Proposed Level 4 Design Projects for 2002

Dr Ben Cazzolato

Last Updated 3:36pm, 29th October 2002

The following list details the projects available for the level 4 design project in 2002. It is updated regularly so please keep an eye on the Notices section. We currently have enough places for about 160 students, so there should be plenty to go around.

You will be given a budget for your projects. This budget is to cover all items including travel, consumables and capital purchases. The budget is as follows:

- 1 Student $150
- 2 Students $200
- 3 Students $250

The projects marked with an asterisk (*) are sponsored by industry. The budgets for these projects are generally considerably larger than the internal projects. The exact details will be negotiated on a case by case basis. These projects also have the additional benefit of direct contact with industry, providing valuable experience and future contacts.

If there is something you would like to do and it is not listed below then you are more than welcome to suggest it as a project. If you do so, then you will need to find an academic who is willing to supervise the project. You need ensure that the project is feasible within the time, resources and cost constraints.

I would like to point out that it was decided by the department that it would be advantageous to have students select their projects at the end of third year, rather than waiting to confirm placement of projects at the beginning of the following year as has been done in the past. It is hoped that this may encourage background reading on the project before the beginning of the academic year (uh huh) and consequently improve outcomes.

Now that the list is essentially finalised, you need to form groups of the appropriate number and provide me with a list of 3 projects in order of preference (1 being the highest, 3 the lowest). I encourage you to speak with the supervisors first before deciding (they might be hiding some nasty secret from you). The Dept will endeavour to give each student their primary choice. Project placements will be decided by the individual supervisors in consultation with the level 4 coordinator.

If you have any questions, please don't hesitate to call (in on) me.

Regards

Dr Ben Cazzolato

Notices

30/10/2001 Three new projects added; **??**, **??** and 57.

31/10/2001 If your preferences suddenly happen to have a double question mark in the PDF document or the links are incorrect in the HTML document, then these projects are no longer available. You will need to choose alternatives in this case.

1/11/2001 The projects with titles in *italics* indicate that these projects are still available. The projects with titles in upright font are now filled.

22/11/2001 One new project added; 70.

7/1/2002 One new project added; 38.

25/1/2002 Ten new industrial projects added; 58 to 66.

25/1/2002 One new project added; 39.

8/2/2002 Two new projects added; 21 and 67.

18/2/2002 Two new projects added; 35 and 44.

19/2/2002 Two new projects added; 68 and 69. Please note that the "Development of Tuned Vibration Absorbers for an Aircraft Fuselage" project has been removed. Those students who had this as one of their choices will need to reselect from the available projects.

26/2/2002 Three new projects added; 36, 37 and 45.

26/2/2002 Project 39 description updated.

5/3/2002 Projects 36, 37 and 45 descriptions updated.

6/3/2002 The project order has been changed. All projects now allocated have been moved to the front of this document.

Contents

1 Active Mirror Control*

Supervisors: Dr Ben Cazzolato and Dr Anthony Zander

Moderator: As above

Number of Students: Adrian Moo and Tong Huynh

Description: Schefenacker Vision Systems Australia is the world's largest producer of automotive rear view mirrors. More than one third of their annual revenue is derived from the exportation of the large extendable P131 model mirror designed for Ford F250 trucks in the United States. Customer feedback from truck owners has identified excessive vibration in the P131 mirrors as annoying, and in extreme cases, a safety hazard.

The primary focus of this project is the development of an active feedback control system that will reduce excessive vibration to levels that are deemed to be tolerable for people. The frequency range of interest is between 5-100 Hz. A similar project was undertaken in 2001 which was simply proof of concept with initial result very promising.

This project will aim to build a complete working system embedded in the mirror housing. Miniaturisation of the existing system will be important. The effects of a compromised digital control systems, eg digital / fixed point will need to quantified.

Comment: It may be possible to get funding from the Australian Road Transport Suppliers Association in the form of the ARTSA Transport Industry Prize for Mechanical Engineering Students to the value of $8000.

Industrial Sponsor: Schefenacker Vision Systems

2 Robotic Pool Player

Supervisors: Dr Ben Cazzolato

Moderator: Dr Tien-Fu Lu

Number of Students: Justin Ghan, Will Roberston, Alexandra Thornton and Tom Radzevicius

Description: Ever wanted to play pool but couldn't find a mate to pick up the queue? Well look no further, with Eddie the robot you'll be able to play with yourself!

The project will be to design and build an automated system capable of playing pool using image capture and processing, logic and strategy algorithms, and servo/stepper motor control hardware.

3 Soap-Film Tunnel

Summary: Design and build a vertical soap-film tunnel to investigate a range of 2-D flows such as a jet in cross-flow.

Supervisor: Dr Richard Kelso and Dr Bassam Dally

Moderator: Antoni Blazewicz

Student Profile: Romlea Bray and Lindsay Gordon

Detailed Description:

4 Eel-Like Bio-Mimetic Propulsion Device

Summary: Design and build an improved eel-like robot propulsion system and assess its performance.

Supervisor: Dr Richard Kelso

Moderator: Dr. Gerald Schneider

Student Profile: Bryce Dolman and Tze King Tang

Comments: IP limitation.

Detailed Description:

5 Hot-Air Balloon Burner

Summary: Adapt and optimise a "Crinkle Burner" for this purpose.

Supervisors: Dr Richard Kelso, Dr Peter Lanspeary and Dr. Graham Nathan

Moderator: As above

Student profile: Ming Seong Cheong, Tuck Wai Kenneth Kwan and Wei Boon Ng

Comments: IP limitation.

Detailed Description:

6 Wind Tunnel Flight Simulator

Summary: Develop a flight trainer to allow person to remotely control a model aircraft in a wind tunnel.

Supervisors: Dr Richard Kelso

Moderator: Dr. Gerald Schneider

Student Profile: Rebecca Jones and Michael Stacey

Detailed Description: The aim of this project is to design and build a flight trainer to allow person to remotely control a model aircraft in a wind tunnel. The aircraft model must be tethered within the wind tunnel, and must be able to undertake manoeuvres in response to control input from a pilot seated behind. This simulator will be used for undergraduate laboratories and promotional exhibits.

7 Design of a laboratory-scale solar furnace for lime production

Fields: Solar Energy, Heat Transfer, Design

Supervisors: Dr. Gus Nathan and Mr Richard Craig

Moderator: Antoni Blazewicz

Number of Students: Huat Lee Ting, Benjamin Lik Wei Sung and Teng Eik Su

Description: Solar furnaces use concentrated solar radiation to provide the heat source for the furnace. The potential advantages of solar energy are its reduced levels of pollution, especially of greenhouse gas emissions. Its disadvantages include the high cost of solar concentrators, the intermittent nature of sunlight and the relatively low level of development of the technology. Lime is particularly well suited to the use of solar energy for heating and the supervisors are involved in the development of a solar-lime processing technology.

The aim of the project is to design a laboratory-scale solar furnace to be housed at the Thebarton Campus. The project will develop the specifications for the solar concentrators, their location, their control and recommend low-cost commercially available options. It will also develop a basic design for the furnace. From this a cost-estimate will be obtained.

The project is well suited to a team of two people, although a team of three is also possible. It will be of interest to anyone interested in solar energy, heat transfer and design.

