School of AMME Thesis and SIPS Overview

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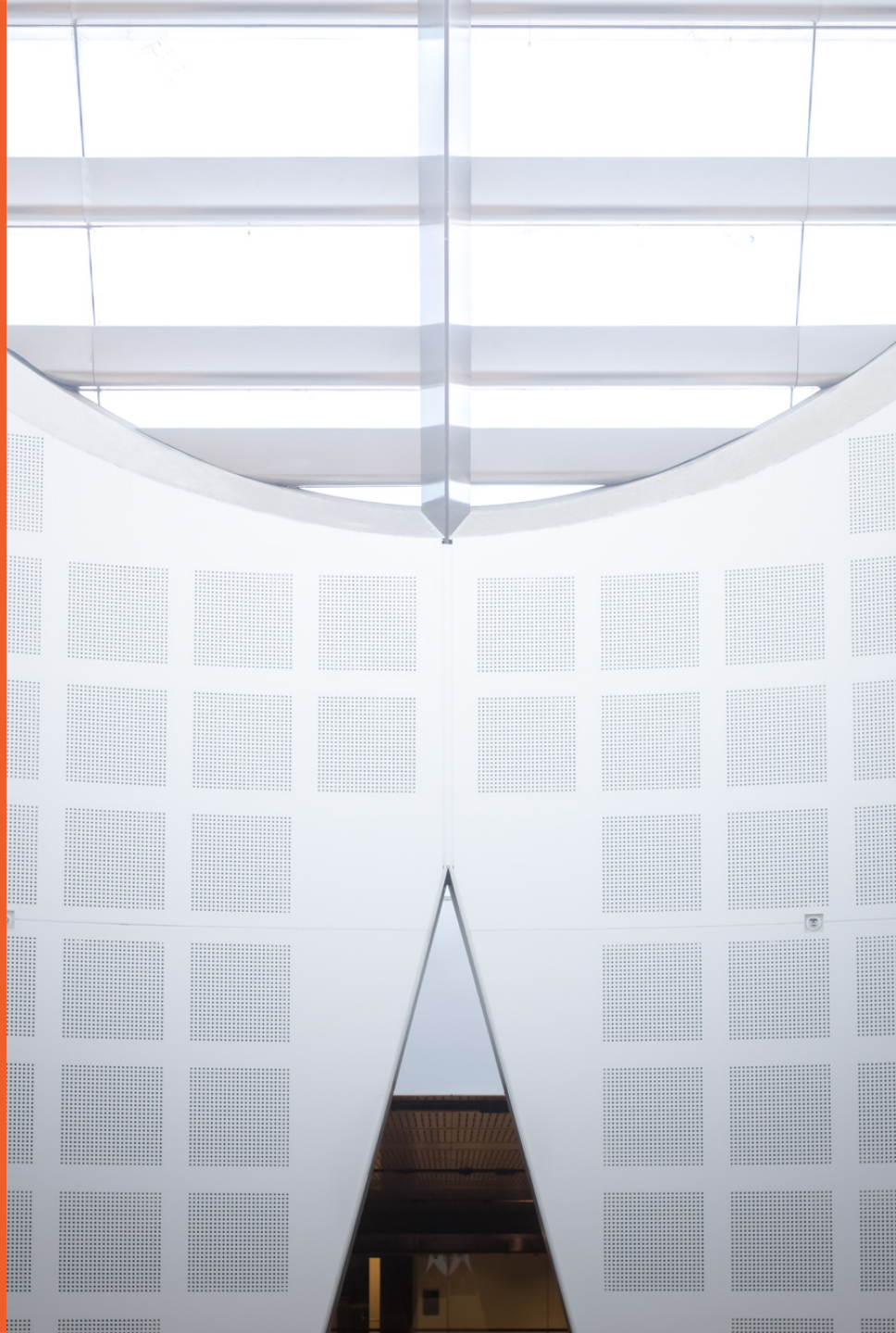

Agenda

- Thesis Overview
  - Requirements
  - Timeframes
  - Key Dates
- Sydney Industry Project Scholarships
  - Overview
  - Application Process
  - Key Dates
- Questions

AMME4111/4112 Thesis Overview

- Final year thesis units (Thesis A and Thesis B) aim to provide students with the opportunity to carry out a defined piece of independent research and design that fosters the development of engineering skills.
- These skills include:
  - the capacity to define a problem;
  - carry out systematic research in exploring how it relates to existing knowledge;
  - identifying the tools needed to address the problem;
  - designing a solution, product or prototype;
  - analysing the results obtained; and
  - presenting the outcomes in a report that is clear, coherent and logically structured.

