Technology Research Preparation 32144

Introduction

Subject Coordinator:
Kyeong Kang

UTS CRICOS 00099F

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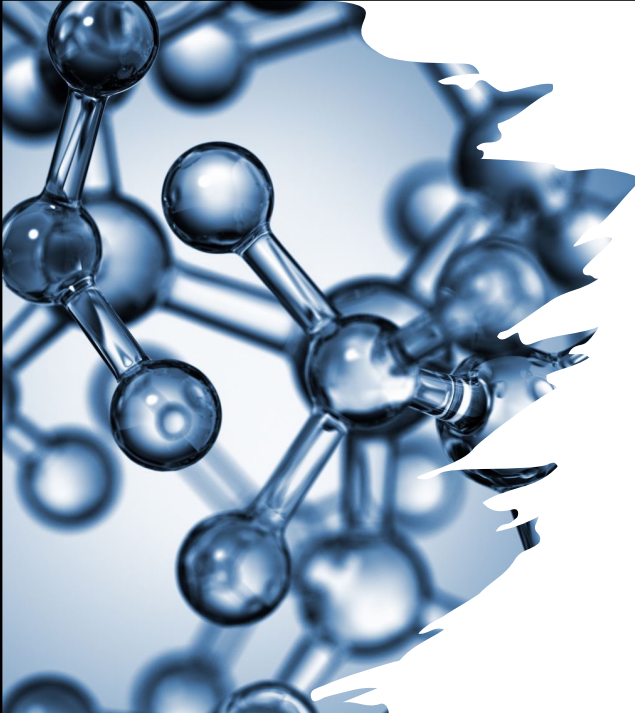
Overview

Part 1. Subject Introduction (by Kyeong Kang)

Teaching staff

Subject Objectives and Program

Subject delivery

Assessments

Part2. What's Research (by John Rose)

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Teaching staff

Subject coordinator: Dr Kyeong Kang, Kyeong.kang@uts.edu.au

Lecturer: Dr Kyeong Kang and Dr John Rose

Guest speaker: Ms Meijun Huang, (UTS Librarian), Industry speaker

Tutors:

Dr John Rose, john.rose@uts.edu.au

Dr Paul Yoo, Paul.Yoo@uts.edu.au

Mr Thomas Dolmark, Thomas.Dolmark@uts.edu.au

Dr Shreya Pare, Shreya.Pare@uts.edu.au

Mr Zian Kabir, ZianShah.Kabir@uts.edu.au

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Contact points

- A primary contact point - UTS email instead of Canvas message OR external email
- Communicate during business hours
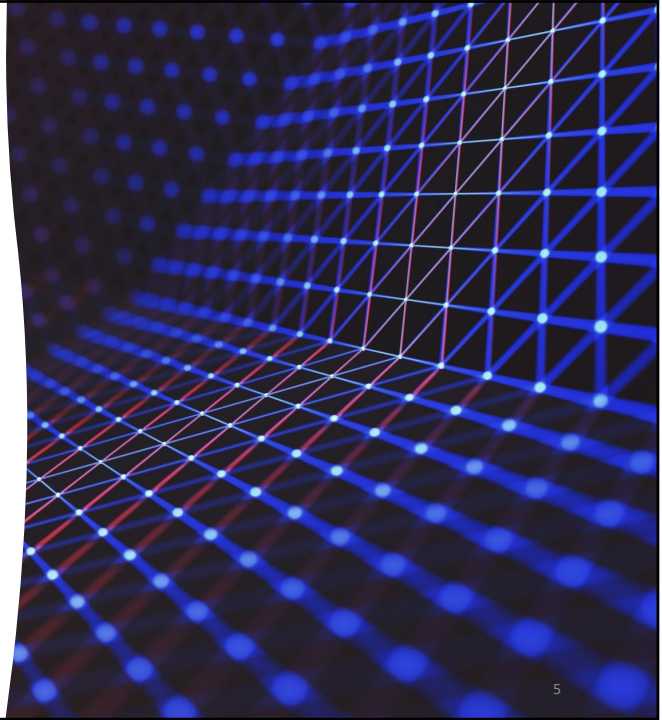
✉ Subject related issues: coordinator

📧 Tutorial tasks and Assignments issues: tutor

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Not required Supervisor

Tutors will assess all assignments

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Subject Objectives

1. Conduct research at a level appropriate to the student's program of studies.

2. Search effectively for industry and academic texts and critically evaluate textual sources of information.

3. Demonstrate research ethics by drawing upon other's words and ideas fairly and honestly with appropriate citation and referencing.

