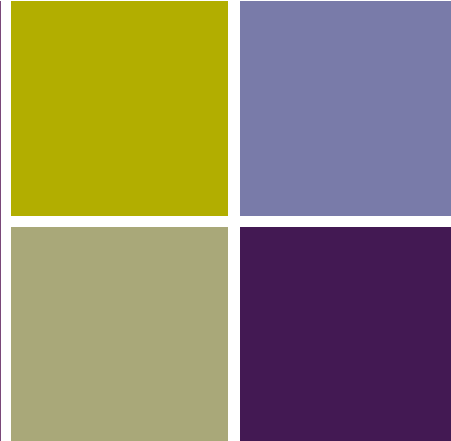




Final year project:

Interim Report &  
Risk Assessment

[eeecs-ug-project-coordinator@qmul.ac.uk](mailto:eeecs-ug-project-coordinator@qmul.ac.uk)



Elaine Chew

Undergraduate Projects  
Coordinator

Session 3



image from tempgrad2014.blogspot.com



## + Outline

- Interim report and risk assessment
- Assessment and feedback for the interim report
- A few things about report structuring

## + Interim report and risk assessment [1/3]

- Basic purpose of your **interim report** is to review and record your progress from this semester
- Include a cover page with
  - Your name
  - Your supervisor's name
  - Your project title
    - If you wish to change your project title, you **must** obtain your supervisor's agreement
- Agree proposed contents with your supervisor – these will vary for different project types

## + Interim report and risk assessment [2/3]



- Will normally include
  - **Draft chapter and section structure of your final report**, with appropriate chapters / sections completed, i.e. **at least**
    - Background literature and resources consulted so far
    - References
  - **Short summary and review of progress so far**, with reference to your specification workplan (2 A4 sides max)
  - **A revised workplan for semester 2** (2 A4 sides max)
    - In the same format as your original workplan, with any changes clearly highlighted
  - Plus **anything else required by your supervisor**

## + Interim report and risk assessment [3/3]



- Create a **risk register** for your project (2 A4 sides max)
  - More info in the next slides
- Identify
  - Risks to successful completion of your project
  - Any risks to personnel (hardware projects only)



## Assessment and feedback



- **Due Fri 11 December 2015**
  - Submission through electronic coursework system
- **Worth 5% of module assessment**
  - **Marked by your supervisor**
- **Feedback**
  - **Should be available by Friday 18 December 2015**
  - Contact your supervisor to arrange this
  - If your progress is not satisfactory, **your supervisor may require you to carry out some further work on your project before the start of Semester 2.**



Project Risk

Product Risk

Business Risk

image from homedsgn.com

image from japantrendshop.com

image from eastonpersonnel.com

## + Risk categories

### ■ Project risk

- Something affecting project schedule / resources

### ■ Product risk

- Something affecting quality or performance of product

### ■ Business risk

- Something affecting organisation / individual developing product



## Risks in academic projects [1/2]

- Risks to any academic project might include
  - Failure to access required information
  - Non-availability of hardware components
  - Hardware / software not suitable for purpose
  - Failure to debug software
  - Human participants not found
  - Testing inadequate
  - Poor time management
  - Etc.



## + Risks in academic projects [2/2]

- Risks specific to hardware projects might include
  - Risks to people, particularly yourself, e.g.
    - Electric shock
    - Burning when soldering
    - Injury when using tools to construct enclosures or cut circuit boards



## + Risks management [1/3]

- Risk management steps
  - Analyse risks
    - Estimate probability of risk
  - Address risks
    - Avoid or minimise risk
  - Monitor risks
    - Revise probability and mitigation in light of increased information



## + Risks management [2/3]

- Use risk register
  - Present as a table
  - Include
    - Description of risk
    - Description of impact
    - Likelihood rating
    - Impact rating
    - Preventative actions identified

## + Risks in not getting to your first lecture of day on time?



image from theguardian.com

## + Risks management [3/3]

### ■ Example

What are risks in not getting to your first lecture of day on time?

(keep in mind that for your risk assessment section the **Description of impact** and the **Preventive actions** may be much longer than in the example below)