8 Assessment of building performance*

Supervisors: Dr. Gus Nathan and Mr Cecil Camilleri

Moderator: Antoni Blazewicz

Number of Students: Steven Condina and Jun Udagawa

Description: Yalumba winery has joined the Greenhouse Challenge of the Australian Greenhouse Office. They have designed a new display building in the Mount Gambier using low energy principals and wish to evaluate the performance of the building.

The project will monitor indoor and outdoor temperatures and will conduct an assessment of the energy requirements and comfort of the new building. It will compare the performance with other buildings.

The project will involve data logging and analysis. It will require interaction with Yallumba personnel. It will involve some travel to the South East, but all expenses will be covered by the project and the students will have access to Department vehicles.

Industry Partner: Yalumba Winery

9 Experimental investigation of Radiant Porous Burner

Supervisors: Dr Bassam Dally and Dr Peter Ashman (Chemical Engineering)

Moderator: Antoni Blazewicz

Number of Students: Keen Leong Chew and King Huang Bong

Description: The radiant porous burner is an innovative idea to improve heat transfer from gaseous burners where the fuel is burnt inside a ceramic matrix. The burner emits very low concentration of pollutant gases and is very effective in transferring heat by radiation. The project involves characterizing an existing radiant porous burner. It also involves the testing of the operating envelope and the effectiveness of different material in improving thermal efficiency while maintaining stable combustion regime.

This project suits students with interest in combustion and experimental work.

10 Design of a New Innovative Coil

Supervisors: Dr Bassam Dally and Professor Sam Luxton

Moderator: Lei Chen

Number of Students: Han Meng Goh, Hui Hoon Ng and Wei Khan Siew

Description: The design of coils these rely on outdated technology which had the manufacturing component as a serious limiting factor. With the advance of manufacturing techniques especially the use of powerful lasers to cut and weld metals it is possible to look at a variety of shapes for the pipes and fins of a simple coil. This project involves experimental and computational work to look at the feasibility of a new innovative idea for the shape of the coil tubes. It is an exciting project which can lead to a regis.....

11 Comparison of indices of indoor air quality for underfloor- and overhead-air distribution systems using computational fluid dynamics

Supervisors: Dr Bassam Dally, Prof Sam Luxton and Ms Elizabeth Smith

Moderator: Lei Chen

Number of Students: Benjamin Miners

Description: This project aims to compare under-floor air distribution (UFAD) and over-head air distribution (OHAD) systems for a model room using computational fluid dynamics (CFD) with respect to:
(i) vertical and horizontal temperature gradients at steady-state,
(ii) vertical and horizontal air velocity gradients at steady-state,
(iii) draught rating at specified room locations at steady-state,
(iv) thermal response times to steady-state, and
(v) the energy requirements to maintain steady-state

12 Design and Build of Spray Nozzle for use in Flameless Oxidation Burner

Supervisors: Dr Bassam Dally and Dr Gus Nathan

Moderator: Antoni Blazewicz

Number of Students: Yong Taang Tiong and Jang Hung Lau

Description: The use of flameless oxidation in combustion systems is becoming very attractive lately. There is a great potential in applying this technology to liquid fuels especially that many of the combustion systems use liquid fuels in their operation. This project involves development of a spray nozzle to be used in an existing burner. The current burner has a gaseous jet and the new nozzle will replace this jet. The project will also involve testing and characterizing the new nozzle in the laboratory.

This project suits a student with an interest in combustion and experimental work.

13 Aerodynamic Modification of Wingtips on the RAAF P3 Orion Aircraft

Supervisors: Dr Gerald Schneider and Graeme Secker (RAAF, Edinburgh)

Moderator: Lei Chen

Students: Adam Greaves and Peter Jones

14 Surveillance Camera Platform for a Piper Seneca II Aircraft

Supervisors: Dr Gerald Schneider

Moderator: Dr Richard Kelso

Students: Eng Kiat Liew, Rajan Peng Kiat Koo and Benny Liang Chern Lim

15 Investigation of an Electrically Powered Aircraft

Supervisor: Dr Gerald Schneider and Nesimi Ertugrul (Department of Electrical Engineering)

Moderator: Dr Ben Cazzolato

Students: Victor Pisaniello and Kris Hennessy

16 Investigating the effect of water and corrosive substances on fatigue life

Supervisor: Ian Brown

Moderator: Valerie Linton

Students: Andrew Rowling

Description: The project involves adding data points to previous S-N curves generated by the rotating bending fatigue machine. The previous data points for bi-axial and bending moment fatigue are being confirmed to calibrate the equipment, and new data values for different concentration of corrosive substance are being plotted.

17 Micro-mouse Development 1*

Supervisors: Dr Tien-Fu Lu

Moderator: Dr Ben Cazzolato

Students: Nathan Juers and Tim Griffin

Email: tien-fu.lu@mecheng.adelaide.edu.au

Description: This project aims to design and fabricate a micro-mouse for annual micro-mouse competition. This project requires students to address the following issues:

- Hardware design, fabrication, and integration including sensors, micro-controller, and motors, etc.
- Software design and programming for integrated system.
- Understanding of competition rules and requirements

Comments: You will compete in the national micro-mouse competition and if successful represent the country at international competitions.

Industrial Sponsor: Dept of Mechanical Engineering

18 Mobile robot development

Supervisors: Dr. Tien-Fu Lu and Antoni Blazewicz

Moderator: As above

Students: Luke Andrews, Ben Koch and Buddhika Abeytunga

Email: tien-fu.lu@mecheng.adelaide.edu.au

Description: This project aims to continue the project, development of a mobile robot, from 2001. This project requires students to address the following issues:

- Wireless data transmission between robot and PC
- Improvement of the existing prototype
- Design, fabrication and integration of a grape cutting-catching mechanism with the existing robot prototype.
- Add encoders to 2 motors for position tracking and control.
- Image processing for grape recognition and 3D location determination
- A trailer to follow the mobile robot all the time for grape storage.

19 Underwater robot project

Supervisors: Dr. Tien-Fu Lu and Antoni Blazewicz

Moderator: As above

Students: Sze Chai, Cheong Leong and Siau Tan

Email: tien-fu.lu@mecheng.adelaide.edu.au

Description: This project aims to continue the project, development of an underwater robot, from 2001. This project requires students to address the following issues:

- Camera and spotlight for the underwater robot
- Wireless control and data transmission including images between the robot and a PC.

- Ability to stay stationary under water.
- Improvement of the existing prototype
- Robot location determination.

20 Multi-robot collaboration

Supervisors: Dr. Tien-Fu Lu

Moderator: Antoni Blazewicz

Students: Szee Ng and Michael Nielson

Email: tien-fu.lu@mecheng.adelaide.edu.au

Description: This project aims to explore interesting topics for multi-robot collaboration. This project requires students to address the following issues:

- Maintain global direction of motion (team formation)
- Obstacle avoidance
- Inter-vehicle communication (RF)
- Global control from PC via RF

21 Automatic Assembly of MDO Lourve Blades*

Supervisors: Dr. Tien-Fu Lu and Dr. Hong Du (Polyaire)

Moderator: Anthony Zander

Number of Students: Cheong Leong

Description: Conduct a complete investigation for automatic assembly of multi directional outlets lourve blades. The project is aimed to be a pilot study, which would deliver various options of automation together with costs and savings analysis.