4. Construct a research report based on a review of the literature which demonstrates synthesis of information, critical thinking and the logical arguing of the students' point of view and present clearly, both formally and informally, on their research.

5. Produce a project proposal.

6. Demonstrate critical analysis of technology research and the codes of conduct/ethical practices when working with and for Indigenous peoples.

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Program

- Lecture (Week 1-12) - online (ZOOM https://zoom.uts.edu.au/j/88991103060)
- Tutorial (Week 2-12) –classroom

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Tutorials

Tut1	1	Mon	16:00	CB11.B3.104	1.5 hrs
Tut1	2	Mon	17:30	CB07.02.015	1.5 hrs
Tut1	3	Mon	12:00	CB05D.01.031	1.5 hrs
Tut1	4	Tue	16:00	CB11.B1.101	1.5 hrs
Tut1	5	Tue	17:30	CB11.04.101	1.5 hrs
Tut1	6	Tue	19:00	CB11.B2.103	1.5 hrs
Tut1	7	Wed	12:30	CB05D.01.028	1.5 hrs
Tut1	8	Wed	14:00	CB06.03.051	1.5 hrs
Tut1	9	Wed	18:00	CB06.03.053	1.5 hrs
Tut1	10	Tue	13:30	CB11.05.100	1.5 hrs
Tut1	11	Tue	11:00	CB11.03.205	1.5 hrs
Tut1	12	Wed	15:00	CB08.05.006	1.5 hrs
Tut1	13	Wed	10:30	CB05D.01.031	1.5 hrs
Tut1	14	Wed	14:00	CB05D.01.031	1.5 hrs
Tut1	15	Thu	13:30	CB10.02.330	1.5 hrs

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Public holidays

- There are no tutorials on Monday (the public holiday), 7 October 7 (the
- tutors will offer guidelines about tutorial tasks for Monday tutorials). Other
- tutorials from Tuesday to Friday will be provided as scheduled.
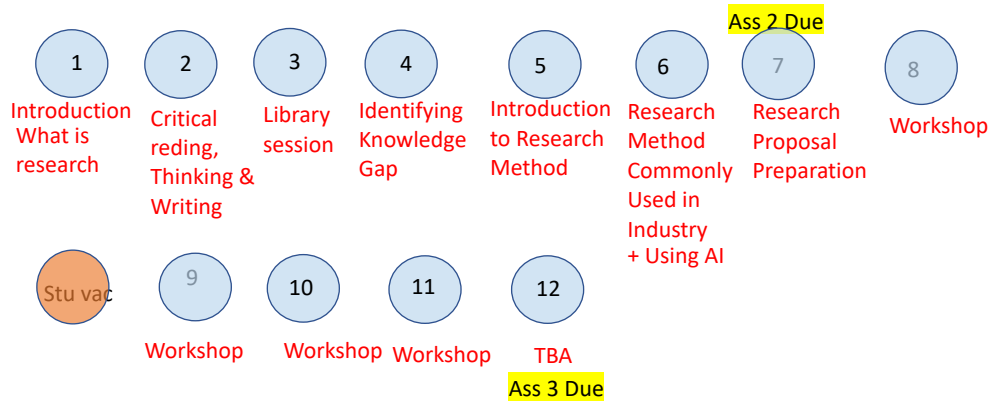
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OPELA – Academic language program

- "LTD" sessions on the timetable are for the OPELA classes

- DO NOT STRESS - OPELA is not a test. It is a screening task meant to help you.
  Navigate to your OPELA faculty site (this should be available on your dashboard)
  Watch the introductory video.

