



# **EENGM0004: Engineering Research Skills**

## **Sync 1: Introduction**

2021-2022

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# Hybrid Teaching

## F2F Sync sessions

- ▶ **Classroom:** Physics Building 1.11 (Tyndall), Monday 2pm-4pm (Week 13, 14, 18, 20, 21 and 23)
- ▶ **Week 14:** includes exercise activities, on Teams only.

## The same Sync sessions will be live on

- ▶ **Teams:** a single link which is available on BB.
- ▶ Propose questions in the **chat** box.
- ▶ For remote learning only.

## In each 2 hour Sync session

- ▶ Briefly summarise the Async material.
- ▶ Demonstrate basic research skills.
- ▶ Formal and informal Q&A sessions.

# What is this Unit About?

## Introducing useful research concepts

- ▶ Why do research
- ▶ How to do research
- ▶ How to present research results
- ▶ Research ethics ..... Environmental, social, and human consequences

## Training basic research skills

- ▶ Literature search and reading ..... Library and online resources.
- ▶ Research project planning and execution
- ▶ Evaluating project outcomes
- ▶ Communicating your research
  - ▶ Referencing and Plagiarism ..... Proper quotation & Turnitin
  - ▶ Presentations, posters
  - ▶ Writing research report/dissertation ..... Academic Languages & Literacy
  - ▶ Authoring conference/journal paper

# Unit Structure

## Teaching Block 2 (Jan-May 2022)

- ▶ 20 credits ~ 200 hours work (most of them are designed for self learning).
- ▶ Async/Sync sessions on general engineering research skills.
  - ▶ **Async materials:** Blackboard.
  - ▶ **Sync sessions:** Physics Building 1.11 (Tyndall), 2pm-4pm Monday in Week 13/14/18/20/21/23.
  - ▶ **Sync sessions on Teams:** using a single link available in the timetable, blackboard, and [here](#).
  - ▶ **Academic Language and Literacy Group sessions:** separate timetable available at Blackboard
- ▶ Convert the project idea into a clear plan (**IPP**).
- ▶ Produce a comprehensive review of the project topic area (**RRR**).

## Coursework and Assessment

	Coursework	Marks
1	Interim Project Plan (IPP) and viva	15%
2	Research Review Report (RRR)	85%

## The aim of ERS courseworks

Prepare for the MSc project in the summer.

## Courseworks

- ▶ Coursework 1: Interim Project Plan (IPP)
  - ▶ Submit draft IPP to CALD tutors for feedbacks ..... Week 16 (Fri 18<sup>th</sup> Feb)
  - ▶ Submit final IPP for marking and feedbacks ..... **Week 20 (Mon 14<sup>th</sup> Mar)**
  - ▶ Plagiarism will be checked.
- ▶ Coursework 2: Research Review Report (RRR)
  - ▶ Submit draft RRR to CALD tutors for feedbacks ..... Week 21 (Fri 25<sup>th</sup> Mar)
  - ▶ Submit final RRR for marking and feedbacks ..... **Week 24 (Fri 6<sup>th</sup> May)**
  - ▶ Plagiarism will also be checked.

# Interim Project Report (IPP) and Viva (15%)

## What should be included in the IPP (4~5 pages)?

- ▶ Background.
- ▶ Aims and Objectives.
- ▶ Summary of Related works.
- ▶ Methodology.
- ▶ Project Workplan (using Gantt Chart).
- ▶ Risk Analysis and Mitigation.
- ▶ Resource Requirements.
- ▶ References

N.B. IPP and RRR templates have been provided on Blackboard in both Latex and MS Word.

## Assessment methodology

- ▶ IPP reports will be accessed by assessors (via interview) and CALD tutors.

# Research Review Report (RRR, 85%)

## What should be included in the RRR?

- ▶ A substantial literature review on your research area.
- ▶ Think of this being part of your thesis.

## Critical review

- ▶ It is not enough to state “this paper describes how authors use Method X to solve the problem”.
- ▶ Try to identify what's NOT so great about existing work & Why.
- ▶ Identify problems to be solved.
- ▶ In-depth review of key papers.

## Assessment methodology

- ▶ RRR reports will be accessed by supervisors and CALD tutors.

# Assessment Methodology

<b>Coursework</b>	Interim Project Plan (IPP)		Research Review Report (RRR)	
<b>Marks</b>	15%		85%	
<b>Marks Breakdown</b>	70% Technical	30% Academic Language	80% Technical	20% Academic Language
<b>Assessment</b>	Assessors (Interview)	CALD Tutors	Supervisors (no Interview)	CALD Tutors
<b>Total Credits</b>	20 Credits			

N.B. IPP and RRR marking criteria are available on Blackboard.



# Main Content of the ERS unit

Majority of time allocated to this unit is for independent study.

## Project related skills

- ▶ Liaison with project supervisor through regular meetings.

## Lectures and support material - on Blackboard

- ▶ Project definition, management and planning, IPP and RRR (Async) ..... **Dr Aaron Zhang**
- ▶ Demonstrations of practical research skills (Sync) ..... **Dr Aaron Zhang and TAs**
- ▶ Academic Language and Literacy (Group) ..... **Dr Neil Tibbetts and CALD tutors**
- ▶ Identifying and delivering high impact research (Async) ..... **Prof David Bull**
- ▶ Communicating project outcome (Async) ..... **Prof David Bull**
- ▶ Literature search and citation (Sync) ..... **Ms Victoria Hopton** (Faculty Librarian)
- ▶ Researching your career (Sync) ..... **Mr Francis Peppett** (Careers Service)

# ERS Demonstrations

## Demo 1: Project planning

- ▶ Work package/activity breakout; Gantt Chart design; Deliverable set up, etc.

