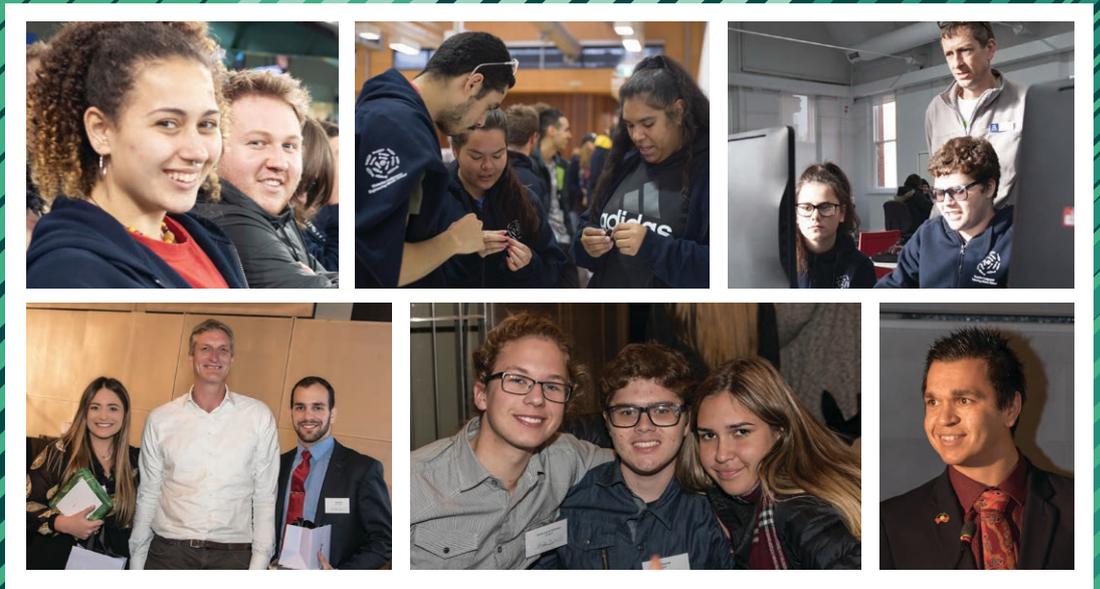


VICTORIAN INDIGENOUS ENGINEERING WINTER SCHOOL

7–14 JULY 2018

REPORT



We acknowledge the Traditional Owners of the land in which the Victorian Indigenous Engineering Winter School took place, the land of the Wurundjeri, and pay respect to their Elders and families.



Victorian Indigenous Engineering Winter School (VIEWS)

VIEWS 2018 was held in Melbourne from 7-13 July 2018 during NAIDOC week. Growing from strength to strength VIEWS 2018 doubled in student cohort size from the 2017 program. This year twenty eight, years 10, 11 and 12 Indigenous students from across Australia participated in a rich experience aimed at expanding their perspective on engineering and inspiring them to consider engineering as a career.

VIEWS, an initiative arising from the 2015 National Indigenous Engineering Summit, was a collaborative venture between the University of Melbourne, RMIT University, Swinburne University and Monash University. Its aim was to provide Year 11 and 12 Indigenous students with an immersive experience of engineering and the offerings of the four universities.

Under the patronage of Professor Marcia Langton, VIEWS received generous support from each of the four universities, and sponsorship from Google, John Holland, BP ARUP, Honeywell and Sytaq with program participants Defence Recruitment.



“The generosity of our faculty volunteers and staff as well as that of our sponsors is inspired by the need to reach parity for Indigenous professionals in the fields of engineering so that they too can contribute to making Australia great.”

Professor Marcia Langton, VIEWS Patron

The VIEWS program (see following pages) included:

Residence on campus at Trinity College at the University of Melbourne



Real-world experience of engineering through **site visits** to ARUP that provided insights into the global challenges that engineering can address and hands on problem solving



An opportunity to explore different **university campuses**, engineering options available and the pathways to studying engineering



Hands-on **workshops** to develop the problem solving and design skills used every day by engineers



Connection with Indigenous Support Units and meeting Indigenous Elders



The chance to **speak with** Indigenous students and Indigenous engineers



The student feedback was very positive, with students valuing the rich experience VIEWS provided.

