MFG DAY™

IN RECOGNITION OF

MANUFACTURING DAY 2015

Monday, September 28, 2015 – 1:00 – 3:00 pm

iMakerSpace in the **iCube** – 3rd Floor Volpe Library
Sponsored by TTU College of Engineering and the Center for Manufacturing Research (CMR)

REFRESHMENTS PROVIDED AT THE iMAKERSPACE

Manufacturing Day has been designed to expand knowledge about, and improve public perception of, manufacturing careers and manufacturing's value to the U.S. economy. The center for Manufacturing Research was established in 1985 and is a State of Tennessee Center of Excellence. The center, along with the College of Engineering, is using the Manufacturing Day to showcase selected existing manufacturing research, student projects centered on making and maker spaces.

OVER

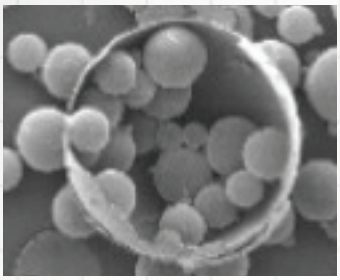
Labs listed on the back of this flyer will be open for public visits the time slots noted.

21st CENTURY RENAISSANCE ENGINEERS
REVOLUTIONIZING ENGINEERING

TENNESSEE TECH UNIVERSITY

iCUBE
IMAGINE + INSPIRE + INNOVATE

IAC Students conduct an energy assessment at a Tennessee manufacturing facility.



Material Science Lab – ESEM and Energy Dispersive Spectroscopy (EDS) provide both visual and qualitative analysis of elemental makeup of foam samples for lost foam casting research.

Engineering student works on the X-Ray Diffraction Machine.

Baja SAE Vehicle

Formula SAE Vehicle

STOPS

iMAKERSPACE. [VOLPE LIBRARY – 3RD FLOOR]

The iMakerSpace provides fabrication space along with collaborative space to allow for interdisciplinary teams to participate in innovation and entrepreneurship activities.

MATERIAL SCIENCE LAB [CLEMENT HALL ROOM 304]

Morphology and topographical characterization available for a wide range of materials including polymers, ceramics, metals and their alloys, fibers, aggregates and composites using specialized methodology such as: Optical Microscopy, Scanning Electron Microscopy (SEM), Field Emission Electron Microscope (FEG), X-Ray Diffractometer (XRD), X-Ray Fluorescence Analyzer (XRF), Electron MicroProbe (EPMA), Particle Analyzer, TGA/DSC, Micro-hardness Testing and Electron Probe MicroAnalysis (EMPA) used to determine material elemental chemical composition.

THE FOUNDRY [WEST 10TH STREET]

The metal casting facility equipped to perform various casting processes. Melting is done with either a gas-fired furnace or a 100kW electric induction furnace. Metals cast include aluminum, silicon bronze and gray iron.

INDUSTRIAL ASSESSMENT CENTER (IAC) [PRESCOTT HALL ROOM 117]

In its eigth year at TTU, the IAC affords engineering students the opportunity to perform energy assessments at manufacturing sites across Tennessee and neighboring states. Industrial facilities benefit from lower energy bills and students gain valuable real world experience that will benefit them throughout their careers.

DIGITAL MANUFACTURING DEMONSTRATION LAB (DMDL) [PRESCOTT HALL ROOM 227]

The DMDL was established in September 2015 to support student and faculty innovation through access to digital manufacturing techniques. DMDL provide additional facilities and higher resolution machines and different techniques in support of the iMakerSpace.

BAJA SAE LAB [EAST STADIUM]

The TTU Baja team has a remarkable record of 12 wins in international Baja competitions when the next winning team has only 6. The Baja lab has served numerous students over the years where they have learned to build the entire vehicle from ground up. See the vehicles from the past several years and discuss their manufacturing with the students.

FORMULA SAE MAKERS BY DESIGN LAB [EAST STADIUM]

The TTU Motorsports Formula team has only been in place for a few years. Last year, the team won the first place in the Technovate track of the Eagle Works competition. The design and manufacturing of the sleek formula vehicle is impressive. The Makers by Design is the innovative concept of Formula vehicle kit, developed by the TTU team and being sold to high schools to provide the experience to the students "making" a Formula car.

Schedule:

1:00 – 1:30	Welcome and introduction of the activities and spaces. Location: **iMakerSpace** in the **iCube** – 3rd Floor Volpe Library
1:35 – 1:50	Lab tour 1
1:55 – 2:10	Lab tour 2
2:15 – 2:30	Lab tour 3
2:35 – 2:50	Lab tour 4

DMDL – 3D Systems ProJetTM SD 3500