## Demo 2: Practical research skills

- ▶ Writing using Latex (doc/poster/thesis/Gantt Charts/ref management/etc.).
- ▶ Generating high quality figures/tables using Matlab/Python.

## Demo 3: Literature reading

- ▶ Quickly find useful information from books, overview papers, research papers.

## Demo 4: Identifying plagiarism

- ▶ Potential plagiarism identification in texts/figures/tables/data/copyrights/etc.

# Engagement and Feedbacks

## Engagement

- ▶ Keep close contact with project supervisors (in every stage of the project)

## Feedbacks

- ▶ Feedbacks by supervisors during regular project meetings.
- ▶ Draft IPP & feedbacks by CALD tutors
- ▶ Written feedbacks on IPP by assessors.
- ▶ Draft RRR (sample pages) & feedback by CALD tutors
- ▶ Written feedbacks on RRR by the supervisors.

- ▶ Dedicated **Teams group** (General channel): announcements, (informal) discussion, suggestions and feedbacks.

# Detailed Timetable Available at Blackboard

Week	Date	Sync Sessions	Async Materials	Activities	Deadlines
13	24-28 Jan	<ul style="list-style-type: none"><li>ERS introduction</li><li>Q&amp;A</li></ul>	<ul style="list-style-type: none"><li>Project definition and management</li></ul>	<ul style="list-style-type: none"><li>Arranging meetings with supervisors to discuss project themes and objectives</li><li>Reading Literature</li></ul>	
14	31Jan-04 Feb	<ul style="list-style-type: none"><li>How to research the literature and use online resources (Ms Victoria Hopton, <b>on Teams only, NO F2F session</b>)</li></ul>	<ul style="list-style-type: none"><li>Project Planning</li></ul>	<ul style="list-style-type: none"><li>Reading Literature and planning IPP</li></ul>	
15	07-11 Feb	Academic Language and Literacy (separate group timetable)		<ul style="list-style-type: none"><li>Reading Literature and drafting IPP</li></ul>	
16	14-18 Feb	Academic Language and Literacy (separate group timetable)		<ul style="list-style-type: none"><li>Reading Literature and drafting IPP</li></ul>	Submit <i>draft IPP</i> to CALD tutors (Friday 18 <sup>th</sup> Feb)
17	21-25 Feb	Reading week	Reading week	<ul style="list-style-type: none"><li>Reading and writing IPP</li></ul>	CALD tutors: provide <i>draft IPP</i> feedbacks
18	28 Feb -04 Mar	<ul style="list-style-type: none"><li>Project Planning (demo)</li><li>Practical research skills (demo)</li><li>Q&amp;A</li></ul>	<ul style="list-style-type: none"><li>Writing IPP and RRR</li></ul>	<ul style="list-style-type: none"><li>Researching project and writing IPP</li></ul>	<i>Draft IPP</i> feedbacks available
19	07-11 Mar	Academic Language and Literacy (separate Group timetable)		<ul style="list-style-type: none"><li>Finalising IPP based on feedbacks</li></ul>	Finalise IPP
20	14-18 Mar	<ul style="list-style-type: none"><li>Researching your Career (Mr Francis Peppett)</li></ul>	How to write a paper (Prof Dave Bull)	<ul style="list-style-type: none"><li>Drafting RRR based on IPP</li></ul>	Submit final <i>IPP</i> (Monday 14 <sup>th</sup> Mar) <i>IPP</i> marking
21	21-25 Mar	<ul style="list-style-type: none"><li>Literature reading (demo)</li><li>Q&amp;A</li></ul>	How to deliver high impact research (Prof Dave Bull)	<ul style="list-style-type: none"><li>Researching project and writing RRR</li></ul>	Submit <i>draft RRR</i> (2 pages) to CALD tutors (Friday 25 <sup>th</sup> Mar) CALD tutors: provide <i>draft RRR</i> feedbacks
22	28 Mar -01 Apr	Academic Language and Literacy (separate group timetable)		<ul style="list-style-type: none"><li>Researching project</li><li>Improving RRR based on feedbacks</li></ul>	<i>Draft RRR</i> feedback available <i>IPP</i> marks/feedbacks available (Friday 01 <sup>st</sup> Apr)
Easter Break					
23	25-29 Apr	<ul style="list-style-type: none"><li>Identifying Plagiarism (demo)</li><li>Q&amp;A</li></ul>	How to do presentations (Prof Dave Bull)	<ul style="list-style-type: none"><li>Researching project and Writing RRR</li><li>Improving RRR based on IPP feedbacks</li></ul>	
24	03-06 May	<ul style="list-style-type: none"><li>Q&amp;A</li></ul>		<ul style="list-style-type: none"><li>Researching project</li><li>Finalising RRR</li></ul>	Submit <i>Final RRR</i> (12:00 noon - Friday 06 <sup>th</sup> May)

# Important Contacts in ERS

## MSc supervisors

- ▶ Provide supervision and support on the technical content of projects.

## Lecturers

- ▶ Dr. Fan (Aaron) Zhang (fan.zhang@bristol.ac.uk) ..... Unit organiser
- ▶ Dr. Neil Tibbetts (neil.tibbetts@bristol.ac.uk) & CALD Tutors ..... Academic Languages and Literacy
- ▶ Prof. David Bull (dave.bull@bristol.ac.uk) ..... Communicating research outcome

## IPP Assessors

- ▶ Assess IPP and final thesis.

## Teaching Assistants

- ▶ Mr Danier Duolikun (duolikun.danier@bristol.ac.uk) ..... Demonstrations and Q&A
- ▶ Mr Chen Feng (chen.feng@bristol.ac.uk) ..... Demonstrations and Q&A



# **Academic Language and Literacy Group Sessions**

## **An Introduction**

**Dr. Neil Tibbetts**