

General Orientation to Safety in Mechanical Engineering

*Presented by:
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Engineering Safety & Risk Management Advisor*

Seminar Outline

○ Policies

- Province, U of A, and Department

○ Procedures

- Contacts and Resources
- Training
- Working Alone & Hazard Assessment
- Personal Protective Equipment (PPE)
- Planned inspection
- Laboratory Conduct

Safety Policy

Provincial Legislation

- Occupational Health and Safety (OH&S) Act, Code and Regulation- Gov. of AB
 - [Employment Alberta](#)
- OH&S Act Outlines responsibilities:
 - Employee
 - Employer

- Highlights from OH&S Act:

- Basic Responsibilities

- Employer
 - Insure Health and Safety of Workers
 - Workers Aware of Responsibilities and Duties (Act, Code, and Regulation)
 - Worker
 - Insure Health and Safety of Self and Co-workers
 - Co-operate with Employer to Protect Health and Safety

Provincial Legislation

- Specifics (OH&S Act)
 - Refusal of Unsafe Work (Imminent Danger)
 - Responsibility of Workers
 - Duty to Report to Employer

 - Orientation and Training
 - Orientation to Work Site (Supervisor)
 - Training (WHMIS, PPE, Lab Safety, Chemical Safety)
 - Emergencies (Reaction and Reporting)

Provincial Legislation

- Reporting

- ALWAYS Report Incidents ([EHS Website- U of A](#))
- Worker Compensation Board ([WCB](#))

- Incidents Reported **WITHIN 72 HOURS**

- An 'incident' is defined as an injury that required professional medical attention.



University Policy

- University policy set by Environmental Health and Safety
 - See website: www.ehs.ualberta.ca
- Department Policy:
 - Safety Concerns Addressed by Department Council Through Safety Committee Members (which has 2 grad students)
 - All Graduate Students Attend Introductory Safety Seminar



Safety Procedures

Contacts

- People: Best Safety Resource
- Know Your Lab Mates
- Know Your Department Safety Representatives
- Department of Mechanical Engineering Safety Committee
 - Cagri Ayranci 492-2791 (Committee Chair)*
 - Tuula Hilvo 492-3639 (Shop Rep)*
 - Roger Marchand 492-3639 (Shop Rep)*
 - Afrooz Farjoo 492-2585 (Safety and Risk Management)*
 - Brian Fleck 492-1214 (Department Chair)*
 - Kajsa Duke 492-4710*
 - Albert Vette 492-1534*
 - + 2 graduate students*

Safety Resources

[Home](#) > [Undergraduate](#) > [Shop & Labs](#) > [safety](#)

safety

Everyone working in a lab needs the following:

1. WHMIS Training
 - WHMIS training is offered by the University and consists of an [online quiz](#).
2. Department General Safety Orientation
 - The Department of Mechanical Engineering offers a general orientation to safety. This seminar is required for all students who have access (i.e., keys) to the Mechanical Engineering Building or NINT building. Seminars are offered in September. Please contact [Caqri Ayranci](#) if you missed this seminar.
3. Lab-Specific Safety Orientation
 - Lab-specific safety training/orientation is offered by the principal investigator (PI) of the research project or his/her designate. This orientation should cover general safety information, locations of safety equipment, and safe operating procedures for the lab. Once this orientation is complete, the PI (or designate) along with the student should sign-off on a form to document this training.
4. Planned inspection
 - Planned inspection are required monthly by Faculty of Engineering. For lab inspection [checklists guidelines](#) or [online inspection forms](#) are suggested to conduct the planned inspections. The inspection frequency or inspection items on the lists can also be customized by the labs through hazard assessment. If you would like to conduct hazards assessment at your lab to change the frequency or develop customized forms please contact [Afrooz Farooq](#).

Contact Information

[Caqri Ayranci](#)

Phone: (780) 492-2791

[Roger Marchand](#)

Shop Supervisor

Phone: (780) 492-3639

[Tuula Hilvo](#)

Shop Safety Contact

Phone: (780) 492-2346

Note: Individual laboratories are to call UofA [EHS](#) to arrange chemical pickup. See link below for the Chemical Disposal Form and call: Tony Selinger
Phone: (780) 492-0144

Related Links

[General Safety Orientation Quiz](#)

[Mechanical Engineering Safety](#)

[Policy](#)

[EHS Chemical Disposal Form](#)

[Basic Lab Safety Elements \(ALL Labs\)](#)

[Chemical Inventory Template](#)

[\(2007\)](#)

[Hazard Assessment Form \(2007\)](#)

[Hazard Assessment Instructions](#)

[U of A Environmental Health &](#)

[Safety \(EHS\)](#)

[Graduate Students Assistance](#)

[Program \(GSAP\)](#)

[Faculty of Engineering PLANNED](#)

[INSPECTIONS \(Paper Format\)](#)

