Joint Title IX Compliance Review Report

of

The Department of Electrical Engineering and Computer
Science at the University of Tennessee, Knoxville

Site Visit Conducted: 21-22 April 2015

by

U.S. Department of Energy and

National Science Foundation

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I. Introduction

A. Objective and Scope

Objectives

To determine compliance with the U.S. Department of Energy (DOE) implementing regulations Title 10, Sections 1040 and 1042 and the National Science Foundation (NSF) implementing regulations Title 45, Sections 611 and 618.

1. Determine whether students have equal access to benefits and services offered by the Electrical Engineering and Computer Science Department.
2. Determine that the program and activities provided by the University are free of discrimination.
3. Report any promising practices.

Scope

1. Evaluate Title IX policies, practices, and procedures, including:
   a. Anti-Discrimination policies and procedures
   b. Grievance process
   c. Role of the Title IX Coordinator
2. Evaluate recruitment and outreach practices
3. Evaluate admissions and retention practices, policies, and procedures
4. Evaluate financial assistance policies
5. Review and evaluate complaints of discrimination and sexual harassment
6. Evaluate Title IX anti-discrimination and sexual harassment training policies, procedures, and practices.

B. Background

The DOE supports a diverse portfolio of research at colleges, universities and research institutions across the United States, providing funding to more than 300 such institutions every year, which supports thousands of principal investigators, graduate students, and post-doctoral researchers. Similarly, the NSF provide funds to more than 1,800 colleges, universities, and non-profit institutions supporting approximately 350,000 researchers, postdoctoral fellows, trainees, teachers and students. In recognition of the role of NSF funding in the development of the national human resources, in addition to assessing "Intellectual Merit" of the more than 225,000 proposals received, the NSF "gold

standard" review process also includes an assessment of each proposal's "Broader Impacts."

During the most recent five-year period (2010-2014), DOE and NSF provided $45.8M in research funding to the University of Tennessee, Knoxville, averaging just over $9.1M annually. In the same period, the University of Tennessee, Knoxville received more than $226M in funding from all Federal agencies, combined.[1]

The Title IX statute and DOE's Title IX implementing regulations prohibit recipients of federal financial assistance, such as colleges and universities, from discriminating on the basis of sex in any of their educational programs or activities. (20 U.S.C. § 1681(a); 10 C.F.R. § 1042.100) In addition, DOE's regulations at 10 C.F.R. parts 1040 and 1042, require the Department to periodically conduct compliance reviews of recipients of DOE financial assistance to ensure compliance with the nondiscrimination requirements of Title IX. (10 C.F.R. §§ 1042.605, 1040.101(a))

Title IX:

No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance ...

20 U.S.C. § 1681(a)

NSF has promulgated regulations to ensure that educational programs receiving NSF funds are free of gender discrimination and harassment. (45 C.F.R. Part 618). NSF's regulation under Title IV of the Civil Rights Act of 1964 incorporated by reference to NSF's Title IX compliance responsibilities, require the agency to conduct periodic reviews of the practices of recipients to determine whether they are in compliance. At NSF, the Office of Diversity and Inclusion (ODI) is charged with conducting compliance reviews under Title IX, and the Department of Justice (DOJ), pursuant to Executive Order 12250, has overall enforcement authority to ensure agencies are in compliance.

Additional statutory authority requiring DOE and NSF to conduct compliance reviews is found in the American COMPETES Act, Pub. L. No. 110-69, § 50101, 121 Stat. 572, 620 (2007), first enacted in 2007 and reauthorized in 2011. The Act states that DOE and NSF should: (1) implement the recommendations contained in a July 2004 Government Accountability Office (GAO) report titled, "Gender Issues: Women's Participation in Sciences has Increased, but Agencies Need to Do More to Ensure Compliance with Title IX;" and (2) conduct at least two Title IX compliance reviews annually of recipients of DOE/NSF financial assistance.

Recently, NSF developed strategies to promote family-friendly opportunities through its Career Life Balance (CLB) initiative which focused on opportunities to increase the number of women in the Science, Technology, Engineering, and Mathematics (STEM)

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[1] Source: Survey of Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions, accessed via the National Science Foundation WebCASPAR database system [Online http://webcaspar.nsf.gov; access date 20 June 2016].

workforce, where the number of women remains low. NSF's commitment to and focus on implementing Title IX compliance reviews among recipients of NSF funds are included in these strategies.

C. Review Process

The Joint Title IX Compliance Review was initiated via memo on 4 February 2015. The University of Tennessee was selected, using neutral criteria, as one of a number of institutions that received funding from both DOE and NSF. An initial data request was sent and arrangements were made with the University of Tennessee Title IX Coordinator and the DOE lead for the site visit. Data from the Institutional Postsecondary Education Data System (IPEDS) were accessed to provide trend analysis associated with institutional changes related to the computer science program.

A site visit team held meetings and interviews at the University of Tennessee from April 21-22, 2015. The opening session was held with many university representatives, including University General Counsel, the Title IX Coordinator, the Dean of the College of Engineering, and the Department Head of EECS. This provided an opportunity to introduce the site visit team, background information on the Title IX Compliance Review, and explain the purpose and procedures to be followed for the visit.

After the meeting, nine administrators (including the Dean of Engineering, EECS Department Head, Title IX Coordinator, etc.) were interviewed. A total of 12 full-time (i.e., tenured/tenure track) faculty members and one researcher associated with the EECS department were interviewed. Interviewees included five of the EECS department's seven[2] women faculty (two assistant, one associate, and two full professors). The researcher was a female with a non-engineering doctoral degree involved with CURENT outreach efforts[3]. The seven male faculty members included two assistant and five full professors. Interviewees represented 27% of the EECS Department faculty but 71% of its women faculty.

The team interviewed 49 students. Five were in master's degree programs and 44 were at various stages of EECS PhD programs. With few exceptions, all interviews were completed by two team members. Each team member wrote separate sets of notes used in the development of this report. All interview notes and information provided in response to the data request were coded into Excel spreadsheets for subsequent analysis. No inferential statistics were used, instead, the findings are presented as descriptive analyses.

In a letter dated November 12, 2016, NSF and DOE informed UTK that it had completed its draft report and attached it to the letter for review of, and comment by, key UTK staff.

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[2] As noted earlier, there were six tenured/tenure track women faculty plus an additional assistant professor woman with a joint appointment with Mathematics. One woman faculty member, Dr. Lynne Parker (full professor) was on leave as a rotator at NSF.

[3] The researcher's responses were incorporated into those of the engineering faculty and included in counts associated with summary information from the engineering faculty interviews throughout this report even though she is not, technically, a member of the EECS faculty.

UTK provided its comments in a letter to NSF and DOE dated February 8, 2017. Those comments are incorporated throughout this report and referenced as "The Response Letter." Some findings or recommendations in this report are updated or revised if NSF and DOE determined that the comments warranted such revisions.

II. Background: The UTK Electrical Engineering and Computer Science Program

The Department of Electrical Engineering and Computer Science (EECS) is located within the University of Tennessee, Knoxville (UTK) College of Engineering. Computer Science was originally located within the College of Arts and Sciences and merged with the Department of Electrical Engineering in the College of Engineering on July 1, 2007. EECS offers undergraduate and graduate degrees in Electrical Engineering (EE), Computer Engineering (CpE), and Computer Science (CS), as well as a BS/MS 5-year degree program. As shown in Figure 1[4], the relative representation of women among computer science graduates from UTK has decreased from 14% in the ten-year period from 2000-2009 to 6% in the most recent five-year period 2010-2014[5]. On average, in the ten-year period (2000-2009), 4.3 women earned CS bachelor's degrees, versus 2.3 in the most recent five-year period (2010-2014).

Figure 1. Women as Percent of EE and CS Degrees Awarded at UTK by Level

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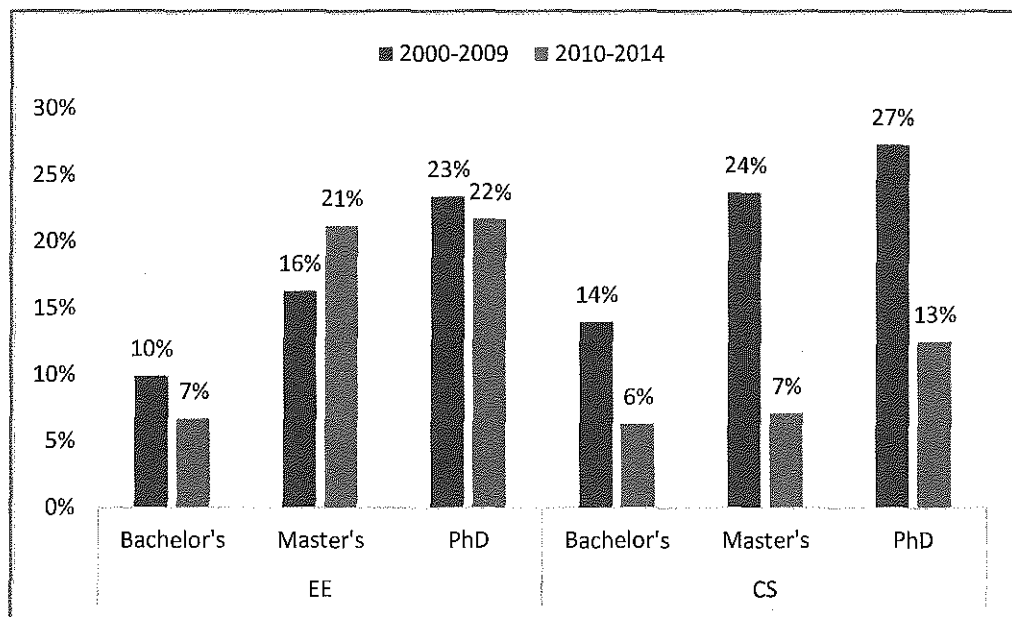
[4] Source: Integrated Postsecondary Education Data System (IPEDS) data accessed via the NSF WebCASPAR database system [Online http://webcaspar.nsf.gov; access date 21 April 2015].