Industrial Sponsor: Polyaire

22 Investigation of hydrogen assisted cold cracking in steels

Supervisors: Mr Ian Brown and Prof Valerie Linton

Moderator: As above

Students: Cheah Kin Mwn and Ch'ng Kar Keat

Description: Hydrogen assisted cold cracking is a cracking mechanism in carbon steels which can lead to catastrophic failure at welds without warning. The susceptibility of the weld metal to cracking appears to depend on the way the weld metal solidifies. In this work a number of welds of different chemistry will be made and the role of solidification patterns/segregation in HACC investigated using microscopy and analysis on electron microscopes.

23 Stress analysis of aircraft wings repaired using friction welding

Supervisors: Prof Valerie Linton and Dr Gerald Schneider

Moderator: As above

Students: Hack Chan Lim, Sung Kiang Yeo & Chang Wei Leong

Description: Repair of aircraft wings can be very expensive and the mechanical properties of the repair may not match those of the parent material. One potential method of repairing these components is friction stir welding.

This project will produce friction welds in aircraft alloys. The fatigue properties of these materials will be determined and this information fed into stress analysis software to compare the performance of the repaired section to that of the original component.

24 The influence of third phases on the performance of super duplex stainless steel welds

Supervisor: Prof Valerie Linton

Moderator: Ian Brown

Students: Yee Ling Siew and Mahendran Sinathuraja

Description: Super duplex stainless steels are composed of equal quantities of ferrite and austenite phases. During welding several other 'third phases' can form in small quantities. These third phases, despite their small volume, can have a profound influence on the performance of these welds in corrosive environments. This project will attempt to identity the third phases present in 'good' and 'bad' welds based on the results of industrial service. The results of this research work will assist in the specification of welding procedures for these materials.

25 Formula SAE

Supervisor: Dr Colin Kestell and Malcolm Bethune

Moderator: Prof Colin Hansen, Anthony Zander and Ian Brown

Students: Mark Berginetti, Jed Carmen, Chris Duffield, Danniel Harris, Alex Marchuk, Peter Marzec, Alex Munn, Warren Roget, Craig Rundle, Jason Sutton, Luke Zoontjens, Sovann Thach, Nick Herath, Mark Rosser, James McPherson, David Moloney

Description: A team of students will be tasked with raising sponsorship, designing, building and competing in a formula style vehicle. The vehicle will be pitted against cars from university and TAFE teams from all over Australia. Judging will be based on engineering excellence and how the car performs in a variety of events. This will be a rewarding project but not for the faint hearted.

26 Design, analysis and construction of a synthetic spinal segment

Supervisor: Dr Colin Kestell and Mellick Chahade (R.A.H.)

Moderator: Ian Brown

Students: Lim Song Chong and Siu Mun Leong

Description: Projects 26, 27 and 28 are all intended to form part of the "surrogate" programme which will ultimately result in a synthetic body with similar mechanical properties to a human. Hence, this will be of value in high velocity or explosive impact trauma. All will require an understanding of the applicable human part through a combination of literature review and cadaver examination. Project **??** is intended as an exercise to ascertain the accuracy in which the synthetic bones represent real skeletal components. In each project there will be an FEA requirement and (with the exception of project **??**) ultimately manufacture of a synthetic part prototype.

27 Design, analysis and construction of a synthetic skull / neck joint

Supervisor: Dr Colin Kestell and Mellick Chahade (R.A.H.)

Moderator: Ian Brown

Students: Matthew Scott-Toms and Simon Rees

Description: Projects 26, 27 and 28 are all intended to form part of the "surrogate" programme which will ultimately result in a synthetic body with similar mechanical properties to a human. Hence, this will be of value in high velocity or explosive impact trauma. All will require an understanding of the applicable human part through a combination of literature review and cadaver examination. Project **??** is intended as an exercise to ascertain the accuracy in which the synthetic bones represent real skeletal components. In each project there will be an FEA requirement and (with the exception of project **??**) ultimately manufacture of a synthetic part prototype.

28 Design, analysis and construction of a synthetic hip joint

Supervisor: Dr Colin Kestell and Mellick Chahade (R.A.H.)

Moderator: Ian Brown

Students: Tim Marshall, Grant Nelson and Josh Wickham

Description: Projects 26, 27 and 28 are all intended to form part of the "surrogate" programme which will ultimately result in a synthetic body with similar mechanical properties to a human. Hence, this will be of value in high velocity or explosive impact trauma. All will require an understanding of the applicable human part through a combination of literature review and cadaver examination. Project **??** is intended as an exercise to ascertain the accuracy in which the synthetic bones represent real skeletal components. In each project there will be an FEA requirement and (with the exception of project **??**) ultimately manufacture of a synthetic part prototype.

29 Development of optimized structural member

Supervisors: Dr Anthony Zander

Moderator: Ian Brown

Number of Students: Manfred Kahmann

Description: Development of optimized structural member for use as a cheap, versatile, environmentally friendly and long lasting replacement for aluminium, steel and timber, especially in aggressive environments where the former materials have limitations and high maintenance costs. Incorporation of this structural member as the modular backbone of a system used to cover orchards and vineyards as well as constructing green houses. Here one is looking to replace shaved permapine poles, the use of which, due to environmental factors and increased demand for supply is becoming problematical. Development of methods of manufacture and design of equipment and tooling to achieve this goal.

30 Internal Mirror Memory*

Supervisors: Dr. Tien-Fu Lu

Moderator: Ben Cazzolato

Number of Students: Li Teng

Description: Develop a system to integrate a memory capability into the internal mirror. Design an appropriate mechanism to drive the change in position.

Industrial Sponsor: Schefenacker Vision Systems

31 Exhaust stack directivity

Supervisors: Prof Colin Hansen

Moderator: Dr Anthony Zander

Number of Students: Matt Dewhirst

Description: In environmental acoustics, a knowledge of the directivity of industrial exhaust stacks is very important. Some information is available for unlined circular ducts. This project will involve building and testing scale models in the anechoic room so than non-dimensional directivity information can be obtained for both lined and unlined ducts and for ducts of square and circular cross section

Comments: There will be sufficient financial support available to purchase all needed materials. This is an important research project and is likely to lead to the publication of a scientific paper.

32 Design of a monster sound source

Supervisors: Prof Colin Hansen & Dr Damien Leclercq

Moderator: Lei Chen

Number of Students: Ian Register

Description: In the field of industrial active noise control, one of the main problems is generating a sufficiently intense cancelling sound field. An ideal source will have high output, low harmonic distortion and be effective over a narrow frequency range. It should also be optimised to have a maximum output in a duct. A flat plate loudspeaker is currently being investigated. This project will involve testing and modification of the current design and the development and testing of alternative designs.

33 Plenum Chamber Attenuation

Supervisors: Prof Colin Hansen

Moderator: Lei Chen

Number of Students: Benjamin Spezzano

Description: Plenum chambers are often used in air conditioning systems to smooth out the air flow and to provide noise attenuation. The purpose of this project is to construct some models that can be used to verify current prediction procedures for which there is some doubt. The work will involve finite element analysis as well as experimental design and testing.

