, acting as such officer, committee member, director, or other person referred to in § 12-4-101, be or become directly or unlawfully indirectly interested in any such contract, such person shall forfeit all pay and compensation therefor. Such officer shall be dismissed from such office the officer then occupies, and be ineligible for the same or a similar position for ten (10) years.”~~

~~T.C.A. § 12-4-103: “(a) It is hereby declared unlawful for any state official or employee to bid on, sell, or offer for sale, any merchandise, equipment or material, or similar commodity, to the state of Tennessee during the tenure of such official's or employee's office or employment, or for six (6) months thereafter, or to have any interest in the selling of the same to the state.~~

~~(b) A person violating subsection (a) shall be liable to the state for any and all sums paid out by the state, together with interest at the rate of eight percent (8%) per annum, growing out of any such transaction.~~

~~(c) A violation of subsection (a) is a Class E felony.~~

~~In addition, a state official's or employee's spouse may not bid on, sell, or offer for sale, any merchandise, equipment or material, or similar commodity, to the State of Tennessee during the tenure of such officer's or employee's office or employment, or for six (6) months thereafter, or to have any interest in the selling of the same to the state. TN AG Opinion 84-201. This prohibition also extends to institutional purchases from businesses in which an employee or Family Member has a financial interest.~~

~~T.C.A. § 12-4-104~~

~~(a) It is an offense for a public employee or former public employee having official responsibility for procurement transactions to accept employment with any respondent to a solicitation or contractor with whom the employee or former employee dealt in an official capacity concerning procurement transactions for a period of one (1) year from the cessation of employment by the public body unless the employee or former employee provides written notification to the public body, or a public official if designated by the public body, or both, prior to commencement of employment by that respondent to a solicitation or a contractor.~~

~~(b) It is an offense for any person who, for compensation, prepares a solicitation for or on behalf of a public body to:~~

~~(1) Submit a response to a solicitation for that procurement or any portion thereof; or~~

~~(2) Disclose to any respondent to a solicitation information concerning the procurement that is not available to the public. A public body may permit such person to submit response to a solicitation for that procurement or any portion thereof if the public body determines that the exclusion of the person would limit the number of potential qualified respondents to a solicitation in a manner contrary to the best interest of the public body.~~

~~(c)(1) It is an offense for a contractor or subcontractor to demand or receive from any of the contractor's or subcontractor's suppliers or for a contractor to demand or receive from the contractor's subcontractors, as an inducement for the award of a subcontract or order, any payment, loan, subscription, advance, deposit of money, services or anything, present or promised, unless consideration of substantially equal or greater value is exchanged.~~

~~(2) It is an offense for a subcontractor or supplier to make or offer to make any payment, loan, subscription, advance, deposit of money, services or anything, present or promised, unless consideration of substantially equal or greater value is exchanged.~~

~~(3) It is an offense for any person to demand or receive any payment, loan, subscription, advance, deposit of money, services or anything of value in return for an agreement not to compete on a public contract.~~

~~(4) If a contractor, subcontractor, supplier or any person violates any provision of this subsection (c), the amount thereof shall be conclusively presumed to have been included in the price of the contract, subcontract or order and ultimately borne by the public body and shall be recoverable from both the maker and recipient. Recovery from one (1) offending party shall not preclude recovery from other offending parties.~~

~~(d)(1) A contract entered into in violation of this section on or after October 1, 2011, is void. A contract that is otherwise void under this section may continue in effect until an alternative can be arranged when:~~

~~(A) Immediate termination would result in harm to the public health or welfare; and~~

~~(B) The continuation is approved by the commission.~~

~~(2) Approval of continuation of contracts under this subsection (d) shall be given for the minimum period necessary to protect the public health or welfare. The chief procurement officer and the comptroller of the treasury shall be notified immediately upon a determination that a contract violates this subsection (d).~~

~~(e)(1) As used in this section, the term "public officer" means an individual who is elected or appointed to serve or represent a public agency, other than an employee or independent contractor of a public agency.~~

~~(2) A public officer or employee is involved in administering a contract if the officer or employee oversees the performance of the contract or has authority to make decisions regarding the contract or to interpret the contract.~~

