



UNSW
CANBERRA

Welcome to **YOWIE!**

16-18
April
2024

Acknowledgement of Country

We acknowledge the Ngunnawal people (UNSW Canberra – ADFA and City campuses), the Bedegal people (Kensington Campus) and the Gadigal people (Sydney CBD and Art & Design Campuses) as the traditional custodians of the lands on which UNSW campuses are located. We acknowledge the First Nations Peoples as the First Educators on these lands and pay our respects to their elders, past and present.





YoWIE is eight years young, and this year we have almost 100 girls joining us here at UNSW Canberra to experience what it's like to be an engineer with fun, hands-on activities.

It's so great to have you all here with us in 2024 to share our passion for engineering.

Over three days you will complete amazing engineering activities that will show you just what it's like to be a space, aeronautical, electrical, civil, mechanical and software engineer, hear what it's like to work as an engineer and visit our first lunchtime careers fair.

Over the next three days, you will:

- Build a plane and learn the fundamentals of flight
- Build a gas turbine engine and learn how they power aircraft
- Return a lost astronaut back to her rocket
- Use your imagination to program and solder a circuit
- Program a robot to solve a complex problem
- Disassemble and reassemble a lawnmower engine and learn how the engine works and fits together
- Design, build and test your very own dam
- Make your own YoWIE key rings in our student engineering workshop

While all activities have been carefully planned, there may be some things that are too easy, too difficult, too fast or too slow for you, or that won't work as planned on the day. Don't be too worried this is real life engineering! Remember you can always ask for help - engineers do this every day! This year, a SuperYoWIE will be helping on all activities. A SuperYoWIE is a past YoWIE just like you who has come back to share their passion and help you through activities.

YoWIE is all about you! Our goal is to give you a flavour of university-level engineering, and exposure and development of skills that engineers need. However, if you find any difficulties with the activities, or you can think of ways to make things work better, then please let us know so we can keep improving the program in future years.

Again, welcome to YoWIE 2024, and enjoy the experience engineering.

YoWIE Team



Neda Aboutorab



Matt Barrett



Bobby Matthews

Activity Leads



Yue Chen
Earthen Dam



Luke Pollock
Flight Dynamics



Graham Wild
Aviation



David Petty
Gas Turbines



Olga Zinovieva
Lawn Mowers



Edwin Peters
Lost in Space



Yan Kei Chiang
Microcontrollers



Dilini Samarasinghe
Robots



Lis Bailey
YoWIE Tech

YoWIE 2024 Event Schedule



YoWIE 2024 Schedule

Day 1: Tuesday 16 April 2024

MacGill	Lemaire	McKenzie	Fox	Jackson	Taylor
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08.30
09.00 Registration & Assembly - B20/21 Underpass

09.00
09.30 Welcome - B32 LT07

09.30 11.00	Flight Dynamics (Aeronautical) B32 LT12	Lost in Space (Space) B32 SR03	Lawn Mowers (Mechanical) B16 R104	Robots (Software) B13 TR1	Mircocontrollers (Electrical) B13 TR3	Earthen Dam (Civil) B20 R110
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11.00
11.30 Morning Tea - B32, open space near AAFCANS cafe

11.30 13.00	Gas Turbines (Aeronautical) B32 SR07	Lost in Space (Space) B32 SR03	Lawn Mowers (Mechanical) B16 R104	Robots (Software) B13 TR1	Flying (Aviation) B17 G20	YoWIE Tech (Technical) B18 - workshop
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13.00
14.00 Lunch - B32, open space near AAFCANS cafe
Career Expo - B32, Room SR06 (Red Door Room)

14.00 15.30	Robots (Software) B13 TR1	Mircocontrollers (Electrical) B13 TR3	Earthen Dam (Civil) B20 R110	Flight Dynamics (Aeronautical) B32 LT12	Lost in Space (Space) B32 SR03	Lawn Mowers (Mechanical) B16 R104
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15.30
16.00 Afternoon Tea - B32, open space near AAFCANS cafe

16.00 17.30	Robots (Software) B13, TR1	Flying (Aviation) B17 G20	YoWIE Tech (Technical) B18 - workshop	Gas Turbines (Aeronautical) B32 SR07	Lost in Space (Space) B32 SR03	Lawn Mowers (Mechanical) B16 R104
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17.30
Pick up at assembly point

YoWIE 2024 Schedule

Day 2: Wednesday 17 April 2024

MacGill	Lemaire	McKenzie	Fox	Jackson	Taylor
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08.00
08.30