34 GPS Differential Carrier Phase Measurements for Attitude Determination

Supervisors: Dr Gerald Schneider and Steve Kollias (Australian Space Research Institute)

Moderator: Ben Cazzolato

Students: Sam Tuominen and Rob Minson

35 Mechanical Handling of Beer Kegs into a Cellar*

Supervisors: Byron Martin and Dr. Fred Zockel

Moderator: Colin Hansen

Number of Students: Andrew Fisher and Mark Holt

Description: Coopers Brewery delivers up to 200 kegs per day in Adelaide. Each keg weighs 65 kg and is currently man-handled on the back of the delivery truck for manual unloading, and then delivered to the cellar by either rolling or with a sack truck. The most common method for getting the kegs into and out of the cellar is with an inclined chute where the kegs are slid down (or pushed up) the chute with manual assistance from the delivery driver &/or the cellar attendant. The current methods of delivery and return have resulted in occupational work injuries to both the delivery and cellar personal. The primary focus of this project is to develop methods for moving the full kegs into and the "empty" kegs out of the cellar.

Industrial Sponsor: Coopers Brewing Limited

36 Vine Maintenance Work Platform*

Supervisors: Bruce Beard

Moderator: Byron Martin

Number of Students: Jing Liau, Yong Sa and Wai Wong

Description: Southcorp Wines is one of the biggest wine producers in Australia. They have a significant area of vines in Australia (8,000Ha, approximately half of which are in South Australia) and which require regular maintenance: trimming, weed management, mowing, spraying, etc. Currently the various implements are mounted on the back of a tractor or onto a dedicated trailer which is towed along each row. The problems with this arrangement are that multiple tractor adaptors or hitches are required and that each pass along the row increases the soil compaction.

The primary focus of this project is to design a "work platform" and to develop methods for mounting the various tools required for vine maintenance onto the "work platform". The "work platform" should be able to span multiple rows, to permit the mounting of equipment and implements for multiple-function passes, and to minimise wheel loading and therefore soil compaction. It is preferred that wheel travel be to the centre of the row to minimise compaction near the vine and its root-zone.

A platform should be designed such that it can accurately track its towing tractor in normal turning between vine rows. It would ideally allow 3 Point Linkage mounting with hydraulic PTO(2) so that remotely mounted equipment could be mounted and remotely controlled; this may require a tractor mounted PTO driven hydraulic power pack to power these remotes, which may in turn operate sweeping, slashing, trimming, and spraying (weeds, canopy).

The project may include :-

1. Project Objectives for all Stakeholders
2. Analysis of Vine Maintenance Procedures
3. Selection of Tools for the Work Platform
4. Specification for the Work Platform
5. Design and Specification for Construction
6. Occupational Health & Safety considerations

Industrial Sponsor: SouthCorp Wines.

37 Microwave Weed Controller*

Supervisors: Bruce Beard

Moderator: Byron Martin

Number of Students: Matt Maxwell and Tracy Rowland

Description: Southcorp Wines is one of the biggest wine producers in Australia. They have a significant area of vines in Australia (8,000Ha, approximately half of which are in South Australia) and which require regular maintenance: trimming, weed management, mowing, spraying, etc. Currently the methods used for controlling weeds are; cultivation, mowing, spraying with various chemical herbicides, and by using gas burners to "burn" off new growth. These methods have to be used with great care not to damage the grape vine and only some techniques are acceptable for "organic" production systems. Additionally, the mechanical techniques are typically expensive of fuel and equipment maintenance.

The primary focus of this project is to validate the potential of this technique to kill or suppress weed growth. If validated, the project would then develop a method for using microwaves to "burn off" the new growth, thus preventing the "weeds" from developing into mature plants.

The device/implement would ideally be adapted to control weed, undervine, in rows ranging from approximately 1,.5m spacing to 3.5 m spacing (typically 3.0m) with weed control in a band of 0.8-1.0m undervine. The device may also be adaptable to inter-row weed management.
SouthCorp Wines is one of the biggest wine producers in Australia. They have a significant area of vines in South Australia which require regular weed control. Currently the methods used for controlling weeds are; mowing, spraying with various chemical herbicides, and by using gas burners to "burn off" new growth. These methods have to be used with great care not to damage the grape vine.

The primary focus of this project is to develop a method for using microwaves to burn off the new growth, thus preventing the weeds from developing into mature plants.

The project may include :-

1. Project Objectives for all Stakeholders
2. Establishing the application rate of microwaves to control new growth
3. Positioning system design
4. Design and Specification for Construction

5. Occupational Health & Safety considerations
6. Safety interlocks

Industrial Sponsor: SouthCorp Wines.

38 World Solar Challenge Car Design

Supervisors: Dr. Gus Nathan and Mr Richard Craig

Moderator: Ian Brown

Number of Students: Jimmy Yeoh and Yin Tsui

Summary: Preliminary design a solar car for the 2004 World Solar Challenge

Fields: Design, Aerodynamics, Modelling

Description: The Challenge is to design and build a car capable of crossing the vast Australian continent, using only daylight as fuel. Departing from Darwin, competitors travel 3000km through the Australian outback, with the first cars expected in Adelaide four or five days later. Known as the greatest solar race in the world, the World Solar Challenge is a race to motivate research and development into harnessing solar energy for future transport needs. Developments of these vehicles contribute towards a vital search for sustainable transport alternatives for the future.

The World Solar Challenge champions the creative integration of personal development with technical and scientific expertise across a wide range of engineering disciplines. The aim of the project is to undertake a preliminary design for a 2004 World Solar Challenge vehicle taking into account the resources available to Adelaide University. The project will undertake the conceptual design, vehicle layout, aerodynamics and evaluation for the vehicle. the detailed mechanical and electrical design will be performed in 2003. Modelling will be used to optimise the design.

39 Skidding of motor vehicle on bitumen vs. dirt*

Supervisors: Dr Chris Hall, Dr Anthony Zander and Dr Robert Anderson

Moderator: As above

Number of Students: Simon Martin and Suganthan Sumelingam

Description: This project involves extending existing models for surface skidding by automobiles on bitumen and dirt surfaces. The experimental validation will involve placing instrumentation on a vehicle and performing measurements on a test track with the vehicle braking under full wheel lockup. The relationship between the measurements and the resulting skid marks will also be analysed.

Unfortunately/fortunately a driver will be provided for the tests.

Industrial Sponsor: HallTech

40 Validation of Physical and Mathematical Modelling Criteria for Advanced Gyro-Therm Burners*

Fields: Fluid Dynamics, Combustion, Modelling, Control of Air Pollution

Supervisors: Dr. Gus Nathan and Mr Steven Hill (FCT)

Moderator: Richard Kelso

Number of Students: Yew Chen, Shandy Kiu and Robin Leong

Description: Precessing jets, as used in the advanced Gyro-Therm burner design, are finding increasing application in gas fired rotary kilns. In cement and lime kilns they have been shown to reduce NOx emissions by 30-60%, while simultaneously increasing radiant heat transfer. The increased heat transfer can generate specific fuel savings and increased production rates, providing savings of up to US$1m per year. The Industry Partner, Fuel and Combustion Technology (FCT), uses both physical and mathematical models for the design of burners. These models have been validated for jet entrainment burners in cement and lime kilns. However validated modelling criteria for Gyro-Therm burners have yet to be developed.

Because of their significance, precessing jet flows have been the subject of numerous investigations at by Adelaide University and FCT, who are the joint developers of the technology. Importantly, a recent PhD thesis, by Jordan Parham (2001) developed several scaling criteria for use in physical and mathematical models as design tools. However all models must be validated before they can be used with confidence. Importantly a reliable data set is also available to validate these models through a series of pilot scale trials obtained in Holland by Adelaide University and FCT.