~~(3) A public officer or employee is involved in making a contract if such officer or employee participates in the development of specifications or terms or in the preparation or award of the contract. A public officer is also involved in making a contract if the board, commission, or other body of which such officer is a member takes action on the contract, whether or not the public officer actually participates in that action, unless the contract is approved under an exception to this section under which the public officer is allowed to benefit and is prohibited from voting.~~

~~(4) A public officer or employee derives a direct benefit from a contract if the person or the person's spouse:~~

~~(A) Has more than a ten percent ownership or other interest in an entity that is a party to the contract;~~

~~(B) Derives any income or commission directly from the contract; or~~

~~(C) Acquires property under the contract.~~

~~(f) A public officer or employee is not involved in making or administering a contract solely because of the performance of ministerial duties related to the contract.~~

~~(g) A violation of this section is a Class A misdemeanor.~~

4. The following non-exclusive list of policies and procedures deal with issues that implicate Conflict of Interest situations:

- a. Policies and procedures related to disposition of state property purchasing including but not limited to TTU Policy 513 (Uniform Disposition of Unclaimed Property) and TTU Policy 509.1 (Disposal of Surplus Personal Property)
- b. Policies and procedures related to disposition of state property purchasing including but not limited to TTU Policy 570 (Contracts and Agreements) and TTU Policy 571 (Methods and Processes of Competitive Procurement)

- c. ~~Policies and procedures related to outside employment~~[TTU Policy 638 \(Extra Compensation, Dual Services and Outside Employment\)](#)
- d. Policies and procedures related to textbooks
- e. Tennessee Tech Policy 134 (Student Financial Aid)
- f. Tennessee Tech Policy 732 (Intellectual Property)
- g. Tennessee Tech Policy 638 (Extra Compensation)
- h. Tennessee Tech Policy 685 (Nepotism)
- i. Tennessee Tech Policy 686 (Consensual Relationships)
- j. Tennessee Tech Policy 735 (Conflict of Interest in Research)
- k. Tennessee Tech 970 (Amorous Relationships (Athletics))

B. ~~General Principles~~[Conflict of Interest](#)

1. Employees should avoid situations where the self-interests of the employee diverge from the best interests of Tennessee Tech.
- ~~2. Employees should avoid external commitments that significantly interfere with the employee's duties to Tennessee Tech. Disclosures of conflicts of commitment shall be made and evaluated as directed by the Office for Human Resources.~~
- ~~3.2.~~2. The mere existence of either a potential or actual Conflict of Interest does not mean that such conflict must necessarily be eliminated. ~~Where the potential detriment to Tennessee Tech is at most minor and inconsequential as determined by the Conflict of Interest Committee, and the conflict does not indicate violation of federal or state law, regulation, or policy, those persons charged with evaluating disclosures should allow the activity to proceed without interference. For those situations that do not implicate federal law, state law, regulations, or policy, the standard by which the Conflict of Interest Committee will determine whether a Conflict of Interest should be managed, reduced, or eliminated is whether that conflict would appear to a reasonable person to call into question the integrity or judgment of the affected employee. All actual and potential conflicts of interest must be disclosed and evaluated by the Conflict of Interest Committee.~~
3. [Tennessee Tech prohibits purchases of merchandise, equipment, materials or similar commodities from employee's business or from a family member's business. Family member as defined by the policy, unless otherwise defined by statute.](#)

~~4. Tennessee Tech prohibits service contracts with an individual who is, or within the past six months has been a state employee. Contracts with the employee's spouse, a company or corporation in which a controlling interest is held by any state employee or the employee's spouse shall be considered, for the purpose of applying this rule, to be a contract with said individual.~~

~~C. In the following situations and activities, there is at least the appearance, and possibly the actuality, of an employee allowing his/her personal interests, and not the best interests of Tennessee Tech, to affect that employee's judgments. This list is illustrative rather than exhaustive.~~

~~1. Situations in which an employee can appear to influence or actually influence an institutionally related decision from which that person or a family member stands to realize a personal financial benefit is self-dealing, and a conflict of interest. Examples of self-dealing activities are numerous, and include those listed below.~~

~~a. Purchase of state-owned property by an employee absent fair and open bidding (T.C.A. § 12-2-208 and T.C.A. § 12-2-417)~~