Registration & Assembly - B20/21 Underpass

08.30
10.00

Lawn Mowers (Mechanical) B16 R104	Flight Dynamics (Aeronautical) B32 LT12	Lost in Space (Space) B32 SR03	Earthen Dam (Civil) B20 R110	Robots (Software) B13 TR1	Flying (Aviation) B17 G20
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10.00
10.30

Morning Tea - B32, open space near AAFkans cafe

10.30
12.00

Lawn Mowers (Mechanical) B16 R104	Gas Turbines (Aeronautical) B32 SR07	Lost in Space (Space) B32 SR03	YoWIE Tech (Mechanical) B18 Workshop	Robots (Software) B13 TR1	Mircococontrollers (Electrical) B13 TR3
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12.10
13.00

Guest Speaker - B32 LT07

13.00
14.00

Lunch - B32, open space near AAFkans cafe
Career Expo - B32, Room SR06 (Red Door Room)

14.00
15.30

Earthen Dam (Civil) B20 R110	Robots (Software) B13 TR1	Mircococontrollers (Electrical) B13 TR3	Lawn Mowers (Mechanical) B16 R104	Flight Dynamics (Aeronautical) B32 LT12	Lost in Space (Space) B32 SR03
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15.30
16.00

Afternoon Tea - B32, open space near AAFkans cafe

16.00
17.30

YoWIE Tech (Mechanical) B18 Workshop	Robots (Software) B13 TR1	Flying (Aviation) B17 G20	Lawn Mowers (Mechanical) B16 R104	Gas Turbines (Aeronautical) B32 SR07	Lost in Space (Space) B32 SR03
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17.30

Pick up at assembly point

YoWIE 2024 Schedule

Day 3: Thursday 18 April 2024

MacGill	Lemaire	McKenzie	Fox	Jackson	Taylor
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08.00
08.30

Registration & Assembly - B20/21 Underpass

08.30
10.00

Lost in Space (Space) B32 SR03	Lawn Mowers (Mechanical) B16 R104	Flight Dynamics (Aeronautical) B32 LT12	Mircocontrollers (Electrical) B13 TR3	Earthen Dam (Civil) B20 R110	Robots (Software) B13 TR1
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10.00
10.20

Morning Tea - B32, open space near AAFCANS cafe

10.20
11.50

Lost in Space (Space) B32 SR03	Lawn Mowers (Mechanical) B16 R104	Gas Turbines (Aeronautical) B32 SR07	Flying (Aviation) B17 G20	YoWIE Tech (Mechanical) B18 Workshop	Robots (Software) B13 TR1
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11.50
12.20

Group Photo - Forecourt between Building 19 & 32

12.30
13.30

Lunch - B32, open space near AAFCANS cafe
Career Expo - B32, Room SR06 (Red Door Room)

13.30
15.00

Mircocontrollers (Electrical) B13 TR3	Earthen Dam (Civil) B20 R110	Robots (Software) B21 SL2	Lost in Space (Space) B32 SR03	Lawn Mowers (Mechanical) B16 R104	Flight Dynamics (Aeronautical) B32 LT12
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15.00
15.30

Afternoon Tea - B32, open space near AAFCANS cafe

15.30
17.00

Flying (Aviation) B17 G20	YoWIE Tech (Mechanical) B18 Workshop	Robots (Software) B21 SL2	Lost in Space (Space) B32 SR03	Lawn Mowers (Mechanical) B16 R104	Gas Turbines (Aeronautical) B32 SR07
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17.00
17.30

Closing - B32 LT07

17.30

Pick up at assembly point

YoWIE 2024 Map

Please [click](#) the image below to access the interactive Google Map



YoWIE

Group Name

Inspiration





Group

Jackson

Mary Jackson joined what is now known as NASA in 1951, as a research mathematician, before re-training and being promoted to aerospace engineer in 1958. Mary was NASA's first African-American female engineer. She worked as a research engineer in the wind tunnels at NASA Langley where she performed experiments on vehicles

travelling at low and high speeds to improve the performance of planes. Mary is most publicly famous for her work on Project Mercury during the space race to put a man on the moon. Her role in Project Mercury was brought to global attention in the film *Hidden Figures*. Mary was a strong advocate for equity and diversity in aerospace engineering.