AMME4111/4112 Thesis Overview

- The learning outcomes for this course develop important engineering skills. The outcomes include:
  - Ability to plan and undertake a research or major design project
  - Proposal for the intended work including setting objectives, organization of a program of work and devising an experimental or developmental program
  - An ability to design and conduct experiments/design work and to analyse and interpret data from those experiments or design
  - Preparation and submission of a thesis at the end of the second semester detailing the context of the problem, relevant background research and outcomes of the investigation

AMME4111/4112 Thesis Overview

- Students are expected to conduct thesis work in their discipline (Aero, Biomed, Mechanical, Mechatronics)
- Student completing a Major within their BE degree must select a thesis topic in the area of the Major
- Students work closely with their supervisor and the thesis topic will often be related to some aspect of a staff member's research interests
- The student is responsible for the execution of the practical work and the general layout and content of the thesis itself
- The thesis must be the student's individual work although it may be conducted as a component of a wider group project. Students undertaking research on this basis will need to take care in ensuring the quality of their own research and design work and their individual final thesis submission.
- Whilst thesis topics will be constrained by the available time and resources, the aim is to contribute to the creation of new engineering knowledge, techniques and/or solutions. Students should explore topics that arouse intellectual curiosity and represent an appropriate range and diversity of technical and conceptual research and design challenges.

AMME4111/4112 Thesis: Assessment

- The thesis will be judged on the extent and quality of the student's original work and particularly how critical, perceptive and constructive he or she has been in assessing his/her work and that of others. Students will also be required to present the results of their thesis to their peers and supervisors as part of a seminar program.
  - **Progress Report** (10%)
  - **Seminar** (10%)
  - **Honours Thesis Report** (80%)
- The thesis will be assessed by the supervisor and also by others not specialized in the field of the thesis topic.

AMME4111/4112 Thesis: Assessment

CRITERIA		Fail	Pass	Credit	Distinction	High Distinction
ORIGINALITY & PERSONAL CONTRIBUTION ___ / 10%	▪ Demonstrates initiative and ingenuity ▪ Substantial contribution to the development of the project resulting in a comprehensive treatment of the research or design	☐	☐	☐	☐	☐
MASTERY OF SUBJECT MATTER ___ / 10 %	▪ Critical understanding of key issues ▪ Thorough grasp of underlying concepts and principles	☐	☐	☐	☐	☐
INTRODUCTION ___ / 5%	▪ Clearly identifies the problem for investigation and relevant context ▪ Clearly sets out the content and aims of the project ▪ Describes the structure of the thesis	☐	☐	☐	☐	☐
LITERATURE REVIEW ___ / 15%	▪ Good knowledge of literature ▪ Relates closely to the problem or hypothesis ▪ Is critical and probing of the literature ▪ Shows awareness of the field, different solutions/implementations ▪ Shows awareness of different types of evidence	☐	☐	☐	☐	☐
RESEARCH DESIGN ___ / 15%	▪ Design has been tested ▪ Design conforms to requirements ▪ Is adequately described so that the experiment/design can be replicated by a fellow student ▪ Is well documented	☐	☐	☐	☐	☐
RESULTS ___ / 10%	▪ Method of analysis is clearly indicated ▪ Results are presented clearly ▪ Tests on different parts of the design are stated ▪ Discussion of any results (e.g. tables and graphs), clearly labelled, units indicated	☐	☐	☐	☐	☐
DISCUSSION ___ / 15%	▪ Results discussed critically in literature context ▪ Summarising the results, major points of the thesis	☐	☐	☐	☐	☐
CONCLUSIONS ___ / 10%	▪ Conclusions drawn on discussion ▪ Implications of the research are described ▪ Explicit contribution of the thesis stated ▪ Potential future work highlighted	☐	☐	☐	☐	☐
PRESENTATION, THESIS FORMAT & REFERENCES ___ / 10%	▪ Neat, consistent, well organized ▪ Correct grammar and spelling ▪ Clear and accurate referencing ▪ Relevant references	☐	☐	☐	☐	☐

AMME4111/4112 Thesis: Dates

- The thesis is undertaken across two consecutive semesters of enrolment.
  - Thesis A typically covers initial research into the background of the problem being considered (formulated as a literature review), development of a detailed proposal incorporating project objectives, planning, and risk assessment, preliminary design, modelling and/or experimental work
  - Thesis B focuses on detailed work in designing a solution, performing experiments, evaluating outcomes, analysing results, and writing up and presenting the outcomes.

AMME4111/4112 Thesis: Dates (2017)

Presentation was given in 2017. Use week time points as indications only.
Please refer to Unit of Study Outlines for key dates - https://www.sydney.edu.au/units

- **Dates for students who enrol in Honours Thesis B in Semester 1 2017**
  - Thesis Draft to supervisor — 3:00pm Fri — May 2017 — (S1 week 10)
  - Thesis Seminar — all day Fri — May 2017 — (S1 week 11)
  - Thesis Final Submission — 3:00pm Thu — June 2017 — (S1 week 13)
- **Dates for students who enrol in Honours Thesis A in Semester 1 2017**
  - Thesis Proposal to supervisor — 3:00pm Tue — April 2017 — (S1 week 6)
  - Thesis Progress Report to supervisor — 3:00pm Fri — June 2017 — (S1 week 13)
  - Project Risk Assessment to supervisor — 3:00pm Fri — June 2017 — (S1 week 13)
- **Dates for students who enrol in Honours Thesis B in Semester 2 2017**
  - Thesis Draft to supervisor — 3:00pm Fri — October 2017 — (S2 week 10)
  - Thesis Seminar — all day Fri — October 2017 — (S2 week 11)
  - Thesis Final Submission — 3:00pm Thu — October 2017 — (S2 Week 13)
- **Dates for students who enrol in Honours Thesis A in Semester 2 2017**
  - Thesis Proposal to supervisor — 3:00pm Fri — September 2017 — (S2 week 6)
  - Thesis Progress Report to supervisor — 3:00pm Fri — October 2017 — (S2 week 13)
  - Project Risk Assessment to supervisor — 3:00pm Fri — October 2017 — (S2 week 13)