~~b. Institutional purchases from businesses in which an employee or Family Member has a financial interest (T.C.A. § 12-4-103)~~

~~e. Certain bids on state contracts (T.C.A. § 12-4-106(b))~~

~~5. Use of educational materials from which a faculty member derives financial benefit in that faculty member's teaching activities. Any faculty member who wishes to use in his/her teaching activities educational materials (e.g. a textbook) that he/she has authored, or in which he/she otherwise stands to benefit financially from such use, shall make a conflict of interest disclosure to the faculty member's chair. The disclosure must adequately indicate the facts and circumstances that would support the particular textbook being used. Whether the use of such materials shall be permitted shall be evaluated by the chair of the department or designee, including, but not limited to, the department textbook committee. Such evaluation shall include consideration of suitable substitute materials and shall ensure that the needs of students are best served by use of the materials in which the faculty member has an interest. The chair of each department shall send a report annually to the Conflict of Interest Committee.~~

~~2- 5. Acceptance of gifts, gratuities, or favors~~

~~a. No employee shall knowingly solicit or accept, directly or indirectly, on behalf of himself/herself or any member of the employee's household, for personal use or consumption, any gift, including but not limited to, any gratuity, service, favor, food,~~

beverage, refreshment, entertainment, lodging, transportation, loan, loan guarantee, or any other thing of monetary value, from any person or entity that:

- i. Has, or is seeking to obtain, contractual or other business or financial relations with the institution in which the individual is employed;
- ii. Conducts operations or activities that are regulated by the institution in which the individual is employed;-or
- iii. Has interests that may be substantially affected by the performance or nonperformance of the employee's official duties.

b. Exceptions

The prohibition on accepting gifts in this section does not apply to:

- i. A gift given by a member of the employee's immediate family, or by an individual if the gift is given for a non-business purpose and is motivated by a close personal friendship and not by the position of the employee;
- ii. Informational materials in the form of books, articles, periodicals, other written materials, audiotapes, videotapes, or other forms of communication.
- iii. Sample merchandise, promotional items, and appreciation tokens, if they are routinely given to customers, suppliers or potential customers, or suppliers in the ordinary course of business; including items distributed at tradeshow and professional meetings where vendors display and promote their services and products;
- iv. Unsolicited tokens or awards of appreciation, honorary degrees, or bona fide awards in recognition of public service in the form of a plaque, trophy, desk item, wall memento, and similar items; provided that any such item shall not be in a form which can be readily converted to cash;
- v. ^A Food, refreshments, foodstuffs, entertainment, or beverages provided as part of a meal or other event, including tradeshow and professional meetings, if the value of such items does not exceed, per occasion, the dollar amount provided in Tenn. Code Ann. § 3-6-305(b)(8), as updated via posting on the Tennessee Ethics Commission's website to account for changes in the average consumer price index; fifty dollars (\$50.00) per occasion; provided further, that the value of a gift made pursuant to this subsection may not be reduced below the monetary limit by dividing the cost of the gift among two or more persons or entities identified in Section V.C.2V.B.5;
- vi. There may be circumstances where refusal or reimbursement of a gift (such as a lunch or dinner) may be awkward and contrary to the larger interests of the institution. In such circumstances, the employee is to use his/her best judgment,

and disclose the gift including a description, estimated value, the person or entity providing the gift, and any explanation necessary within 14 days to his/her immediate supervisor;

~~vi.vii.~~ Food, refreshments, meals, foodstuffs, entertainment, beverages, or ~~intrastate interstate~~ travel expenses that are provided in connection with an event where the employee is ~~attending a speaker or part of a panel discussion at~~ a scheduled meeting of an established or recognized membership organization which has regular meetings;

~~vii.viii.~~ Participation in institution or foundation fundraising and public relations activities, i.e. golf tournaments and banquets, where persons or entities identified in Section V.C.2 provide sponsorships; ~~and/or~~

~~viii.ix.~~ Loans from established financial institutions made in the ordinary course of business on usual and customary terms, so long as there are no guarantees or collateral provided by any person identified in Section ~~V.C.2-V.B.5~~.