“Honestly one of my best experiences in my life. I got to meet a bunch of wonderfully, bright, very intelligent, mature ‘men’ and ‘women’ who will go out and change the world even if they don’t do engineering later in there life, they will definitely make a difference in this world. I also especially loved the mentors, they were just trying to push us, and make us do well on the camp, which was excellent. I would truly, honestly recommend this camp to other people around Australia, to anyone who is Indigenous, and looking to go down the engineering or even just to learn and understand engineering, this camp would honestly be the best place to do it.” VIEWS 2018 participant



Supporters

The Steering Committee of Victorian Indigenous Engineering Winter School would like to express their gratitude to our Industry sponsors. Without the generous support of our Industry sponsors, and the sponsorship and collaborative engagement of the four universities, the VIEWS program would have not been possible.

Thanks to our gold sponsors:



Thanks to our bronze sponsors:



Participants:



Thank you to The University of Melbourne, Monash University, RMIT University and Swinburne University for your sponsorship and support.



The Melbourne School of Engineering



RMIT Engineering



Monash Faculty of Engineering, The Faculty of Science



Engineering and Technology Swinburne



Ngarara Willim Centre, RMIT Indigenous Centre, Murrup Barak Indigenous Centre, Yulendj Indigenous Engagement Centre Monash and the Moondani Toombadool Centre at Swinburne University.

Thank you to our in kind sponsor for your enthusiastic support.



We will keep sponsors updated of the ongoing success of VIEWS participants, who will continue to be supported through the VIEWS alumni network.



Supporters

Patron: Professor Marcia Langton

Steering Committee:

Chair: Mr Brendon McNiven, Structural Engineer

Melbourne University: Professor Andrew Turpin
Professor Elaine Wong
Ms Hope Perkins
Ms Michelle Bellino
Dr Juliana Kaya Prpic
Ms Rula Paterson

Monash University: Associate Professor Victoria Haritos
Ms Alana Harris

RMIT University: Dr Matthew Currell
Dr Kate Fox
Mr Kevin Moore, Ngarara Willim Centre

Swinburne University: Dr Scott Rayburg
Mr Joel Boojers
Ms Lea Jones
Ms Lee-Ann Emzin

Engineers: Mr Ross Peek, Indigenous Engineer, Melbourne School of Engineering Alumni
Mr Josh Loyd, Jacobs

Indigenous Business: Mr Simon Walter, BARPA

Sponsors: Gold Sponsors: Google, BP, John Holland
Bronze Sponsors: ARUP, Honeywell, SYPAQ

In-kind sponsor: The Korin Gamadji Institute Richmond Football Club

Participants: Defence Force Recruitment

Indigenous Engineer Panel Members: Alisha Hummel – Bachelor of Information Technology, IT Security Major KPMG Cybersecurity
Daniel Hill – Bachelor of Engineering (Chemical), Production Superintendent ERA Rio Tinto
Owen Walsh – Bachelor of Commerce, Bachelor of Information EY Cybersecurity team

Indigenous Elders: Aunty Diane Kerr, Wurundjeri Elder
Dean Stewart, Wemba Wemba/Wergala man, working on Boon Wurrung Country with consent from the Boon Wurrung Foundation (Aunty Carolyn Briggs)

Indigenous Mentors: Brittney Andrews, Zane McMillan, Ethan Savage, Liam Flannagan

“I found that the organisers did a great job of intertwining the Indigenous aspect with the engineering aspect. I couldn’t be more happy.” VIEWS participant

“The VIEWS trip has been a great cultural, social, and educational experience that has helped me in deciding my goals for my future.” VIEWS participant



Participants

The 28 Indigenous students (17 male, 11 female) who attended VIEWS attended various schools from around Australia (Figure 1).

Figure 1: Australia-wide participation in VIEWS



Program

The Indigenous students who participated in the Victorian Indigenous Engineering Winter School were given a first-hand experience of various aspects of engineering. The program extended for five days and offered Years 10, 11 and 12 Indigenous students an opportunity to expand their perspective on engineering.

The philosophy underpinning the program was to engage the students in areas outlined below.

1. Explore four universities

The success of the VIEWS arose from its being a collaboration between four universities who were mutually concerned to expose the participants to the full range of opportunities available.

Each day was hosted by a different university and included a range of presentations and engaging activities as summarised in the Program Appendix 1.

Visits to each campus enabled students to explore the facilities and the various courses on offer and to discover which university might best meet their particular needs and aspirations.

Students enjoyed meeting the staff from the Indigenous Engagement Units who welcomed them and described the services and support they offered. They also enjoyed hearing stories from Indigenous Elder, Auntie Diane Kerr.