[Faculty of Engineering PLANNED](#)

Emergencies

- For ALL Emergencies (on Campus) Call:

(911,9-911 works as well)

- Medical: Life Threatening (911); Serious but Mobile (Health Centre or Hospital); Minor (1st Aid Kit)
- Fire: Activate Alarm While Exiting; Close Doors; Evacuate Building; Call 911; Meet Fire Department at Main Entrance

Emergency Procedures

- NINT Procedure
 - SAME as Mechanical Engineering



Incident Reporting

- Mechanical Engineering Procedure
 - ALL Incidents (Including Workplace Violence)
 - ALL Incidents Reported and Documented
 - [EHS Website](#)
 - Or see a member of safety committee

Training & Seminars

- General Orientation to Safety
 - This seminar
- Training
 - **WHMIS trainings**
 - **Shop trainings**
 - **Lab safety**
 - **Chemical safety**
- Lab-Specific Training
 - Given by your supervisor
 - Introduction to Lab (and Special Features)

Training: WHMIS

- Workplace Hazardous Materials Information System (WHMIS)
 - Mandatory for Students and Staff
 - Purpose: Outlines Safety Principles for Handling Controlled Substances
- Current Material Safety Data Sheets (MSDS)
 - Readily Available to ALL Workers
 - Updated Every 3 Years OR

CHECK THE SIGNS!

WATCH FOR THESE WHMIS HAZARD SYMBOLS

	CLASS A Compressed Gas		CLASS D-2 Poisonous and Infectious Material (Materials Causing Other Toxic Effects)
	CLASS B Flammable and Combustible Material		CLASS D-3 Poisonous and Infectious Material (Biohazardous Infectious Materials)
	CLASS C Oxidizing Material		CLASS E Corrosive Material
	CLASS D-1 Poisonous and Infectious Material (Material Causing Immediate and Serious Effects)		CLASS F Dangerously Reactive Material

WHMIS provides information on the safe use of hazardous materials at Canadian workplaces.

Alberta
HUMAN RESOURCES AND EMPLOYMENT
Workplace Health and Safety

For more information, visit our web site
<http://www.gov.ab.ca/hr>

Training: Shop Tools

- Machinists and Technicians Available for Training
 - Basic Tools
 - Arrange training with MecE Shop

Arrange Training with Roger Marchand
(Shop Supervisor)
492-1466 or [email](#)



Roger Marchand

Basic Lab Safety Elements

1. Chemical Inventory (update annually)
2. Material Safety Data Sheets (MSDS)
3. Hazard Assessment
4. Working Alone Protocol
5. Chemical Spill Kit
6. 1st Aid Kit

Working Alone

- Definition: Working Without Readily Available Assistance
- Avoid Working Alone IF possible
- Notify People of Your Intentions
- Customized Procedure for Each Lab Developed by Your Supervisor

- [Working alone-Faculty of Engineering](#)

Personal Protective Equipment (PPE)

- Required by OH&S Code
- Many Different Types
 - Gloves
 - Aprons
 - Eyewear
 - Respiratory
- Fit testing at EHS



1st AID kit, etc.,

- Some Shop and Office Staff Trained in 1st Aid (1st Aid and CPR)
 - Room 1-19 & 4-9
- Know Locations of:
 - 1st Aid Kit
 - Eye Wash Stations
 - Showers
 - Fire Alarm



Storage

- Store materials properly
 - Flammable Storage Cabinet
 - Acids Cabinet
 - First contact PI



Syringes and Sharps

- Proper Disposal (broken glasses, sharps, recycle bins in your lab as needed)
 - Order Container from Fisher Scientific
 - Broken Glass in Shop (Yellow Container)
- Don't Recap Disposable Syringes
- Don't Leave Syringes Unattended

Chemical Disposal

- Limit Use of Chemicals
- Purchase Smallest Quantity Practical
- See MSDS for Handling and Disposal
- Contact EHS for Pick Up ([Chematix](#) forms)

Planned Inspections

- Take a break from your work to focus on safety by identifying hazardous conditions and at-risk practices in the lab
- Enables the supervisors to be highly visible
- Planned inspections have the synergistic effect of improving safety culture and safety performance
- An inspection checklist is used to conduct the inspection ([Paper/Online](#))



To your keys!!!

- [WHMIS](#)
- [Lab safety](#)
- [Chemical Safety](#)
- General Safety Orientation Quiz
- To take the quick [click here](#)
- [Then go to MECE home page: “Key Requisition Form”](#)
- Complete the form where you will upload the certificates
 - This will send a reminder to your supervisor. He/She will confirm all and you will get the keys!!!

Questions?

- Cagri Ayranci, 10-360 Donadeo Innovation Centre for Engineering, 492 2791, cayranci@ualberta.ca
- Afrooz Farjoo, 10-361 Donadeo Innovation Centre for Engineering, 492 2585, farjoo@ualberta.ca