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Academic Language and Learning (ALL) Unit

How to write your interim report, and time management

Anne Kiley, with thanks to Janise Farrell and Erin Moore

Source: https://www.hss.com.au/wp-content/uploads/2016/09/Time-Management-Tips.png

Your challenge

Make use of *Course Outline* and *Moodle*

Read your course outline and take note of the:

- Assessment requirements
- Course schedule
- Prescribed/recommended reading
- Learning outcomes

"Students can take significant ownership of a minor body of research, and reflect this to the wider community by presentation and written submission."

What does it tell us? (the bottom line)

Project **Preliminary Report** and **Viva**

Due date: **CoB, 24 May 2018**; (to Supervisor and Panel Chair by email) and oral Viva during Weeks 11 and 12 (**28 May – 8 June**) **20% of assessment**

Project **Seminar** **8 Oct. 2018 to 19 Oct. 2018** **10% of assessment**

Project **Research Summary**

Due date for **draft report** and Turnitin check: **CoB, 28 Sept. 2018** (Originality report to supervisor by email)

Due date for **final report** and Turnitin Check: **CoB, 22 Oct. 2018** (Originality report to supervisor by email, final report to supervisor by email and upload to JUER) **35% of assessment**

Project Specific Deliverable

Due date: **CoB, 29 October 2018** (to supervisor) **35% of assessment**

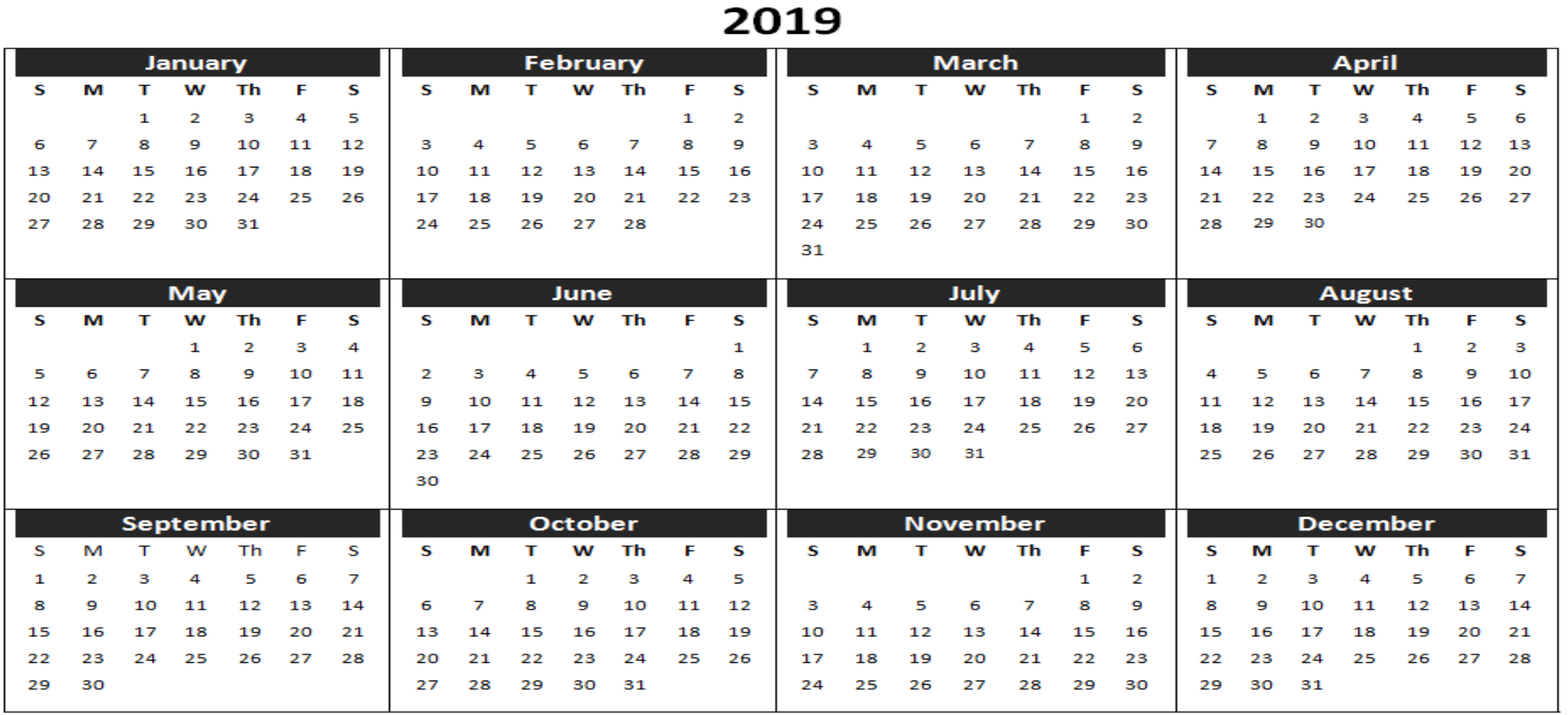
Organising time

Long term: Map your research and assessment tasks using a Course Assessment Planner.

Short term: Prioritise using a Weekly Planner and daily To-Do Lists.

Use Excel to do this

Or get one of these for your wall or whiteboard:



2019

January

S	M	T	W	Th	F	S
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February

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April

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June

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July

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August

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September

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October

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December

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Image source: http://calendar-2019-printable.com/wp-content/uploads/2018/07/2019-yearly-calendar-printable.png

