

## Academic integrity declaration

By submitting work for assessment I hereby declare that I understand the University's policy on academic integrity and statement on the use of artificial intelligence software.

In accordance with these documents, I declare that the work submitted is original and solely my work, and that I have not been assisted by another person (collusion) apart from where the submitted work is for a designated collaborative task, in which case the individual contributions are indicated. I also declare that I have not used any editing tools or sources without proper acknowledgment (plagiarism). Where the submitted work is a computer program or code, I further declare that any copied code is declared in comments identifying the source at the start of the program or in a header file, that comments inline identify the start and end of the copied code, and that any modifications to code sources elsewhere are commented upon as to the nature of the modification.

## Assessment 1: Oral presentation (10%)

100 Points Possible

2025/4/10

Attempt 1



In Progress

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**Unlimited Attempts Allowed**

### ▼ Details

**Weight:** 10%

**Length:** 4-5 minutes per person

**Due:** During workshops in Week 5 and 6

**Hurdle:** It is a hurdle requirement to pass this assignment. You must attend the entire session at which you are presenting **AND** another session. Attendance will be taken and students who do not attend two entire sessions will fail this assessment.

**Submission:** Each team should present a single PowerPoint presentation, ***submitted to this Assignment prior to the workshop in which you are presenting***. You may also bring a copy on a USB stick for presentation in the workshop if you so wish.

**Feedback:** Feedback will be provided by week 8.

## Introduction

This assignment is based around team presentations on various topics which will take place in the workshop sessions in Week 5 and 6. You will be divided into teams of 3 or 4 students and will be

required to prepare and deliver an oral briefing paper.

You will be assigned **one** of two topics:

1. A safety case study **or**
2. A manufacturing process for a particular product.

By completing this assignment, you will develop and demonstrate your ability to:

- **ILO 3:** Define and scope engineering problems and formulate suitable strategies for problem solution.
- **ILO 4:** Explain the importance of safety in the process industries.

## Logistics

**Preparation time:** As this assignment is worth 10% of the assessment in this subject, you are expected to invest 10 hours of preparation. This includes researching the topic, team meetings, preparation of the presentation and practice.

**Duration:** Teams have a **maximum** of 5 minutes per person to present their findings. So, three-member teams will have at most 15 minutes, and four-member teams will have to speak for at most 20 minutes. Each speaker must speak for at least 4 minutes. Students who speak for less than 4 minutes or more than 5.5 minutes may be penalised. ***Please note: Each student should only speak once; i.e. do not break up your presentation into 1 minute at the start, 2 minutes after the second speaker, and 2 minutes after the third speaker.***

**Presentation:** Teams will consolidate their individual presentations into a single coherent presentation. The most common presentation type is a PowerPoint presentation, but you may choose another type if you prefer. Each team member will present their own section and should be responsible for preparing their own slides.

Each student must introduce themselves at the beginning of their section of the presentation. *Please ensure that you use the name under which you have enrolled in the subject.*

## Extensions

Extensions for the oral presentations are **not possible**. The group oral presentation must be presented on time. A student who is unable to present on time with their group should discuss the situation with the Subject Coordinator as soon as possible.

## Topic 1: Safety Case Studies

For teams assigned with a safety case study, your team presentation should contain the following main elements. It is up to each team as to how these elements are divided up amongst the team members.

1. **What happened?** Describe the nature of the accident and the consequences in terms of fatalities, injuries and/or property loss.
2. **How did the process or facility operate normally?**  
Describe the facility and/or process and how it was operated normally. Other factors including the proximity of the site to populated areas and other facilities could also be discussed.

### 3. What was the cause of the accident?

Describe the failure in either equipment, procedure or personnel that led to the accident. Did one thing go wrong or was it a series of events or errors?

### 4. What technical improvements are required to ensure that a similar accident will not occur again?

What lessons can be learnt from this incident?

## Topic 2: Product Manufacturing Process

For teams assigned with a product manufacturing process presentation, your presentation should contain the following elements. It is up to each team as to how these elements are divided up amongst the team members.

### 1. History, development and use of the product

This section may include a brief description of the history of the product and include modifications and improvements that have taken place over the years. This may include patent, license or company secret protection of the product and the way that this has both restricted and helped the product alongside competitive products. It may also include the way in which the product is used and the attributes of the product that give it a technical or aesthetic advantage.

### 2. Manufacture of the product

This section may include a list of ingredients that go to make up the product and the reason(s) why each ingredient is included and the manufacturing route for the product. It may describe if the product is made through a batch or continuous process, what unit operations are required, the importance of the manufacture process to performance and what quality control steps are necessary to ensure product quality. It should also include comment on the importance of product packaging to both product stability and delivery.