[5] Relatively low annual average production of women in both CS and EE is suggestive of the utility of aggregating multiple years' of degree production. With a departmental transition in 2007, and accounting for degree completions by existing students, the 2010-2014 five-year period offers a robust comparison to the previous 10-year period 2000-2009. Between 2000 and 2014, UTK awarded an average of five bachelor's degrees to women in EE and four in CS with annual numbers ranging from zero to twelve in CS and two to twelve in EE.

Table 1 summarizes the graduate degrees offered by the EECS Department and the concentrations within those degree programs. EECS also supports two interdisciplinary graduate programs. At the master's level, a MS-MBA dual degree program with the College of Business Administration is offered. At the doctoral level, the EECS Department participates in the UTK Center for Interdisciplinary Research and Graduate Education's (CIRE) Energy Science and Engineering degree major. CIRE is a joint effort between the College of Engineering, other UTK colleges and the Oak Ridge National Laboratory.

Table 1. Graduate Degree Programs in EECS at UT

Major	Degree	Concentration
Electrical Engineering (EE)	MS, PhD, Dual MS-MBA	Circuit Theory, Communication Theory, Computers, Control Systems, Electro-Optics, Electromagnetic Theory, Plasma Engineering, Power Electronics, Power Systems, Solid-State Electronics.
Computer Engineering (CpE)	MS, PhD, Dual MS-MBA	Hardware, Networking and Embedded Systems, Signal Processing and Control, Machine Learning and Artificial Intelligence, Software Systems, Theory, Communications
Computer Science (CS)	MS, PhD, Dual MS-MBA	Computer Architecture, Computer Networks, Computer Vision, Data Fusion, Data Structures, Data Visualization, Embedded Systems, Image Processing, Information Systems, VLSI System Design.

The EECS Department is located in the 150,000 sq. ft. Min H. Kao Electrical Engineering and Computer Science building. Opened in 2012, the building houses state-of-the art teaching and laboratory facilities, including two research centers:

- Center for Ultra-wide-area Resilient Electric Energy Transmission Networks (CURENT), which is an Engineering Research Center funded by both NSF and the Department of Energy and includes collaborations with Northeastern University, Rensselaer Polytechnic Institute and Tuskegee University.
- The Center for Intelligent Systems and Machine Learning (CISML) is a collaboration of faculty from three colleges and eight UTK academic departments. It is part of the College of Engineering. CISML's focus is designing computer-based systems that exhibit intelligent behavior, operate autonomously, and adapt to environmental changes.

Another EECS research center, the Innovative Computing Laboratory (ICL), is housed in another campus building and serves as the cornerstone laboratory of the Center for Information Technology Research (CITR), one of UTK's nine Centers of Excellence. The ICL "aspires to be a world leader in enabling technologies and software for scientific computing. Our vision is to provide high performance tools to tackle science's most challenging problems and to play a major role in the development of standards for scientific computing in general."

A. The Graduate School

The UTK Graduate School oversees university administration of master's degrees (76 fields), doctoral degrees (44 fields), two professional programs, an Educational Specialist degree and graduate certificate programs. The Graduate Dean is a vice provost reporting to the Provost and Vice Chancellor. In total, UTK enrolls about 6,000 graduate and professional students with about 1,900 full- and part-time assistantships centrally administered. With an assistantship, most fees are waived and students receive a stipend and health insurance provided by UTK.

A Graduate Council with proportionate UTK graduate faculty representation from 13 academic units and two representatives from the Graduate Student Senate provides guidance and university-level oversight of graduate education, including changes to policy and procedures. The College of Engineering has five members on the Graduate Council. The Graduate Council Appeal Procedure (last revision, 2009) emphasizes that "grievances should be handled first at the department level through the student's academic advisor, the director of graduate studies, or the department or program head. Further appeal may be made to the dean of the respective college, the Graduate Council Appeals Committee through the Assistant Dean of the Graduate School, and ultimately the Dean of the Graduate School." (UTK "Academic Policies and Requirements for Graduate Students").

B. Student Population in the Department of Electrical Engineering and Computer Science

Graduate student enrollment data for the most recent five academic years are shown in Figure 2. Since the 2010-11 academic year, Master's enrollments declined for both men (29%) and women (44%). As of 2014-15, there were just five women enrolled in Master's degree programs in the EECS Department, representing 11% of students. Doctoral enrollments increased over this same time period for women (16%) and men (20%) with the 37 women enrolled in the 2014-15 academic year accounting for 20% of the doctoral students that year.

In the Response Letter, UTK reports that as of fall 2016, the number of women in the Master's program in EECS increased since the 2014-15 academic year to a total of 12 women students. UTK further reports in the response:

"Presently, the number of MS students in the department is the highest it has been since 2009. We attribute the recent increase in the number of students mostly to the 5-year BS/MS program that was started a few years ago, and the push by EECS faculty and administrators to advertise and recruit students to stay for their MS degree. The percentage of women in the MS

program is 15% (12 out of 82). These numbers are an improvement over the numbers a few years ago, but there is still a need to attract more women to the graduate program. The present percentage of women in the undergraduate majors in the EECS Department is 10% (highest that it has been in the last 5 years, but still below department expectations), so it remains a challenge to recruit female MS students since by far the majority of students recruited for the MS program come from UT's undergraduate programs. The number of Ph.D. students in the department is the highest ever. The percentage of female students in the PhD program in the department is 24.5% (47 out of 192). Because the majority (73%) of the Ph.D. students are international, the department is able to recruit and attract a higher number and percentage of female Ph.D. students."

Figure 2. Graduate Enrollment by Level and Gender, AY 2010-2014
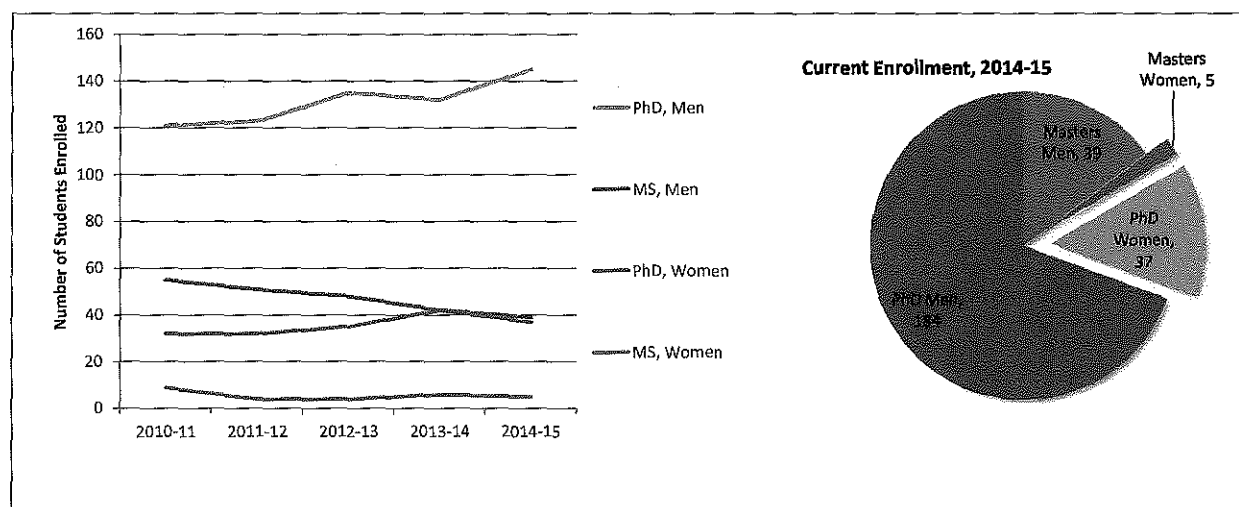
Source: Analysis of data provided by UTK EECS Department.

The majority of students enrolled in the 2013-14 academic year were enrolled in the EE PhD program (105 students, 47% of all students, see Figure 3). Women accounted for 18% of the department's graduate students, but were 48% of the 49 graduate students interviewed for this report. Table 1 illustrates the added burden placed upon female students in programs in which there are proportionately few women. Men represented the majority of interviewees, but any given individual male student was less likely to be interviewed than any given female student, with only 16% of male students participating in interviews.

Figure 3. Enrollment by Level and Major, AY 2013-14
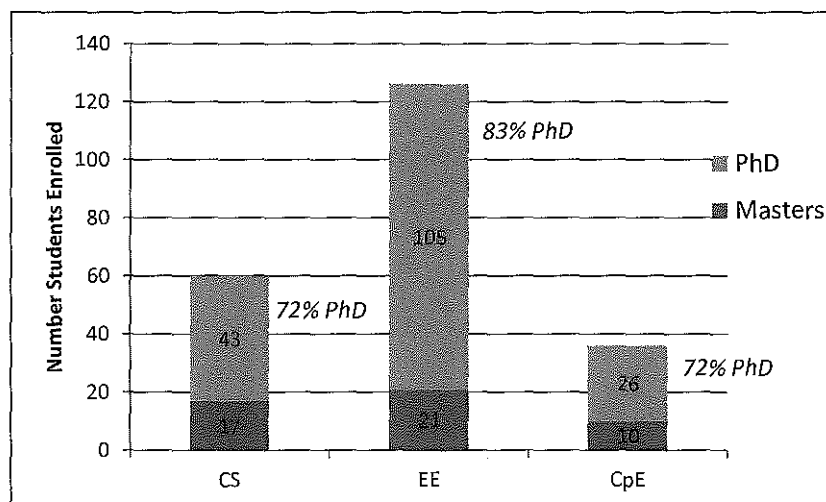
Source: Analysis of data provided by UTK EECS Department

Table 2 shows that most of the interviewed students (90%) were studying for their doctoral degrees, consistent with the larger representation of these students among the department's enrollees. Additionally, students who were interviewed were generally representative of the three major disciplines within the department, Computer Science (CS), Computer Engineering (CpE), and Electrical Engineering (EE). Although not shown in detail here, a large number of the students interviewed—consistent with the UTK EECS enrollment patterns—were international students, based on comments made in their interviews.[6]

Table 1. Representation of Women and Men among Interviewed EECS Students at UTK

	Interviewed	Enrolled	Percent
Women	20	42	47.6%
Men	29	184	15.8%
Total	49	226	21.7%

Table 2. Representation of Students from Major Fields and Degree Level among Interviewed EECS Students at UTK

	Major			Degree Level	
	CS	CpE	EE	MS	PhD
Interviewees	14	7	28	5	44
Enrolled	60	36	126	44	182
Percent Interviewed	23.3%	19.4%	22.2%	11.4%	24.2%

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[6] In some cases, students referred the Test of English as a Foreign Language (TOEFL) required of non-native English speaking applicants. Others mentioned degrees earned in other countries—most often, China—while in other cases, students referenced the "large number of international students" as a factor that attracted them to UTK. Some students referenced professors or peers in their home country with experience at UTK as an attraction factor.