- To know more about OPELA or have any Qs about OPELA, then contact the OPELA team (OPELA@uts.edu.au)

- The subject coordinator or tutors have no answers

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Program

Note: Program schedule and contents may change subject to availability.

- **1** — Introduction What is research
- **2** — Critical reding, Thinking & Writing
- **3** — Library session
- **4** — Identifying Knowledge Gap
- **5** — Introduction to Research Method
- **6** — Research Method Commonly Used in Industry + Using AI
- **7** — Research Proposal Preparation — <mark>Ass 2 Due</mark>
- **8** — Workshop
- **Stu vac**
- **9** — Workshop
- **10** — Workshop
- **11** — Workshop
- **12** — TBA — <mark>Ass 3 Due</mark>

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Assessment Overview

Assessment task 1: Building Research Skills (15%), Individual

Assessment task 2: Literature-Based Report (45%), Individual

Assessment task 3: Research Presentation (40%), Group (up to 4 in a group).

Academic misconduct and plagiarism —If there is an academic misconduct case, the RAO and school team meet to assess and either make a decision (if it is plagiarism) or refer to GSU (if it is cheating). Once I make a decision, the student will be notified and have a chance to respond to the decision. The final result will be "W" until the decision is made.

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Assessment 1 (15%) - Individual

- **Task**: Demonstrate an independent approach to the mastery of foundational research skills. In-class exercises require students to undertake practical activities to build skills in conducting literature reviews and developing research proposals.

- **Length**: In-class exercises vary in size each week according to the nature of the topic and type of activity. The exercises' scope ranges from short written responses (e.g., 100-200 words per Question) to complete structured worksheets (e.g., 250-500 words).

- **Due:** Week 2 to Week 12 (**Submission**: Tutorial activity sheet to be submitted to the Canvas Assessments folder shortly after weekly tutorial sessions and before the next tutorial day. If you have any difficulties, then please discuss issues with tutors.

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Assessment 2 (45%) - Individual

- Type:
  Literature review report
- Task:
  Students can select a topic and search the literature relevant to their research topic and
- write a literature review:
  Includes the title page, table of contents, introduction, critical evaluation of the sources, literature review, conclusion, reference list and appendix.
- Length 3000-4000 words:
  - Not including the table of contents, reference list or appendix.
- Due: Week 7, on Friday at 11:59 pm, 20 Sep

