Institutional Effectiveness Report 2019-20

Program: Mechanical Engineering MS

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prepare its students for productive career in a competitive, dyna advance the koledge of mechanical engineering principles and a

The Mechanical Engineering M.S. program at Tennessee Tech p skils and state -of-the-art koledge in selected areas for positions Students focus their programs on specific interests among seve

Acoustics and V ibrations Design / Mechanical Systems Energy Harvesting / Smart Materials Energy Storage / Fuel Cells / Attery Smart Materials / Sensors

Program Goal:

- 1. Recruit and mentor very talented, research active faculty who will excel in teaching, research and scholarly activities and enhance the reputation of the Department of Mechanical Engineering at both regional and national levels.
- 2. Increase the number and quality of MS and PhD graduates until they are about 10% of the undergraduate population. The goal is to have a thriving graduate program with quality students.
- 3. Increase externally funded research activation, proposals and journals submitted, and conference publications 0.003 Tw -37.848 ua (n)2D.3 (av)5.3 ()-1 (p)2.28(b)2.3 (m)ren6.4 (it 10.6 (0.1.3 5f)10.6 (M)6.2 (e)-3 (c)-

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During the 2019-20 AY, the ME department was successful in recruiting two outstanding faculty -- Dr.

All faculty members engage in

alumni is an indicator of the success of our graduate students in their professional careers. The survey results will be updated in the upcoming year since data are analyzed once every two years.

Appendix 1: Curriculum Map

Curriculum Map of MS Program in Mechanical Engineering

Student Learning Outcomes

Suggested Categories of Graduate-Level Courses

Currently Offered in the Mechanical Engineering Department

Energy, Fluids, and Thermal Systems ME 5210 Refrigeration and Air Conditioning ME 5220 Air Conditioning Design **ME 5260 Energy Conversion and Conservation¹** ME 5310 Gas Dynamics ME 5510 Aerodynamics ME 5610 Steam Power Plants ME 5620 Turbomachinery ME 5630 Internal Combustion Engines ME 5720 Thermal Design ME 5710.6MCID 13 BDC (0)-7.9 (E)-5.. 7uondw 17.641ME 3aME(i)10.6 BDC 1 fir CE 5260 EnerC - (g)-8.3 (y)2.7 (C)-76 Tc 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

Acoustics, Vibrations, Dynamics, and Controls

ME 5060 Machine Vibrations

ME 5120 Intermediate Dynamics

ME 5640 Dynamics of Machinery II

ME 5810 Automatic Controls

ME 5930 Noise Control

ME 6370/CEE 6370 Vibrations of Continuous Media

ME 6430 Fundamentals of Acoustics

ME 6440 Applied Acoustics

ME 6510 Motion Programming of Planar Mechanisms

ME 6710 Advanced Dynamics of Machinery

ME 6730 Modal Vibration Analysis

ME 7510 Space Mechanisms

ME 7710 Dynamics of Machinery

ME 7720 Transfer Function Synthesis of Dynamic Systems

Design, Manufacturing, Mechatronics, and Robotics

ME 5020 Applied Machine Design

ME 5140 Introduction to Robotics and Intelligent Machines Engineering

ME 5180 Finite Element Methods in Mechanical Design

ME 5370 Mechatronics and Intelligent Machines Engineering

ME 5450 Design for Manufacturability

ME 6610 Fatigue and Wear in Mechanical Design

ME 6620 Plasticity and Creep in Mechanical Design

ME 6640 Advanced Robotics

ME 6830 Advanced Computer-Aided Design and Manufacturing