C. Faculty and Administrators

The department reported 43 full-time faculty (tenured and tenure track), including six women (14%). An additional assistant professor woman holds a joint appointment with the Department of Mathematics (her principal department). Women were represented at all three ranks: three were full professors, one an associate professor, and two were assistant professors. In addition, one of the women, Dr. Yilu Liu holds the Governor's Chair Professorship and serves as the Deputy Director of CURENT. Many students referenced the appeal of the CURENT, the power engineering program, and/or Dr. Li's fame as important points of attraction for them to EECS at UTK. EECS is led by a Department Head and two Associate Department heads, all of whom were men. In addition, the leadership of the other two centers associated with the department were also men. CURENT's staff includes a research faculty member who is the Director of Education and Diversity Programs and a research professor affiliated with the UTK Department of Sociology.

D. Recruitment and Outreach Programs

Unlike undergraduate education, which includes many non-department-based requirements, graduate education resides within programs housed in departments. At comprehensive public institutions like UTK, the undergraduate student body is often highly representative of the state's own high school graduating classes with a relatively small percentage of students from outside the state.

For graduate education, high performing undergraduate students may be individually recruited by faculty members, for whom high-quality graduate assistants are an incentive. The principal means of recruitment reported by the EECS department is the webpage, which provides details about faculty, current research projects, and facilities. The Department of EECS provided information about outreach efforts associated with career fairs and discipline-based conferences, but had no outcomes data associated with these efforts.

The NSF/DOE Engineering Research Center, CURENT, engages in outreach to schools in the Knoxville area and has sponsored a Research Experiences for Undergraduates (REU) program with approximately ten students per year since 2012 as an outreach/recruitment activity. "A few have already attended UTK graduate school" according to the EECS-provided information. In order to recruit students to the REU program, faculty and other institutional representatives attend conferences (e.g., SACNAS, AISES) and visit HBCUs in the region[7]. With respect to recruitment of undergraduate students, UTK stated, *"Further, in order to increase the pipeline of undergraduate female students, each of the past two summers (2015 and 2016) the department has hosted 32 rising high school juniors in the UT Tickle College of Engineering's HITES' ll program.[8] These students come from a diverse background, and one-half of them are female."* UTK also stated that *"the (EECS department) is hiring two Undergraduate Professional*

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[7] SACNAS = Society for Advancement of Chicanos and American Indians in Science; AISES = American Indian Society for Science and Engineering; HBCU = Historically Black Colleges/Universities; IEEE = Institute of Electrical and Electronics Engineers.

[8] HITES stand for "High School Introduction to Engineering Systems" The program identifies and selects rising eleventh grade students who demonstrate interests within math and science, with the purpose of providing an opportunity to explore engineering, learn how computing is used in engineering applications, and campus life at the University of Tennessee.

Advisors who will start in summer 2017. It is expected that these advisors will help to increase the retention of students in all of the undergraduate programs at UT, because of their ability to be more pro- active in meeting with students who have academic issues. The other consequence of these new positions is that it will free some other administrative staff to spend more time on undergraduate and graduate recruiting.

Students and faculty were funded by the department to attend the Grace Hopper Celebration of Women in Computing (2013 and 2014) and the IEEE Women in Engineering (2014 and 2015) conferences and encouraged students to recruit other graduate students. Student interviews made reference to the work that SYSTERS had done, including attending the Grace Hopper Conference. In the Response, UTK stated, *"it has increased it recruiting at events where underserved students are in attendance, including not only the aforementioned events but also the National Society of Black Engineers (NSBE) Annual Conference, and the Tennessee Louis Stokes Alliance for Minority Participation (TLSAMP). "*

No data were provided about the effectiveness of these outreach efforts, the actual activities undertaken in these venues to engage with participants, nor about faculty involvement in these activities. Lacking faculty participation, the success of these outreach efforts to increase the participation of women is unknown.

Increasingly international recruitment efforts have been undertaken by colleges and universities nationwide. UTK has a large number of international graduate students so it appears that this has been the case, based on the remarks of the Dean of the Graduate School and other administrators, EECS faculty did not report direct involvement in these activities. The EECS Department Head referenced the large number of international applications to the department in his interview.

The student interviews also shed light on the recruitment methods of the department, which, despite the department's presence at the above-referenced events, reveal a program that relies almost exclusively on "passive" rather than active recruitment of students. Only four of the 49 students made reference to the institution's outreach to them as the starting point for their application to the institution. Even among those students who referenced having attended the UTK as undergraduates, typically one "pool" from which faculty might recruit, only two of the six UTK alumni interviewed by the team reported that a UTK professor had reached out in an active way to encourage an application to graduate school. To put this in perspective, seven students referenced ORNL and ten students referenced UTK as close to home as what attracted them to the institution. There was no evidence of a gender disparity in this process.

Several students reported that when they had initially reached out to specific faculty based on research interests, that these faculty were encouraging and helpful in the application process to the program and in securing funding for graduate school.

When asked whether they were aware of any outreach programs to attract students to the UTK EECS programs, students often referenced CURENT's programs (headed by a woman and employing social scientist to engage in outreach) or those of a student organization, "SYSTERS." All reported active outreach efforts involved efforts by women (students, faculty, and researchers in administrative positions). There were no reported outreach efforts associated

with the other two EECS centers, both led by men. This disparity underscores the additional institutional burden on women faculty and students not equally borne by male faculty and students. Advancement in EECS disciplines is contingent on one's research and publications rather than human resources development, hence these systematic gendered time allocation patterns represent a potential unconscious barrier to women's advancement. In the Response, UTK stated," *that the NSF/ DOE Engineering Research Center CURENT had one activity held on April 1, 2016, a 1-day workshop called "Women in Leadership." UTK also stated that other events have been working with area high school teachers to develop curriculum and encourage more students to pursue engineering degrees and CURENT has also led recruiting students to participate in REUs."*

E. Admissions

From a Title IX perspective, the issue of gender disparate impacts in university processes is of interest. With respect to admissions, the specific questions are: What are the processes of admission and to what extent do these processes have a disparate impact upon female as compared to male applicants to the EECS graduate programs?
Students seeking admission to graduate programs first apply to the UTK Graduate School, which verifies that specific baseline requirements are met before applicant materials are forwarded to specific programs for subsequent review. Minimal requirements for admission are:

- Bachelor's degree from an accredited college of university or a foreign degree that is equivalent to a U.S. bachelor's degree from an accredited institution;
- A 2.7 / 4.0 GPA or a minimum 3.0 GPA in the senior year of undergraduate study;
- Applicants for whom English is not their native language are required to submit TOEFL scores with a minimum of 550 on the paper-based, 80 on the TOEFL iBT, or a 6.5 on the IELTS.[9] "English Proficiency Conditional Admission" is available.

Most graduate programs, including those in EECS, make the final admissions determination once an applicant has been approved by the Dean of the Graduate School. Additionally, assistantships are awarded by graduate programs, with student admissions often connected to funding decisions.

Faculty interviews at UTK indicated that undergraduate classes were one means of identifying promising graduate students, which are important human resources for faculty research. A mitigating factor in the use of this method is the status hierarchy of academic institutions and a still-prevalent belief that an individual should not earn graduate degrees at the same institution where (s)he earned her/his undergraduate degree. Hence, UTK faculty reported that in many cases, once they identified a promising undergraduate student to recruit to graduate school—regardless of sex—the student was likely to apply and matriculate elsewhere for graduate school rather than UTK. As referenced previously, only two of the six students who indicated in their

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[9] TOEFL iBT refers to the internet-based version of the Educational Testing Service's Test of English as a Foreign Language, aimed predominantly at students seeking to enter U.S. institutions of higher education (and those in other predominantly English-speaking countries). IELTS is the International English Language Testing System that certifies English language skills for migration, labor market or education purposes.

interviews that they had attended the UTK as undergraduates said they were encouraged by EECS faculty to apply to the UTK graduate programs.

Faculty also reported that students contacted them expressing interest in their research and joining their labs. If a faculty member was impressed with a student's credentials, (s) he could recommend to the Graduate Studies Committee for admission and a graduate assistantship and felt relatively confident that the student would be approved. A number of students reported that faculty were responsive to their inquiries and, in some cases, provided assistance in navigating the application process.

Graduate Admissions Committee information was provided by EECS. There are currently (for the 2014-2015 AY) two male full professors on the committee, one of whom was the only member of the Graduate Admissions Committee for the 2011-2014 academic years. In the 2010-2011 academic year, there were three male professors that constituted this committee. In addition to the admissions committee, the department has a general "Graduate Committee" and two other administrative posts relevant to graduate education, the "Graduate Program Director" and the "Graduate Teaching Assistantship Director." These latter two positions have been held by senior faculty (i.e., full or associate professors) for the past five years, with one woman currently serving as the Graduate Teaching Assistantship Director (since the 2013-2014 academic year). With this exception, these two positions have been held by four men over the past five years.[10]

The Graduate Committee has five faculty, including one chair, representing full, associate, and assistant professors. In the past five academic years, nine faculty members have served what appear to be 4-year terms on this committee. An assistant professor woman has served on this committee as the only woman for the past four academic years. Prior to her membership on this committee, the committee in 2010-2011 included only men. The committee has been chaired by a full or associate professor since 2010-2011.