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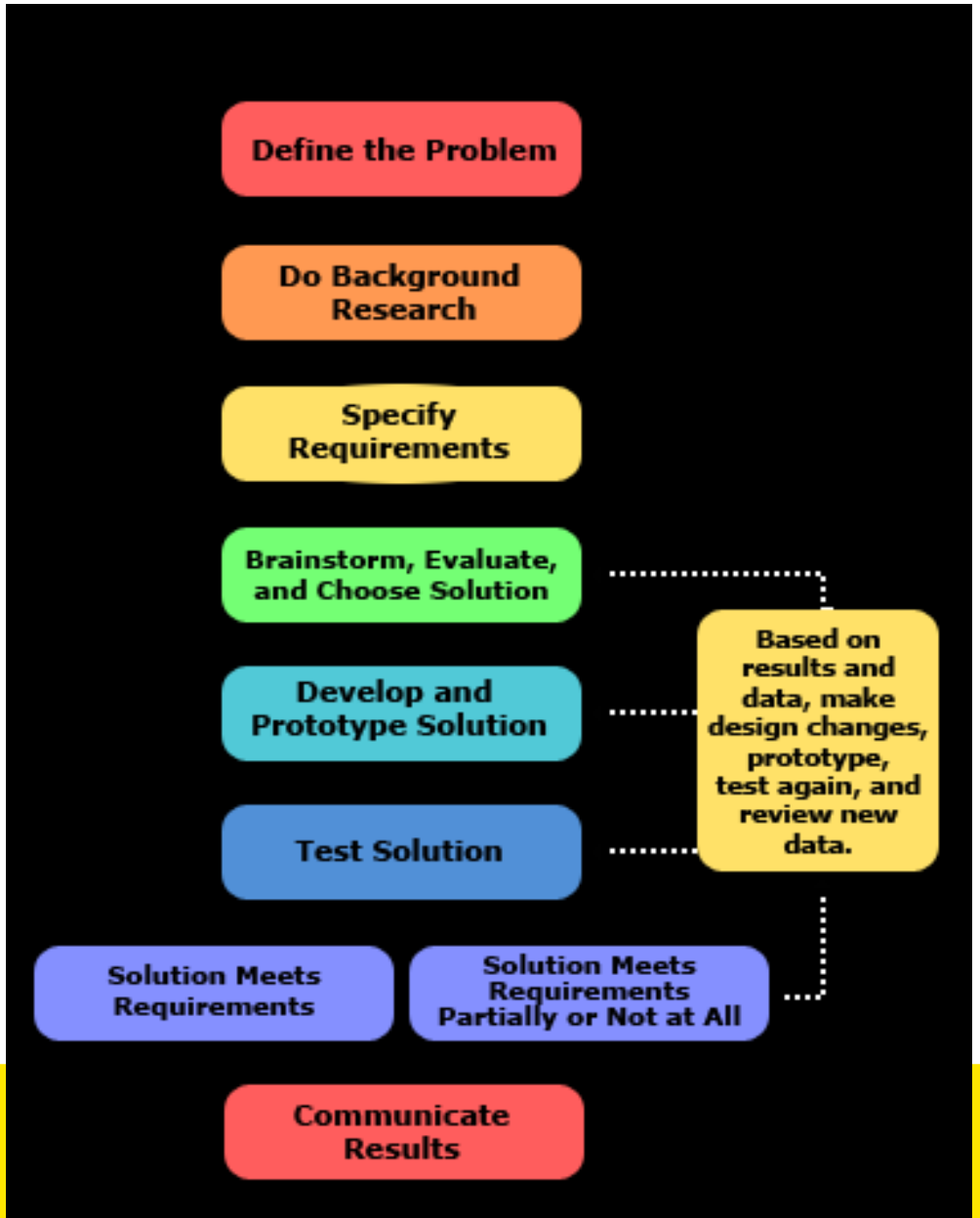
Break it down into subtasks!

Scientific Method

Engineering Method



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Subtasks in communicating research

Work in pairs to come up with a list of subtasks that might be necessary to complete or prepare for one of the following assessment items:

1. A literature review comparing conventional and modern power generation systems.

2. A research proposal outlining the scope and significance of an intended computational modelling project.

3. A presentation on a scale model you have built.

4. A written research report on a prototype you have designed, built and tested.

How much time would it take YOU to...?

Read a text book chapter?

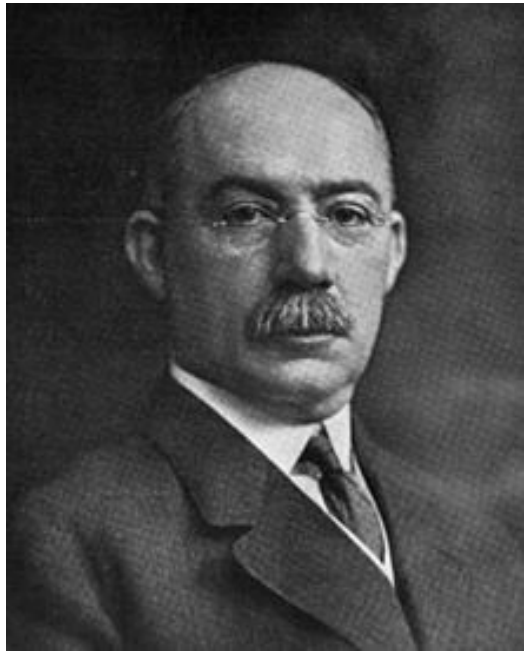
Review the literature on your research topic?

Plan and write your methods section?

Remember that your project will involve others

- Supervisors
- Panels
- TSG
- Ordering equipment/supplies
- Booking facilities/ equipment use
- Need for ethics approval
- Family considerations

Using a Gannt chart:



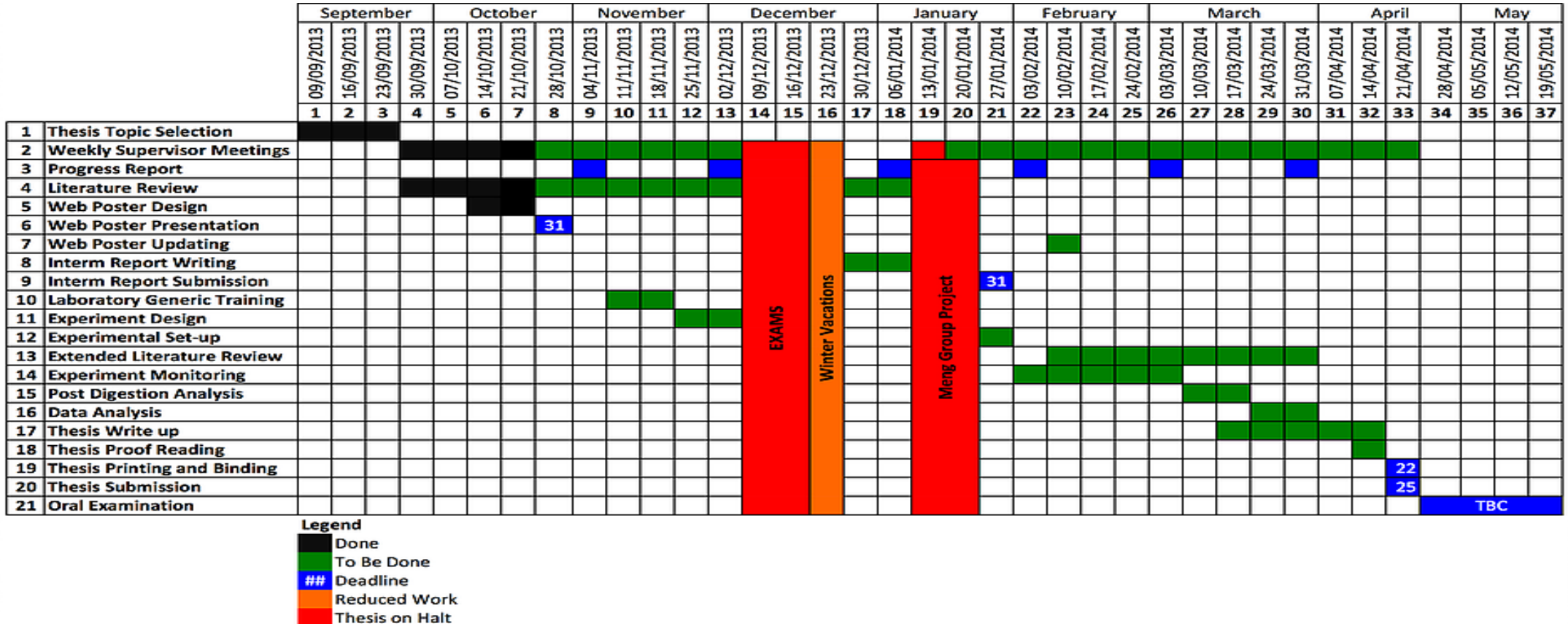
First devised by, and named after, **Henry Gannt** in 1910s

Used for project management of huge infrastructure projects such as the Hoover Dam and development of US interstate highway system

Currently used by higher degree by research students (PhD and Masters by thesis) and other students (eg **YOU**) to bring their projects in on time.

