

**PhD in Learning and Teaching in STEM
Program Area of Study: Engineering and Technology Education**

**Sample Curriculum Display
TOTAL HOURS = 60 (minimum)
after Master's Degree***

Graduates of this cross-disciplinary program are prepared for successful positions across engineering education and technology education enterprises including; engineering education faculty positions in all types of university settings, educational research; university assessment staff; engineering policy, industry training management; and k-12 district or local area specialist.

PhD Core Courses minimum of 30 hours

PAS COURSES	
Program Area of Study: Engineering and Technology Education - 15 hours	
TED 751 Technology Education: A Discipline	3
TED 752 Curricula for Emerging Technology	3
TED 755 Implementing Technology Education	3
TED 758 Teaching Creative Problem Solving	3
TED 756 Planning for Change in TED	3
Specialty Courses (deepen understanding in focus area)	15
Learning and Teaching in STEM Education Department Required Courses - 6 hours	
STEM Education 1: EMS 794 Foundational Learning Theories in STEM Education (Fall)	3
STEM Education 2: EMS 791 Contemporary Topics and Issues in STEM Education (Spring)	3

College-Required Courses minimum of 21 hours

Scholar Leaders Courses (College of Education Required Courses) - 6 hours	
Scholar Leader 1: ED 755 <i>Diversity and Equity in Schools and Communities</i>	3
Scholar Leader 2: ED 756 <i>Systemic Change in Education</i>	3
Required College Research Methods - 12 hours	
Two intro course in research methods: ED 710 Applied Quantitative Methods in Education, or its equivalent (e.g., ST 507/511) ED 730 Qualitative Methods or its equivalent	6
One advanced course in research methods: ED 711 Applied Quantitative Methods in Education II (or its equivalent, ST 508/512) Or	3

<p>ED 731 Advanced Qualitative Research and Data Analysis in Education Or ED 750 Mixed Methods Research in Education</p> <hr/> <p>Additional course options:</p> <ul style="list-style-type: none"> ● EDP 560 Educational Tests and Measurements ● ED 712 Survey Methods in Educational Research ● ED 795 Special Topics in Education Research ● ST 505 Applied Nonparametric Statistics ● Other Research Methods Courses in the College of Education, Engineering, Statistics, or Psychology at the level 500 or above 	<p>—</p> <p>3</p>
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PhD Dissertation Hours minimum of 9 hours

Dissertation Hours	
TED 895 Doctoral Dissertation Research	9-12

NOTE: For doctoral students either part-time or full-time who are working on their dissertation.

Writing the dissertation requires a major commitment of time and effort on both the part of the doctoral student and the faculty advisor. There should be consultation between the student and the dissertation chair about what is expected to be accomplished, and how much time is to be invested before the student registers. The College of Education strongly recommends that students who are registering for dissertation research (895) or preparation (899) register for at least 3 semester hours per semester, when appropriate.

- Highly qualified applicants without a Master’s degree may be admitted directly into the PhD program, and must meet the requirements for the Master’s degree en route.