According to information provided by the EECS Department:

> "The EECS Department admits all domestic applicants (U.S. citizens and permanent residents) who are qualified (those that meet the university's requirements for GPA and have complete application packages) to the graduate program. For international student applicants, admission is based by professor nomination and if the applicant is qualified. Professors nominate students based on their ability to provide the student a Graduate Research Assistantship (GRA)."

Information provided independently by interviewed students and faculty confirmed this process. While a specific form was not provided by the department, factors considered in admitting students were: "GPA, prior course of study, prior research, GRE scores, TOEFL scores, and references." Interviews with students and faculty also referenced these factors.

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[10] Based on the occupancy pattern, one male associate professor was both the Graduate Program Director and the Graduate Teaching Assistantship Director for the 2010-2011 and 2011-2012 AY, suggesting these positions were separated into two positions in the 2012-2013 AY.

Additionally, the 12 faculty and one researcher who were interviewed were aware of the underrepresentation of women in the EECS fields. As such, when asked about admissions processes and then asked about gender as a factor in admissions, three of the 13 interviewees (23%) indicated that gender was a "tie breaker" when there were two equally qualified applicants. One of these same respondents plus two others referred to the value of gender as it helps with diversity, while one faculty member stated a preference for female students. Overall, six of the 13 interviewees (46%) suggested there was a gender preference for females.

<u>Graduate EECS Department Admissions Data</u>

Data on the number of applicants, admissions, and enrollments for the past five academic years (2010-11 through 2014-15, inclusive) were provided by the UTK EECS Department disaggregated by program level (master's and doctoral), national origin (U.S. and international), and sex (men and women). The raw data for each year provided by UTK were combined for all five academic years reported. Table 3 presents results of this analysis of applicant-admissions-enrollment data, along with the overall numbers and percent of women (U.S. and international, combined).

Highlights of these data at the master's level (top half of Table 3) include:

- There were 1,422 applicants to the UTK EECS master's programs over the past five years with 78 new enrollments during that time.
- In three of the past five academic years, no new women were enrolled in EECS master's programs;
- Overall, the five new women who enrolled since AY2010-11 represented just 6.4% of new enrollees to UTK EECS master's programs;
- Women's representation in the pool of potential enrollees in the EECS master's programs narrowed at each step of the matriculation process – women accounted for 22% of applicants, but just over 11% of admits and 6% of enrollees. As shown in Table 3, women's conditional likelihood of enrolling in the EECS master's programs was substantially smaller (.016) than that of men (.066).

Table 3. EECS Department Applications, Admissions, and Enrollments by National Origin, Sex, and Program Level, Five Most Recent Academic Years, Combined (2010-11 through 2014-15)

		US Women	US Men	International Women	International Men	Total Women	Total Men	Grand Total	Percent Women
Master's	Applicants	18	142	295	967	313	1109	1422	22.0%
	Admissions	7	90	8	26	15	116	131	11.5%
	Enrollment	2	59	3	14	5	73	78	6.4%
	Admits as a % of applicants	38.9%	63.4%	2.7%	2.7%	4.8%	10.5%	9.2%	
	Enrolled as a % of admits	28.6%	65.6%	37.5%	53.8%	33.3%	62.9%	59.5%	
	Conditional likelihood of enrollment	0.111	0.415	0.010	0.014	0.016	0.066	0.055	
Doctoral	Applicants	12	132	263	1172	275	1304	1579	17.4%
	Admissions	8	58	39	128	47	186	233	20.2%
	Enrollment	5	37	24	89	29	126	155	18.7%
	Admits as a % of applicants	66.7%	43.9%	14.8%	10.9%	17.1%	14.3%	14.8%	
	Enrolled as a % of admits	62.5%	63.8%	61.5%	69.5%	61.7%	67.7%	66.5%	
	Conditional likelihood of enrollment	0.417	0.280	0.091	0.076	0.105	0.097	0.098	

At the doctoral level, women's representation and movement through the matriculation process differed as compared to the master's level. For example, there were new doctoral-level women each of the past five years, totaling 29 (18.7%) of the 155 new PhD students enrolled by UT's EECS Department since 2010. Furthermore:

- Women represented 17.4% of applicants but a slightly higher (20.2%) of admissions; and
- Women (0.105) were equally likely as men (.097) who applied to enroll in a PhD program in EECS.

> **Compliance Review Findings:** UTK EECS graduate programs' lack of coordinated recruitment and outreach. Their reliance on individual faculty to recruit students results in hap-hazard representation of women in its graduate programs. To the extent that master's degree completers represent a pool of PhD students, the recent lack of women amongst the new cohorts of master's students may pose implications for future representation of women in the PhD programs in the EECS Department. NSF/DOE notes that according to information provided in the Response, EECS appears to have improved its recruitment infrastructure since the NSF/DOE's onsite visit of UTK.

F. Financial Assistance, Assistantships, Incentives, and Awards

Funds from fellowships and assistantships are critical for the support of graduate studies. Additionally, types of support are important because of the research relationships embodied within these support systems. Historically, women, among other groups underrepresented in science and engineering fields, have been hindered from equitable access to graduate study by gender-based restrictions on funding, especially of married women, and to research laboratories, in which they could develop research collaboration skills and receive guidance/mentorship from a faculty member and other experienced researchers. From a Title IX perspective, the question is:

to what extent do women and men graduate students in EECS have equitable access to funds and research opportunities?

Assistantships

The EECS Department offers most graduate students a research or teaching assistantship (hereafter, GRA and GTA, respectively). Indeed, the number of graduate assistantships was cited as the only factor that limited admissions of graduate students in the information provided by the EECS Department. A GTA supports the EECS teaching mission, with students providing grading, laboratory, and office hour support to a faculty member teaching a class. According to the EECS Department "Graduate Handbook," approximately 75 of these (half at 20 hours/week, half at 10 hours per week) are awarded each year. The Graduate School places language proficiency requirements on GTAs because of their need to work with undergraduate students.

In order to gain access to research experience, GTAs need to work beyond their assigned hours (which GRAs typically do as well) and can be sidetracked by student questions due to their typically greater familiarity with undergraduate students in classes that they support. In addition to the GRAs and GTAs, students can also apply for the EECS Department's Graduate Assistantship – System and Network Administrator, which enables student to gain experience doing support to labs and system administration work. Four to six of these are awarded each year.

The EECS Department has approximately 100 GRAs, which provide students a way to become involved in a faculty member's research program. The choice of GRAs is entirely up to individual faculty members. Two student interviews independently referenced a female student(s) who was not permitted to join at least one of the EECS Department's laboratory research groups based on marital status, but was able to gain access to work with another professor after the initial refusal.

The EECS Department 10-20 hour/week (0.25 or 0.5 time) graduate assistantships include:

- A stipend, which can be split over 12 months;
- Tuition and fees waiver; and
- Health insurance for the student.

As shown in Table 4, a total of 112 projects were reported as active in the 2014-15 academic year by the EECS Department. A tally of students supported by these projects. Only numbers of students by project rather than names of specific students was supplied, therefore, it is possible— and likely—that any given student was supported by the more than one project. In total, 34 women and 165 men students were indicated as supported by faculty research projects, representing 81% of 2014-2015 enrolled women and 89.7% of enrolled men. This means that 19% of women and 10.3% of men enrolled in the EECS Department were supported by something other than a research assistantship on a faculty project. The overall level of women's participation in EECS graduate programs means that just one-fifth of the department's 112 projects included female graduate students, while nearly two-thirds employed male graduate students.

Table 4. Graduate Students Support by Faculty Research Projects in EECS, 2014-2015

	Females	Males		Females	Males
# Projects (n=112)	23	73	# Students	34	165
% of Projects	20.5%	65.2%	# Students Enrolled	42	184
			% Students on Projects	81.0%	89.7%

Incentives

All first-year PhD students are awarded a Department of Excellence Fellowship as an incentive to matriculate at the UTK. The Fellowship provides an additional $300/month stipend for 12 months.

Fellowships

- Brodenheimer Fellowship ($10,000/year, five awarded per year)
- Min Kao Fellowship ($10,000/year, five awarded per year)
- Ron Nutt Family Fellowship (unspecified amount or number, specific to a student studying medical imaging and data processing)
- College of Engineering Fellowship ($10,000/year, "several students in the college," students are advised to locate a faculty member to nominate her/him for this highly competitive award)
- Dr. Vaughan Blalock Graduate Memorial Award (unspecified amount or number)
- Chancellor's Honors Award (unspecified amount or number)
- ESPN Fellowship (unspecified amount or number)
- National Science Foundation Award (unspecified amount or number)
- Graduate Fellowship Award (unspecified amount or number)

There were not adequate data about department-based fellowship awards by gender. Also, data on department-supported assistantships did not distinguish research and teaching assistantships; determination of the extent to which women and men were assigned to GTAs versus GRAs needs to be completed to verify that women are not unfairly disadvantaged in accessing research projects.

G. Degree Completion

Master's and doctoral degree requirements differ, with fewer and more structured course-based requirements at the master's level and more research-based requirements at the doctoral level. From a Title IX perspective, once admitted, to what extent are the outcomes of the educational processes equitable for women and men?

Master's Degrees

- 30 credits of coursework
- Thesis option: the 30 credits includes 6 thesis units and a final oral examination
- Non-Thesis option: no thesis credits, final master's examination is administered, with advisor's permission required to take the examination and advisor's oversight of specific courses in preparation for the examination.
- Project in lieu of a thesis option: no thesis credits, student takes 30 credits of courses and proposes a final project with a committee. A final written and oral examination covering coursework and the project is required.
-

Students must complete a master's degree in six calendar years from the date of first enrollment, with an option to extend (with the permission of the Graduate Dean) due to changes of major. Leaves of Absence (LOAs) do not count towards the six year limit.

