TMET Mech Engineering Tech

TMET 5133G Vibration and Preventive Maintenance
3 Credit Hours. 2 Lecture Hours. 3 Lab Hours.
An introduction to mechanical vibrations and preventive maintenance. Emphasis is placed on: undamped and damped free vibration of single degree of freedom systems, vibration analysis of system with multiple degrees of freedom, and forced vibration analysis with different excitations. Students will engage in hands-on experimental studies and develop analysis techniques using vibration data. Preventive maintenance topics will also be studied. Graduate students will be required to complete additional laboratory and research assignments.
Prerequisite(s): TMET 3135 and TMET 2521 and TMET 3130.
Cross Listing(s): TMET 5133.

TMET 5134G Introduction to Finite Element Analysis
3 Credit Hours. 1 Lecture Hour. 4 Lab Hours.
An introduction to the fundamentals of Finite Element Analysis. Students will develop a working knowledge of a commercial FEA software package. Students will model and analyze mechanical and thermal engineering problems using a commercial FEA package. Students will develop an ability and competence in interpretation and analysis of FEA results. Graduate students will be required to complete additional laboratory and research assignments.
Prerequisite(s): TMET 2128 and TMET 3136 and TMET 3233.
Cross Listing(s): TMET 5134.

TMET 5136G Mechanical Controls
3 Credit Hours. 2 Lecture Hours. 3 Lab Hours.
An understanding of the elements of classical control theory will be developed. Students will be introduced to the concept of feedback and its properties; the concept of stability and stability margins; and the different tools that can be used to analyze these properties. Students will also develop a working knowledge of the basics of linear control techniques. Graduate students will be required to complete additional laboratory and research assignments.
Prerequisite(s): TMET 2521 and TMET 3130.
Cross Listing(s): TMET 5136.

TMET 5137G Mechanical System Design
3 Credit Hours. 0 Lecture Hours. 6 Lab Hours.
A capstone design course requiring that students call upon all of their academic preparations in the solution of mechanical system problems. Graduate students will be required to complete a case study or other individualized advanced activity that undergraduate students will not be required to complete.
Cross Listing(s): TMET 5137.

TMET 5234G HVAC
3 Credit Hours. 2 Lecture Hours. 3 Lab Hours.
Introductory course in Heating, Ventilating, and Air Conditioning (HVAC) systems. HVAC processes are analyzed and load calculations are performed in accordance with ASHRAE practices. Design projects are included. Graduate students will be required to complete a case study or other individualized advanced activity that undergraduate students will not be required to complete.
Prerequisite(s): TMET 3233 and TMET 3232.
Cross Listing(s): TMET 5234.

TMET 5431G Automation and CIMS
3 Credit Hours. 2 Lecture Hours. 3 Lab Hours.
A capstone course in materials science and processing. Fundamental manufacturing, automation, and topics in production and related control systems are covered. Numerical control, computer integrated manufacturing, and flexible manufacturing systems are included. Laboratory includes work with a Mini-CIM system. Graduate students will be required to complete a case study or other individualized advanced activity that undergraduate students will not be required to complete.
Prerequisite(s): ENGR 1133 and TENS 2138 and TMET 3343.
Cross Listing(s): TMET 5431.