**Summary of Available Resources and Services at Engineering Technology Center**

Prepared by Engineering Technology Committee

College of Engineering

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**1: Document resources available at the college for maintaining research group level websites.**

At its current staffing levels, the College of Engineering MARCOM team builds and supports faculty research websites. A team member requests the faculty member's desired URL (*.lab.uiowa.edu) and completes the initial setup and configuration.  The faculty member can then build the site on their own or work with the web team to build it. Once the site is published, faculty can update the sites themselves or request support from the web team.

- To build or update a faculty research website, log in with HawkID and password via the "Admin Login" link in the lower left corner of the site.
- To request assistance from the web team, use the <u>Web Page Work Submission Form</u>. There is a link to this form in the footer of the <u>College of Engineering website</u> (Web Page Edit Request).
- <u>SiteNow documentation</u>.  This guide provides general documentation for the SiteNow V2 and V3 platform.  All new sites will be SiteNow V3.
- <u>SiteNow training</u>. ITS central services are available to help you build the best possible site. The ITS team offers training to content editors and site owners looking to build more effective websites. Currently, the ITS team offers training on web content strategy, Layout Builder, Siteimprove and content hub.   Zoom sessions are offered regularly, and recordings of previous sessions are available at the bottom of the page.

**2: Document services and other activities at the Engineering Technology Center.**

The Engineering Technology Center (ETC) maintains a technical environment to support instructional and research efforts of faculty, staff, and students.  The services provided are wide-ranging and individualized, but center around the deployment and maintenance of Linux and Windows desktops, servers, e-mail assistance, as well as web and file storage.  The ETC is comprised of three units within the College of Engineering:  **Engineering Computer Services (ECS)**, **the Electronics Shop**, and the **Machine Shop**.

For faculty, staff, and students in the College of Engineering and across the University, ETC provide many tools and experienced staff members to run them. They work with many materials, including plastics, fiberglass, and metals.  Their knowledgeable staff are available to help with concept development, project design, and equipment safety training.

Outlined below are the recent and ongoing services for each unit, followed by a series of collaborative efforts.

## Engineering Computer Services (ECS)

*1220 South Lab/Teaching Lab*

The SC 1220S (Hering South) classroom is equipped with 45 Windows computers -- 44 for students and 1 for the instructor. Computers have either a 27" or 32" monitor that are configured with Windows and have NVIDIA RTX 2080TI video cards available to utilize for GPU computing.

*2222 AV update*

AV equipment has been updated in 2222 SC, designated as a conference space for senior engineering students. New technology includes video conferencing capability including a camera, sound bar, and 55" monitor.

*Backups Infrastructure*

Backup hardware for desktop and virtual servers has been renewed and consolidated.  The new hardware allows for faster backups and better compression of the data.

*Virtual Desktop Infrastructure (VDI)*

New server set installed for 2023 supports Windows 11 lab instances and has greater resources and capabilities than previous generations. The oldest set of VDI servers were repurposed as Linux compute resources in the login pool.

*Linux*

Previous VDI servers were used to double the number of Linux compute servers from 6 to 12. Base Linux operating system has been updated to Ubuntu 22.04

*Windows 11*

The default windows operating system is now Windows 11.  All VDI, student lab, and departmental lab equipment that can run Windows 11 has been updated.  Windows 11 deployments will continue on office computers and other areas.  Computers not capable of running windows 11, need to be replaced, retired, or removed from the network by October 2025.  Date subject to change depending on Microsoft patch support.

*Storage Infrastructure*

The primary engineering SAN (storage area network) storage will be replaced this year.  An RFP for hardware is currently underway with vendor selection hopefully finished this fall.

*Compliance/System Security Plans (SSP) support*

Support for compliance documentation SSPs continues to increase.  Additional services to support NIST800-171 and other regulations are under development including compliant VDI and storage.

*ADS for Rural America Data Access Web Application*

Created web application to present data related to automated driving in a rural setting.  The web site provides summary and detail information to users from several different data sources and vehicle sensors.  Depending upon the level of access granted to the web site user, they can view basic information and statistics on various data domains, view a data dictionary of terms and definitions, define information queries, access the query output, and submit requests for more detailed information.

*Strategic Plan Scorecard Dashboard*

This dashboard integrates and presents summary metrics and data from many different data sources into a single reporting platform for users to analyze aspects relating to the College of Engineering strategic plan.