Doctoral Degrees

Requirements for doctoral degrees differ for CS versus CpE and EE students. CpE and EE students must complete a written qualifying examination within the first year of their program (this is normative in engineering programs). The qualifying exam covers material students are expected to have learned in their undergraduate programs. No such requirement exists for CS PhD students. Thereafter, the progression towards the doctoral degree is similar, with students completing a minimum of 72 credit hours, with a minimum of 24 dissertation hours. In order to advance to candidacy, students must satisfactorily pass the comprehensive examination, written and oral, administered by her/his graduate committee, covering coursework, a complete review of literature in the students' dissertation area. "The student must demonstrate mastery of the dissertation area, ability to think analytically and creatively, skill in using academic resources, and ability to complete the dissertation satisfactorily." (UT, EECS "Graduate Handbook 2015," p. 34).

Students must complete a doctoral degree in eight calendar years from the date of first enrollment, with an option to extend (with the permission of the Graduate Dean) due to changes of major. Leaves of Absence (LOAs) do not count towards the eight year limit.
Assessing attrition from the department's graduate programs is not possible given the data that were requested and provided by the Department. There were minor inconsistencies across tabular (aggregate level) results that necessitate deeper analysis of student-level data over a longer timeframe than the most recent five years' data requested for this report.
It is normative for students who persist to the final oral dissertation defense to succeed; it is rare for students to fail or drop out of a graduate program at this late point. Instead, student attrition typically occurs at examination time points (e.g., the qualifier in the two engineering degree areas and the comprehensive in all three program areas), as a result of academic difficulties completing coursework, or a variety of personal reasons. The EECS Department reported that only one student, a domestic male PhD student, had "dropped out" in the past five years and that no students had failed the final dissertation oral defense nor the thesis defense at the master's level.

However, there was information about five students who left the program, applied for re-entry, and were denied re-entry (typically due to low grades). At the master's level, two women and one man were denied re-entry; at the doctoral level, two men were denied re-entry. An additional man and an additional woman were re-admitted but voluntarily declined admission.

> **Compliance Review Finding:** Students lauded the guidance they received from faculty, suggesting that, as is normative, EECS faculty play an important role as mentors in ensuring that students are well-prepared for important examinations, thesis, and dissertation work. **In the Response, UTK stated that it will continue these efforts.**

III. Title IX Statutory and Regulatory Requirements of NSF and DOE

Educational institutions that receive Federal financial assistance are required under Title IX to develop and implement nondiscriminatory policies and procedures, and to appoint an individual to coordinate and implement Title IX functions. Title IX also requires each recipient of Federal financial assistance to notify its students and employees of the name, office, address, and telephone number of the employee or employees appointed to coordinate and administer its Title IX grievance process.

NSF regulations implementing Title IX are found at 45 C.F.R. § 618. DOE regulations implementing Title IX are found at 10 C.F.R. §§1040 and 1042. DOE implementing regulations require a recipient to prominently include a statement of its policy of nondiscrimination on the basis of sex in each announcement, catalog, or application form that it makes available to students and employees or which is otherwise used in connection with the recruitment of students and employees. 10 C.F.R. §1042 140(b).

Recipients are also required to adopt and publish grievance procedures providing for the prompt and suitable resolution of student and employee complaints that allege actions prohibited by Title IX. 10 C.F.R. §1042.140(b). The U.S. Department of Justice recommends that grievance procedures include both an informal and a formal process, and also provide complainants with information on their right to file a discrimination complaint with an appropriate Federal agency, if there is no satisfactory resolution of the complaint.

Each NSF grant contains, as part of the grant terms and conditions, an article implementing Title IX and the NSF regulations. Basic compliance with the procedural requirements of NSF's and DOE's Title IX regulations requires the following:

Designation of a responsible employee (Title IX Coordinator, references: 45 C.F.R. § 618.135 and 10 C.F.R. §1042.135) – Recipients of Federal financial assistance must designate at least one employee to coordinate Title IX compliance efforts and responsibilities, including complaint investigation into allegations of discrimination prohibited by Title IX. The recipient must notify all its students and employees of the name, office address, and telephone number of the employee or employees appointed to fulfill the Title IX coordination responsibilities.

<u>Adoption of Complaint Procedures</u> (references: 45 C.F.R. § 618.135 and 10 C.F.R. §1042.135) – Recipients of Federal financial assistance must adopt and publish grievance procedures providing for prompt and equitable resolution of student and employee complaints alleging any action that would be prohibited by Title IX.

<u>Dissemination of Policy</u> (references: 45 C.F.R. § 618.140 and 10 C.F.R. §1042.140) – Recipients must take specific and continuing steps to notify beneficiaries (e.g., notifying students and applicants for admission) that they do not discriminate on the basis of sex in the educational programs or activities that they operate, and that they are required by Title IX not to discriminate in such a manner.

A. Nondiscrimination and Sexual Harassment Statement and Notification of Nondiscrimination Policies

1. Nondiscrimination Statement

The UTK nondiscrimination statement is published in "Hill Topics: Student Handbook" (2013-14) as follows:

> **"Non-Discrimination (EEO/Title IX/Section 504 Statement/ADA)**
> All qualified applicants will receive equal consideration for employment and admissions without regard to race, color, national origin, religion, sex, pregnancy, marital status, sexual orientation, gender identity, age, physical or mental disability, or covered veteran status.
>
> Eligibility and other terms and conditions of employment benefits at The University of Tennessee are governed by the laws and regulations of the State of Tennessee, and this non-discrimination statement is intended to be consistent with those laws and regulations." (*Hill Topics* 2013-2014 edition, p. 38)
>
> **"Title IX**
> The University of Tennessee is a recipient of federal financial assistance for education activities, and in accordance with the provisions of the Education Amendments Act of 1972, all of its education programs and activities are subject to the prohibition against discrimination on the basis of sex. University policy prohibits discrimination on the basis of sex in any education program or activity.
>
> The University's Title IX Coordinator monitors the University's compliance with Title IX. Individuals with questions or concerns about Title IX, and/or those who wish to file a complaint of non-compliance with Title IX, may contact the University's Title IX Coordinator, Office of Equity and Diversity, 1840 Melrose Avenue, Knoxville, TN 37996, Phone: 865-874-2498, Fax: 865-974-0943.

More information about Title IX and the University's policy against sex discrimination can be found by visiting the website of the Office of Equity and Diversity, http://oed.utk.edu." (*Hill Topics*, 2013-2014 edition, p. 38-39, bold in the original)

2. Sexual Harassment Policies

UT policy and information about sexual harassment are also included in the Student Handbook. The policy statement is:

"The University of Tennessee is committed to providing an environment free of sexual harassment, including sexual assault and other sexual misconduct. Sexual harassment is a violation of law, including Title IX of the Education Amendments of 1972, and University policy. The University will not tolerate sexual harassment. More information about sexual harassment and resources for victims of sexual harassment can be found below." (*Hill Topics* 2013-2014 edition, p. 38)

Six "Examples of Standards of Conduct for Students Relating to Sexual Harassment" are included as a "non-exhaustive list of the University's Standards of Conduct." The site visit team was provided with a draft of a new policy that was expected to be effective as of August 19, 2015 titled "Policy on Sexual Misconduct, Relationship Violence, and Stalking".[11] The new policy document is comprehensive and highly detailed. The U.S. Department of Education has issued significant guidance to educational institutions, "Questions and Answers on Title IX and Sexual Violence," to which the UTK policy document should be carefully aligned.

B.   Designated Title IX Coordinator and Responsible Office

The designated Title IX Coordinator, Jenny Richter, is in the Office of Equity and Diversity (OED). There are two Deputy Title IX Coordinators, Ashley Blamey (Coordinator for Students), who is in the Center for Health Education and Wellness and Mike Ward (Coordinator for Athletics) who was in the athletics department. Neither of the Deputy Coordinators were interviewed by the site visit team; Jenny Richter was interviewed by the site visit team and was available for most of the visit for additional questions and answers associated with materials provided to the team by her office in response to the original data request. The site visit team members noted Ms. Richter's superlative knowledge and experience in matters related to gender equity in higher education in general, and Title IX, in particular.

According to the new policy on sexual misconduct, the Title IX Coordinator's responsibilities include, without limitations:

- coordinating and maintaining ultimate oversight responsibility with respect to the University's compliance with Title IX;
- receiving, tracking, and monitoring reports of Sex Discrimination, including Prohibited Conduct, and maintaining records of such reports;

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[11] According to the UTK website, the policy became effective on 19 August 2015 as had been expected at the time of the site visit in April 2015. Reference: http://cdi.utk.edu/2015/08/19/sexual-misconduct/ accessed 4 May 2016.

- interacting with the Sexual Assault Response Team;
- ensuring prompt, thorough, and equitable investigations and resolutions of reports of Sex Discrimination, including Prohibited Conduct, which are usually conducted by the Office of Equity and Diversity (if the Respondent is an employee or other non-student) or the Office of Student Conduct (is the Respondent is a student);
- identifying and addressing patterns or systemic problems concerning Prohibited Conduct;
- coordinating, training, prevention, and awareness efforts concerning Prohibited Conduct;
- supporting the Deputy Title IX Coordinators;
- providing information to students, employees, and third parties concerning this policy;
- coordinating the provision of Interim Measured to students and employees;
- making appropriate report (that do not personally identify Complainants) for purposes of including incidents in the University's annual Clery Act crime statistics, if applicable; and
- being available to meet with students, employees, and others, including, without limitation, Complainants, Respondents, and Reporters of violations of this policy.

The Title IX coordinator is assisted by two trained Deputy Title IX Coordinators who also are accessible to members of the University community for consultation and assistance." (p. 2)
The new policy provides the name of the Title IX coordinator and deputy coordinators with full address, phone and fax, email, and URL information for all three of these employees. According to the UTK Title IX Coordinator, the new policy was expected to be approved soon.
The old policy ("Title IX Implementation Policy 2010-2011) was the version still available on the UTK website as of 4 May 2016.