Image source: https://en.wikipedia.org/wiki/Henry_Gantt

Just one example …



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How to create a Gannt chart:

- Microsoft Excel
- Microsoft Project (not readily available on your UNSW account)
- Cloud based freeware (but does it speak to other people?)
- Customised-tailored software ($$$)

What can a Gannt chart do for you:

It can assist you to:

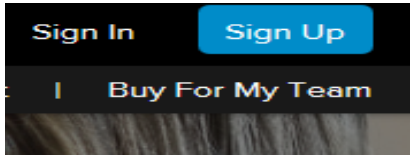
- plan your project
- explain your project to other people
- monitor your progress and ensure you are on schedule
- adjust your plan as necessary

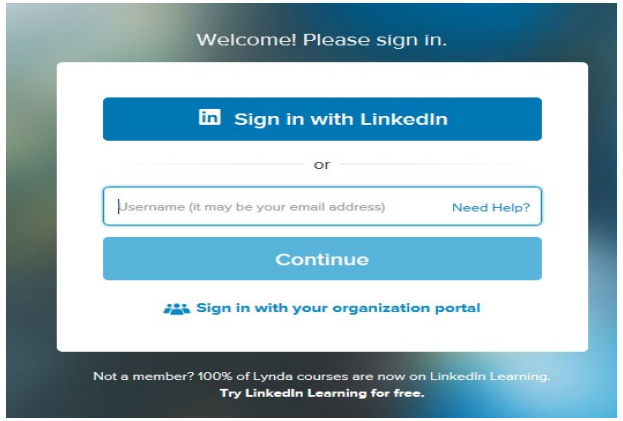
How to find out more about Gannt charts:

As a member of the UNSW community, you are eligible to use the Lynda.com training resources to upgrade your skills. UNSW has a licence to these materials, so you can work your way through online tutorials anywhere, any time, and at any pace.

To see what's available or undertake a course, go to Lynda.com

In the top right hand corner, go to **Sign in**.





This will take you to the box on the left.

Click on **Sign in with your organisation portal** (at the bottom of the box)

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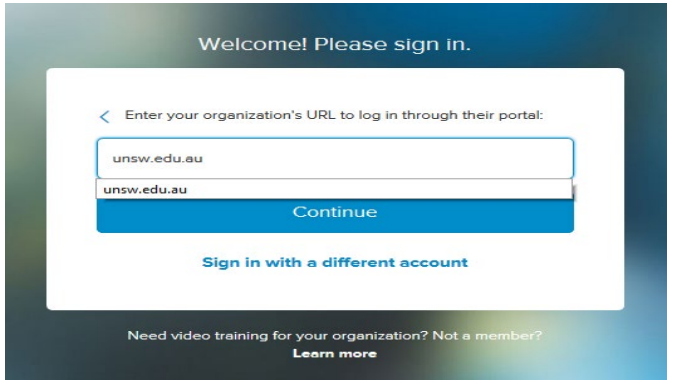
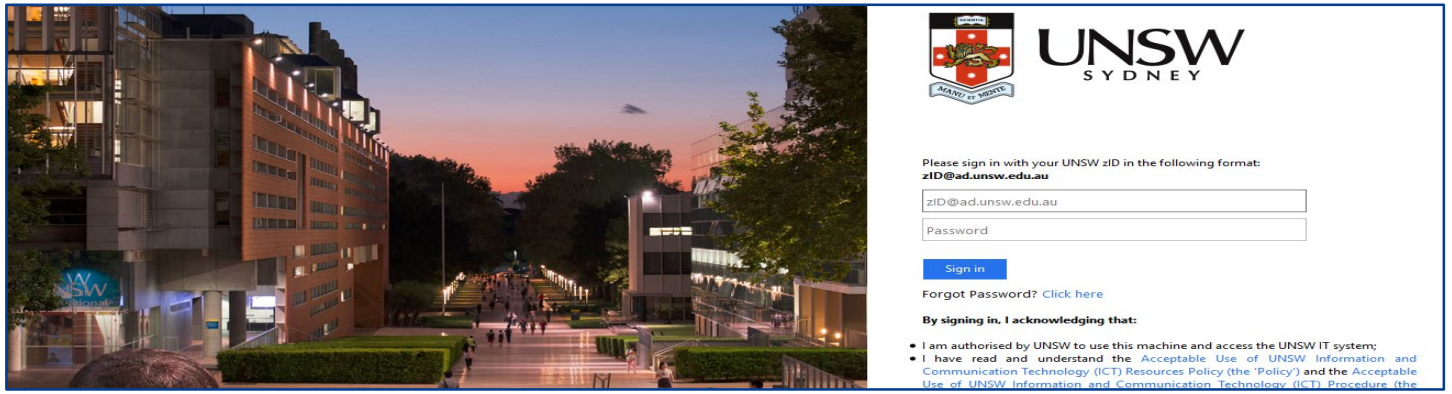
How to find out more about Gannt charts:

Which will take you to the screen to the right

where you will enter **unsw.edu.au**



The final dialogue box is the UNSW one, where you will enter your details in the format prompted:



This will get you to the Lynda website, and access to an amazing variety of short online learning programs, including on Gannt charts

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Avoiding procrastination

- Divide all major tasks into smaller subtasks
- Focus at the subtask level
- Write subtasks into your planners
- Reward yourself
- Take breaks

Why an interim report?

What is the purpose of an interim report?

What do you think should be included in an interim report?

How might this be different to what you think should be included in a final report?

Structure of a report

AIM(RaD)C –

- **Abstract**
- **Introduction (and Background)**
- **Methods & Materials**
- **Results and Discussion repeated**
- **Conclusions (and Recommendations)**

A short paper format that combines results and discussions, but discusses each one result at a time.

…all with appropriate references and appendices of course!