Group

MacGill

Elsie MacGill was the first North American woman to earn a master's degree in aeronautical engineering in 1929. She contracted polio on the eve of her graduation, but this did not slow her down. After recovering she became the first female aircraft designer in the world, and the first woman appointed to the position of Chief Aeronautical Engineer at Canadian Car and Foundry. During WWII, she was responsible for the streamline of operations in the production line for the Hawker Hurricane flight

aircraft for the R.A.F. Elsie was also responsible for designing solutions that allow the aircraft to operate in winter conditions, such as de-icing and a landing system for snow. She was a Technical Advisor for the International Civil Aviation Organization and helped draft the International Air Worthiness Regulations for the design and production of commercial aircraft. Elsie was a pioneer for women in aerospace engineering, disability advocate, and advocate for the rights of women and children.



Group

McKenzie

Violet McKenzie OBE was Australia's first female electrical engineer, graduating with her Diploma from Sydney Technical College in 1923. Violet had a passion for electricity and invention from an early age, inventing an automatic cupboard light for her mother. In 1918 she established her own electrical contracting business, "The Wireless Shop" in 1922. Violet was a strong advocate for women's technical education and employment. She

identified a lack of educational opportunity for women and so started the Women's Radio College in 1932, teaching girls about electrical circuits, Morse code, and radio. In 1939 she founded the Women's Emergency Signalling Corps (WESC) as part of the war effort and campaigned successfully to have some of her trainees accepted into the all-male Navy in 1941, and thus beginning the Women's Royal Australian Naval Service.



Group

Fox

Kate Fox is an Associate Professor of biomedical engineering at RMIT, Superstar of STEM (2019/20) and named as one of Australia's most innovative engineers (2019) by Engineers Australia. Kate started her career with a degree in science and biomedical engineering before completing a PhD in orthopaedic implants. She then spent five years as a patent attorney before

transitioning back to research on the Bionic Eye Project. These days, Kate develops technology to produce diamond 3D printed medical implants to create more comfortable and compatible implants. Kate is a passionate supporter of the power and impact of engineering and encourages engineering as a great career choice for girls.



Group

Taylor

Florence Taylor, CBE was Australia's first qualified female architect and first woman trained as an engineer.

She completed her architecture studies at the Sydney Technical College in 1904. She was also the first Australian woman to fly a heavier-than-air craft in a glider built by her husband, in 1909.

Together with her husband, Florence established a publishing company where she went on to edit industry publications such as Building

Magazine, Lighting and Engineering, Construction, and the Australasian Engineer. Florence and her husband were the founding members of the Town Planning Association of New South Wales (1913). In 1920 she was the first female member of the Institute of Architects of New South Wales, 13 years after her first application was denied, and became a full member in 1923. The Canberra suburb Taylor is named in Florence's honour.



Group

Lemaire

Diane Lemaire was the first woman to graduate from the University of Melbourne with a degree in mechanical engineering in 1944, and later graduated with a Master of Science from Cornell University. Diane had a successful career as an aeronautical engineer. She was awarded the prestigious Zonta International Amelia Earhart Fellowship in 1962 awarded to women completing post-graduate degrees in aerospace science or

engineering. Diane worked as a Technical Officer at the CSIR Division of Aeronautics (later becoming the Aeronautical Research Laboratories) before moving to England to work in the National Physical Laboratory. After completing her Masters degree at Cornell she returned to the Aeronautical Research Laboratories in Melbourne and was the Officer-in-Charge of the Aerodynamic Research Group until her retirement in 1986.



YoWIE 2024 Careers Fair



This year YoWIE is introducing a careers fair. This lunchtime event will be held everyday in **Building 32 Room SB06**

We have 17 companies who will exhibit at the fair and are waiting to speak with you about what a career in engineering with them involves. UNSW Canberra will also have an exhibit to answer any and all questions you may have on applying to university and the university experience.

Current companies with exhibits at the YoWIE Career Fair are

Organisation	Confirmed Date
Adf Careers	Tuesday
Evoenergy	Tuesday
CEA Technologies	Tuesday
KPMG Australia	Tuesday
Canberra Innovation Network	Tuesday
Contour Advisory	Tuesday
Virtulane Pty Ltd	Wednesday
Australian Signals Directorate	Wednesday
Viden	Wednesday
Penten	Wednesday
Leidos Australia	Wednesday
Academy Racing Team	Wednesday
IEEE ACT Section	Thursday
Engineers Australia	Thursday
Forge Advisory	Thursday
SkyKraft	Thursday
Student Recruitment	Thursday