The aims of the project therefore are to implement the proposed modelling criteria into existing mathematical and physical models and to validate the models. Validation will be performed by comparing the predictions against measured results using the existing pilot scale data. The perspex model is already available from a 2000 final year project and the mathematical model is also available. The physical model studies will be conducted in the FCT model lab at Thebarton and the mathematical model studies will be performed on a PC.

The project will be funded, and jointly supervised by, Fuel and Combustion Technology (FCT). The project will be of interest to anyone interested in combustion & fluid dynamics, modelling and in the development of practical systems to reduce air pollution from industrial combustion systems. The project is best conducted by two people. They will work together on both aspects of the project, but prime responsibility would probably be split between the physical and mathematical modelling programs.

Industry Partner: Fuel and Combustion Technology

41 Flow over towed underwater sonar arrays*

Supervisors: Dr. M.K. Bull and A. Blazewicz

Moderator: Prof Colin Hansen

Number of students: Boon Siong Tan

Description: This is a continuation of an on-going investigation in conjunction with Thomson Marconi Sonar Pty. Ltd., Pooraka. Sonar arrays used for underwater detection and seismic exploration of the ocean bed are subject to noise interference from flow-generated turbulence and vortex shedding. The conditions which determine the occurrence of vortex shedding and the state of the boundary layer on the array are to be determined by visualisation of the flow over long cylindrical array models in a water tunnel.

Industrial Sponsor THALES

42 The Design and Construction of a Self Sustaining Radial Flow Gas Turbine

Supervisors: Dr Bassam Dally and Associate Prof Gus Nathan

Moderator: Dr Ben Cazzolato

Number of Students: Matthew Hochman, Mark Leane and Simon Nitschke

Description: The primary project aim of the project the design and construction of a compact, self-sustaining radial flow gas turbine. The project will be centred around the theoretical design, development, construction and preliminary optimisation of the combustion chamber. The compressor and turbine assemblies will be adapted from an automotive turbocharger.

43 *The Floating Exhaust Stack*

Supervisors: Dr Ben Cazzolato

Moderator: Mr Byron Martin

Number of Students:

Description: The sound radiated from industrial stacks can have a significant impact on neighbouring communities. A previous 4th year project showed that by adjusting the length of a stack, it is possible to reduce the sound radiated from the stack at the fundamental blade pass frequency (the dominant tone in the community). The stack length was adjusted by placing an additional length at the end of the stack which could be driven via servos.

This approach, although successful, has its difficulties. It is proposed that it may be possible to use the sump (which collects rain water) at the bottom of the stack to adjust the length. By pumping water in and out of the sump, the effective length of the stack is modified. If this is shown to be successful, then full scale trials may be undertaken at a suitable plant in Adelaide.

Comments: There may be the possibility of commercialising this technology.

44 *Unloading of Beer Kegs from the Back of a Truck**

Supervisors: Byron Martin

Moderator:

Number of Students: 1 or 2 students

Description: Coopers Brewery delivers up to 200 kegs per day in Adelaide. Each keg weighs 65 kg and is currently man-handled in the back of the delivery truck for manual unloading, often dropping onto a tyre to soften the landing. The empty kegs (which may not be completely empty) are returned with an opposite method. The current methods of delivery and return have resulted in occupational work injuries to both the delivery and cellar personal. The primary focus of this project is to develop methods for moving the full kegs on the back of the truck and for getting them off, and for the return of the “empty” kegs. An additional aspect may be to optimise the keg movements from loading to delivery, taking into account that various types of product will be going to each delivery point.

Industrial Sponsor: Coopers Brewing Limited

45 *Auto-Positioning Vine Trimmer**

Supervisors: Bruce Beard

Moderator: Byron Martin

Number of Students: 2 to 3 students

Description: Southcorp Wines is one of the biggest wine producers in Australia. They have a significant area of vines in Australia (8,000Ha, approximately half of which are in South Australia) which require "trimming" at least twice per year and an annual pruning. Currently two methods of operation are used, manual and machine. The machine pruner/trimmers have more commonly, reciprocating cutter bars or rotating disks which are pre-set for width and shape, and the height is either pre-set or adjusted by the machine operator while trimming.

The primary focus of this project is to develop a method for adjusting the horizontal and vertical location of the pruner/trimmer head based on the top trellis wire on which the vine is growing. That is, track the top wire to provide a consistent and regular vine shape. Such an autopositioning device should also be adaptable for other operations requiring accurate placement of equipment. An alternative to a "wire tracking" device may be a cordon or canopy visualising system and control.

The project may include :-

1. Project Objectives for all Stakeholders
2. Tracking control system design
3. Hydraulic or pneumatic actuating system design
4. Design and Specification for Construction
5. Safety considerations

Industrial Sponsor: SouthCorp Wines.

46 *Embedded Active Control Systems in Passive Silencers**

Supervisors: Dr Ben Cazzolato & Dr Anthony Zander

Moderator:

Number of Students: 2 students - Mechanical or Mechatronic.

Description: Fantech are "Australia's leading supplier of Ventilation & Acoustic products". They manufacture a large range of circular duct silencers which are designed to reduce the noise levels transmitted along air conditioning systems. The units are rigidly constructed and consist of an outer cylindrical galvanised steel casing, lined internally with non-hygroscopic and incombustible sound-absorbent material. This material is retained by an inner perforated metal cylinder. They are often fitted with a centre "pod" of perforated metal, retaining an infill of acoustic material.

Unfortunately these silencers have very poor low frequency performance. The purpose of this project will be to investigate the feasibility of using feedback control to increase the sound transmission loss (absorption) at low frequencies.

For further information on Fantech visit:

Fantech Website http://www.fantech.com.au/ and the following documents Design brief from Fantech level4projects2002/active_final_yr_proj-design_brief.pdf, Typical ventilation fan level4projects2002/AP0504AP10-DRAWING.PDF, Typical ventilation fan data level4projects2002/AP0504AP10-25.PDF and Typical silencer data C1P-050.pdf.

Comments: IP limitations.

Industrial Sponsor: Fantech

47 *Development of a dual-fuel Precessing Jet nozzle to reduce NOx emissions, and increase radiant heat transfer in rotary kilns*

Fields: Aerodynamics, Laser Diagnostics, Combustion, Industrial Design

Supervisors: Dr. Gus Nathan, Mr Steven Hill (FCT) and Dr Peter Mullinger

Moderator:

Number of Students: 2

Description: Precessing Jet nozzles have been developed and applied to rotary cement and lime kilns firing natural gas and shown to reduce NOx emissions by 30-60%, while simultaneously increasing radiant heat transfer. The increased heat transfer can generate specific fuel savings and increased production rates, providing savings of up to US$1m per year. Despite these acknowledged benefits, many plants (especially in the USA) are not choosing to adopt this technology because of their requirement to be able to fire oil when natural gas is not available, notably during the winter months when the price of natural gas is high. To date a dual-fuel combustion system, to allow firing of either natural gas or oil, has not been developed.

The fundamental problem of a dual-fuel Gyro-Therm system is aerodynamic. Unlike in conventional burner systems, the oil lance cannot be at the centre of the Gyro-Therm burner. This causes the oil spray pattern to be asymmetric. The aim of the project therefore is to develop an aerodynamic solution to the problem by designing a suitable configuration to correct the asymmetry in the spray pattern.

