

UNIT REPORT

Engineering PhD - Final Annual Report 2016-2017

Generated: 6/20/19, 1:50 PM

Definition of Unit

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Start: 07/01/2016**End:** 06/30/2017**Reporting Year:****Providing Department:** Engineering PhD**Department/Unit Contact:** Darrell Hoy**Mission/Vision/Goal Statement:**

Description of Program

The College of Engineering (CoE) at Tennessee Tech University (TTU) first began offering a Doctor of Philosophy in Engineering (PhD-Engr) degree in 1971. The PhD-Engr is a single, college-wide degree for all departments. However, students pursuing this degree will do so in an option area, listed below, hosted by a CoE department:

<u>PhD Option Area</u>	<u>Host Department</u>
Chemical Engineering	Chemical Engineering Department (CHE)
Civil Engineering	Civil and Environmental Engr. Department (CEE)
Computer Science	Computer Science (CSC)
Electrical & Computer Engr.	Electrical & Computer Engineering (ECE)
Mechanical Engineering	Mechanical Engineering Department (ME)

Purpose of the PhD Program

The purpose of the PhD Program is to provide students with an opportunity for advanced studies and research in the field of engineering. As a research-based degree, the focus is on developing the independent learning skills of students in preparation for advanced-level, research-focused employment in industry or academia.

Goal/Objective/Outcome

Goal 1: Increase PhD Student Enrollment to a 3-Year Rolling Average of 52

Progress: Completed**Define Goal:**

Increase the average enrollment to 80, based on a 3-yr rolling average.

Intended Outcomes / Objectives:

To maintain the critical mass of students needed to support the PhD program without overstressing current faculty resources.

Goal 1: Increase PhD Student Enrollment to a 3-Year Rolling Average of 80

Progress: On Schedule**Define Goal:**

Increase the average enrollment to 80, based on a 3-yr rolling average.

Intended Outcomes / Objectives:

To maintain the critical mass of students needed to support the PhD program without over-stressing current faculty resources.

Goal 2: Increase 3-yr Average Degrees Conferred to 10

Progress: On Schedule

Define Goal:

Increase the average number of students completing the PhD program to a 3-yr rolling average of 10.

Intended Outcomes / Objectives:

Contribute to the University's goal of increasing its Carnegie classification from "Masters-Large" to Doctoral/Research level.

Goal 2: Increase 3-yr Average Degrees Conferred to 10

Progress: On Schedule

Define Goal:

Increase the average number of students completing the PhD program to a 3-yr rolling average of 10.

Intended Outcomes / Objectives:

Contribute to the University's goal of increasing its Carnegie classification from "Masters-Large" to Doctoral/Research level.

Goal 3: Minimize "Not-Met" Ratings on 2015 TBR Academic Audit

Progress: Completed

Define Goal:

Have less than 5 "Not Met" areas (of 52) on the 2015 TBR Academic Audit of the PhD program (first time Audit of the Program).

Intended Outcomes / Objectives:

Minimizing the number of "Not Met" scores on the Academic Audit increases the University's performance funding.

Goal 3: Minimize "Not-Met" Ratings on 2015 TBR Academic Audit

Progress: Canceled

Define Goal:

Have less than 5 "Not Met" areas (of 52) on the 2015 TBR Academic Audit of the PhD program (first time Audit of the Program).

Intended Outcomes / Objectives:

Minimizing the number of "Not Met" scores on the Academic Audit increases the University's performance funding.

Goal 4: Establish Assessment and Continuous Improvement for PhD Program

Progress: Delayed

Define Goal:

As a result of, and in conjunction with the 2015 TBR Academic Audit Self-Study of the PhD Program, plans for a continuous improvement process for the CoE PhD program will be developed. These plans need then to be actualized via implementation of the assessment tools, data analysis, and improvement actions.

Intended Outcomes / Objectives:

To have a streamlined and effective assessment and continuous improvement process in place for the PhD program by the end of the 2015-16 academic year.

Goal 4: Establish Assessment and Continuous Improvement for PhD Program

Progress: Delayed

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Intended Outcomes / Objectives:

To have an streamlined and effective assessment and continuous improvement process in place for the PhD program by the end of the 2015-16 academic year.

Learning Objective 1: Depth and Breadth of Knowledge

Progress: Ongoing

Define Goal:

The student should demonstrate breadth of knowledge in the discipline and depth in the specific area of his/her research topic.

Intended Outcomes / Objectives:

Learning Objective 1: Depth and Breadth of Knowledge

Progress: Ongoing

Define Goal:

The student should demonstrate breadth of knowledge in the discipline and depth in the specific area of his/her research topic.

Intended Outcomes / Objectives:

Learning Objective 2: Independent Academic Work and Research

Progress: Ongoing

Define Goal:

The student should gain experience in doing independent academic work and research.

Intended Outcomes / Objectives:

Learning Objective 3: Identify and define the research topic

Progress: Ongoing

Define Goal:

The student should demonstrate his/her ability to identify and define the research topic.

Intended Outcomes / Objectives:

Learning Objective 3: Identify and define the research topic

Progress: Ongoing

Define Goal:

The student should demonstrate his/her ability to identify and define the research topic.

Intended Outcomes / Objectives:

Learning Objective 4: Contribute to existing knowledge

Progress: Ongoing

Define Goal:

The research work performed by the student should contribute to the existing knowledge in the engineering field.