In their feedback about the VIEWS, students particularly valued the opportunity to meet and talk with other Indigenous students studying engineering. Informal Yarning Circle discussions were held every evening at Trinity College and very successful, with students being able to share concerns about coming to university and find common ground about Indigenous culture.

2. Meet Indigenous engineers

VIEWS was designed to offer students the opportunity to meet Indigenous people who had successfully undertaken university study and become engineers.

Owen Walsh is a Wiradjuri man from Wagga Wagga, NSW. He was the first Indigenous student to graduate with an Information Systems degree from UNSW when he completed his B.Commerce / B.Information Systems degrees in 2016. Now working with EY as a Senior Consultant in the Cyber Security Practice, Owen is passionate about helping organisations navigate the complex challenges related to cyber security.

Alisha Hummel is a Cyber Security Consultant at KPMG in Sydney. Prior to this, she worked as a Business Intelligence Analyst in her home town of Melbourne, where she undertook a double degree in Cyber Security and Criminology at Deakin University. Her avidity for technology was developed from a young age which she continues to pursue in both her professional and personal time.

Daniel Hill completed a Bachelor of Chemical Engineering at the University of Melbourne in 2008 and is currently a Production Superintendent with Energy Resources Australia a subsidiary of the Rio Tinto group. Daniel was the first Indigenous Chemical Engineering graduate under Rio Tinto's graduate placement program and is currently completing his Masters in Business Administration through the UNSW Business School.

Mr. Ross Peek qualified as an engineer from the University of Melbourne. As an Indigenous Australian who has taken the pathway, Ross served as a mentor to students through the VIEWS program, providing advice on how to overcome some of the hurdles they may experience in their studies.



“For me there were three main focusing areas... Culture, universities and work site visits. The university visits enabled the group to understand the tertiary opportunities available and also the assistance lying right beneath our feet.” VIEWS participant

Program

3. Discover pathways into engineering

In addition to exploring the various pathways offered by the four universities, participants were also able to discover other possible pathways into engineering and real world applications of Engineering.

As part of the program Carbon Creative Managing Director and Indigenous Entrepreneur Wayne Denning presented to the students and highlighted the importance for students in today's society to be critical thinkers and creative (design) problem solvers. Wayne discussed some case studies including the Melbourne Dreaming App as well as the STEM.I.AM initiative to promote the study of science, technology, engineering and mathematics (STEM) with Aboriginal and Torres Strait Islander children and youth around Australia.

Career Trackers also presented on what opportunities are available with their internship program and the future of STEM careers.

4. Experience the work of engineers

An important element of the program was the industry visits, which exposed students to the variety and diversity of an engineer's daily work. The sites visited included:

- **ARUP**, the global engineering consultancy, who provided an opportunity to hear stories of engineers at work and to partake in a design challenge based on the Metro Rails Project. This project also exposed students to the Indigenous Heritage issues that can arise in urban renewal projects.

5. Cultural activities

An important element of the program was to provide a connection to the Indigenous culture. Students had the opportunity to participate in a guided tour of the Birrarung (Yarra) river through Indigenous eyes, including discussion of the history of engineering/modification since European settlement and the pre-European history of the river.

Students also participated in a Marngrook activity at Swinburne University facilitated by Ms Bernadette Atkinson of the Wolithiga Clan, Yorta Yorta Nations, owner of Winyarr Dreaming Creations which has a focus on cultural connection and learning about Marngrooks and cultural through workshops or information sessions. The students were overwhelming engaged in the process and resulted in the students all taking a piece of culture home with them in the shape of a marngrook.

Students also worked on the the Bunjil's nest project. Constructed by Swinburne engineering students, the Bunjil's Nest installation encourages people to tell their stories and engage with others in a celebration of Indigenous culture. The VIEWS students teamed up with members of Swinburne's Moondani Toombadool Centre and Engineering Practice Academy associates to create an interactive installation joining two local cultural practices: weaving and storytelling.

"Bunjil's Nest not only provides an opportunity for people to learn about different cultures in a fun way. It also brings everyone together, setting their age and cultural differences aside."



Evaluation and Feedback

The participating VIEWS students and mentors were surveyed about their experience of VIEWS 2018.

All of the survey respondents would recommend the program to other Indigenous students.

81% of respondents also said they are (more) likely to apply to one of the partner Universities, highlighting that the participants were keen to pursue further studies.