The proposed project will continue from a 2001 project, so that all the equipment is available. A reduced scale configuration of the proposed burner design will be set up in the laser laboratory. Water will be used to simulate the oil spray, and air will be used in the same way as in full-scale designs. The laser sheet will be used assess the degree of asymmetry and to measure the size of the oil droplets. In this way modifications to the burner design will be developed and assessed to correct the asymmetry in the "oil" spray pattern. The project will be funded, and jointly supervised by, Fuel and Combustion Technology International (FCT). The project will be of interest to anyone interested in experimental fluid dynamics, in laser diagnostics and in the development of practical systems to reduce air pollution from industrial combustion systems. The project is best conducted by two people, since the rig must be operated by two people.

48 *Examining the flow through large sudden planar expansions*

Fields: Aerodynamics, Laser Diagnostics, Combustion, Industrial Design

Supervisors: Dr. Gus Nathan and Dr Richard Kelso

Moderator:

Number of Students: 2

Description: This project is a continuation of a 1999 Final Year Project in which a small scale experimental facility was constructed to examine the flow through a large sudden planar expansion. It is now well known that the flow through a large sudden expansion is asymmetric, with one re-attachment being longer than the other. Several numerical computations of the flow have been performed, but these calculations have yet to be adequately validated. The project will conduct flow visualisations and measurements of velocity and reattachment lengths using the existing facility. The results will then be compared with those of previous investigations. It is realistic to expect that a scientific publication will be possible from this project. It is suitable for one or two students.

49 *Quantifying the soot volume fraction in flames from a range of advanced burner designs*

Fields: Combustion Research, Laser Diagnostics, Data Processing

Supervisors: Dr. Gus Nathan and Dr Zeyad Alwahabi

Moderator:

Number of Students: 2

Description: One mechanism for reducing NOx emissions from gas flames is to increase the amount of soot in the flame. This is because soot particles radiate energy more effectively than do gases. Precessing Jet nozzles have been found to achieve increased heat transfer and reduced NOx emissions solely by changing the mixing characteristics of the jet. As such they have significant industrial application. While the link between the above benefits and the presence of soot is known, the actual differences in soot concentration in the flames has yet to be quantified.

A laser diagnostic technique for measuring soot concentration has been developed as part of a 2001 final year project in Chemical Engineering. The project will involve use of this technique to quantify soot volume fraction in a range of flames for which other information is already available.

The project should result in publishable data and keen students can expect to be able to produce a conference or journal paper from the project. It will therefore be of interest to anyone seeking to pursue a career in research and/or laser diagnostics. It is best performed with two students, since two people are required in the laboratory for safety reasons.

50 *Self-learning Robotic System*

Supervisors: Dr. Tien-Fu Lu and new lecturer

Moderator:

Students: 2 mechatronic students

Email: tien-fu.lu@mecheng.adelaide.edu.au

Description: This project aims to develop a self-learning robotic system which is capable of improving its own coded programs in order to achieve better efficiency, such as for operation cycle time of a task. This project requires students to address the following issues:

- Robot programming
- Self-learning techniques
- Robot failure recovery

51 *Vibration of towed underwater sonar arrays*

Supervisors: A. Blazewicz and Dr. M.K. Bull

Moderator:

Number of students: 2 students - Mechanical or Mechatronic

Description: This is a continuation of an on-going investigation in conjunction with Thomson Marconi Sonar Pty. Ltd., Pooraka. Vibration of a towed underwater sonar array and propagation of acoustic waves in its internal fluid produce pressures on the hydrophones in the array. These pressures appear as noise in the acoustic signals the array is designed to detect. Measurements are to be made of the characteristics of the vibrational waves propagating in the jacket and internal fluid on a 10 meter long module of a towed array.

52 *Temperature control stress modelling of a weld thermal simulator*

Supervisors: Mr Ian Brown

Moderator: Prof Valerie Linton

Students: Minimum of 2 mechanical/mechatronic

Description: A weld thermal simulator provides a mechanism for making reproducible metal samples with microstructures typical of those found in the heat affected zone of welds. Consequently this machine is a prime research tool for the production of consistent weld samples.

This project will involve designing and constructing an effective cooling system for the thermal simulator to broaden the range of cooling rates currently available. It is envisaged that the new equipment will also make the sample cooling more consistent.

The cooling system will involve introducing holes into the sample and so stress analysis is required of the sample designs investigated in the project to ensure that the cooling holes do not affect results in subsequent testing.

53 *Thermal modelling of heat affected samples produced in a weld thermal simulator*

Supervisors: Mr Ian Brown

Moderator: Prof Valerie Linton

Students: Minimum of 2 mechatronic

Description: A weld thermal simulator provides a mechanism for making reproducible metal samples with microstructures typical of those found in the heat affected zone of welds. Consequently this machine is a prime research tool for the production of consistent weld samples.

This project will design and build a PC controller system for the weld thermal simulator. Part of this work will involve the development of mathematical models between the welding parameters and the weld heat input. This information will be used to ensure that the microstructure generated in the sample is equivalent to that in a sample removed from a weld of the same heat input.

54 *Steels for laser cutting*

Supervisor: Mr Ian Brown

Moderator: Prof Valerie Linton

Students: Minimum of 2 with an interest in materials

Description: Laser cutting is often used in industry to cut steels sections, particularly to complex geometries. It is believed that the chemistry of the steel has an influence on the ease with which the steel can be cut. This project investigates the relationship between composition, microstructure and cutting performance with the aim of determining which steels are more readily cut and the reasons for this observation.

55 *Effect of weld profile on the fatigue/torsion performance of components*

Supervisors: Mr Ian Brown

Moderator: Prof Valerie Linton

Students: Minimum of 2

Description: Weld profile can have a profound influence on the performance of welds in service. Welds are rarely subjected to a single loading regime and cylinderical components (such as shafts) often experience combined cyclic and torsional stresses. This project will use a new test rig to investigate the influence of weld profile on the performance of components in mixed stress regimes. The aim of the work is to develop guidelines on weld finishing for critical applications.

56 *Environmental influence on the performance of components subjected to low cycle fatigue*

Supervisors: Mr Ian Brown

Moderator: Prof Valerie Linton

Students: Minimum of 2

Description: Components are often designed to withstand fatigue loading at low stress levels. However components can fail unexpectedly after a short time in service due to low cycle fatigue. The presence of corrosive environments can exacerbate this phenomenon. This project will investigate the performance of steel components operating in low cycle fatigue regimes (with and without the presence of a corrosive environment). The results of the testing will be compared against models existing in the literature.

57 *Design of a microphone array package*

Supervisors: Dr Damien Leclercq & Prof Colin Hansen

Moderator:

Number of Students: 2 students - Mechanical or Mechatronic

Description: Microphone array techniques are a key investigation tool in many R&D to study various phenomena such as airframe noise, tyre-road noise, or train pantograph noise. This projects aims at designing and making a microphone array according to some localisation accuracy criteria, and to develop the processing software. This hardware-software package will then be tested in the Department's anechoic room on a test case.

Comments: Good programming skills in Matlab.