~~3.~~ ~~6.~~ Employees shall ensure that the activities of students or support staff are not exploited for the benefit of any external activity of the faculty member or administrator.

a. Prior to assigning any such non-Tennessee Tech related task or a task not directly related to the employee's job duties (which is more than incidental or de minimis in nature) to a student or member of the support staff, an employee shall disclose such proposed activities and obtain approval through his/her supervisor and Human Resources.

b. Under no circumstances shall students and support staff be used to perform personal activities for the faculty or administrators while the student's or support staff's time is being paid by the university.

~~4.~~ ~~7.~~ Employees may not make significant use of state or Tennessee Tech facilities, equipment, materials, or other resources, not otherwise available to the public, in the course of activities that are not related to Tennessee Tech without prior disclosure and approval of their direct supervisor and the Business Office. Employees making more than incidental or de minimis use of Tennessee Tech owned resources must reimburse Tennessee Tech for such use at a fair market rental rate to be established by the Business Office at the time of the request or discovery of such use.

~~5.~~ ~~TTU Policy 732 (Intellectual Property) governs the rights and responsibilities which persons affiliated with Tennessee Tech have regarding intellectual property developed during the term of their affiliation with Tennessee Tech. Among the responsibilities enumerated in the policy is that of disclosure of inventions and those copyrightable works that may be reasonably expected to have commercial value that~~

~~they have jointly or solely developed or created during their affiliation with Tennessee Tech.~~

VI. Disclosure Requirements

A. Allowing a conflict of interest to exist without being addressed in an appropriate manner is a serious violation of an employee's duty to the University and can be a violation of state or federal law. Some conflicts of interests are even punishable as criminal offenses under state law.

~~A.B.~~ Unless a different procedure is specified by state statute, Tennessee Tech policy, or in this policy:

1. New employees must read this policy and sign an acknowledgement of receipt, which shall be maintained in the employee's personnel file.
 2. Employees must make a written disclosure of the facts and circumstances surrounding a situation that might involve a conflict of interest to the Conflict of Interest Committee. An electronic version of the TTU Policy 132 Conflict of Interest Disclosure Form must be submitted via the submitter's Tennessee Tech-issued email to the Conflict of Interest Committee Coordinator, and will constitute an authenticated document.
 3. All employees will annually receive a Financial Interest Disclosure form to submit by the prescribed deadline if they are or believe they might be in a conflict of interest position. Employees must disclose the facts and circumstances surrounding a situation that might involve a conflict of interest, to include the nature and extent of their financial interest(s) in any entity that does business with Tennessee Tech.
 4. At any time throughout the year, if any employee feels that a potential conflict of interest has developed since the annual reporting time, the employee is responsible for completing and submitting the Financial Interest Disclosure form to the Conflict of Interest Committee Coordinator.
 5. The Conflict of Interest Committee will forward disclosures to the appropriate supervising administrator.
- C. Investigators seeking federal funding must make written disclosures as indicated in TTU Policy 735 (Conflict of Interest in Research) and related procedures. Disclosure of financial interests made pursuant to TTU Policy 735 and related procedures notwithstanding, such disclosure does not eliminate the responsibility for making disclosures under this provision, when specific conflict of interest situations arise.
- D. Special disclosure requirements for certain Athletics employees

1. Coaches, assistant coaches, and employees of athletic departments who are exempt from the provisions of the Fair Labor Standards Act are required to file a financial disclosure form within one month of their initial appointment and annually thereafter in January. Disclosure of financial interests made pursuant to this provision notwithstanding, such disclosure does not eliminate the responsibility for making disclosures under Section VI when specific conflict of interest situations arise.
2. Disclosures from coaches, assistant coaches, and exempt employees of athletic departments shall be made using a Tennessee Ethics Commission Form [SS-8005](#), and submitted to Director of Athletics by the date prescribed by the Director.
3. The Director of Athletics or designee will forward all athletic personnel disclosure forms to the Conflict of Interest Committee by the date specified by the committee.