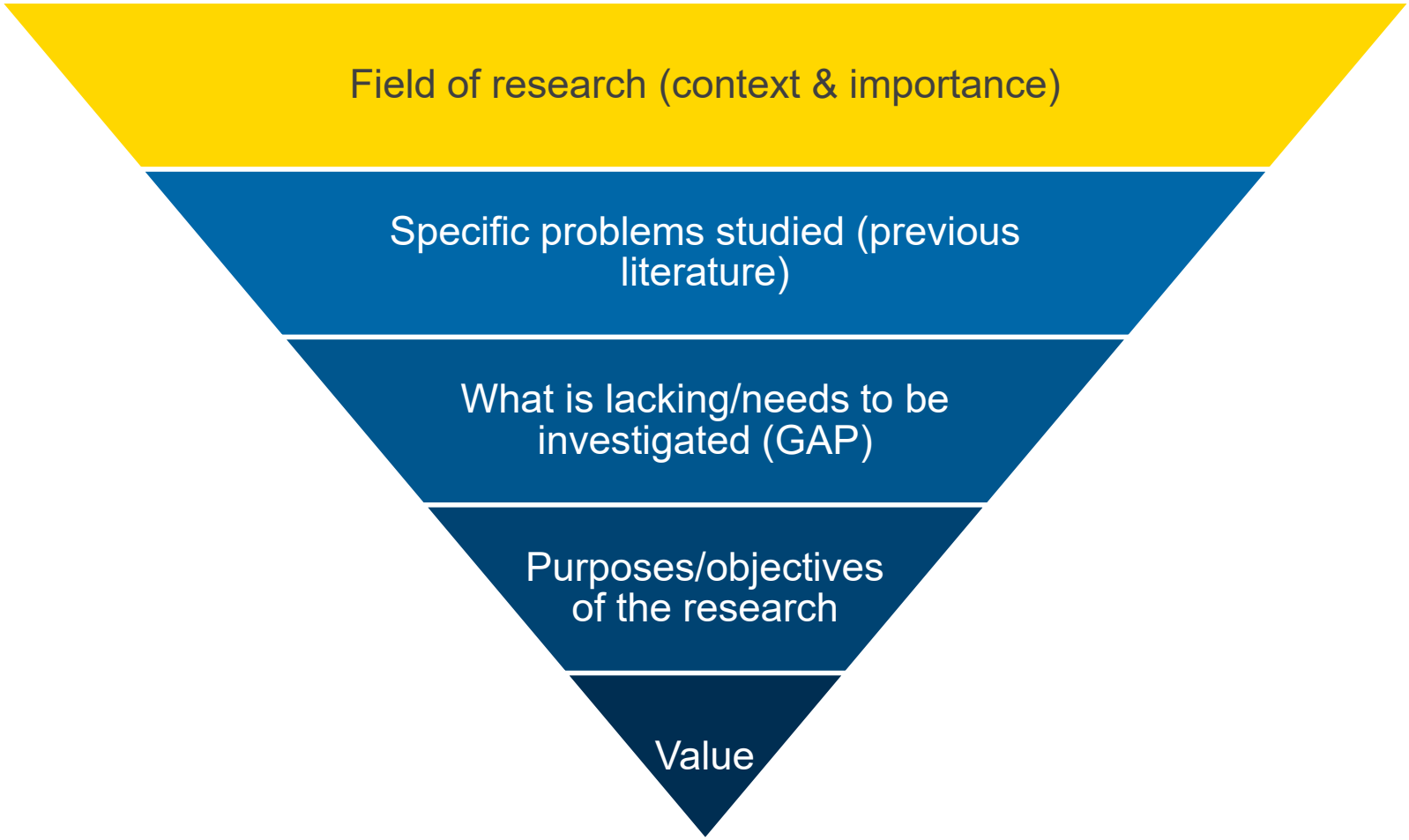
Structure of an interim report

- Abstract
- Introduction (including scope and aim)
- Literature Review
- Project management
- Planned Methodology
- Timeline for completion
- Current Progress (work completed to date)
- Future work
- Conclusions
- References
- Appendix/Appendices

Introduction – The contextualiser

- To show why this research is important and create interest **(sell !!)**
- To establish how your research fits with previous literature – to establish the 'gap' or unanswered questions
- To outline the scope of your project
- To present your objectives and your research question

Introduction – The contextualiser



Introduction: example

The early electric vehicle (EV) appeared just after electromagnetism was discovered in 1820 with experimental electric cars. The invention of the rechargeable battery and more efficient and powerful motors provided a breakthrough around 1870…The main market of EVs are cars and these vehicles are classified into certain types. The battery electric vehicles (BEV) has an electric motor drive which is powered by a large battery pack of 20-80kWh, and it has no internal combustion engine (ICE)…The BEV major groups of control management are defined as motor control, power control and auxiliary control. The project will focus on the control and management systems directly utilized to operate the drive portion of an electric vehicle… The project will focus on a PMSM or BLDC electric drive motor and associated motor controller, and lithium ion batteries as a basis to power the BEV. Physical and simulated models of motors, motor controllers and battery controllers will be utilised to better understand the most effective models for control and management systems in BEVs. The aim of this project is to develop a research test platform that integrates a high-power density supercapacitor with a lithium-ion battery modelled to a battery electric vehicles (BEVs) motor and power control management system. Developing energy management control between the supercapacitor and lithium-ion battery will satisfy the energy demands of the electrical motor and drive system to extend the life of a lithium-ion battery in a BEV.

Field

Focus/ Scope

Gap

Objective

Value

Introduction: the road map

Final paragraph

The introduction ends with a roadmap paragraph, which outlines for the reader the remaining sections of the report. It can either

- give a general outline of the following sections, or
- specifically mention the content of the following sections

"Section 2 introduces models for drag, turbulence, and diffusivity for flow through emergent vegetation. Laboratory and field experiments described in section 3 provide observations which support these models. The comparison of model prediction and experimental observation is given in section 4. Finally, the models are used to compare the mean flow, turbulence intensity, and diffusivity in vegetated and unvegetated regions in section 5"

(Nepf, cited in Socolofsky, 2004).

Activity

For your own topic, identify:
1) what you think the field of study might be;
2) what you think the focus of the study might be;
3) what might be the aim of the study; and
4) what could be the value of the study?

1. Hi-resolution imaging of microscale fracture in osteoporotic bone
2. New energy storage materials for supercapacitors
3. Plasma printing – a new 3D manufacturing platform
4. Development of new sugar processing technology
5. Development of low cost desalination technologies

Literature Review – Background

1. Cite the most significant historical sources that form the foundation underlying the topic that will be extended in your report. **The seminal literature.**

2. Focus on the cutting edge knowledge base and the significant differences between the work that has already been published and the new contribution that your report is presenting.

Guiding principle:

> "The literature review identifies the seminal historical contributions, outlines the state of knowledge, and justifies the novelty of the article's contribution."
>
> Socolofsky (2004)

Literature Review – Background example

The supercapacitors have a very high capacitance in the farads range compared to electrolytic of microfarads, though they operate at a low voltage typically 2.7V. [21] To operate at a higher voltage they are connected in series and require monitoring circuity for balancing and overvoltage protection. The advantages of supercapacitors is that it can be charged and discharged 100,000 times with minimal degradation of performance with a lifespan of 10 to 20 years. The low equivalent series resistance provide high power density and high load currents, but have low energy density. [22] The energy density and power density comparison of electrolytic capacitors, supercapacitors, lithium ion batteries with other power sources are shown in Figure 8.

Literature Review – Background

- Headings and subheadings
- Used to create a structure to reflect the different parts of your project

- Figures/tables
  - **Number** each table/figure and give them a **title**, placing captions above tables and below figures (e.g. Table 1, Table 2…; Figure 1, Figure 2…)
  - **Introduce** tables and figures in the body of the text, very **briefly summarising** what they demonstrate (e.g. *The results of the study show that … (see Table 1)…), Figure 1 shows that…, As Figure 2 shows…,*

Literature Review: Gap in the research

It is common to find transition words and signpost phrases that indicate a gap in the research is being introduced.

Can you find these in the following sentences?

1. However, understanding how these processes interact to regulate invasions remains a major challenge in ecology.

2. Despite its acknowledged importance, propagule pressure has rarely been manipulated experimentally and the interaction of propagule pressure with other processes that regulate invasion success is not well understood.