*On-going Services*

ECS provides computer support provides Operating System (OS) setup, OS configuration, OS patching, software installation, software licensing, software maintenance, computer security, computer compliance for desktops, virtual desktops, laptops, servers, virtual servers, and other electronic devices. End users support services and assistance for classes. Facilities support including door access, conference rooms, classrooms, labs, and server rooms.  Hardware and software review, specification, procurement.   Backup services, printing, poster printing, data management and several other services. For a more detailed list of services contact matthew-mclaughlin@uiowa.edu.


**Engineering Electronics Shop** (EES)

*Space updated*

The ETC 3D and UV printer room was moved from 2320 to 2316 SC.

*On-going Services*

The Engineering Electronics Shop, 2018 SC, continues to be a source for electronic parts and supplies of all sorts, available to UI students, staff, and faculty.  In addition to the shop store, EES staff make signs and name tags, provide electronic AV support for conference rooms, and design and build equipment as ordered.   EES staff teach soldering, design, and other creative activities in conjunction with departments and the Engineering Library.  For a more detailed list of services contact matthew-mclaughlin@uiowa.edu.

*EES Staff*

John Kostman retired after 33 years of service.


**Engineering Machine Shop (EMS)**

*New Services*

A Milltronics VKM4 4-Axis mill has been installed in the EMS. This machine provides additional milling capacity during peak times and 4-axis milling to students.

*Ongoing Services*

Students have access to a CNC Waterjet, lathes, mills, saws, drills, and other mechanical and computer-controlled equipment. The shop equipment is heavily used by students taking Engineering Problem Solving I and DFM classes, and by many senior design projects. EMS staff continue to design and build equipment as ordered, including 3D printing for many units on campus (Driving Safety Research Institute, University hospital, bio-medical researchers, Physics).  For a more detailed list of services contact michael-hillman@uiowa.edu.

*EMS Staff*

Jeremiah Sabourin was hired as an EMS Engineering Associate in fall 2022.

Michael Hillman, EMS Director, and Zane Brewer, Design Engineer are training Jeremiah on the machining equipment.


**Recent collaborative projects across departments**

*Burge Residence Hall – Engineering Makerspace*

The Engineering Makerspace provides first-year engineering students with a location to collaborate, develop critical thinking skills, and boost self-confidence. The space houses an open space for collaboration, a textile room, wet room, and a series of 3D printers.   The goal is to host activities & workshops in the space, in addition to ENGR:1100 office hours and after-hours project work.

The ETC helped with layout, equipment selection, and technical recommendations.

*2301 Lab to TA/Study space*

A former computer lab was outfitted with 8 desks and computers for TA help/office hours and 6 additional tables that can be used as study space.  Each TA location is equipped with the following items:

- 2'x3' glass board
- 30"x72" table
- three chairs
- 27" monitor
- one computer

## 3: Report of computing resources.

There are several computing resources available on campus in the college and via central resources.

**For immediate help in a classroom call 319-335-5055 or if possible, stop by 1256/1253 SC.**

All the contact methods available are listed on this website:  https://engineering.uiowa.edu/etc/help-desk-computer-services

Engineering resources available are broken down into three categories: Linux, Windows, and High-Performance Computing (HPC).

**Linux**:

Engineering Linux computing resources are available in the computer labs and remotely via command line or graphical sessions.  There are two engineering resources available for remote login login.engineering.uiowa.edu for larger memory and CPU needs and login-gpu.engineering.uiowa.edu for access to computers with GPU support.

**Windows**:

Engineering Windows computing resources are available in the computer labs and remotely via Virtual Desktop Infrastructure (VDI).  VDI allows access to temporary windows desktops that can run Engineering licensed software.

Connection information for VDI and remote access to Linux  Windows

Note that Windows and Linux computers in the computer labs and VDI have GPUs of varying levels available depending on date of acquisition.

**HPC**:

The university has a general HPC resource available on campus.  General information about the system like signing up for an account and using the resource can be found on the HPC website.  The university has general resources available to all users and Engineering has two dedicated resources available to all Engineering students, faculty, and staff (COE and COE-GPU).

Note that the University provides access for researchers with a faculty appointment to a single 5TB share with backups. This share is available upon request at no cost on either Research Data Storage Service (RDSS) or the Large Scale Storage Service (LSS).  Additional space may be purchased at the standard rate.