* Final dates for 2018 are still being finalised

Thesis: More Information

Presentation was given in 2017. Always refer to specific Canvas sites for assessments and announcements.

Please refer to Unit of Study Outlines for key dates - https://www.sydney.edu.au/units

- Thesis seminars for 2017 will be held in Week 11 on Friday, October 20th across the School.
- A list of talks will be available
- Plan to attend as many talks as possible to gain an overview of the range of research and depth of work being done in these projects. It is also a good opportunity to find out more about the research areas of particular supervisors
- More information is available here
  - https://cusp.sydney.edu.au/students/view-unit-page/alpha/AMME4111
  - http://web.aeromech.usyd.edu.au/show_unit.php?id=AMME4111&
- We will also set up a Canvas page with seminar abstracts and 2018 thesis topics

Above links are outdated, use the information found on new AMME Student Portal for thesis/capstone projects, and only use CUSP for information about degree structure, otherwise refer to the Unit of Study Outlines - https://www.sydney.edu.au/units

Sydney Industry Placement Scholarships (SIPS)

- The objective of this scheme is to provide opportunities for outstanding students to spend six months full-time in industry undertaking high-level investigative projects during the course of their final year of studies
- AMME4010 is the academic program and is worth **24 CP**. It covers the requirements for thesis, work experience and two electives
- Projects are established with academic involvement through Associate Supervision from the School. The work undertaken by the students incorporates all the curriculum requirements of the second semester of the Fourth Year of the degree program, or Masters Students in their final year
- Students are able to complete their studies in the usual time as per degree requirement.
- HWAM of 70 required to be considered for receipt of a SIPS placement
- A scholarship of $18,000 is payable to students selected to be part of this program

MAJOR INDUSTRIAL PROJECT PLACEMENT SCHOLARSHIP

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https://youtu.be/ZmpZWIScDMk

SIPS: List of Companies*

- **Aero**
  - Airbus
  - Northrop
  - Lockheed
  - Boeing
  - Turbine Aeronautics
  - Air Affairs
  - BAe Systems
  - Qantas
  - NASA/JPL
  - ESA
- **Bio**
  - 360 Knee
  - Optimised Ortho
  - Micropace
  - Nanosonics
  - Cochlear
  - ResMed
  - Stryker
  - Johnson and Johnson
  - Westmead
- **Mech**
  - Arup
  - Thales
  - Quickstep Technologies Pty Ltd
  - Horticulture Innovation Australia
  - Ford
  - Toyota
  - StateRail
  - Honeywell
  - City Council(s)
  - Land and Water
  - Transport NSW
- **Mechatronics**
  - Accenture
  - Thales
  - Arup
  - Marathon Targets
  - Google
  - Uber
  - Qantas
  - Rio
  - Wriggley's
  - Occular Robotics
  - Kalmar
  - DST Group
  - UVS
  - CSIRO
  - Horticulture Australia
  - AIMS
  - Snowy Hydro
  - Honeywell

* Note that this is the list of companies we are in touch with. The available projects and companies is still being finalised

SIPS: Application Procedure

Note: dates were from 2017 presentation. Steps shown as indication of process.

- Applications for the SIPS placements should be emailed to amme.sips@sydney.edu.au by Monday September11th 2017.
- Include
  - A cover letter detailing your desired field of study, degree stream and any majors, preference to complete the SIPS placement in Semester 1 or 2, 2018
  - A current CV, including the names of at least two referees
  - A copy of your transcript downloaded from Sydney Student
  - https://secure.eng.usyd.edu.au/students/SIPPS.php

- Already have a work placement lined up for the summer? Think your host might be willing to sponsor a SIPS placement? Contact us and we can help with inquiries and work with you on converting your work experience into a SIPS opportunity*

* Note that you will still need to meet the qualification requirement to be entitled to receive SIPS support

SIPS: Further Information

- For further information, you can contact
  - AMME SIPS email address amme.sips@sydney.edu.au
  - Stefan Williams: Head of School of AMME - stefan.williams@sydney.edu.au
  - Ahmad Jabbarzadeh: SIPS coordinator - ahmad.jabbarzadeh@sydney.edu.au
  - We are also establishing a Canvas site to help manage the process. More details to follow.

New ESIPS Coordinator for AMME:
Dries Verstraete
dries.verstraete@sydney.edu.au

Questions?