

UTC College of Engineering and Computer Science
Research and Instructional Equipment

EMCS 103

- Micro Arc Oxidation Setup: AE Pinnacle Pulsed DC Power Supply (10 kW & 1500 v) with a protective wooden box

EMCS 105/106 (ENME 3070L – Fluid Mechanics Laboratory)

- One (1) Ashcroft pressure gauge tester
- Five (5) Thomas-Stormer viscometers
- Instructional apparatus for buoyancy and stability experiment
- Instructional apparatus for pitot tube demonstration
- Instructional wind tunnel
- Armfield flume for hydraulic jump test
- Bench test setup for flow meter and valve calibration
- A/C Hydraulic pump
- Gas Analyzer
- Propeller test stands
- Manometers
- Hydraulic Deadweight Testers
- KYALV Educational Kit Test Stand Series 1585
- Airspeed Probes
- Five (5) rotational 115/230V viscometers
- H-8111 OHAUS CX COMPAS DIGITAL SCALE
- Pressure gauges
- GPI TM Series PVC Turbine Meter with Display Schedule (Jasper Engr)
- High Precision Lab Scale 10kg x0.1g Digital Accurate Balance with Counting Function
- CARBO Instruments 1-1/2" Pressure Gauge (2)

EMCS 107 (Introduction to Engineering Design Project Room)

- Jet 10" Bandsaw
- Central Machinery 9" Band Saw
- Rikon 16" Scroll Saw
- Craftsman 6" Grinder (x2)
- Hitachi 10" Drill Press (x2)
- Heavy Duty Sewing Machine
- Skil Router/Table
- Dewalt Drill Kit Cordless
- Dremmel Rotary Tool Shaper/RouterTable
- Craftsman 6-Gallon Single Stage Portable Electric Pancake Air Compressor with nail gun
- Craftsman V20 20-volt Max ½-in Brushless Cordless Drill/Charger
- Craftsman 20-volt Max ¼-in variable speed Cordless Impact Driver
- Craftsman 5100 BTU Heat Gun

EMCS 109 Wasp

- Horizontal Split Tube Inert Atmospheric Furnace

- Density Meter
- Hot Plate
- Overhead Stirrer
- Mini Fridge for Storing Chemicals
- Mettler-Toledo Precision Balance
- CAT Compressor
- Gamry 600 Potentiostat/ZRA
- Lucifer Box Furnace
- LabRAM Benchtop Mixing System
- Ball Mill
- Closed Loop Glove Box
- Hydraulic Press
- Shimadzu HMV-G21ST automatic Vicker's microhardness tester
- Shimadzu AGS-X electromechanical testing machine with a 1 kN load capacity
- Coarse Sieve Shaker
- Global Industrial Adjustable Height Workbench 96 x 30 C-Channel Leg Birch Square Edge/Black
- Global Industrial Adjustable Height Steel C-Channel Leg For Workbench, 30"/Black (3)
- Global Industrial Workbench Steel Stringer For C Channel Adj Leg & Fixed Height 96"/Black
- Global Industrial 96"W x 30"D x 1-3/4"H Birch Butcher Block Square Edge Workbench Top
- Leica Microsystems Metallurgical Microscope
- Gamry Saturated Calomel Reference Electrode
- Bonvoisin Lab Scale 5000gxx0.01g Digital Precision Analytical Balance
- Instron 880MT Upgrade to 8521 Axial Torsion System
- Labjack T7 Component
- Labjack LJTICK-Relay Driver
- Labjack T4 Component

EMCS 114 (SAE Racing Mocs Shop)

- Tormach PCNC 440
- Powertig 255EXT X1 / Power Cool W300 (240v) XI
- Dynatorch Super B4 x 2 Plasma Table
- Formech 1372 Vacuum Forming Device with Reducing Window
- Makerbot Replicator 2x 3-D printers
- 110V/60Hz Wazer Desktop

EMCS 123/124/108 (ENME 4470–Mechanical Engineering Experimentation Laboratory)

All experiments use LabVIEW programs for outputs of sensors.