C.   Dissemination of Policy

The non-discrimination and sexual harassment policies are included in "Hill Topics: Student Handbook" (print version, 2013-2014), provided to the site visit team. This document, along with archived earlier versions, is available on the UTK website as pdf files. A number of other exemplar print materials were provided to the site visit team to show how UTK has communicated about Title IX and its related issues to faculty, staff, and students. Many materials reference sexual assault. Additionally, the UTK website has separate, easily locatable pages (via the search query on the university homepage) about Title IX, which include a 49 minute webinar (archived) with a PowerPoint presentation dated 4 September 2014 with Assistant General Counsel Matthew Scoggins and Interim Title IX Coordinator Jenny Richter providing a detailed explanation of Title IX requirements for UTK employees[12].

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[12] Subsequent to the site visit, the site visit team located an online training about "Sexual Assault, Harassment and Other Important Topics" online that all UTK employees are encouraged to complete by 6 May 2016. According to the website the training was "Launched in partnership with the Tennessee Board of Regents, the seven-module training called **Haven for Faculty and Staff** includes short videos, scenarios, activities and pre- and post-course

The site visit team was provided with two example emails sent by UTK Chancellor Jimmy Cheek to the UTK community that conveyed general information related to Title IX. The most recent example was an email sent 25 February 2015 with the subject line "Important Information about UT's Response to Reports of Sexual Assault," while the other example was a 5 September 2014 email "Invitation to Serve on the Sexual Misconduct Policy Task Force" (also from Chancellor Cheek). Both emails reference Title IX with the earlier email (5 September 2014) but not the later email (25 February 2015) citing the campus Title IX Coordinator by name, Jenny Richter, as the chair of the sexual misconduct taskforce.[13]

To what extent has Title IX information been understood by the faculty and students in EECS? Interviews with 49 graduate students indicated that there was almost no knowledge of Title IX among the interviewed students:

- 39 students (80%): no knowledge of Title IX and no knowledge of Title IX coordinator;
- Four students: knew of Title IX and could identify the Title IX coordinator;
- Six students referred to a recent e-mail as their introduction to Title IX;
    - Four expressed "vague" awareness of the term "Title IX";
    - Two referenced it as related to gender equity and sports;
- Two students had heard the term "Title IX" and knew there was a coordinator but were unable to name the coordinator;
- One student reported he did not know about Title IX or the UTK coordinator, but reported he learned about EEO issues at a graduate assistant orientation in (about) 2012 at which there was an overview and tips about how to interact with students.

Similarly, there was little knowledge about Title IX among the faculty who were interviewed:

- None knew the name of the Title IX Coordinator; none had communicated with the Title IX coordinator;
- Nine were either unaware or only "somewhat aware" without being able to specify details;
- Three referenced sports (two of these indicated "sports and academics");
- Three indicated some knowledge of Title IX – all three had participated in an anti-discrimination or harassment training;
- Overall, seven of the 13 interviewed faculty members reported that they had participated in anti-discrimination or harassment training (usually without reference to when they

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quizzes. Policies, resources and key legislation also are highlighted. The total time required is about 45 minutes, and each module allows for starting and stopping. Log in with your UT NetID and password. If you need to step away, simply use the link below to resume your session. Completion of the training will be recorded in IRIS and viewable through the employee portal." (bold in the original)

[13] Subsequent to the site visit, a formal Title IX complaint to the U.S. Department of Education, Office of Civil Rights was made on 15 May 2015 by six complainants, later joined by two others, centered on practices in the Athletics Department related to handling allegations of sexual assault. The site visit team had no contact with any representatives of the UTK Athletics Department and was not briefed about the sexual assault issues that had been previously raised in the local media related to the Athletics Department. The site visit focused on matters pertaining to the EECS department's graduate programs.

obtained this training), one faculty member indicated the training was "just before entering college."

Despite the requirement that language about Title IX be placed on all university communications, the lack of knowledge among the faculty and students in EECS suggests that the means of policy dissemination has not resulted in increased knowledge of Title IX in EECS.

In the Response, UTK stated the following with respect to efforts to educate the campus community about Title IX protections and requirements:

"Efforts to educate the campus community about Title IX protections and requirements have existed at UTK for many years and are ongoing. The university has had a specifically named Title IX Coordinator since 2001, long before most other colleges and universities were aware of their obligations. However, it is likely that the campus community has been more familiar with the fact that the university has nondiscrimination policies and procedures rather than that the source of protections relating to gender discrimination come from Title IX. Even now, with increased publicity and efforts to disseminate information and educate the community, reporters and complainants of Title IX issues tend to refer to "sexual misconduct," "sexual assault," or "sexual harassment" complaints rather than calling them Title IX complaints.
The university engages in a variety of methods to educate students, faculty and staff about sexual misconduct and relationship violence, as well as other areas served by our nondiscrimination policies. UTK provides sexual misconduct policy and mandatory reporter training for all new employees (including all new faculty).

Training sessions are also conducted for graduate teaching assistants, faculty units, academic advisors, residence hall staff, Student Life staff, athletics staff and coaches, department heads, deans, and others. Educational and orientation sessions are conducted for all new students. The university has an extremely active campaign to engage bystander awareness and educate students on sexual misconduct policies, most specifically as they relate to consent. Title IX responsibilities as they relate to educating the community are carried out in many forms and fashion.

Graduate students are informed of the University's policies each year at a graduate student orientation. New faculty and staff are informed of the university's nondiscrimination policies at the beginning of their employment. EECS has scheduled a training/information session for many of its graduate students for spring 2017. The department and the Title IX Coordinator will continue the efforts to bring awareness to the students and the faculty.
Student and Faculty tendency to approach the Department Chair (Head) with concerns: Within the university, students and faculty have multiple outlets to report gender-related concerns. The university's mandatory reporter (responsible employee) policy ensures that the report will go to the Title IX Coordinator for guidance and/or disposition. Depending on the nature of the report, the Title IX Coordinator may work independently on the issue, or may work collaboratively with the department head to resolve the concern. In practice, the Department Head of EECS has communicated issues to the Title IX Coordinator in compliance with policies."

A meeting with the new faculty of the College of Engineering took place in August 2016. A meeting with graduate students and the university's Title IX coordinator has been scheduled for February 28, 2017, in order to increase the faculty and student knowledge about Title IX. A previous workshop was held with the graduate students that focused on diversity and nondiscrimination issues.

D.   Complaint Process and Procedures

The UTK complaint process is described in the "Hill Topics: Student Handbook" 2013-2014 on pp. 39-41. The process – whether against a student or an employee, student employee or a "third party unaffiliated with the University" – is initiated via the Title IX Coordinator, with contact information (address, phone and fax, and URL) provided in the Student Handbook. Criminal Prosecution for victims of sexual assault or misconduct are initiated with the University of Tennessee Police Department, for which an address and two incomplete phone numbers (presumably, the same area code) provided in the Hill Topics: Student Handbook.

Subsections in the Student Handbook provide additional information about confidentiality, retaliation, and the "no contact directive" that indicates the "Vice Chancellor for Student Life, or his/her designee, may require that a student accused of harassing another student not have verbal, physical, or written contact with the alleged victim for a definite or indefinite period of time." (p. 41) A downloadable form is available and easily discoverable on the UTK website to file a Title IX complaint.

EECS graduate students were unaware of the complaints process. Many students suggested that they would first go to the Department Chair, which is often a customary first step for most graduate student issues. Only one faculty member reported "vague" familiarity with how to file a Title IX complaint, ten faculty members felt confident that they could figure out how to advise a student about making a Title IX complaint by either making use of the web, conferring with the Department Head, making a phone call (although none knew the name of the Title IX coordinator), or consulting with others or the campus police. The burden, therefore, was on students to report Title IX violations, yet, as indicated, only a tiny fraction of students were even aware of Title IX. The faculty were unaware of any Title IX complaints by students in EECS.

Faculty indicated that they were aware that the university had anti-discrimination policies, with some referencing an annual email message, but as one faculty member stated, (s)he "never reads policies." Not all faculty reported being trained in anti-discrimination and harassment and among those who had, there was disagreement about whether the training was mandatory. Faculty tended to be unsure about the training provided to students; as indicated earlier, only one student made reference to learning about anti-discrimination at a graduate teach assistant orientation several years ago.

Site visit team member notes from the interview with Dr. Leon Tolbert, the chair of the EECS department, did not indicate Dr. Tolbert's knowledge of Title IX and its requirements, therefore, it is not possible to assess the extent to which Dr. Tolbert is or is not prepared to serve in the advisory capacity ascribed to him by student and faculty interviewees. As indicated, above, faculty and student interviewees often indicated that Dr. Tolbert, as the department chair, would

be the person they would contact if there were a possible dispute or a potential Title IX issue within the EECS department. However, the participation of Dr. Tolbert and his cooperation during the site visit suggest that he would be able to reach out to the appropriate individual, Ms. Richter, and that the materials already developed by the Title IX Coordinator would provide the relevant information to guide the Dr. Tolbert and other members of the EECS department.

> **Compliance Review Finding:** There is a fundamental lack of knowledge about Title IX, anti-discrimination, and harassment by faculty and students in the UTK EECS department. The student and faculty tendency to approach the Department Chair, rather than the Title IX Coordinator, with a suspected violation, underscores the implications as a lack of protection against harassment.

IV. The Environment/Climate

Within a university graduate program, the faculty establish and model the norms of appropriate behavior, reward and sanction students' behaviors in conformity to the norms of professional conduct, and are a resource for students as mentors and advisors. Within the academic setting, junior faculty (untenured assistant professors) rely upon senior (tenured) faculty to establish norms of professional conduct. From a Title IX perspective, then, the key question is: to what extent is the UTK EECS department climate equitable for women and men? To what extent do women and men graduate students have equitable access to professional development within the EECS department's graduate programs?

