UW CHEMICAL ENGINEERING
TECHNICAL SUPPORT TEAM
NEW GRAD / CO-OP ORIENTATION
W-22 TERM

WATERLOO ENGINEERING
engineering.uwaterloo.ca
to all our New Co-op, Grad Students and Visitors....
and we wish you “All the Best” going forward with your research and studies.

We are here to HELP YOU…
Tom Dean  E6 4020  Ext. 31166

Director – Technical Operations and Dept. H&S Chair

• Overall responsibility - “smooth department technical operations”
• Overseeing the Health and Safety programs and improvements.

Technical Support Team of 11 Personnel:
Mandate is to provide support that is:

• Capable
• Accessible
• Accountable
• Timely Action and Completion
• Quality Results
Chem Eng – Tech Team Members:

- Tom Dean – Director of Technical Operations
- Dennis Herman – Manager – Information Systems
- Ravindra Singh – Information Technology Specialist
- Bert Habicher – Mechanical Systems Designer
- Charles dal Castel – Manager – Analytical Lab and Safety Officer
- Rick Hecktus – Mechanical Technician / Shipper&Receiver
- John Zhang – Manager – Undergrad Lab Instructors
- Jenn Moll – Undergrad Lab Instructor
- Cheryl Newton – Undergrad Lab Instructor
- Neil McManus – Undergrad Lab Instructor – NanoEngineering
- Ahmad Ghavami – Undergrad Lab Instructor – NanoEngineering
- Emaad Alam – Co-op Assistant Project Manager
Chem Eng – Safety Program Elements:

• “SAFETY FIRST” culture and mindset – “Work safe, Go home safe.”
• ChE Safety Committee – 6 members
• ChE Safety Manual - On-line (ChE Website)
• ChE Safety Audits – every Lab each Term
• Supervisor Safety Audits – each Lab, once per month
• Engineering Safety Planning Committee – all Eng depts
• JHSC – 1 member
• WIN Safety Committee - member
Chem Eng – New Grad Safety Requirements:

1. Read ChE Safety Manual – Online (ChE Website).

https://uwaterloo.ca/chemical-engineering/safety-first/chemical-engineering-safety-manual

2. Complete Safety Training (5 year validity)
3. Plan Your Research and Create Lab Hazard Analysis.
5. Always Work Safely, and Coach Others to Do The Same!!
“PILLARS of SUPPORT”

- Charles
- Co-op
- Tom
- Faculty

- Dennis
- Ravindra
- Rick

- Bert
- Rick

- John
- Jen M.
- Cheryl
- Jen C.
- Neil
- Ahmad

- Charles
- Co-op
- Rick
- Rick

E6 – DWE – QNC
Faculty Teaching / Lab Research

“What First”

IS / IT - Computers, Electronics

Mechanical Works

Undergraduate Labs

Analytical Lab Svcs

Shipping and Receiving

Chemical Waste Disposal

WATERLOO ENGINEERING
Chem Eng – New Grad Safety Training Plan:

1. Safety Training Modules – mandatory 4 online courses:
   - SO1001 - Employee Safety Orientation
   - SO1081 - Workplace Violence Awareness
   - SO2017 - WHMIS 2015
   - SO1010 - General Lab Safety (only if performing Lab Research)

2. Research Safety Report, Hazard Analysis and Declaration Page
   - Required before starting lab research

3. Lab Safety Fundamentals Review – 1 hr classroom training, ~ Feb.

4. Praxair / Swagelok Safe Compressed Gas Review – 1 hr classroom, ~Feb
Charles dal Castel
E6 3102
Ext. 33311

Analytical Chemist, Manager of Analytical Services and Lab Safety Coordinator

Services Provided:

- Shared Departmental Laboratory maintenance and user orientation
- Chemical analysis and materials testing
- Analytical chemistry troubleshooting
- Method/protocol development
- Instrument installation, testing and maintenance
- Analytical quality control and data interpretation
- Chemical and general laboratory safety
- Analytical software installation and testing
- Equipment purchasing assistance
- General chemistry consultation
Health & Safety Resources:

- Required to complete all safety training/documentation requirements prior to the start of work
- Online training – min. 4 online safety modules for lab research
- Safety reports outlining research and hazards.