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Assessment 3 (40%) - Group

- **Type:** Group Report
- **Task:** Students will develop Group (**up to 4**) project proposals demonstrating that the student is engaging in genuine enquiry and investigating something worthwhile.
- This industry-style report will link the proposed research question and the literature review to existing knowledge, ideas, facts, technologies, and relevant solutions. It should be suitable and feasible for executing the student's capstone project in the subsequent session.
- The report must contain the following elements:
    - Cover Page, Abstract, Table of Contents, Executive Summary, Introduction, Research Aims and
    - -Objectives, Background, Research Significance and Innovation, Research Methods, Project plan and resources, Conclusion Reference List and Appendix.
- **Length:** 3000-5000 words – not including the table of contents, reference list or appendix.
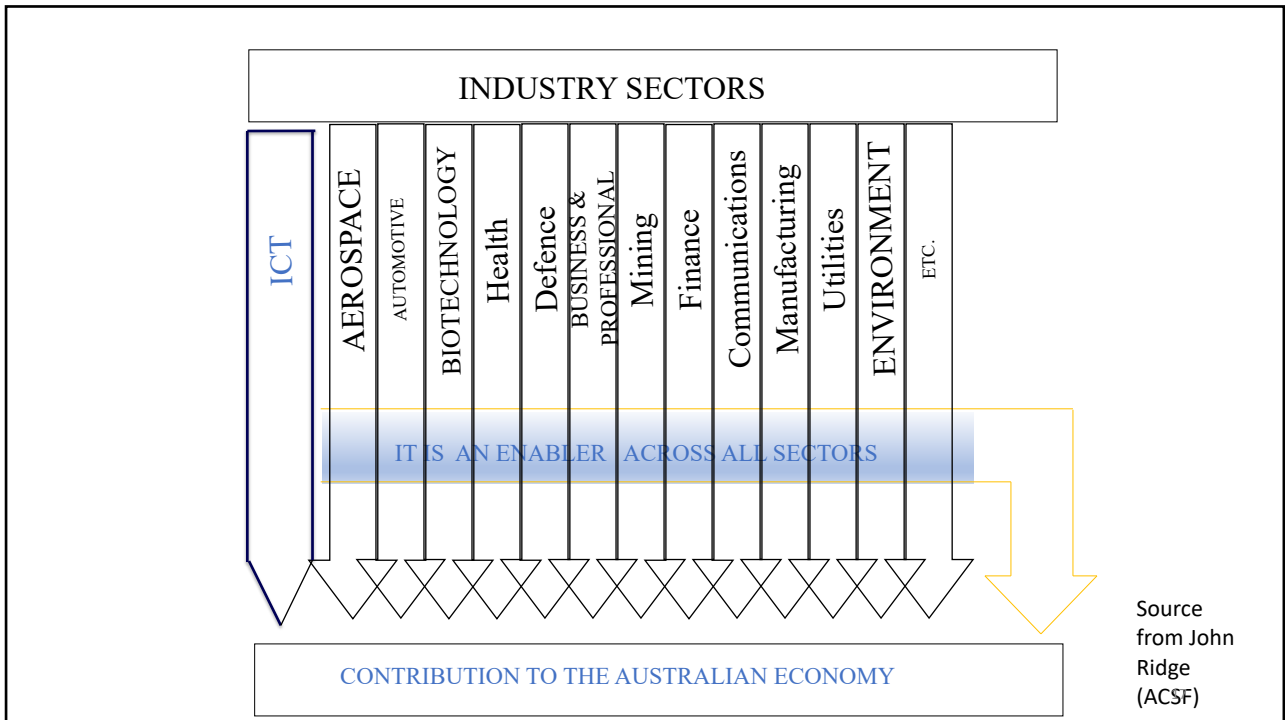- Due: week 12, on Friday at 11:59 pm, 1 Nov