A. Gender Bias Perceptions

To understand the climate, the site visit team reviewed data provided by UTK about complaints and investigations of potential gender bias issues undertaken by the OED as well as interviews with faculty and students in EECS.

Complaint and Investigations Analysis

Complaints and investigations undertaken by OED provide one way of understanding gender bias issues at UTK. The original data request, included the following:

> "7. Provide a copy of the University's policies and procedures, as well as any reference documents, related to receiving, investigating, and processing Title IX complaints. ...

> 13. a. Identify the number of Title IX complaints, if any, that did not originate in the Department of Electrical Engineering and Computer Science, whether informal or formal, filed with the University during the 2010-2011, 2011-2012, 2012-2013, 2013-2014, and 2014-2015 academic years. Include a brief description of each complaint and a statement as to the status of each complaint.

> 13. b. Identify the number of Title IX complaints, if any, that originated in the Department of Electrical Engineering and Computer Science, whether informal or formal, filed with the University during the 2010-2011, 2011-2012, 2012-2013, 2013-2014, and

2014-2015 academic years. Include a brief description of each complaint and a statement as to the status of each complaint."

The site visit team was provided a document with short descriptions of "Complaints, formal or informal, files and investigated by the University's Student Conduct Office 2011, 2012, 2013, 2014 and investigated by the University's Office of Equity and Diversity [OED] 2010, 2011, 2012, 2013, 2014, 2015." As a note, the Student Conduct Database was developed in 2010. The information provided included incidents through April 2015, the month of the Compliance Site Visit. As a result, Table 5 includes three full academic years' data plus data for all but the last few months of the 2014-2015 academic year.

Table 5 shows that there were an average of 22 complaints filed per academic year by OED. Most of these involve student-student issues, including sexual assault[14] and allegations of hostile climate created by male students for females at the undergraduate level (once) and graduate level (three separate instances). In two of the latter cases, the OED held specific training sessions for all graduate students in the relevant programs as a result of their investigations. In many cases, OED provided information about the complaint process, with the brief notes about each incident indicating, as well, that OED often mediated or counseled students, faculty, teaching and administrative staff in order to reach a satisfactory resolution.

Table 5. Summary by Academic Year: Campus-Wide Complaints, Formal and Informal, Filed and/or Investigated by the University's Student Conduct Office and/or UTK OED

	7/11 - 6/12	7/12 - 6/13	7/13 - 6/14	7/14 - 4/15
Number of incidents	14	20	20	33
Student - Student Issues (Includes GTAs)	8	10	14	23
Issues involving allegations against faculty/teaching staff	3*	8	4	10***
Reports from faculty, department heads (incl. program chairs), program administration personnel	3	2	5**	9****
*Not shown: two additional incidents involving other UT campuses **Includes a report from the UT Police Department *** Includes three reports from non-teaching staff with complaints against non-teaching staff **** Includes a report from a potential complainant's mother Source: Campus-wide report summaries provided by the UTK Office of Equity and Diversity (OED)				

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[14] In the most recent six month period, November 2014 – April 2015, of the 22 student complaints, 15 (68%) were associated with various types of sexual assault. In two of the complaints, insufficient information was provided to determine the nature of the complaint.

In 16% of the incidents, a department head, faculty member, administrator, family member, or other unspecified department-level individual made the initial report to OED either on behalf of a student or students or based on observed behaviors (faculty members rather than department heads were the department personnel who contacted OED based on such observations). There were cases in which teaching staff retired, were released, or had contracts non-renewed. Some faculty, however, for similar transgressions were provided training or other "remediation." Students who were investigated for sexual assault were subject to suspension, although this was not a universal outcome (in several cases, the OED investigation did not locate sufficient evidence to merit suspension).

None of the incidents made reference to the EECS department. In four incidents reported in the UTK complaint data provided, the departments in which complaints were made about faculty or supervisory staff were not identified by name or subject matter. One OED investigated incident resulted in OED providing training in a UTK Nuclear Engineering colloquium on "workplace/educational ethics" in which sexual harassment and diversity training was conducted for students. In another incident, two students reported that an engineering faculty member (discipline unspecified) had shown an irrelevant picture of "a female in a bathing suit lying on the ground" to a class. OED spoke with the professor, who said he apologized to the class for offending anyone and removed the picture.

In the Response, UTK stated, *"that during 2016, OED worked with UTK's Office of Information Technology (OIT) to design a new database using a commercial product, known as Footprints. The development was completed in December 2016, and OED is in the process of including entries for the year 2016. While not a records management system, the database will make information retrieval simpler."* UTK also stated, *"OED anticipates entering prior years' data as time allows in 2017.*

Site Visit Interview Analysis

Student perceptions of the work environment with respect to gender issues varied greatly. Some students – both male and female – suggested that there really were no issues, that women students were well respected, and that they had not noticed there being any problems in groups. Other students expressed stronger feelings about bias, citing various examples. It is also important to note that both male and female students were cognizant of gender biases in the environment, although women were more likely to be attentive than were men to these issues. These issues included:

- Married female students not permitted to be in specific research groups because of the possibility that they might sometime become pregnant;
- Hostile work environments, "unpleasant comments" (usually from other students, less often from faculty) and a fear of retaliation if one complains;
- The observation/perception that there were few students with children and that there had been previous students who had lost funding because of having had children;
- Tacit acceptance of male ways of interacting due to the numerical dominance of males on the faculty;

- Difficulties associated with minority status – based on gender, national origin, etc. – that lead to feelings of isolation.
- Students referenced the need for more department personnel – students and faculty – to be given training on implicit bias as a means of improving the situation for women.

The strong presence of an EECS student-run group, SYSTERS, is indicative that the climate for women students within the department is far from "warm." Both male and female students referenced the isolation that women feel within a setting that is so highly male dominated, a situation that an organization like SYSTERS has hoped to remedy. Many interviewees who cited issues associated with gender lauded the positive impact of SYSTERS in ameliorating issues such as feelings of isolation. Interviewees were able to recall gender-equity topics covered in SYSTERS events such as the gender differences in negotiation, unconscious bias, the need to be proactive as a graduate student, etc. Faculty also praised SYSTERS, with some faculty indicating that they believed programming that SYSTERS had spearheaded – including attendance at the Grace Hopper Women in Computing Conference – had a positive impact on women students' confidence and willingness to speak up.

Several students—even those that might be generally critical of the situation for women in the Department—lauded the efforts of the current Department Head, Dr. Leon Tolbert, to improve conditions for women in the Department. Several students and faculty, despite their lack of knowledge about Title IX, reported that if there were an issue that arose, they would approach the Department Head for guidance, as appropriate. There were no interviewees—student or faculty—who made any suggestion that Dr. Tolbert was someone that would be difficult to approach if a dispute of any type arose within the EECD department. That is, Dr. Tolbert appeared to be approachable in such cases based on information gathered in the site visit.

There was no discernible pattern in the gender beliefs expressed by faculty. Several faculty – men and women – expressed the perception that women were less assertive than men students but then there were other faculty – again, both men and women – who suggested the opposite was true. The small number of faculty suggest great caution needs to be exercised in drawing conclusions from these faculty statements.

> **Compliance Review Finding:** The content of information about complaints and investigations provided by UTK reflected a high degree of variability in the details captured in the database, presenting analytical challenges to use these data for improving institutional policies and procedures. With the increased reliance on administrative data for organizational assessment, improvements to the database, including information entry protocols and standard operating procedures, may be useful. UTK appears to be making improvements in this area with the purchase and implementation of the Footprints database software in 2016-17.

B. Campus Safety

Issues of campus safety can have a disparate gender impact. Graduate students work in laboratories, which embody a range of potential workplace safety concerns. Faculty and students may often work late at night and on weekends, suggesting a need to ensure safety concerns are

addressed due to the equity implications. That is, if men but not women feel unsafe on campus, then there would be a disparate impact, suggesting non-compliance with Title IX. The site visit team asked faculty and students about safety issues but did not seek other data (e.g., incident report data to campus or Knoxville police departments) often used to assess safety.

Lab Safety: Some students interpreted the campus safety questions from the standpoint of "lab safety." A handful of male students referenced that there were standard safety procedures in the labs and one female student indicated that there needed to be more information about who to contact for non-emergency equipment problems on weekends.

Environmental Safety: Most interviewees interpreted the safety questions to reference issues related to the buildings or feeling safe walking around or near campus, especially at night and weekends. Graduate students commonly work long hours, therefore, the extent to which students feel safe in the labs and in walking from the labs to their living spaces and/or transportation can be a factor in their success. The UTK, like many universities, has installed blue police-call boxes, which provide a student who feels threatened a direct link to the campus police. There is also a free bus system on campus and email alerts that report on safety and incidents, both of which were referenced by about a fourth of both female and male students and not at all by faculty.

Figure 4 shows the percentage of interviewees, by sex and student vs. faculty status who:

- Indicated that they generally felt safe on campus;
- Felt that the area just off campus was not-so-safe; and
- Qualified the feeling of safety with the caveat that one needs to be more careful at night.

Students generally felt safer than did faculty, with women students almost universally expressing that they felt safe on campus. Female students also indicated that they drove to campus – so even though they were aware of the on-campus free bus, they were unlikely to use it. Female faculty women were the least likely group to express an unqualified feeling of being safe on campus, typically adding the caveat that one needed to be more careful at night, with one indicating that she did not come to campus on the weekends.[15] No faculty men indicated that one needed to be more careful at night, while female faculty and students of both sexes expressed this caveat.

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[15] It should be noted that these are the results of an open-ended question, therefore, the results indicate the prevalence of specific themes in respondents' answers, therefore, it is not appropriate to infer that 67% of faculty women (i.e., 100% - 33% = 67%) claimed they did not feel safe on campus.