Safety Reports:

- **DEPARTMENTAL REQUIREMENT**
- Must be written specifically to the project and completed before working in the lab; include one completed lab risk assessment form for each process/procedure; nano research must include the nano risk worksheet
- Must describe research plan and demonstrate awareness of specific dangers and a plan of action to address problems if they arise
- If any terms should change over the course of work, the safety report needs to be revised and approved: i.e., more risk assessment forms.
Safety Inspections:

- Completed every term by lab safety groups
- Results reviewed by department safety committee
- An operation seen as unsafe can be shut down until the problem is resolved

Analytical Lab Services (Department Instruments):

- 2 ways to utilize the lab: submit samples to be analyzed or receive training on the equipment to perform analysis oneself
- Chain of custody form (online) must be filled out when samples are submitted
- Lab equipment available is as follows:
Analytical Instruments Available in E6-3103, 3107 and 3109 Suite:

<table>
<thead>
<tr>
<th>No.</th>
<th>INSTRUMENT NAME</th>
<th>MODEL</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Dionex IC</td>
<td>DX-500</td>
<td>Determination of ions in aqueous solution</td>
</tr>
<tr>
<td>2.</td>
<td>TA Instruments TGA</td>
<td>Q-500</td>
<td>Measures weight changes over time and temperature</td>
</tr>
<tr>
<td>3.</td>
<td>TA Instruments DSC</td>
<td>Q-2000</td>
<td>Measures heat flow of material transitions over time and temp.</td>
</tr>
<tr>
<td>4.</td>
<td>Agilent GC</td>
<td>6890A</td>
<td>Determination of volatile, semi-volatile &amp; gaseous org. compounds</td>
</tr>
<tr>
<td>5.</td>
<td>Varian GC/MS/MS</td>
<td>Saturn 2000</td>
<td>Determination / ID of volatile and semi-volatile org. compounds</td>
</tr>
<tr>
<td>6.</td>
<td>Bruker XRD</td>
<td>D8 Focus</td>
<td>Crystal structure and properties of powdered materials</td>
</tr>
<tr>
<td>7.</td>
<td>Teledyne-Leeman ICP</td>
<td>Prodigy</td>
<td>Determination of metals in solution</td>
</tr>
<tr>
<td>8.</td>
<td>Waters HPLC</td>
<td>Alliance</td>
<td>Determination of non-volatile organic species in solution</td>
</tr>
<tr>
<td>9.</td>
<td>Micromeritics SAA</td>
<td>Gemini</td>
<td>Surface area analysis of solids</td>
</tr>
<tr>
<td>10.</td>
<td>Jasco CDS</td>
<td>J-815</td>
<td>Difference in absorption of left/right circularly polarized light</td>
</tr>
</tbody>
</table>
UW – CHE TECHNICAL SUPPORT TEAM

Dennis Herman E6 2002 dherman@uwaterloo.ca Ext. 32196

Chem Eng Information Services

Dennis Herman - Manager of Information Services
Ravindra Singh - Information Technology Specialist

- Provide services for all Chem Eng departmental
  - Information Systems
  - Computer Systems
  - Data Network systems

How to Submit “Service Requests” to the Information Services Group

1. Visit http://chemeng.uwaterloo.ca then Resources | Services, then RT (Request Tracker) Service Request(Web Form)
2. Send email to request@che.uwaterloo.ca
3. Only require Form Submission if request will take longer than 15 minutes to resolve
Chem Eng Information Services (cont’d):
Account IDs

- One account for access to all campus and cloud services
  - Wireless, Quest, Learn, workstations, printers, fileshares etc.
  - Nexus – Microsoft Windows Active Directory account
  - Microsoft 365 office.com

How to get one
- WATIAM account provided to all students at time of registration
- Postdocs and visitors must be manually created
  - Email to dherman@uwaterloo.ca or r5singh@uwaterloo.ca

Manage account IDs via WATIAM
- Waterloo Identity Access Management http://watiam.uwaterloo.ca
  - Change password
  - Set email forwarding

Credentials always specified as:
- Userid or userid@uwaterloo.ca or “nexus\userid”
Information Services (cont’d):

Email

- Microsoft 365 = portal.office.com
  - Microsoft 365 accounts for faculty, staff and grads
  - Visitors here for longer than 1 year.
- Visitors here for 1 year or less forward user@uwaterloo.ca to cloud email servers
  - Gmail.com, yahoo.com, Hotmail.com etc.
  - Can get Microsoft 365 account with request from supervisor to dherman@uwaterloo.ca

Xerox scanner, copier, printer accounts

- 1 Xerox work centre 5335 available for all grads in E6 5028 (Grad Lounge)
- Account IDs for consumables available from Ellen E6 3024
  - printing and copying
  - Scanning to email does not require account ID
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**Computer Services:**
- Hardware specification, purchase, installation, connectivity, management, administration, diagnose, repair, decommissioning, and replacement.
- Office PC, document processing, data acquisition and/or control, data storage, data archival, etc.