3. It is presently unclear how different disturbance agents influence long-term patterns of invasion.

(Cargill & O'Connor, 2013)

Literature Review: Gap in the research

transition words and signpost phrases

1. However, understanding how these processes interact to regulate invasions remains a major challenge in ecology.

2. Despite its acknowledged importance, propagule pressure has rarely been manipulated experimentally and the interaction of propagule pressure with other processes that regulate invasion success is not well understood.

3. It is presently unclear how different disturbance agents influence long-term patterns of invasion.

(Cargill & O'Connor, 2013)

Project Management

- Project outline, detailing the methodology/approach which will be used and the timeline for completion (schedule)
- Work done to date
- Future work

Project Management

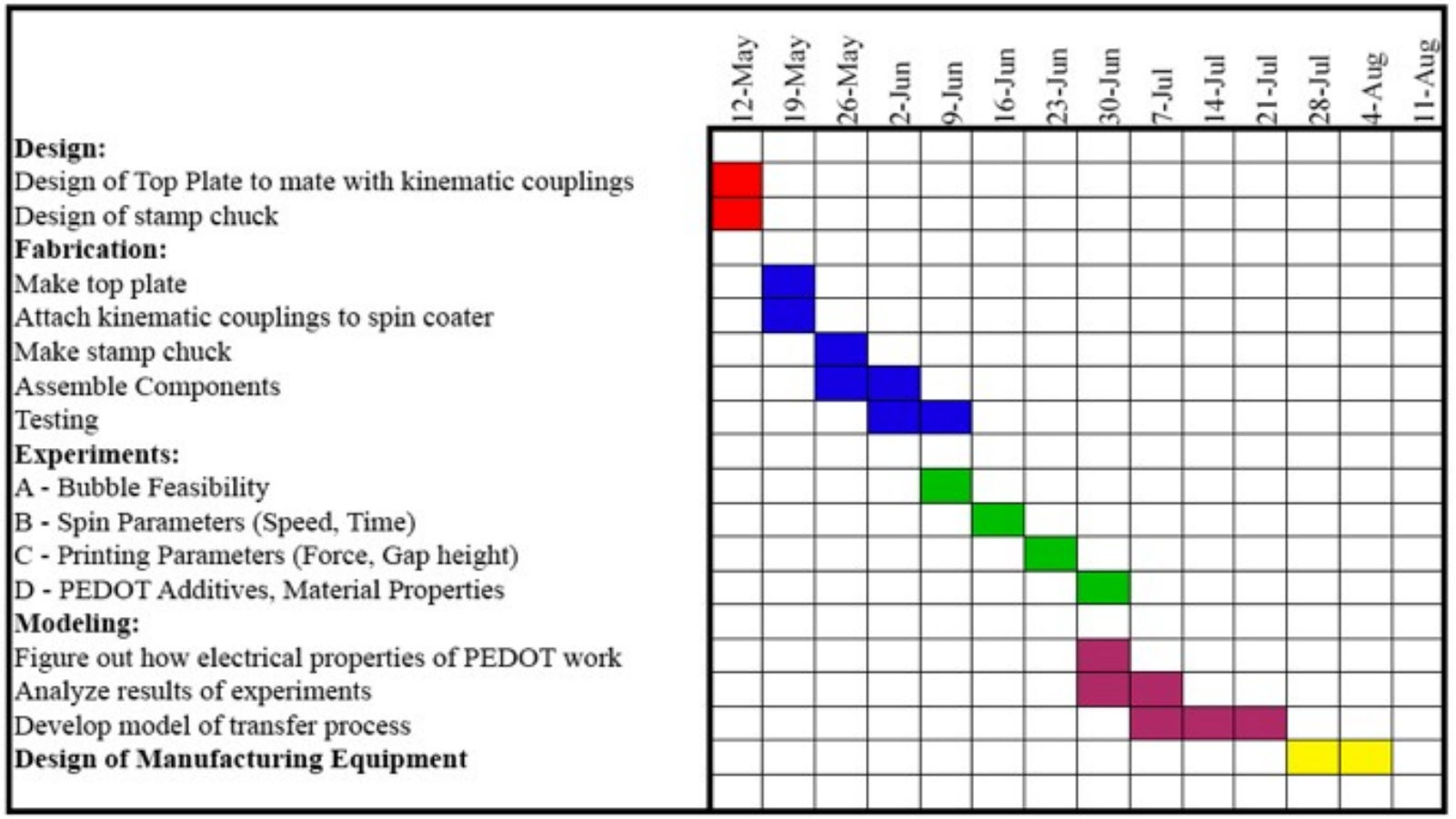
- **Project outline**

  - *Methods* you plan to follow
  - *Materials* you plan to use

Refer to a timeline or schedule for completion e.g. a Gantt chart.
Place your schedule in an appendix (after the list of references)

#	Name	Duration	Priority	Start
1	Define specifications	6.0 d	★★★☆☆	4/23/14
2	Identify customers	0.5 d	★★★☆☆	4/23/14
3	Interview 10 customers	2.0 d	★★★☆☆	4/23/14
4	Interpret requirements	0.5 d	★★★☆☆	4/25/14
5	Benchmark products	2.0 d	★★★☆☆	4/28/14
6	Define target PDS	1.0 d	★★★☆☆	4/30/14
7	Target PDS released		★★★☆☆	5/1/14
8	Generate concepts	2.0 d	★★★☆☆	4/30/14
9	Review comp products	1.0 d	★★★☆☆	4/30/14
10	Search patents	1.0 d	★★★☆☆	5/1/14
11	Brainstorm concepts	1.0 d	★★★☆☆	5/1/14
12	Select top 2 concepts	3.0 d	★★★☆☆	5/1/14
13	MQ presented	4.0 d	★★★☆☆	5/6/14
14	Profile motor power	10.0 d	★★★☆☆	4/28/14
15	Design test stand	5.0 d	★★★☆☆	4/28/14
16	Build test stand	5.0 d	★★★☆☆	5/5/14

http://beyondbrewing.co/engineering-gantt-chart-example/



http://engineerblogs.org/2011/06/keeping-track-of-work-gantt-charts/

Project Management

Work completed to date

Language Note

The focus should be on the experiment, not the person carrying out the experiment. The **passive voice** should be used, e.g., *The temperature was recorded*.

Change the following sentence in the active voice to the passive voice.

ACTIVE: I conducted 78 individual simulations.

PASSIVE: 78 individual simulations were conducted.

Project Management

- **Planned Research**

Language Note

The focus should be on the experiment, not the person carrying out the experiment. The passive voice should be used, e.g., *The temperature will be recorded*.

Change the following sentence in the active voice to the passive voice.

ACTIVE: I will conduct 78 individual simulations.

PASSIVE: 78 individual simulations will be conducted.

Future tense is used in this part of the interim report because it describes what will be done when the research is carried out.