Description of risk	Description of impact	Likelihood rating	Impact rating	Preventative actions
Not woken by alarm	Miss (many) lecture(s)	Medium	Medium	Loud alarm / 2 alarms
Choke on breakfast	Possible injury / death	Low	High	Eat carefully / don't eat alone
Tube delays	Miss (many) lecture(s)	Medium / high	Medium	Check status / leave more time
Get hit by car crossing road	Possible injury / death	Low	High	Use crossing / watch traffic
Go to wrong room	Miss that lecture	Medium	Low / medium	Read timetable / read e-mail



image from viralita.com

## + More detailed material on Risk

- The next slides provide more detailed points for risk and processes for identification, assessment and management
  - It is not required reading but it is useful to be aware of these
- Risk categories
- Risks in commercial projects
- Risks in **academic project**
- Purpose of risk processes
- **Risk processes:** identification, assessment, management



image from homedsgn.com

### Project Risk

### Product Risk



image from japantrendshop.com



image from eastonpersonnel.com

### Business Risk

## + Risk categories

### ■ **Project risk**

- Something affecting project schedule / resources

### ■ **Product risk**

- Something affecting quality or performance of product

### ■ **Business risk**

- Something affecting organisation / individual developing product

## + Risks in commercial projects [1/2]

### ■ **Staff turnover**

- Experienced staff leave project

### ■ **Management change**

- New management in organisation has different priorities

### ■ **Hardware / equipment not available**

- Essential hardware / equipment not delivered on time

### ■ **Requirements change**

- More changes than anticipated

## + Risks in commercial projects [2/2]

- Specification delays
  - Essential interface specifications behind schedule
- Size underestimate
  - System larger than expected
- Technology change
  - Underlying technology for system is superceded
- Product competition
  - Competitor markets similar product before your product is ready



image from onlineuniversities.com

## + Risks in academic projects [1/2]

- Risks to any academic project might include
  - Failure to access required information
  - Non-availability of hardware components
  - Hardware / software not suitable for purpose
  - Failure to debug software
  - Human participants not found
  - Testing inadequate
  - Poor time management

## + Risks in academic projects [2/2]

- Risks specific to hardware projects might include
  - Risks to people, particularly yourself, e.g.
    - Electric shock
    - Burning when soldering
    - Injury when using tools to construct enclosures or cut circuit boards

## + Purpose of risk processes

- To examine what could go wrong in a specific context
- To allow you to weigh up whether you have taken enough precautions to prevent failure
- Includes an estimate of
  - How likely each possible type of failure is
  - What consequences would be

## + Risk processes

- Possible risks must be
  - Identified
  - Assessed
  - Managed



image from sucounty.org

## + Risks in not getting to your first lecture of day on time?



image from theguardian.com

## + Risk identification

### ■ Example

- What are risks in getting to your first lecture of day on time?
- Not woken by alarm
- Choke on breakfast
- Tube delays
- Get hit by car crossing road
- Go to wrong room



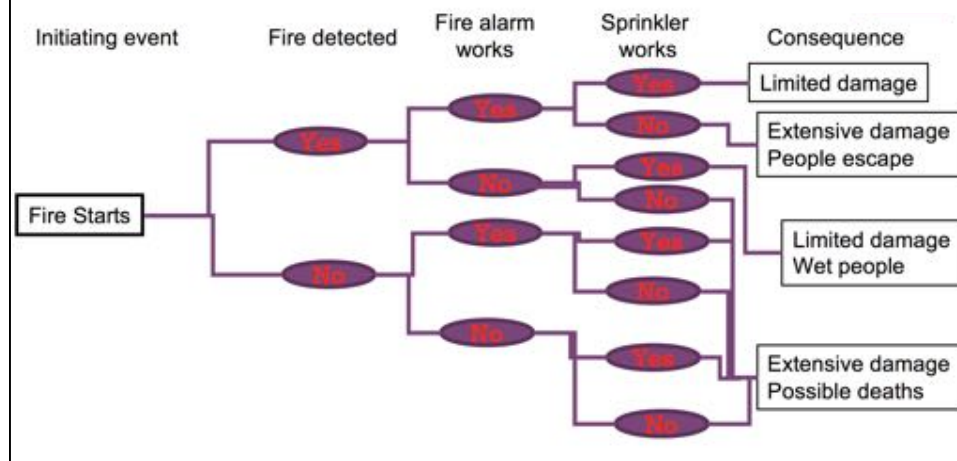
## + Risk assessment

- Possible techniques
  - Event tree analysis
  - Fault tree analysis
  - Failure mode and effect analysis (FMEA)

## + Event tree analysis [1/2]

- An accidental event
  - Defined as first significant deviation from normal situation that may lead to unwanted consequences
    - E.g. gas leak, falling object, start of fire
  - May lead to many different consequences
  - Potential consequences may be illustrated by consequence spectrum
  - Example
    - Fire in building with sprinkler system