**Networking**
- Centrally managed
  - Department network = Nexus Microsoft Active Directory Domain
- Self managed
  - Wired or wireless connectivity, self managed
- Remote access from off campus via http://vpn.uwaterloo.ca
  - UW VPN server = cn-vpn.uwaterloo.ca

**Consulting Services:**
- Application software/hardware specification, selection, purchase, license
- Application and hardware troubleshooting, diagnosis, and repair
- Research grant application assistance
Services Provided:

- Computer network infrastructure and network security systems
- Computer workstation procurement, commissioning, software deployment, desktop management, hardware and operating system diagnosis and repair, maintenance and decommissioning
- Computer server commissioning, software deployment, administration, hardware and operating system diagnosis and repair, maintenance and decommissioning
- Specialized computer subsystems procurement, commissioning, software deployment, administration, maintenance and decommissioning
- Data acquisition/control, computer presentation systems, computer imaging systems, etc.
Services Provided Continued…

• User support services including: account administration, application software diagnosis and repair, system and application software consulting, etc.
• Providing support for Electronics and Electrical problems; guiding for best service options
• Advise faculty members and graduate students on the arrangement of their experiments (electrical, electronic and data acquisition systems)
• Supervise and advise graduate students working in Electronic Shop
• Make electrical safety checks on electrical equipment and electrical outlets in laboratories
• Responsible for operation and maintenance of Electronic & Computer Shops:
  – DWE 2526 and E6 1118
• Instruct graduate students on how to handle sophisticated electrical and electronics equipment
• Computer and network services including Microsoft active directory management, authentication, firewall, anti-malware, file, print, backup, web, SharePoint, mail, data storage, etc.
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Bert Habicher
E6 1120
Ext. 36782

Mechanical Systems Designer

Services Available:

• Process Design
  - Process flow examination
  - Process validation

• Mechanical/ Structural Design
  - Supporting structures and frameworks
  - Safety (pressure/load-bearing)

• Fabrication
  - Limited machine facilities
  - Limited welding facilities

• Assembly
  - Plumbing
    > Soldering (hard and soft)
    > Threading
    > Tube compression fitting
  - Frameworks
    > Dexion
    > Unistrut, Canistrut
    > Cut and weld angle channel
“Service Requests” for Mechanical Services

Use the RT (Request Tracker) system:
Visit [http://chemeng.uwaterloo.ca](http://chemeng.uwaterloo.ca) then Resources | Services, then RT (Request Tracker) Service Request (Web Form), select Mechanical Services.

- Fill out Form completely
- Account number (for Research work)
- Completed and Approved Safety Report
- Please have a clear notion of starting materials and conditions, and the expected product and product conditions.
Rick Hecktus  DWE 1521  Ext. 32291
Mechanical Technician for DWE and Dept. Shipper / Receiver

Requisitioning:
• To purchase items from outside suppliers you will have to create a Unit4 Purchase Requisition from the main office or your supervisor.
• You will need a Work Order number from your supervisor and must include your name and your phone extension and your lab room number in the "deliver to" fields.
• Central Stores Compressed Gas Bottle – Order Form

Receiving and Deliveries:
• All items ordered with a PO will be shipped to Central Stores and delivered to ChE. Receiving.
• Compressed gas cylinders are delivered directly to the Labs in E6 and DWE.
• Packages brought to ChE Receiving will be delivered to their respective people.
• Deliveries are done daily in the afternoons.
Hazardous Waste:
• ChE. Receiving & Shipping provides the researcher a place to bring waste chemicals
• Please have your containers labelled, in full, prior to arrival
• Containers should be clean and free of contaminants on the outside surface and transported without the use of gloves
• You will be asked to classify the waste as either acid, base, flammable, oxidizer or toxic
• For the bio-waste containers, the yellow bag inside must be tied closed

The scheduled “Drop-Off” times are every Tuesday:
- 1:00 pm to 1:20pm  in DWE 1521
- 2:00pm to 2:20pm  in E6 1022

Other Services:
• Primary mechanical support technician for DWE labs and offices
• Request services via RT (Request Track) system.
Thank you....... 

QUESTIONS???