“As I boarded my flight bound for Melbourne, I honestly had no idea what was coming. I actually didn’t really know much about engineering, but I knew STEM was a pathway I wanted to pursue. For me there were three main focusing areas Culture, universities and work site visits. The university visits enabled the group to understand the tertiary opportunities available and also the assistance laying right beneath our feet. We were fortunate enough to attend ARUP, an engineering firm where we had a tour, presentations and an practical insight to a life of an engineer. We were actually able to develop a new train line system for Melbourne City. Although the highlight for myself was the gala dinner at the end of the week. Here we all had the opportunity to network with university executives, I was able to obtain contacts I would otherwise would not of had. In short, views has been such an insightful and genuine experience. The views team have created an amazing program, filled with culture and opportunity. This has been an incredible experience and one that makes me proud to be a young Indigenous Australian.”

After spending a week attending the VIEWS 2018 program, is Engineering still a consideration after high school?

100% of respondents said ‘yes’.

After attending VIEWS 2018 would you recommend other Year 11 or 12 Indigenous students to participate?

100% of respondents said ‘yes’

Did you feel that you were supported during your stay at VIEWS by mentors and staff?

100% of respondents said ‘yes’

We appreciate that running the program in NAIDOC week can be difficult. What was your experience?

“Because of her we can” was beautifully instilled in our cultural interactions. I unfortunately don’t have much education into my culture, however there was support available if need be.”

“Felt like it was good to experience in a different community such as Melbourne.”



The feedback from the Mentors indicated that overall they were well-prepared and supported during the program and that the size of the group was manageable.

“As a mentor, being able to guide young, black students to witness their potential and potentially pursue their goals in higher education was a very rewarding experience.”

The mentor recommendations for what part of the program could be improved related to the yarning circles of an evening.

“The yarning circles were good but would have run better if we broke off into smaller groups more often because 30 kids is hard to handle at once.”







Appendix

The 2018 VIEWS program

SATURDAY 7 JULY		
TIME	ACTIVITY	LOCATION
9:00am – 6:00pm	Arrivals from Tullamarine Airport	Trinity College
6:00pm – 8:00pm	Dinner	Trinity College Dining Hall
8:00pm – 9:00pm	Yarning Circle/free time	Gourlay Room Trinity College
SUNDAY 8 JULY		
TIME	ACTIVITY	LOCATION
7:30am – 9:00am	Breakfast	Trinity College Dining Hall
9:00am – 10:00am	Free time	
10:00am – 11:00am	Aunty Di – Welcome to country/Smoking Ceremony	OWL north & south, Trinity College
11:00am – 12:00pm	Program briefing and conduct	OWL north & south, Trinity College
12:00pm – 6:00pm	Group activity – Melbourne experience – AFL game	
6:00pm – 8:00pm	College dinner	Trinity College Dining Hall
8:00pm – 9:00pm	Yarning Circles/Free time	OWL north & south Trinity College
MONDAY 9 JULY – RMIT		
TIME	ACTIVITY	LOCATION
7:30am – 8:45am	Breakfast	Trinity College Dining Hall
8:45am – 9:20am	Depart Trinity college to Flinders Street Station and then to Enterprize Park (meeting point for River walk)	
9:20am – 9:30am	Welcome and Introductions with RMIT staff	Enterprize Park
9:30am – 12:30pm	Walking Birrarung (Yarra) tour: A guided tour of the river through Indigenous eyes	Enterprize Park to Southbank
12:30pm – 1:30pm	Lunch at RMIT Ngarara Willim Centre	Building 5, Level 1, Room 5 124 La Trobe Street, City campus
1:45pm – 3:15pm	3D Printing / Biofabrication activity	RMIT Building 55, Level 4
3:30pm – 5:00pm	Bridge building challenge activity: groups plan and design their own bridge for testing with weights, using 'unconventional' materials	RMIT 80.02.003
5:00pm – 6:00pm	Students present group challenge findings and test bridge designs out	
6:00pm – 6:15pm	Walk from RMIT to Strike QV	
6:15pm – 8:30pm	Strike bowling and dinner	Strike QV – 245 Little Lonsdale Street Melbourne CBD
8:34pm	Depart Melbourne Central Station/Swanston Street (Melbourne City) Stop 8	
8:40pm	Arrive at Melbourne University, get off at Stop 1 Swanston Street	
8:40pm – 8:50pm	Walk to Trinity from Stop 1, Swanston Street	
8:50pm	Yarning Circles / Free time	Trinity College