E. Special disclosure requirements for the President

1. The President is required to file a financial disclosure form within one month of his/her initial appointment and annually thereafter in January.
2. The President's [disclosure](#) shall be in the form prescribed by and submitted as directed by the Tennessee Ethics Commission.
3. Disclosure of financial interests made pursuant to this provision notwithstanding, such disclosure does not eliminate the responsibility for making disclosures under Section VI, when specific conflict of interest situations arise. In such cases, the President must make an appropriate disclosure to the Board.
4. Presidents Emeriti must submit any potential conflict of interest to the University Counsel.

VII. Review of Disclosures

- A. The President's disclosure made under Section VI of this policy shall be evaluated by the Board or a duly appointed committee thereof.
- B. Employees' disclosures made under Section VI of this policy shall be evaluated by Tennessee Tech's Conflict of Interest Committee.

VIII. Conflict of Interest Committee

- A. The Conflict of Interest Committee shall be appointed by the President and composed of the individuals filling the following positions:

1. Vice President for Finance and Planning
 2. Director of Compliance in Athletics
 3. Immediate Past President of Faculty Senate
 4. ~~Director for Training and Employee Engagement~~[Compliance Officer](#)
 5. Manager, Payroll and Benefits
 6. Director of Internal Audit (ex officio role)
- B.** The Committee may, by a majority vote, select a Chairperson of the Committee (“Chair”).
- C.** The Committee appointments will continue as long as the positions identified in Section VIII are filled or until the President desires to make a change to the committee composition. If one of the designated positions is reclassified or re-titled, the person filling the position for which the responsibilities are most similar to those currently comprising said position will assume the duty of serving on the committee.
- D.** The Committee will meet at least once per Spring semester, generally in February. The Chair may call additional meetings as needed to conduct Committee business.
- E.** Consistent with this policy, the Committee shall evaluate conflict of interest disclosures, determine whether a conflict of interest exists, and advise on what actions may be required to manage, reduce, or eliminate an employee’s conflict of interest, and notify the employee in writing of its decision.
- F.** If the Committee determines that an employee has a conflict of interest, that employee shall receive notice of the Committee’s evaluation and be given an opportunity to appear before that Committee before the Committee forwards its decision to the President.
- G.** Any disclosure that indicates an actual violation of law shall be forwarded to the President along with the Committee’s findings.
- H.** Unless modified by the President in writing or successfully appealed by the employee, the Committee’s decision shall be final.

IX. Appeals

- A.** An employee may file an appeal with the President within 10 business days, absent good cause, of receipt of the Committee’s decision.

- B. The President shall notify the employee in writing of his/her decision within 10 business days, absent good cause.
- C. The President's decision shall be final and binding.

X. Sanctions

- A. Failure to follow any law or Tennessee Tech policy relating to Conflicts of Interest, including failure to observe restrictions imposed as a result of review of a Conflict of Interest disclosure or a knowing failure to disclose a conflict of interest, may result in disciplinary action, including but not limited to termination.
- B. The Committee will refer violations as appropriate to the employee's unit and the Associate Vice President for Human Resources for appropriate action, if any.

~~XI. Conflict of Commitment~~

~~The primary work related commitment of an employee's time and energy should be to the University. Employees should avoid external commitments that significantly interfere with his/her performance of, or impair his/her independence of, judgment in the performance of the employee's duties to Tennessee Tech.~~

~~XII, XI. Interpretation~~

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

~~XIII, XII. Citation of Authority for Policy~~

T.C.A. § 8-50-501; T.C.A. § 8-50-506; T.C.A. § 12-02-208; T.C.A. § 12-02-415-417; T.C.A. § 12-4-101-104; T.C.A. § 12-4-106; T.C.A. § 12-4-114; T.C.A. § 49-8-203; T.C.A. § 49-8-203(a)(1)(E)

Approved by:

Administrative Council: April 5, 2017; April 3, 2019

University Assembly: April 19, 2017; April 17, 2019

Reviewed by Board Audit & Business Committee: June 15, 2017;

ATTACHMENT D**GUIDELINES FOR AUDIT COMMITTEE CHARTERS**

The specific activities of any audit committee will depend on, among other things, the mission, nature, structure, and size of each agency. In establishing the audit committee and creating its charter, each board should examine its agency's particular circumstances. Anti-fraud literature notes that there are two categories of fraud: fraudulent financial reporting and misappropriation of assets. The audit committee should consider the risks of fraud in its agency in general as well as the history of its particular agency with regard to prior audit findings, previously disclosed weaknesses in internal control, and compliance issues. The audit committee should consider both the risk of fraudulent financial reporting and the risk of fraud due to misappropriation or abuse of agency assets. Also, the board and the audit committee should keep in mind that agencies receiving public funding should have a lower threshold of materiality than private sector entities with regard to fraud risks.