- Transient Heat Transfer Experiment
 - Hot plate, water and ice
 - Hair dryer
 - 5 K-type Thermocouples
 - 5B backplane, 2050 com board, 5 signal conditioning modules, 5 V 500 mA power supply
- Refrigeration Trainer Experiment
 - Vasaila – relative humidity, dry bulb temperature

- 6 K-type Thermocouples
- 2 digital Thermocouple readers
- 6 Pressure gages
- Digital Power Analyzer
- Rotary and Hot wire anemometer
- Refrigerant (tank)
- R-134a Leak Detector
- 2 sling psychrometers
- Mass flow rate meter
- Power meter
- 5B backplane, 2050 com board, signal conditioning modules, 10 V power supply
- Heat Exchanger Experiment
 - 6 K-Type Thermocouples
 - 2 Turbine Flow meters (inlet and exit)
 - 2 analog flow meters
 - Variably Frequency Drive
 - 2 kW heater
 - Pump and reservoir
 - 5B backplane, CB-50, 2050 com board, signal conditioning modules, 5 V 500 mA power supply
- Onan Engine Experiment
 - Coriolis Fuel Flow meter
 - Air flow meter
 - Kistler Pressure transducer
 - Battery Charger
 - Electric Resistance Load Bank
 - Exhaust Gas analyzer and preconditioner system
 - 3 K-type Thermocouples
 - 5B backplane, CB-50, 2050 com board, signal conditioning modules, 5 V 100 mA power supply
- Rankine Cyclor Experiment
 - Fuel flow meter
 - 3 K-Type Thermocouples
 - 3 Pressure Transducers
 - Voltage and Current sensor
 - RPM sensor
 - Laptop computer with software
 - DAQ module
- Wind Turbine Experiment
 - Anemometer
 - 3 Voltage and Current sensors
 - RPM sensor
 - Laptop computer with software
 - DAQ module
- Journal Bearing Apparatus
 - 14 pressure sensors
 - 1 optical angular velocity (speed) sensor
 - Contact Thermocouple and hand-held temperature apparatus.

- 5B backplane, CB-50, 2050 com board, signal conditioning modules, 10 V power supply
- Simply Supported Beam Experiment
 - SR-4 type uniaxial Strain Gages
 - LVDT (Linear Variable Displacement Transformer)
 - 5b backplane, CB-50, 2050 com board, signal conditioning modules, 10V power supply
- Linear Vibrations Experiment
 - 2 LVDTs (Linear Variable Displacement Transformer)
 - Velometer
 - Accelerometer
 - CB-50, 10 V Power Supply
- Static & Dynamics Balancing Experiment
 - 3 axis accelerometer
 - CB-50, 10 V Power Supply
 - Reletech weights

- Briggs and Stratton Kinematics Experiment
 - 2 LVDTs (Linear Variable Displacement Transformer); piston and valve
 - 2 Accelerometers; piston and valve
 - 1 angular velocity sensor
 - 5b backplane, CB-50, 2050 com board, signal conditioning modules, 10V power supply

- SunFounder Ultimate Sensor Kit V2.0 for Arduino (60)

EMCS 131 (Mechanical Engineering Senior Design Project Room)

- Fusion 3 F410 3D Printer
- Drill press
- 2 Makerbot Replicator 2x 3-D printers

EMCS 413

- 3Dologie Ultimaker S5 Engineering Bundle

EMCS 415

- Panasonic Lumix GH6 Mirrorless Camera Bundle

EMCS 415A

- Edmund Optics 68052 Lens Cyl 12.5 x 25 x -12.5 FI UNCTD
- Chronos 1.4 High Speed Camera 8GB Monochrome w/ Zoom Lens
- Chronos 1.4 High Speed Camera 8GB Color w/ Zoom Lens

EMCS 417C

- Mark Two Onyx 3D Printer
- Airwolf 3D Additive Manufacturing Center
- Canon EOS R with RF 24-105mm f/4-7.1 STM Lens Mirrorless Camera Bundle

EMCS 424 (ENME 1030L-Freshman Engineering Laboratory)

- data acquisition module (Labpro)

- motion detectors
- force sensors
- accelerometers
- photogates
- force tables
- rotary sensors
- Beam Balance
- Launcher
- Vernier caliper
- Meter sticks
- Spring set
- 1 inch glass balls
- Pasco Projectile Launcher short range