Future work: Example

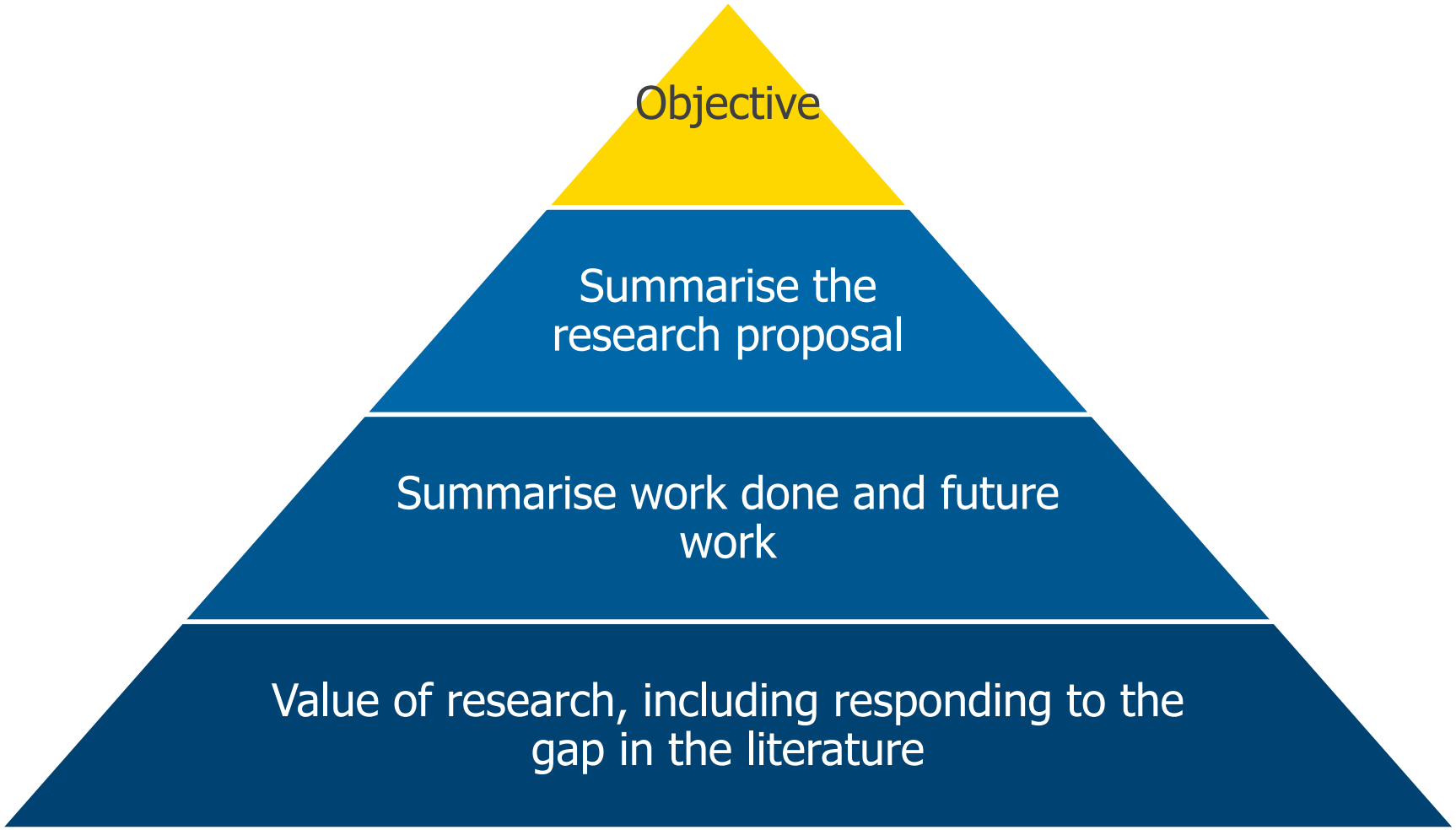
To properly analyse the effect of air blast loading on structures and investigate parameter criticality, this study will be broken up into a few main areas, referred to as 'Outputs'. These outputs will later be compared against each other through use of a scaled distance technique. 80 individual simulations in total will be conducted, 40 without the glass panel in place, and 40 with. This will be done in order to investigate both the material response and examine blast wave propagation without reflection or disturbance.

Project management

- Headings and subheadings
  - Used to create a structure to reflect the different parts of your project

- Figures/tables
  - **Number** each table/figure and give them a **title**, placing captions above tables and below figures (e.g. Table 1, Table 2…; Figure 1, Figure 2…)
  - **Introduce** tables and figures in the body of the text, very **briefly summarising** what they demonstrate (e.g. *The results of the study show that … (see Table 1)…), Figure 1 shows that…, As Figure 2 shows…,*

Conclusion


Objective
Summarise the research proposal
Summarise work done and future work
Value of research, including responding to the gap in the literature

Conclusion: example

The aim of this project is to develop a test platform that integrates a high-power density supercapacitor with a lithium-ion battery modelled to a battery electric vehicles (BEVs) motor and power control management system. **To do this, physical and simulated models of motors, motor controllers and battery controllers will be utilised to better understand the most effective models for control and management systems in BEVs…** **The first stage of the project has been completed, in which…** **The next steps are to firstly,….Secondly,…** **Developing energy management control between the supercapacitor and lithium-ion battery will satisfy the energy demands of the electrical motor and drive system to extend the life of a lithium-ion battery in a BEV.**

Objective

Summarise research proposal

Work completed/ Future work

Value

Conclusion: Tips

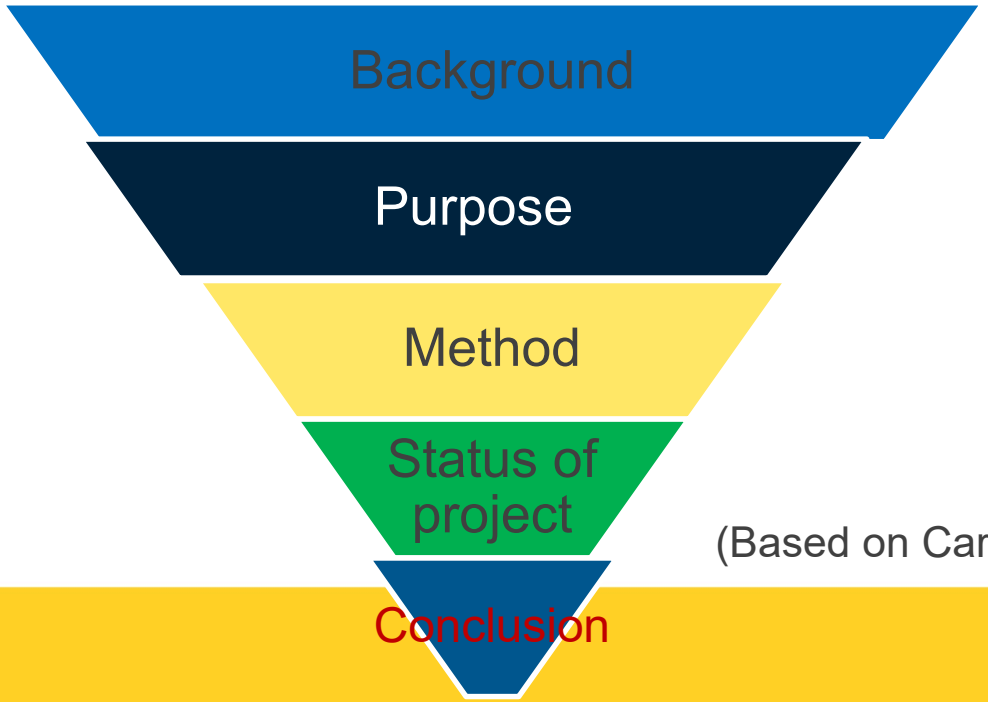
You need to be

- Concise
- But still get your message across…

What is the purpose of an interim report?

