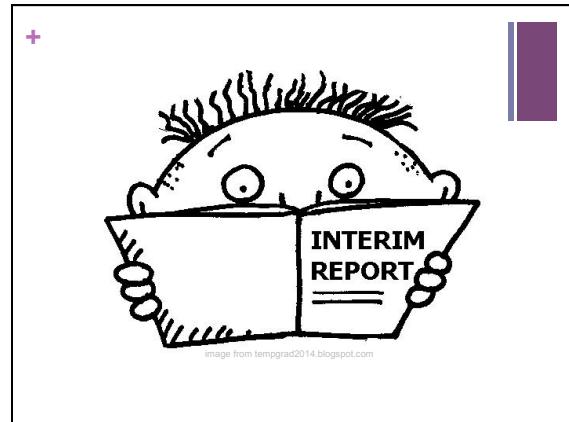


+ Final year project:
Interim Report & Risk Assessment

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Session 5 (Week 6)



+ Outline

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

+ Interim report and risk assessment

- The basic purpose of your **interim report** is to review and record the progress you achieved this semester
- Include a cover page with
 - Your name and your supervisor's name
 - Your project title
- If you wish to change your project title, you **must** obtain your supervisor's agreement and you cannot change the title you input on your home page unless Teaching Services deletes the existing title
- Agree the proposed contents with your supervisor – these will vary for different project types

+ Interim report contents [1/2]

- The report will normally include
 - The **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
 - Requirements
 - Design so far
 - You should be able to reuse most of this for your final report

+ Interim report contents [2/2]

- **A 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**

+ Risk assessment

- 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)



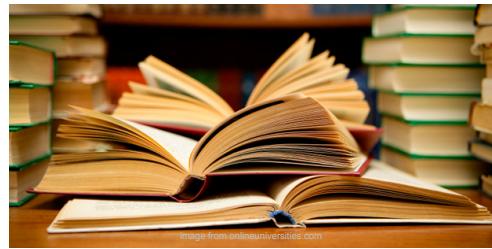
+ Assessment and feedback

- Due **Fri 7 December 2018**
 - Submission through QMPlus
- Worth **5% of module assessment**
 - Marked by your supervisor
- Feedback
 - Should be available by Fri 18 Jan 2019 (3 weeks turnaround)
 - Contact your supervisor to arrange this
 - If your progress is not satisfactory, your supervisor may advise you early on to carry out some further work on your project before the start of Semester 2



+ 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 or computer resources
 - Hardware / software not suitable for purpose
 - Failure to debug software or correctly assemble hardware
 - Human participants not found
 - Testing inadequate
 - Poor time management
 - Etc.



image from wiziq.com

+ 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



image from succourty.org

+ 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

+



image from viralita.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

+ More on risk

- The next slides provide more detailed points for risk and processes for identification, assessment and management
- It is useful to be aware of these as risk assessment and management is an important part of computing and engineering work
- Risk categories
- Risks in commercial projects
- Purpose of risk processes
- **Risk processes:** identification, assessment, management

+ Project Risk



image from homesdesign.com

Product Risk



image from japantradeshop.com

Business Risk



image from eastonpersonnel.com

+ Risk categories

- **Project risk**
 - Something affecting a project schedule/resources
- **Product risk**
 - Something affecting quality or performance of a product
- **Business risk**
 - Something affecting the organisation/individual developing a 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

+ 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



+ Risk identification

- You have to try to identify all the possible risks to the successful completion of the activity, such as
 - Accidents
 - Personnel issues
 - Resource issues
 - Changes to the external environment e.g. economy slowdown, political changes, regulatory changes

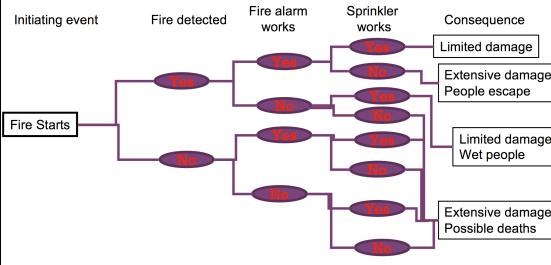
+ Risk assessment

- 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

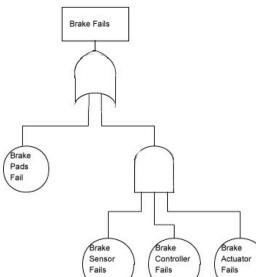
+ Event tree analysis [2/2]



+ 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]



+ 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]

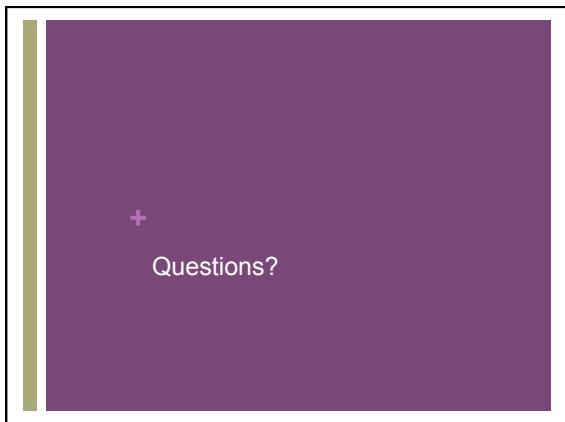
- Failure mode
 - Manner in which component or system failure occurs
 - E.g. for aluminium can
 - Bottom pops out
 - Bottom splits open
- Failure effect
 - Impact of failure
 - Depends on function of component in systems
 - Same failures may have different effects in different systems
 - E.g. aluminium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



+ 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 earlier iterations by Alan Pearmain and Tassos Tombros