Intended Outcomes / Objectives:

Learning Objective 4: Contribute to existing knowledge

Progress: Ongoing

Define Goal:

The research work performed by the student should contribute to the existing knowledge in the engineering field.

Intended Outcomes / Objectives:

Learning Objective 5: Communicate effectively

Progress: Ongoing

Define Goal:

The student should demonstrate the ability to clearly communicate complex engineering and research topics in both verbal and written format.

Intended Outcomes / Objectives:

Learning Objective 5: Communicate effectively

Progress: Ongoing

Define Goal:

The student should demonstrate the ability to clearly communicate complex engineering and research topics in both verbal and written format.

Intended Outcomes / Objectives:

Assessment Tools

Assessment Tool 1: 3-yr Avg PhD Enrollment

Goal/ Outcome/ Objective: Goal 1- Increase Student Enrollment

Type of Tool: FTE Enrollment

Frequency of Assessment: Annually using Fall enrollment data.

Rationale:

Three-year rolling average of number of students enrolled in the PhD program is a better indicator of trends than year-to-year data, which may be subject to fluctuations.

Assessment Tool 1: 3-yr Avg PhD Enrollment

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Rationale:

Three-year rolling average of number of students enrolled in the PhD program is a better indicator of trends than year-to-year data, which may be subject to fluctuations.

For FY 2018: 3-yr rolling avg PhD enrollment (2015-17 F)= 93

Assessment Tool 2: 3-yr Avg PhD Degrees Conferred

Goal/ Outcome/ Objective: Goal 2

Type of Tool: Graduation Rate

Frequency of Assessment: Annually.

Rationale:

Three-year rolling average of number of students graduating per year is a better indicator of trends than year-to-year data, which may be subject to fluctuations.

Assessment Tool 3: TBR Academic Audit 2015

Goal/ Outcome/ Objective: Goal 3,4

Type of Tool: Peer Assessment

Frequency of Assessment: Once

Rationale:

The 2015 TBR Academic Audit is the first time the Engineering PhD program has undergone the Academic Audit process. A high score on the academic audit is an indicator of:

1. Overall program quality as assessed by peers
2. Plans for a continuous improvement process have been developed and implementation of the plan has begun.
3. A low number of "Not Mets" increases the University's Performance Funding from TBR.

Results

Results 1. PhD Student Enrollment

Goal/Objective/Outcome Number: Goal 1: PhD Student Enrollment and Goal 2: Degrees Conferred

Results:

3-yr rolling average of PhD enrollment for FY 2018 = 93

Attachments:

Linked Documents

[Enrollment and Graduation Data for IE Reporting-PhD Program.xlsx](#)

Attached Files

[Enrollment 2000-2016](#)

Results 1: Increase PhD Enrollment

Goal/Objective/Outcome Number: Goal 1

Results:

PhD Enrollment: 2014=66, 2015=88, 2016=85, 3-yr avg=80

Attachments:

Results 2: Increase Degrees Conferred

Goal/Objective/Outcome Number: Goal 2: Increase 3-yr Average Degrees Conferred to 10 for 2014-15

Results:

For FY 2018: 3-yr rolling avg PhD degrees conferred = 9.3

Attachments: Linked Documents

[Enrollment and Graduation Data for IE Reporting-PhD Program.xlsx](#)

Results 2: Increase Degrees Conferred

Goal/Objective/Outcome Number: Goal 2

Results:

The graduation rate for PhD students was 2014-15=9, 2015-16=7, 2016-17=12. Three-year rolling average = 9.3 . The goal of at least 10 students per year has almost been met.

Attachments:

Results 3: Increase PhD Enrollment

Goal/Objective/Outcome Number: Goal 1: Increase PhD Enrollment to a 3-yr rolling average of 52

Results:

Increase PhD enrollment to a 3-yr rolling average of 52.

Attachments:

Results 3: Zero "Not-Met" Ratings Received on 2015 TBR Academic Audit

Goal/Objective/Outcome Number: Goal 3: Minimize "Not-Met" Ratings on 2015 TBR Academic Audit

Results:

All of the scored criteria were met (52 out of 52). This is considered exceptionally good for a first time Academic Audit review of a program. The plan for a continuous improvement process, including the assessment tools, was validated by the committee and results of the audit.

Attachments:

Results 3: Zero "Not-Met" Ratings Received on 2015 TBR Academic Audit

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Results:

All of the scored criteria were met (52 out of 52). This is considered exceptionally good for a first time Academic Audit review of a program. The plan for a continuous improvement process, including the assessment tools, was validated by the committee and results of the audit.

Attachments:

Results 4: Assessment and Continuous Improvement Program established for PhD program

Goal/Objective/Outcome Number: Goal 4: Establish Assessment and Continuous Improvement for PhD Program

Results:

No progress made.

Attachments:**Results 4: Assessment and Continuous Improvement Program established for PhD program**

Goal/Objective/Outcome Number: Goal 4: Establish Assessment and Continuous Improvement for PhD Program

Results:

The plan for a continuous improvement process, including the assessment tools, was validated by the committee and results of the audit.

Attachments:**Student Enrollment and Degrees Conferred**

Goal/Objective/Outcome Number: Goal 1: PhD Student Enrollment and Goal 2: Degrees Conferred

Results:

The 3-yr average enrollment has increased to 85, well beyond the initial goal of 52. Therefore the goal will be increased for future years. Degrees conferred has increased to a 3-yr average of 9.7, very close to the goal of 10.

Attachments: Attached Files

 [Enrollment 2000-2016](#)