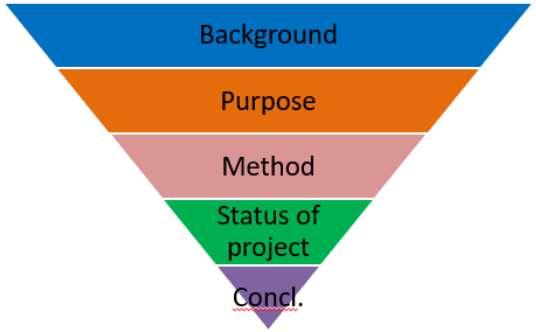
[ASTRACT] The PR

1. Some background information
2. The principle activity (or purpose) of the study and its scope
3. Some information about the methods that will be used in the stu
4. Status of project: work completed and future work
5. A statement of conclusion (e.g. value of the work)



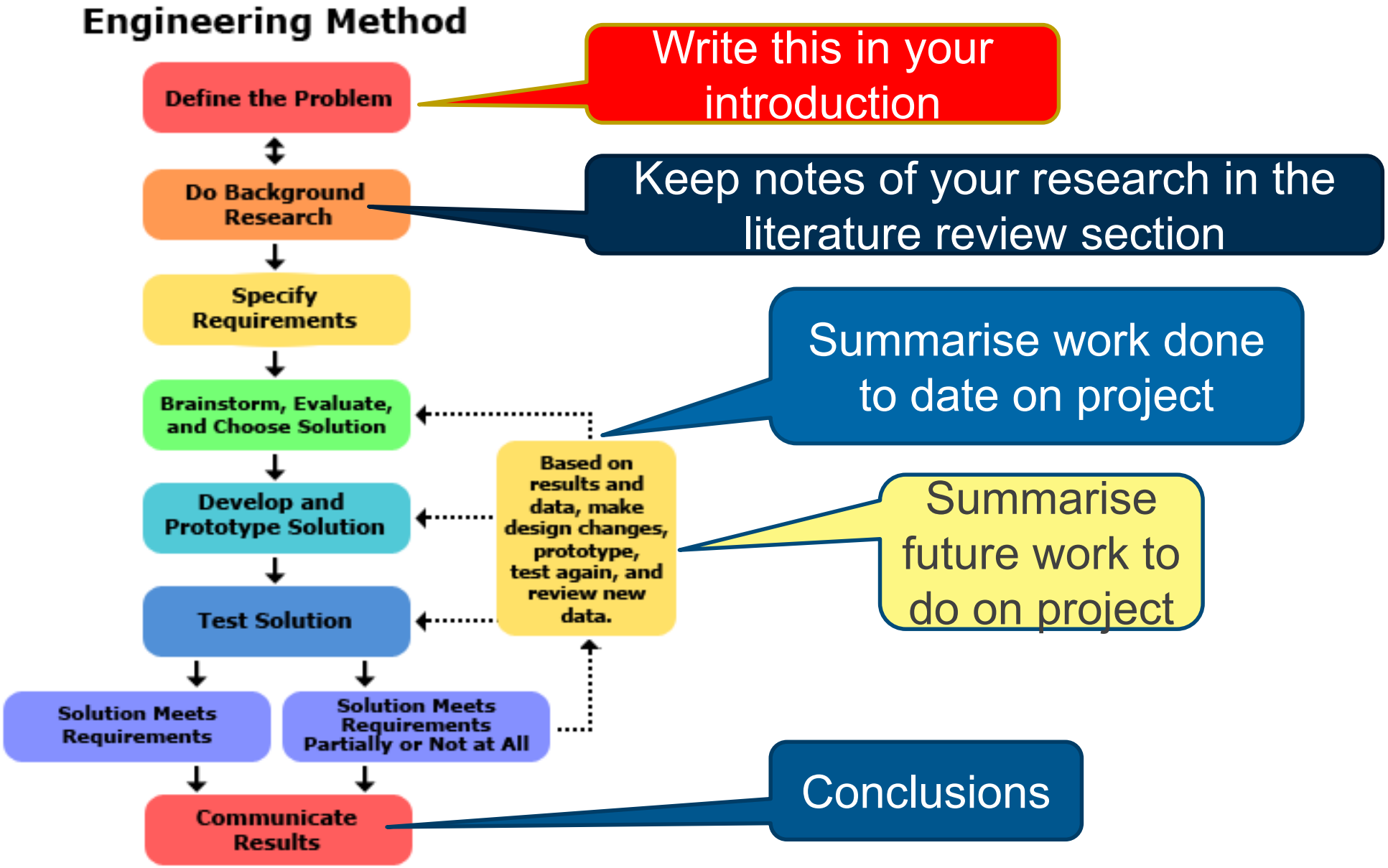
(Based on Cargill and O'Connor, 2013)