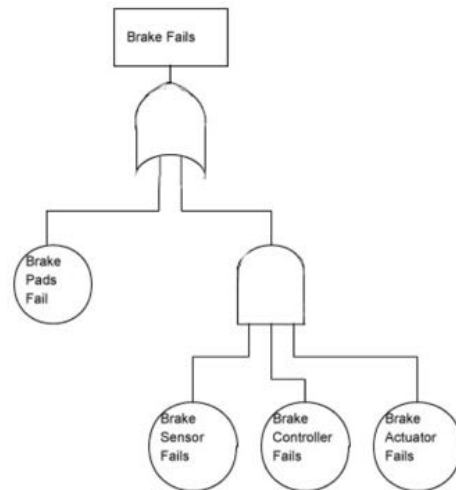
## + Event tree analysis [2/2]



## + Fault tree analysis [1/2]

- Often used for safety-critical systems
- Represented as tree using logic gate symbols
  - Single root ("top event") is undesired effect
  - All concerns must tree down from top event
- Probabilities
  - Values may be given for probability of each lower-level failure event
  - Probability of top event arising from each initiating event can be calculated by identifying shortest path
- Example – brake failure

## + Fault tree analysis [2/2]



[http://www.ece.cmu.edu/~koopman/des\\_s99/safety\\_critical/index.html](http://www.ece.cmu.edu/~koopman/des_s99/safety_critical/index.html), 26 October 2010

## + Failure mode and effect analysis [1/2]

- Questions addressed
  - How can each component / part fail?
  - What could cause failure?
  - What would be effects of failure modes?
  - How serious would failure modes be?
  - How can failure mode be detected?
- Definition of failure
  - As perceived by user, e.g. component that does not
    - Meet design intent / function adequately
    - Fulfil customer needs

## + Failure mode and effect analysis [2/2]

- Failure mode
  - Manner in which component or system failure occurs
  - E.g. for aluminium can
    - Bottom pops out
    - Bottom splits open
- Failure effect
  - Impact of failure
  - Depends on function of component in systems
    - Same failures may have different effects in different systems
    - E.g. aluminium can exploding in fridge is bad but aluminium can exploding in bag with laptop is worse!



## + Risk management [1/3]

- Risk management steps
  - Analyse risks
    - Estimate probability of risk
  - Address risks
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  - Monitor risks
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## + Risk management [2/3]

- Use risk register
  - Present as a table
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    - Preventative actions identified

## + Risk management [3/3]

### ■ Example

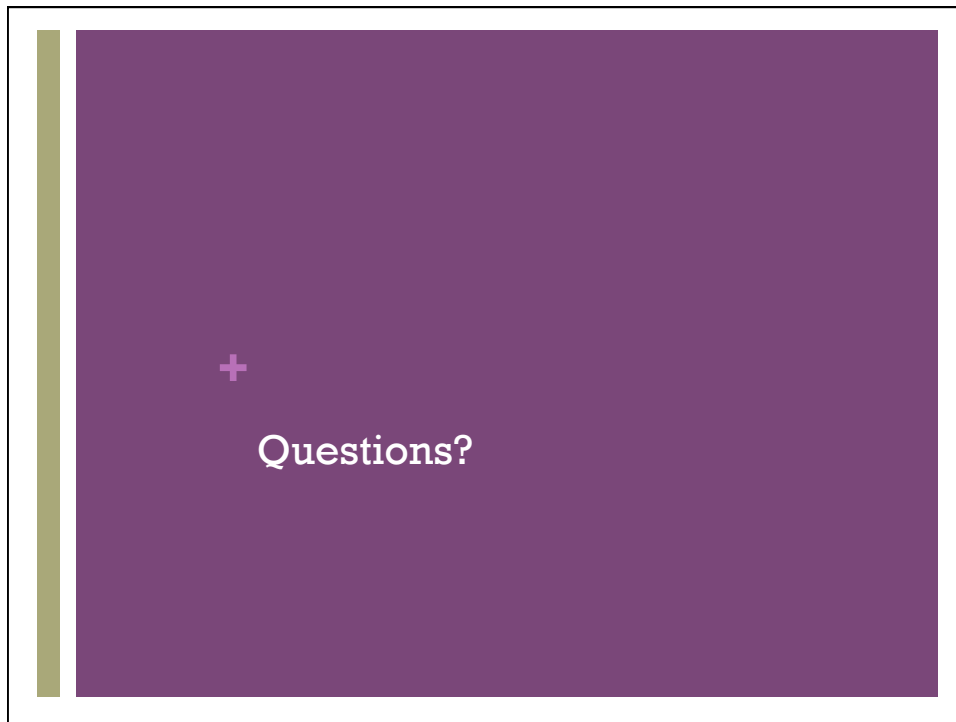
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## + Exercise

- Identify risks involved in constructing a new ride at Disneyland

Description of risk	Description of impact	Likelihood rating	Impact rating	Preventative actions



## + Acknowledgements

- These slides are based on Tassos Tombros' slides from 2013-2014, which were adapted from Jane Reid's before him.