Figure 4. Safety Themes Expressed by Interviewees
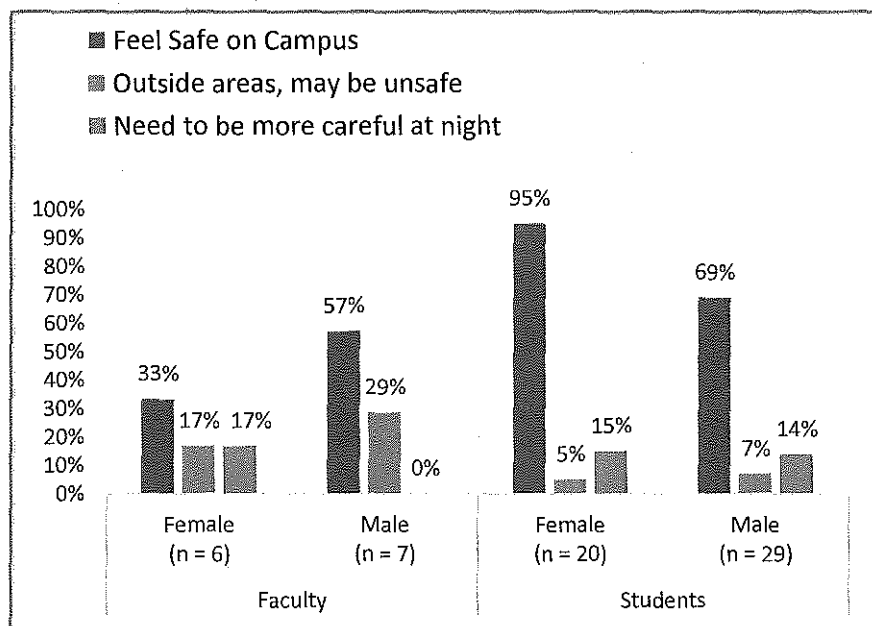
C. **Family Focused Initiatives**

Faculty and students were asked about the existence and perceived efficacy of family-focused initiatives at UTK. Only one student made reference to family "help" within the EECS Department in particular and another married student indicated that the department personnel seemed to be understanding when emergencies came up (both male students). With only one exception, female faculty members made reference to UTK childcare services, spousal hire policies, maternity leave and "stop the clock" for those on the tenure track. Fewer than half of faculty men were aware of family friendly policies – one indicated a need to expand childcare availability.

Students were largely unaware of family friendly policies or childcare services. 36 of the 49 students interviewed had no knowledge of these. Three students were aware that a married student could add his/her spouse to their health insurance policy and seven were aware of university-provided childcare services. Finally, one student had noticed a day care center "up the hill" close to campus. Students, especially women, suggested there needed to be more readily available information about provisions for childbearing during graduate school at the UTK. Both male and female students made reference to family status discrimination. One student said that she was told she would not be permitted to work in a lab because she was married and might get pregnant. One student indicated that they perceived that there had been "several students" who had to leave the graduate program because they lost their funding following the birth of children.

Faculty were unaware of the NSF's Career-Life Balance Initiative.[16] Additionally, the leave of absence policies appeared out of step with recent guidance to provide supports to enable graduate students to retain student and assistantship status while initiating family formation.

In the Response, UTK stated that *"SYSTERS continues to receive significant support from the department, college, university, alumni, and donors in the form of administrative and financial support. SYSTERS won the Charles R. Burchett Extraordinary Contributions to Campus Life Award at the Chancellor's Honors Banquet in 2016. The Tickle College of Engineering is organizing the second WomEngineer's Day to take place on April 22, 2017, at the Knoxville Convention Center. The TCE's Board of Advisors are significant contributors in time, administration, and financial support for this event organized by SYSTERS, Women in Engineering (WIE), and Women in Nuclear Engineering. The first WomEngineer's Day in 2015 attracted more than 400 attendees from area high schools and universities. Its success, inspired the Tickle College of Engineering to make it a biennial event."* With respect to family focused initiatives, UTK stated in the Response that *"while the department does not maintain family focused initiatives independent of those offered by the university as a whole, EECS can include information for its graduate students on the university's policies for graduate student leaves of absence in the event that a graduate student needs such a leave for family matters."*

Compliance Review Findings: There do not appear to be disparate impacts of campus safety concerns associated with gender. Disparate impacts associated with EECS department climate are being addressed by a student group, SYSTERS, with support of the Department Head and faculty. Evidence suggests that SYSTERS has been having a positive impact on gender bias issues in the department, and updated information provided to UTK in the Response indicates that SYSTERS is increasing its portfolio of activities in this regard. The lack of reliable family focused initiatives appears to pose more significant problems for female than for male graduate students.

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[16] "Balancing the Scale: NSF's Career-Life Balance Initiative" [online at: https://www.nsf.gov/career-life-balance/].

V.   Conclusions and Recommendations

Women accounted for a relatively small proportion of faculty and students in the EECS department at UTK. The six women tenured and tenure track faculty represented 15% of EECS faculty, in comparison, based on 2014 data from the American Society for Engineering Education[17] (ASEE), women accounted for 12% of electrical engineering tenured and tenure track faculty. For computer science, according to Taulbee Survey[18] data from the Computing Research Association (CRA, 2014), women accounted for 18% of tenured and tenure track faculty in doctorate-granting computer science departments. It is noteworthy that half of the women faculty in UTK's EECS department were full professors and that one held a named chair.

In electrical engineering at UTK, women earned 21% of master's degrees and 22% of doctoral degrees in 2014, which compares favorably to the national-level data from ASEE of 21% master's and 15% of doctoral degrees. In computer science, the 7% master's and 13% PhDs earned by women lagged the national-level rates reported by CRA, which were 22% and 18%, respectively. DOE and NSF note an upward trend in the 2015-16 academic years with respect to the enrollment of women in the undergraduate and graduate programs in the EECS Department.

NSF and DOE find that while the UTK has met the basic requirements of Title IX, NSF's, and DOE's implementing regulations, the execution at the department level in EECS needs to be improved. The university has designated a responsible official, has adopted complaint procedures, and has disseminated policy, yet there was a fundamental lack of knowledge about Title IX, anti-discrimination, and harassment by faculty and students in the UTK EECS department.

NSF and DOE have identified means by which UTK can improve Title IX compliance and engage in proactive steps to mitigate the disparate impacts that limit women's participation in the EECS department's graduate programs. There do not appear to be disparate impacts of campus safety concerns associated with gender. Disparate impacts associated with EECS department climate are being addressed by a student group, SYSTERS, with support of the Department Head and faculty. Evidence suggests that SYSTERS has been having a positive impact on gender bias issues in the department. The lack of reliable family focused initiatives appears to pose more significant problems for female than for male graduate students.

While the EECS graduate programs in electrical engineering measure up well to the national averages, those in computer science lag national averages, suggesting that the climate issues, lack of coordinated recruitment and outreach, and the unintended consequences of the transition of the UTK computer science program in the engineering college, have had a disparate impact upon women's participation in UTK's computer science graduate programs. However, the implementation of a 5-year BS/MS program that was started a few years ago, and efforts by the EECS department to recruit students to stay for their MS degree are a step in the direction of increasing female enrollment and graduation rates in the EECS undergraduate and graduate programs. The student group, SYSTERS, and the female-led CURENT center bear the responsibility for ameliorating the negative climate issues and outreach to the local area schools,

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[17] Yoder, Brian L. (2015). "Engineering by the Numbers". American Society of Engineering Education.
[18] Zweben, Stuart, and Betsy Bizot. (2015, May). "2014 Taulbee Survey". *Computing Research News 27(5)*.

respectively, posing an additional burden on the women in EECS[19]. These positive impacts of SYSTER's efforts were widely hailed in faculty, student, and administrator interviews and the EECS department chair was recognized as a strong supporter or increasing women's representation in the department's disciplines. The long-term sustainability of student activist groups poses challenges, necessitating strong faculty support to ensure succession planning.

Incomplete information about complaints and investigations were provided by UTK, specifically, reporting associated with the period December 2014 through April 2015 were not provided[20]. Additionally, the content of the provided data reflect a high degree of variability in the details captured by the database, presenting significant analytical challenges to use these data for improving institutional policies and procedures. With the increased reliance on administrative data for organizational assessment, improvements to the database, including information entry protocols and standard operating procedures, may be useful.

Finally, while not required, institutional self-evaluation is a highly recommended practice to enable institutions to proactively meet its requirements under Title IX (reference: 45 CFR § 618.110(c)).[21] Recipients of federal funds should evaluate, in terms of the requirements of Title IX, current policies and practices and their effects concerning admission of students, treatment of students, and employment of both academic and nonacademic personnel working in connection with the recipient's education program or activity. Policies and practices should be modified as necessary to ensure full compliance with the requirements of Title IX. The following regulations and guidance are available to institutions as resources for self-evaluation:

- Nondiscrimination on the Basis of Sex in Education Programs or Activities Receiving Federal Financial Assistance, 45 C.F.R. § 618 et. seq. and 10 C.F.R. §§1040 and 1042;
- Business Systems Review Guide, National Science Foundation Office of Budget, Finance and Award Management;
- Department of Justice (DOJ), Coordination of Enforcement of Non-discrimination in Federally Assisted Programs, 28 C.F.R. Subpart F, §§ 42.401 – 42.415;
- DOJ, Questions and Answer regarding Title IX Procedural Requirements;
- Department of Education (ED) OCR, Title IX Grievance Procedures: An Introductory Manual (Second Edition, 1987); and
- National Aeronautics and Space Administration (NASA), Title IX & STEM: A Guide for Conducting Title IX Self-Evaluations in Science, Technology, Engineering, and Mathematics Programs. Accessible online at http://odeo.hq.nasa.gov/documents/TITLE_IX_STEM_Self-Evaluation.pdf (June 2012).

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[19] Women did not express this as a burden and there were some men involved in these efforts.

[20] In the Response, UTK clarified that "a representative from DOE/ NSF contacted the University on October 22, 2016 and requested the information for the period of December 2014 through April 2015. That information was not available at the time of the onsite, although other complain t information was supplied."

[21] In the Response, UTK stated that it is currently conducting a system-wide self-evaluation to assess the climate for its students.