Boards should exercise professional judgment in establishing the duties, responsibilities, and authority of the audit committee. The factors noted below are not intended to be an exhaustive listing of those matters to be considered. The committee should not limit its scope to reacting to a preconceived set of issues and actions but rather should be proactive in its oversight of the agency as it concentrates on the internal control and audit-related activities of the entity. In fact, this individualized approach is one of the main benefits derived from an audit committee.

At a minimum, audit committees should:

1. Develop a written charter that addresses the audit committee's purpose and mission.
2. Formally reiterate, on a regular basis, to the board, agency management, and staff their responsibilities for preventing, detecting, and reporting fraud, waste, and abuse.
3. Serve as a facilitator of any audits or investigations of the agency, including advising auditors and investigators of any information they may receive or otherwise note regarding risks of fraud or weaknesses in the agency's internal controls; reviewing with the auditors any findings or other matters noted by the auditors during audit engagements; working with the agency management and staff to ensure implementation of audit recommendations; and assisting in the resolution of any problems the auditors may have with cooperation from agency management or staff.
4. Develop a formal process for assessing the risk of fraud at the agency, including documentation of the results of the assessments and assuring that internal controls are in place to adequately mitigate those risks.
5. Develop and communicate to staff of the agency their responsibilities to report allegations of fraud, waste, or abuse at the agency to the committee and the Comptroller's Office as well as a process for immediately reporting such information.
6. Immediately inform the Comptroller of the Treasury's Office when fraud is detected.

7. Develop and communicate to the board, agency management, and staff a written code of conduct reminding those individuals of the public nature of the agency and the need for all to maintain the highest level of integrity with regard to the financial operations and any related financial reporting responsibilities of the agency; to avoid preparing or issuing fraudulent or misleading financial reports or other information; to protect agency assets from fraud, waste, and abuse; to comply with all relevant laws, rules, policies and procedures; and to avoid engaging in activities which would otherwise bring dishonor to the agency.

The charter of the audit committee should include the following topics:

MISSION, PURPOSE, AND RESPONSIBILITIES

This should include:

- assisting the board in its oversight of the agency,
- review of management's risk assessments,
- review of the entity's internal control structure,
- review of the entity's process for monitoring compliance with laws and regulations, and
- review of the entity's code of conduct.

MEMBER QUALIFICATIONS

- Each member of the audit committee should have an adequate background and education to allow a reasonable understanding of the information presented in the financial reports of the agency and the comments of auditors with regard to internal control and compliance findings and other issues.
- The members of the audit committee should be independent from any appearance of other interests that are in conflict with their duties as members of the audit committee.
- The chair of the audit committee should preferably have some accounting or financial management background.

COMMITTEE STRUCTURE

- The board should nominate the audit committee and the chair of the audit committee.
- The size of the audit committee should be established. The committee should consist of a minimum of three members.

- The term of office should be defined. *

MEETINGS

- The number of members required for a quorum should be stated.
- The frequency of audit committee meetings should be established. An audit committee should meet as often as is necessary to carry out its responsibilities.
- The audit committee should record minutes of its meetings.

COMPLAINTS AND ETHICS

The audit committee charter should require the audit committee to:

- ensure procedures for the receipt, retention, and treatment of complaints about accounting, internal controls, or auditing matters;
- review the code of conduct to ensure that it:
 - is easy to access,
 - is widely communicated,
 - is easy to understand and implement,
 - includes a confidential mechanism for reporting code violations,
 - is enforced, and
 - includes conflict of interest policy and guidelines; and
- review the conflict of interest policy to ensure that:
 - the term “conflict of interest” is clearly defined,
 - guidelines are comprehensive,
 - annual signoff is required, and
 - potential conflicts are adequately resolved and documented.