Appendix

The 2018 VIEWS program

TUESDAY 10 JULY – MONASH UNIVERSITY		
TIME	ACTIVITY	LOCATION
7:30am – 9:00am	Breakfast	Trinity College Dining Hall
9:15am – 10:00am	Bus departs from Trinity to Monash University	New Horizons, 20 Research Way
10:00am – 10:10am	Students arrive	New Horizons, 20 Research Way
10:10am – 10:30am	Welcome	New Horizons, 20 Research Way
10:30am – 11:30am	Woodside Centre and The Cave	New Horizons, 20 Research Way
11:30pm – 12:30pm	Robogals workshop and morning tea	New Horizons, 20 Research Way
12:30pm – 12:45pm	Walk to Yulendj	
12.45am – 1.45pm	Lunch with Yulendj staff	Yulendj Indigenous Engagement Unit, 10 Ancora Imparo Way
1.45pm – 2.00pm	Walk back to Engineering	
2.00pm – 3.00pm	Engineers Without Borders Prosthetic workshop	New Horizons, 20 Research Way
3:00pm – 4:00pm	Tour of Monash Engineering	New Horizons, 20 Research Way
4:00pm – 5:00pm	Depart from Monash returning to Trinity	
5:00pm – 6:00pm	Free time	
6:00pm – 7:00pm	Dinner	Trinity College Dining Hall
7:00pm – 9:00pm	Yarning Circles / Free time	Owl Trinity College
WEDNESDAY 11 JULY – UNIVERSITY OF MELBOURNE		
TIME	ACTIVITY	LOCATION
7:30am – 9:00am	Breakfast	Trinity College Dining Hall
9:00am – 9:30am	Carbon Creative presentation on STEM. I.AM and the importance of STEM in study and in professions / Demo of 'Melbourne Dreaming' app	The University of Melbourne
9:30am – 10:30pm	Introduction to 'App Inventor' and the NAO robots, with help from Google engineers	
10:30am – 12:30pm	Design an app to drive the robots	
12:30pm – 2:00pm	Lunch and presentation by Murrup Barak. Followed by presentation from Career Trackers	Murrup Barak
2:00pm – 4:00pm	Test and improve your app	The University of Melbourne
4:00pm – 5:00pm	Best App competition	
5:00pm – 6:00pm	Free time	
6:00pm – 8:00pm	Dinner	
8:00pm	Return to Trinity College	
8:30pm	Yarning Circles / Free time	

Appendix

The 2018 VIEWS program

THURSDAY 12 JULY – SWINBURNE UNIVERSITY OF TECHNOLOGY		
TIME	ACTIVITY	LOCATION
7:30am – 8:15am	Breakfast	Trinity College Dining Hall
8:15am – 9:00am	Travel to Richmond Football Club	
9:00am – 10:30am	Marngrook session	Richmond Football Club
10:30am – 11:00am	View senior football training	
11:00am – 11:30am	Talk from Director Korin Gamadji institute (Aaron Clark)	
11:30am – 12:00pm	Engineering presentation by Swinburne Lecturer	
12:00pm – 12:30pm	Tour of facility	
12:30pm – 1:30pm	Lunch	
2:00pm – 2:30pm	Astrotour	Swinburne University
2:30pm – 3:00pm	Bunjils nest	
3:00pm – 5:00pm	Flight simulator aviation experience	
5:15pm – 6:15pm	Dinner	Santoni's restaurant
6:30pm – 8:30pm	Film at LiDO cinema (Jurassic Park)	LiDO cinema
8:30pm	Return to Trinity College	

FRIDAY 13 JULY		
TIME	ACTIVITY	LOCATION
7:30am – 9:00am	Breakfast	Trinity College Dining Hall
9:00am – 12:00pm	ARUP visit	East Melbourne
12:00pm – 1:00pm	Lunch	
1:00pm – 3:00pm	Group activity	
3:00pm – 5:00pm	Free time	
5:00pm – 5:30pm	Travel to State Library of Victoria	
5:30pm – 6:00pm	Dinner Registrations	State Library of Victoria
6:00pm – 9:30pm	Celebration Dinner	Experimedia, State Library of Victoria
9:30pm – 10:00pm	Tram back to Trinity College	

SATURDAY 14 JULY DEPARTURES		
TIME	ACTIVITY	LOCATION
7:30am – 9:00am	Breakfast	Trinity College Dining Hall
6:00am – 10:00am	Departures (dependent to flight itinerary)	