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Learning phases

- Ass1 weekly task
- Ass2 Literature review (by week 7)
    - - submit a research project online form (by week 7)
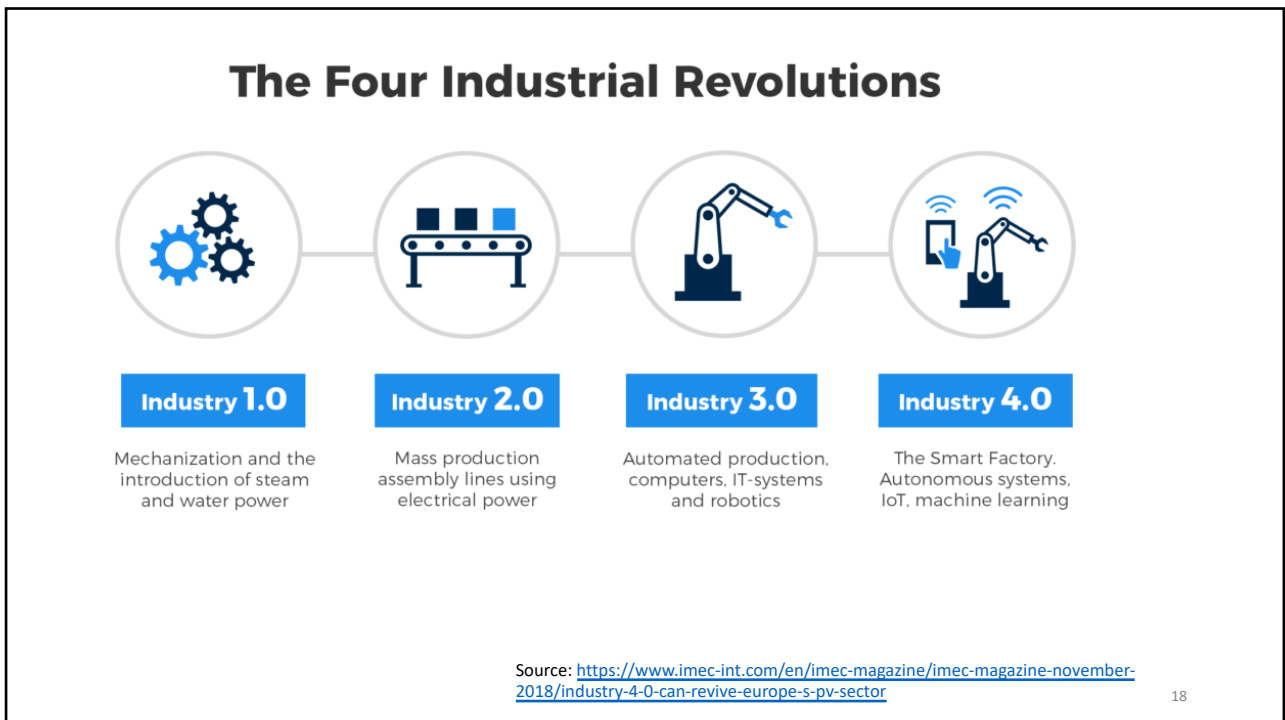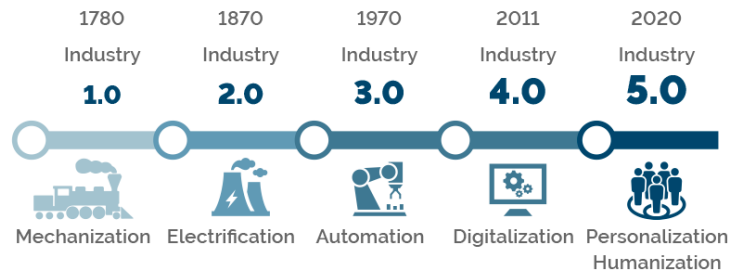- Ass3 Research Proposal (by week 12)

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INDUSTRY SECTORS

ICT — AEROSPACE — AUTOMOTIVE — BIOTECHNOLOGY — Health — Defence — BUSINESS & PROFESSIONAL — Mining — Finance — Communications — Manufacturing — Utilities — ENVIRONMENT — ETC.

IT IS AN ENABLER ACROSS ALL SECTORS

CONTRIBUTION TO THE AUSTRALIAN ECONOMY

Source from John Ridge (ACSF)

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The Four Industrial Revolutions

Industry 1.0
Mechanization and the introduction of steam and water power

Industry 2.0
Mass production assembly lines using electrical power

Industry 3.0
Automated production, computers, IT-systems and robotics

Industry 4.0
The Smart Factory. Autonomous systems, IoT, machine learning

Source: https://www.imec-int.com/en/imec-magazine/imec-magazine-november-2018/industry-4-0-can-revive-europe-s-pv-sector

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THE 5 INDUSTRIAL REVOLUTIONS

https://blog.proactioninternational.com/en/industry-5.0-the-next-industrial-revolution-is-people-centric
Future of industry 5.0 in society: human-centric solutions, challenges and prospective research areas
Amr Adel
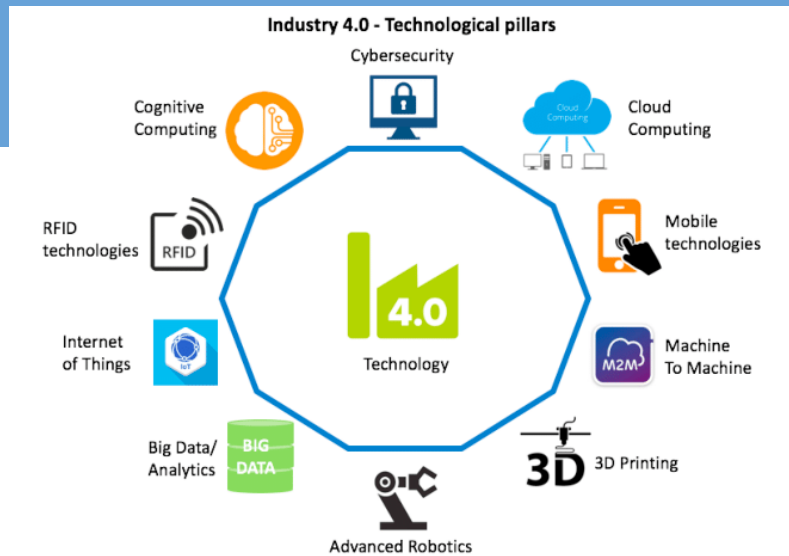*Journal of Cloud Computing* **volume 11**, Article number: 40 (2022)