[ASTRACT]: Example

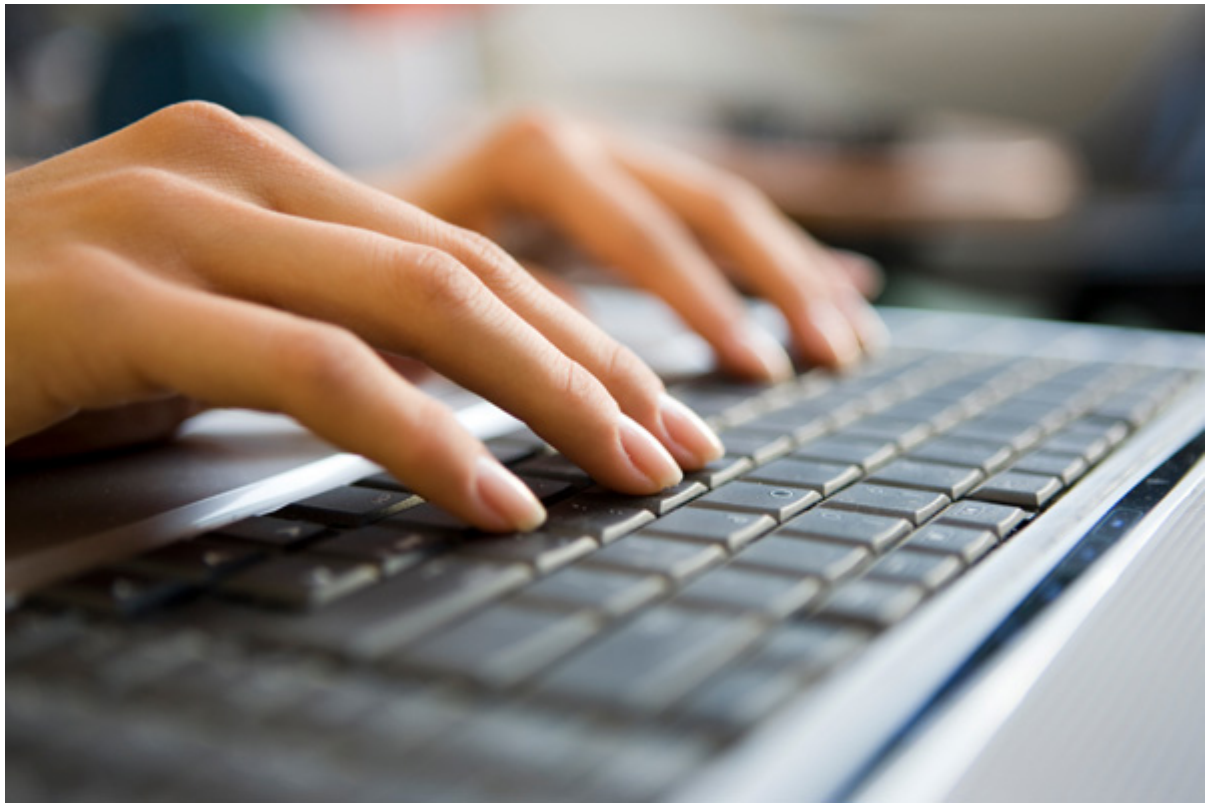


Adjoint optimization methods have proven successful for the control of turbulence and boundary layers and in the design of airfoils and aircraft. This project aims to extend the adjoint equations to the problem of controlling steady, inviscid, supersonic flow with volumetric source terms in the Euler equations, that is, mass, momentum, and energy addition. This will be achieved by modelling and testing of…. The initial stage of the project indicates that…and resulted in the creation of…The current phase of the research is developing….The final phase will test…to determine…The general form of the problem makes these results applicable to all forms of volumetric control with the goals of drag reduction, lift enhancement, and the generation of pitching moments.

Adapted from: Adjoint Optimization of Volumetric Sources in Steady, Supersonic Flow: Energy Addition (Limbach et al., 2013)

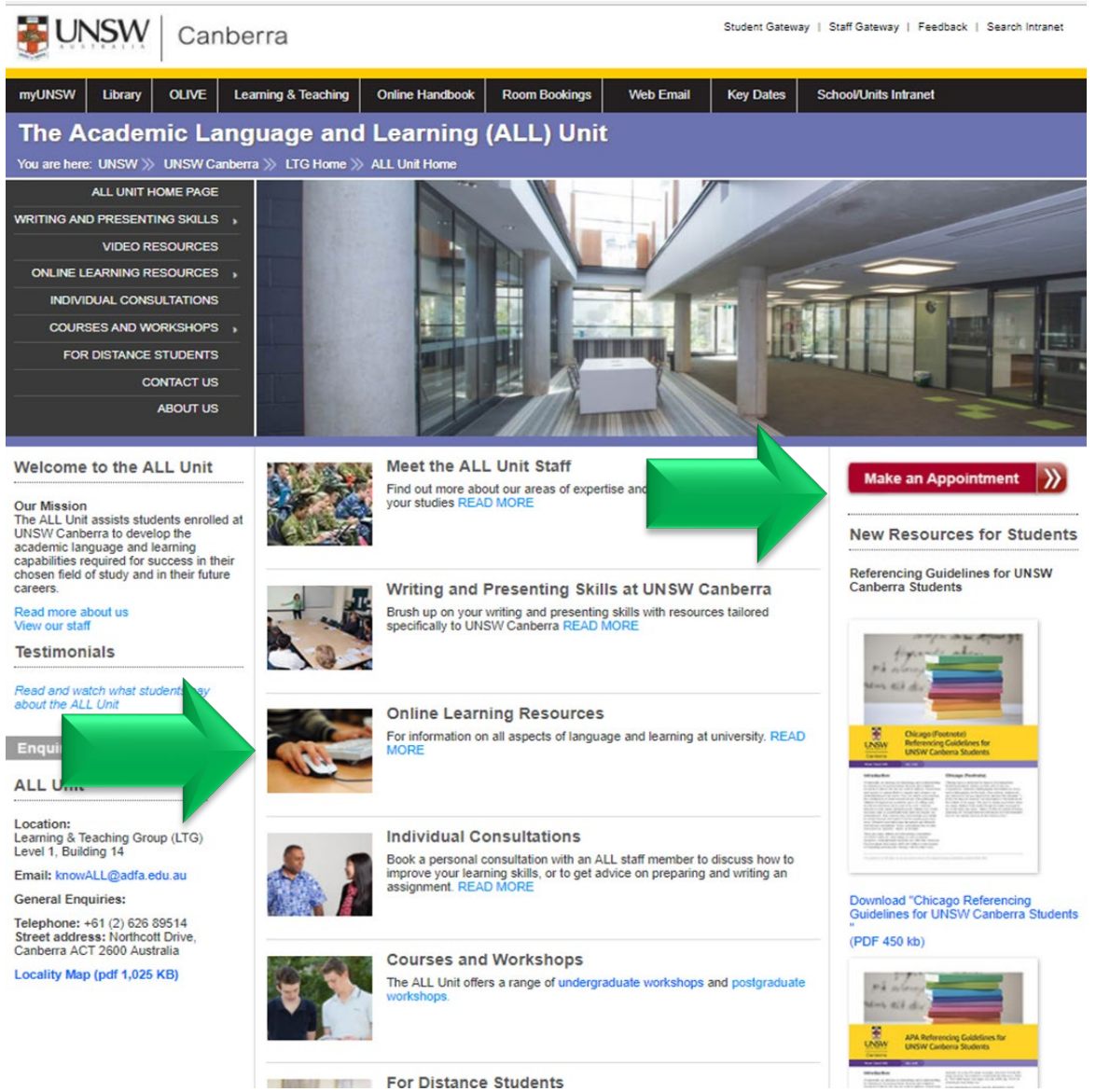

Engineering Method
Define the Problem
Do Background Research
Specify Requirements
Brainstorm, Evaluate, and Choose Solution
Develop and Prototype Solution
Test Solution
Solution Meets Requirements
Solution Meets Requirements Partially or Not at All
Communicate Results
Based on results and data, make design changes, prototype, test again, and review new data.
Write this in your introduction
Keep notes of your research in the literature review section
Summarise work done to date on project
Summarise future work to do on project
Conclusions

Write early. Write often



Make an appointment with a learning advisor from the ALL unit:

Janise Farrell, Beth Barber and Anne Kiley 2019



https://gateway.unsw.adfa.edu.au/iteaching/iall/index.html

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References

Cargill, M., and O'Connor, P. (2013). *Writing scientific research articles* (2nd ed.). Oxford: Wiley-Blackwell.

Limbach, C. M., Martinelli, L, & Miles, R. B. (2013). Adjoint optimization of volumetric sources in steady, supersonic flow: Energy addition. *AIAA Journal, 51*(10), 2465-2473.

Socolofsky, S.A. (2004). How to write a research journal article in engineering and science. Retrieved August 20, 2013, from https://ceprofs.civil.tamu.edu/ssocolofsky/downloads/paper_how-to.pdf