Institutional Effectiveness Report
2020-2021

Program: Mechanical Engineering MS

College and Department: College of Engineering – Mechanical Engineering

Contact: Mohan Rao

Mission: The Mechanical Engineering (ME) Department, within a regional and global context, will prepare its students for productive career in a competitive, dynamic, technologically-based society; will advance the knowledge of mechanical engineering principles and applications; and will serve the public.

The Mechanical Engineering M.S. program at Tennessee Tech provides students advanced engineering skills and state-of-the-art knowledge in selected areas for positions in industry or pursuing a PhD. Students focus their programs on specific interests among several areas:

- Acoustics and Vibrations
- Design / Mechanical Systems
- Energy Harvesting / Smart Materials
- Energy Storage / Fuel Cells / Battery
- Smart Materials / Sensors

Program Goal:

PG 1:

department. During the 2020-21 AY, the ME department was successful in filling the two vacant positions due to retirements. Two new faculty joined the department: Dr. Rory Roberts as tenured Associate Professor and Dr. Arman Sargholzaei as tenure track Assistant Professor. Even with this, the department is still short of four faculty compared to previous years. The ME chair has brought this matter to the attention of the Dean of Engineering and discussions are underway to approve open vacant faculty positions. The department has been very successful in retaining all the tenure track and tenured faculty in the department.

PG 2.   Increase Number of MS Students per Year

Over the period from 2012-2017, a total of 715 complete student applications to the MSME program were received. Two hundred and eighty-four applications (40%) were granted admission (including provisional standing). A total of 165 actually enrolled during this time. Sixty-one MS degrees have been awarded during this period. These data reflect the high standards related to retention and quality control of MS graduates that is implicit in the MSME program. These data collected once in five years during the THEC MS Program review will be updated in 2022.

We have had some decrease in both applications and student enrollment of MS students during AY 2020-21, particularly from international students due to COVID-19 concerns. We are seeing a reversal this trend for Fall 2021. The good news is that we have had a numba(d)2.3 l of our o dmetic tudents1 appl [illegible]

Appendix 1: Curriculum Map

	Demonstrate an enhanced expertise in their area of specialization in Mechanical Engineering.	Conduct basic, applied and/or empirical research and/or design.	Give professional presentations or write scholarly manuscripts worthy of publication in conferences and or peer reviewed journals.

ME 7650/CEE 7650 Continuum Theories of Materials
ME 7660/CEE 7710 Fracture Mechanics
ME 7670/CEE 7720 Fiber-Reinforced Composite Materials
ME 7680/CEE 7820 Theory of Elastic Stability
ME 7810 Advanced Materials Science II

<u>Acoustics, Vibrations, Dynamics, and Controls</u>
ME 5060 Machine Vibrations
ME 5120 Intermediate Dynamics
ME 560 (t)-5.9 Tc 0 Tw20(ME)4a Tc 0 Tw(ME(n)-3(t)12.9 (e)2.3 ()A)(e)2 (d5 (o)-6.6 (t))7.3 31 (e). 15.859 0 Td( )TjE4C /P <