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• https://www.sciencedirect.com/science/article/abs/pii/S2452414X21000558
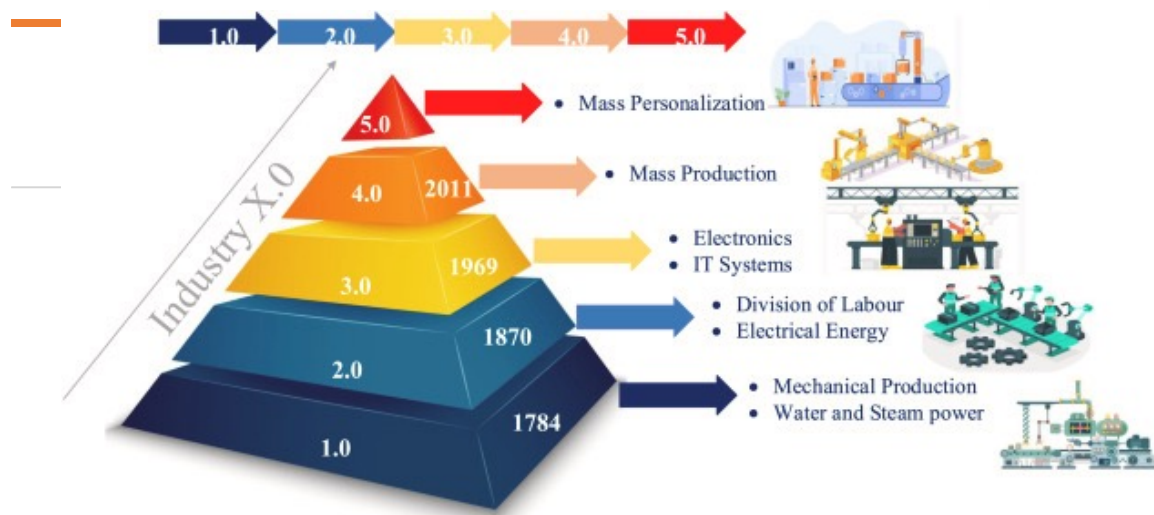
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Next Steps: Think about your potential **research area & topic**

Industry 4.0 - Technological pillars

Source:https://www.researchgate.net/publication/319944621_Proposal_of_an_automation_solutions_architecture_for_Industry_40

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Looking for a group?

- Communicate with fellow students in the tutorial (week 2)
- via Canvas/Discussion
- Must have group members from the same tutorial

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To pass this subject

- A student must achieve a 50% or more overall mark
- OPELA (Academic Language program)
  - This subject requires that all students complete OPELA. Students who received a Basic grade in the
  - Students who do not complete OPELA and/or do not attend 80% of the Language Development Tutorials will receive a Fail grade.

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Coming weeks

- Tutorials start from Week 2
- Check the Subject Outline regularly. Weekly content on Canvas will be updated before the lecture.
- Check pre-reading materials on Canvas before the tutorials
- Think about the research domain & topic!!

- Complete OPELA Screening (please confirm the date from the OPELA link)
- Regarding the language program, contact the OPELA team at opela@uts.edu.au
  NOT to the subject coordinator

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Changing tutorials?
-> UTS timetable site

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Submit an online Project information form by week 6 (Friday, 13 Sep)—one form for each group.

- **Scan the QR or use link to join**

https://forms.office.com/r/e2iqJy2tCk

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Poll Survey

Course

Location

Academic or industry project

Individual or group project

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