58 *C170 Wing Clip**

Supervisors: TBA

Moderator:

Number of Students: Up to 2

Description: Design existing assembly station modifications to incorporate a pressing operation. A steel clip is to replace the current moulded clip to improve the fitment of the mirror sail to the door panel. The final assembly operation is to incorporate the steel clip assembly. The modifications are to add pneumatic cylinders, clamps and sensors to the cell and ensure the clip is pressed onto the sail in an efficient and safe manor.

Industrial Sponsor: Schefenacker Vision Systems

59 *C170 Heated Glass**

Supervisors: TBA

Moderator:

Number of Students: Up to 2

Description: Modify existing Butler machine jigs to ensure heater terminals are positioned away from the moulding process. A heated mirror variant is to be added to the C170 product. During the harness (wire) process, a moulded cap is moulded around the terminals for ease of assembly to the Motor Mechanisms. With the addition of the heater variant, two extra wires are required. These wires will need to be held in a safe position during the moulding process.

Industrial Sponsor: Schefenacker Vision Systems

60 *P131 Spring/Clip Removal**

Supervisors: TBA

Moderator:

Number of Students: Up to 2

Description: Assist in product design, prototyping and testing of concepts to reduce manufacturing costs. Major cost savings can be achieved by reducing the number of components in the product. Currently investigations are underway to remove springs and clips from the mirror arm assembly.

Industrial Sponsor: Schefenacker Vision Systems

61 *Cost Saving Investigations**

Supervisors: TBA

Moderator:

Number of Students: Up to 2

Description: Investigate, research and implement potential cost saving ideas. Research and add to the current list of cost saving ideas determined by the CIP team. Ideas include improved product design and design for assembly, reduction of components, the addition of feeder bowl technology, robotics, combining operations and rebalancing assembly lines and adding Poka Yokes to increase quality etc.

Industrial Sponsor: Schefenacker Vision Systems

62 *Automatic Guided Vehicle's**

Supervisors: Dr. Tien-Fu Lu

Moderator:

Number of Students: Up to 2

Description: Conduct a complete cost justification for the introduction of Automatic Guided Vehicle on one or more selected areas of the plant. The aim being a pilot, which would deliver cost reductions and other savings, opening up the opportunity for increased use.

Industrial Sponsor: Schefenacker Vision Systems

63 *Mirror Actuator Noise Reduction**

Supervisors: TBA

Moderator:

Number of Students: Up to 2

Description: Finite element or other form of computer modelling to predict the behaviour of the current Motor Mech 4 actuator and compare with actual noise test results. OR: Analytical calculation of noise sources and transmission paths to predict the behaviour of the current Motor Mech 4 actuator and compare with actual noise test results. Use above modelling or calculations to determine major causes of noise radiation and transmission from the actuator. Propose solutions to reduce noise radiation and transmission and use modelling or calculations to predict noise level for improved actuator. Prototype modelling and testing of improved mechanism to verify computer modelling and analytical calculations.

Industrial Sponsor: Schefenacker Vision Systems

64 *Integrated Mirror-Aerial System**

Supervisors: TBA

Moderator:

Number of Students: Up to 2

Description: Integrated aerial into either left or right hand external mirrors. Incorporate AM-FM and GPS systems. Integrate with internal LCD display on internal mirror and or other display panel.

Industrial Sponsor: Schefenacker Vision Systems

65 *Mirror Bracket**

Supervisors: Mr Ian Brown

Moderator:

Number of Students: Up to 2

Description: Currently made from Zinc Diecast and is out-sourced. Need to identify a cost-effective alternative, lightweight yet strong. Preference for the process to be handled in-house, is there a polymer fibre solution?

Industrial Sponsor: Schefenacker Vision Systems

66 *P131 Glass Dampening System**

Supervisors: TBA

Moderator:

Number of Students: Up to 2

Description: Develop an improved glass dampening system for truck mirrors with larger glass areas to achieve better performance for vibrations with the added bonus of reduced cost and less complexity if possible. Currently two plastic grommets for manual mirrors and two metal springs for electric mirrors dampen the main glass on the P131 mirrors. The spotter glass currently uses two of the plastic grommets from manual mirrors but the CIP team is developing a separate plastic grommet for the spotter glass. This is a large number of parts that perform the same function. Surely these parts could be commonised to accommodate all the applications. Alternatively, the parts could be removed altogether and a shape put into the case to dampen the pins.

Industrial Sponsor: Schefenacker Vision Systems

67 *Study of a particular micro motion manipulator**

Supervisors: Dr. Tien-Fu Lu and Mr. Daniel Hanley

Moderator:

Number of Students: 2 students

Description: This project aims to simulate and develop physical controllers for a particular micro motion manipulator. This manipulator has been designed and mathematically modelled for its kinematics and dynamics.

Comments: Good programming skills in Matlab.

Industrial Sponsor: Department of Mechanical Engineering

68 *Investigation of RailBAM microphone array directivity**

Supervisor: Dr Uwe Kopke (Vipac) and Dr Anthony Zander

Moderator:

Students: 2-3

Description: Derailments of trains caused by wheel bearing faults is a significant issue in the train and transport industry. Trains often consist of 80-100 wagons with around 1,600 bearings. The failure of just one bearing poses a significant safety risk. Vipac Engineers & Scientists Ltd has developed a new Bearing Acoustic Monitoring (BAM) system for the railway industry, RailBAM, to detect and rank axle bearing faults and wheel flats and provide advanced warning of failure.

This project is aimed at improving the directivity of the RailBAM system, which utilises an array of microphones to remotely detect bearing faults and wheel flats in the wheels of rail carriages. This project will be focussed on improving the directivity of the microphone array in the vertical direction so that it can more effectively see the acoustic signature of the bearings. The project work will include: developing an improved design for the microphone array housing and developing novel techniques for mounting the microphones and their associated cabling within the RailBAM housing; modelling the acoustics of the RailBAM system geometry; and experimentally testing the directivity of the proposed design.

Industrial Sponsor: Vipac Engineers & Scientists Pty Ltd.

69 *Development of a low frequency windscreen for gust attenuation of blast noise measurement microphones**

Supervisor: Dr Peter Teague (Vipac) and Dr Anthony Zander

Moderator:

Students: 2-3

Description: This project is aimed at developing a low cost wind noise attenuator for microphones used in monitoring low frequency blasting noise. The design must provide significant attenuation of wind noise while providing minimal attenuation of the acoustic signal. The design will also need to be robust and produce no significant rain noise. The work will be focussed on examining the mechanisms of flow noise and developing models to guide the design work. Experiments will also be conducted to quantify the relationships between various wind noise shield geometries and material types.

Industrial Sponsor: Vipac Engineers & Scientists Pty Ltd.

70 *Investigation of Aging Aircraft Engines and Resulting Maintenance Schedules*

Supervisor: Dr Gerald Schneider

Moderator:

Students:

71 Preferences: by Student

Please note that the entries in bold are confirmed placement. These projects are no longer available.

The following list is now up to date and has been taken form the enrollment data for 2002. If your name is not on the list and you are planning to do the level 4 design project in 2002 please contact the project coordinator immediately.

