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# Project Safety

## School of Mechanical and Chemical Engineering

Final Year Project

CHPR 4411/4412

MATE 4411/4412

MECH 4401/4402

MCTX 4421/4422

OGEG 4500/4501

# Statistics – 2005/2006



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- In 2005/2006, there were 270 work-related fatalities that occurred while a worker was “working for income”
- 19 of those fatalities occurred in WA
- There were a further 41 “bystander” fatalities
- Industries with highest accident rates are
  - agriculture, forestry and fishing
  - transport and storage
  - mining
  - electricity gas and water supply
  - construction

**Source:** *“Work Related Traumatic Injury Fatalities, Australia 2005/2006”, Australian Safety and Compensation Council, September 2008*

# Statistics – 2005/2006



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- **Most common** accident types
  - vehicle accident
  - hit by moving objects
  - falls from height
  - hit by falling objects
  - contact with electricity
  - trapped between stationary and moving objects
  - trapped by moving machinery
  - slide/cave-in

**Source:** *“Work Related Traumatic Injury Fatalities, Australia 2005/2006”, Australian Safety and Compensation Council, September 2008*



**Safety is ALWAYS  
YOUR personal  
responsibility**

# Working Safely

## – attitude & awareness



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- It requires the adoption of a **safe working attitude**
  - safety must **always** be regarded as important
  - there are **NO** exceptions to safe working practices
  - you must prevent others from acting in an unsafe fashion:  
**YOU are responsible** if an accident occurs that you had the opportunity to prevent
  - safety always trumps expediency
- **Situational awareness** is essential to working safely
  - many serious accidents occur in staggeringly banal situations
  - you **MUST** be alert to the **hazards around you**
  - you **MUST** be alert to **developing situations**

# Safety Issues in FYP



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- **Safety** issues may arise “**directly**” during the execution of final year projects
  - Laboratory Safety
  - Workshop Safety
  - Collection and Transport of Specimens
- In some projects, **safety** issues arise “**indirectly**”
  - associated with the implementation and/or manufacture of a novel design.
  - associated with the implementation of new procedures.

# Safety Issues in FYP

## – Laboratory Safety



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- Emergency Equipment & Procedures
  - Fire extinguisher
  - Safety Shower
  - Eye Wash
  - Spill kits/procedures
  - Alarms and Exit routes
  - Contacts
- Compressed Gases
- Mechanical Guards/Rotating Equipment
- Electrical Equipment
- Ventilation
- Personal Protective Equipment (PPE)
- Chemical Storage
- Chemical Waste Management
- Hazard Communication

# Safety Issues in FYP

## – Laboratory Safety



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- **Supervisors & students** share the responsibility for keeping their **laboratories safe**.
- **Laboratory safety should**
  - identify potential safety problems
  - provide measures for eliminating or mitigating potential hazards (induction training, personal protection equipment (PPE), material handling procedures, safe equipment operating procedures, etc)
  - ensure availability of safety equipment (fire extinguishers, first aid, alarms)
  - provide emergency measures



# Safety Issues in FYP

## – Workshop Safety



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- Students working in **workshops** (either in the department or off-site) must adhere to safe work practices.
- Students **must also ensure** that workshop staff assisting them can work in a safe environment.

# Safety Issues in FYP

## – Manufacturing & Implementation issues

**Be aware that** implementation and manufacture of any **new design** or implementation of **new practices** can potentially **create new safety issues** (and, at the same time, alleviate existing issues)!

### – **Manufacturing** issues

- Handling of hazardous materials and waste
- Safe factory practice – identify any hazardous operations

### – **Implementation** issues

- Operating Environment
- Hazards inherent in the design – how have these been mitigated (eg guards, filleting of sharp edges, pressure relief)
- Material issues
- Safe operating practices and limits
- Training operators in safe operation