### 3. Technical attributes of the product

Comment may be made as to the importance of the molecular weight of each of the molecular additives and how the molecular weight affects performance. Temperature effects may be considered if appropriate. The relationship between the flow of the product and the presence of each of the components in the product may be described along with the parameters that determine shelf life of the product. The importance of the appearance as distinct from the technical capability of the product should be considered as well as the importance of the packaging and delivery of the product to shelf life and performance.

### 4. Development of the product.

This section may speculate as to improvements that could be made to the manufacture, ingredients, testing and quality control of the product to ensure better or competitive performance into the future. It may include comment on the testing that is currently performed to ensure product quality alongside that which would be desirable and that may lead to improvement of the product.

## Resources

- [U.S. Chemical Safety Board](http://www.chemsafety.gov)  <http://www.chemsafety.gov>
- [Health and Safety Executive](http://www.hse.gov.uk)  <http://www.hse.gov.uk>
- [Aria Database](http://www.aria.developpement-durable.gouv.fr/the-barpi/the-aria-database/?lang=en)  <http://www.aria.developpement-durable.gouv.fr/the-barpi/the-aria-database/?lang=en>

Always ensure that all material is properly referenced. **This includes any images that you take off the internet.**

## Topic Allocations

To see the Group Number to which you are allocated, Click on the "Groups" icon, in the righthand bar.



You can also communicate and share documents through your Group Canvas page.

### Monday March 31 – Workshop 9:00 am to 11:00 am

<i><b>Group number</b></i>	<i><b>Topic</b></i>	<i><b>Time</b></i>
1A	Polyethylene pellets	9:05
1B	Buncefield oil depot fire (2005)	9:25
1C	Sandwich cling wrap	9:45
1D	Feyzin fire and explosion (1966)	10:05

### Monday March 31 – Workshop 3:00 pm to 5:00 pm

<i><b>Group number</b></i>	<i><b>Topic</b></i>	<i><b>Time</b></i>
2A	Chernobyl nuclear incident (1986)	3:05
2B	Milk powder	3:25
2C	Monel alloys	3:45
2D	Goodyear heat exchanger rupture (2008)	4:05

### Wednesday April 2 – Workshop 1:00 pm to 3:00 pm

<i><b>Group number</b></i>	<i><b>Topic</b></i>	<i><b>Time</b></i>
3A	Polystyrene plastic	1:05

3B	Automotive tyre	1:25
3C	DD Williamson catastrophic vessel failure (2004)	1:45
3D	Milk chocolate	2:05

#### Thursday April 3 – Workshop 3:00 pm to 5:00 pm

<i>Group number</i>	<i>Topic</i>	<i>Time</i>
4A	Zinc-carbide battery	3:05
4B	Loss of Piper Alpha offshore platform (1988)	3:25
4C	Perspex sheets	3:45
4D	Toronto propane explosion (2008)	4:05

#### Monday April 7 – Workshop 9:00 am to 11:00 am

<i>Group number</i>	<i>Topic</i>	<i>Time</i>
5A	Deepwater Horizon explosion (2010)	9:05
5B	Biodiesel	9:25
5C	Bassens tanker fire (2016)	9:45

#### Monday April 7 – Workshop 3:00 pm to 5:00 pm

<i>Group number</i>	<i>Topic</i>	<i>Time</i>
6A	Philadelphia refinery explosion (2019)	3:05
6B	Type 304 stainless steel	3:25
6C	Himeji acrylic acid tank explosion (2012)	3:45

6D	Portland cement	4:05
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Wednesday April 9 – Workshop 1:00 pm to 3:00 pm

Group number	Topic	Time
7A	Margarine	1:05
7B	Romeoville petroleum refinery explosion and fire (1984)	1:25
7C	Bhopal toxic gas release (1984)	1:45
7D	Synthetic (engineered) stone bench tops	2:05

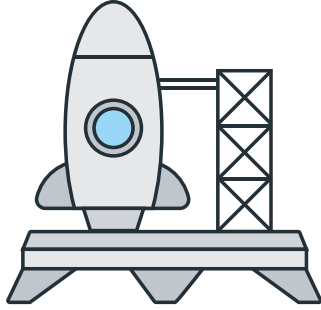
Thursday April 10 – Workshop 3:00 pm to 5:00 pm

Group number	Topic	Time
8A	Baton Rouge olefins plat explosion (2013)	3:05
8B	Firefighting foam concentrate	3:25
8C	Fire at Arkema Crosby, Texas (2017)	3:45
8D	Weedkiller (such as Roundup)	4:05

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