Surname	Given Names	Project Preferences			Comments
Abeytunga	Lokugamage Buddhika	**18**	-	-	With Koch and Andrew. Confirmed.
Andrew	Luke Philip	**18**	-	-	With Koch and Abeytunga. Confirmed.
Bergineti	Mark	**25**	-	-	Confirmed
Bong	King Huang	**9**	-	-	Confirmed with Chew. Previously project 51.
Bray	Romela	**3**	-	-	With Gordon. Confirmed.
Carmen	Jed	**25**	-	-	Confirmed
Ch'ng	Kar Keat	**22**	-	-	Confirmed with Cheah
Chai	Sze Jung Clive	**19**	-	-	Confirmed with Tan
Cheah	Kin Mun	**22**	-	-	Confirmed with Ch'ng
Chen	Yew Siong	**40**	-	-	With Robin Leong and Kiu.
Cheong	Ming Seong	**5**	-	-	Confirmed
Chew	Keen Leong	**9**	-	-	Confirmed. With Yew. Possibly Bong.
Chong	Lim Song	**26**	-	-	Confirmed
Condina	Steven Joseph	**8**	-	-	Confirmed. With Udagawa
Dewhirst	Matthew Richard	**31**	-	-	Confirmed
Dolman	Bryce Jon	**4**	-	-	Confirmed
Duffield	Chris	**25**	-	-	Confirmed
Fisher	Andrew Thomas	**35**	-	-	Confirmed. 44,, 54, 52
Ghan	Justin	**2**	-	-	Confirmed
Goh	Han Meng	**10**	-	-	With Siew and Ng. Confirmed.
Gordon	Lindsay	**3**	-	-	With Bray. Confirmed
Greaves	Adam Jason	**13**	-	-	Confirmed. With Peter Jones.
Griffin	Timothy James	**17**	-	-	Confirmed. With Nathan Juers
Harris	Daniel James	**25**	-	-	Confirmed
Hennessy	Kris	**15**	-	-	Confirmed. With Pisaniello
Herath	Nicholas John	**25**	-	-	Confirmed.
Hochman	Matthew Brett	**70**	-	-	Confirmed with Nitschke.
Holt	Mark John	**35**	-	-	First preference 36 filled. 3rd 45.
Huynh	Tong Se	**1**	-	-	Confirmed.
Jones	Peter Mclean	**13**	-	-	Confirmed. With Adam Greaves.
Jones	Rebecca Elizabeth	**6**	-	-	Confirmed
Juers	Nathan David	**17**	-	-	Confirmed. With Tim Griffin
Kahmann	Manfred	**29**	-	-	Confirmed.
Kiu	Shandy	**40**	-	-	With Leong and Chen.
Koch	Benjamin Frank	**18**	-		With Andrew and Abeytunga. Confirmed
Koo	Rajan Peng Kiat	**14**	-	-	Confirmed. With Liew and Lim
Kwan	Tuck Wai Kenneth	**5**	-	-	Confirmed
Lau	Jang Hung	**12**	-	-	With Tiong. Confirmed.
Leong	Chang Wei	**23**	-	-	Confirmed
Leong	Cheong Loong	**21**	-	-	Confirmed
Leong	Robin	**40**	-	-	With Chen and Kiu.
Leong	Siu Mun	**26**	-	-	Confirmed
Lewis	Quentin Wilfred	**43**	-	-	Confirmed.
Liau	Jing Cheng	**36**	-	-	Confirmed. With Wong and Sa
Liew	Eng Kiat	**14**	-	-	Confirmed with Lim and Rajan.
Lim	Hock Chan	**23**	-	-	Confirmed
Lim	Liang Chern Benny	**14**	-	-	Confirmed with Liew and Rajan.
Low	Chow Kian	**30**	-	-	Confirmed with Teng

Surname	Given Names	Project Preferences			Comments
Maloney	Michael	**25**	-	-	Confirmed
Marchuk	Alexandre Nikolas	**25**	-	-	Confirmed
Marshall	Timothy Ian	**??**	-	-	Confirmed
Martin	Simon Matthew	**39**	-	-	Confirmed. 1st preference unavailable. 2nd preference 13 full.
Marzec	Peter	**25**	-	-	Confirmed
Maxwell	Matthew John	**37**	-	-	Confirmed
Mc Pherson	James Drummond	**25**	-	-	Confirmed
Miners	Benjamin	**11**	-	-	Confirmed
Minson	Robert Langford	**34**	-	-	Confirmed with Sam Tuominen.
Moloney	David	**25**			Confirmed
Moo	Chun-Huong Adrian	**1**	-	-	Confirmed.
Munn	Alexander Christian	**25**	-	-	Confirmed
Nelson	Grant David	**??**	-	-	Confirmed
Ng	Hui Hoon	**10**	-	-	With Siew and Goh. Confirmed.
Ng	Szee Thai	**20**	-	-	Confirmed
Ng	Wei Boon	**5**	-	-	Confirmed
Nielsen	Michael John	**20**	-	-	Confirmed
Nitschke	Simon John	**70**	-	-	Confirmed with Hochman
Pisaniello	Victor	**15**	-	-	Confirmed. With Hennessy
Radzevicius	Tomas	**2**	-	-	Confirmed
Rees	Simon Robert	**??**	-	-	Confirmed
Register	Ian Alasdair	**32**	-	-	Confirmed
Robertson	Will Samuel	**2**	-	-	Confirmed
Roget	Warren Keith	**25**	-	-	Confirmed
Rosser	Mark James	**25**	-	-	Confirmed
Rowland	Tracy Marie	**37**	-	-	Confirmed
Rowling	Andrew	**44**	-	-	Confirmed
Rundle	Craig Francis	**25**	-	-	Confirmed
Sa	Yong Wee	**36**	-	-	Confirmed. With Wong and Liau
Scott-Toms	Matthew Ryan	**??**	-	-	Confirmed
Siew	Wei Khan	**10**	-	-	With Goh and Ng. Confirmed.
Siew	Yee Ling	**24**	-	-	Confirmed. Still need another.
Sinathuraja	Mahendran	**24**	-	-	Confirmed with Yee Siew
Spezzano	Benjamin Paul	**33**	-	-	Confirmed
Stacy	Michael	**6**	-	-	Confirmed
Su	Teng Eik	**7**	-	-	Confirmed
Sung	Benjamin Lik Wei	**7**	-	-	Confirmed
Sutton	Jason	**25**	-	-	Confirmed
Tan	Boon-Siong	**??**	-	-	Confirmed.
Tan	Siau Tee	**19**	-	-	Confirmed with Chai
Tang	Tze King	**4**	-	-	Confirmed
Teng	Li Gin	**30**	-	-	Confirmed with Low
Thach	Sovann Kim	**25**	-	-	Confirmed
Thornton	Alexandra	**2**	-	-	Confirmed.
Ting	Huat Lee	**7**	-	-	Confirmed
Tiong	Yong Taang	**12**	-	-	With Lau. Confirmed.
Tsui	Yin	**38**	-	-	Confirmed.
Tuominen	Sam David	**34**	-	-	Confirmed with Rob Minson
Udagawa	Jun	**8**	-	-	Confirmed. With Condina
Wickham	Joshua Henry	**??**	-	-	Confirmed.
Wong	Wai Siong	**36**	-	-	Confirmed. With Liau and Sa
Yeo	Sung Kiang Alan	**23**	-	-	Confirmed
Yeoh	Wei Jin Jimmy	**38**	-	-	Confirmed. With Yin Tsui.
Zoontjens	Luke	**25**	-	-	Confirmed

Projects listed by Supervisor