Research:

1. Graduate projects currently in progress:
   a. Trailer truck active drag reduction
      CFD modeling is being carried on to investigate the effect of air injection at certain location
      along the roof of a trailer in order to reduce its total drag
      MSME student: Aniket Bhave
   b. Triple-concentric heat exchanger for heat recovery from air-cooled condensers
      Numerical model of a triple-concentric heat exchanger is being run to investigate heat
      recovery potential of air-cooled condensers of building HVAC system during cooling
      season
      MSME student: Milad Majdi
   c. Variable refrigerant flow (VRF) refrigeration system with integrated heat recovery
      thermal storage
      Experimental study of a VRF system is underway in order to research energy
      conservation through heat recovery from a refrigeration system
      MSME student: Sandeep Chahal
   d. Building retrofit assessment through high-resolution energy modeling
      EnergyPlus and OpenStudio software tools are being used to assess energy-conservation
      benefits of several building retrofits
      MSME student: Steven Wyss
   e. Developing correlation equations for intake and exhaust stack design in a building
      The optimum location of air exhaust relative to intake is being sought via CFD modeling
      MSME student: Daniel Woodard
   f. Combined Cooling, Heating, and power generation for buildings
      Transys software tool is being used to study energy use and greenhouse gas emission
      reduction in a building
      MSME student: Michael Cooper
   g. Utilizing advanced demand response and distribution level energy storage for seamless
      renewable integration into the electrical grid
      PhD candidate: Justin Hill

2. Undergraduate research and honors research projects in progress:
   a. Transys modeling of IC-engine linked to a building, in order to supply energy demands of
      the building
      UG honors student: Omar Abu-Hamdeh

3. Completed research projects:
   a. Energy audit of Hoehn Engineering building
      MSME student: Daniel Sealy
   b. Coefficient of Performance improvement of a small thermoelectric cooler
      UG Honors student: William Adams Jr.

4. Project topics for prospective graduate students:
   a. Drain-back nocturnal cooling system with PCM storage
   b. Thermal management of buses
   c. Compressed air energy storage for micro-energy harvesting in trucks