

# *Workforce Management for supporting Power System Security, Reliability and Resilience*

***Nirmal Nair (He/Him)***

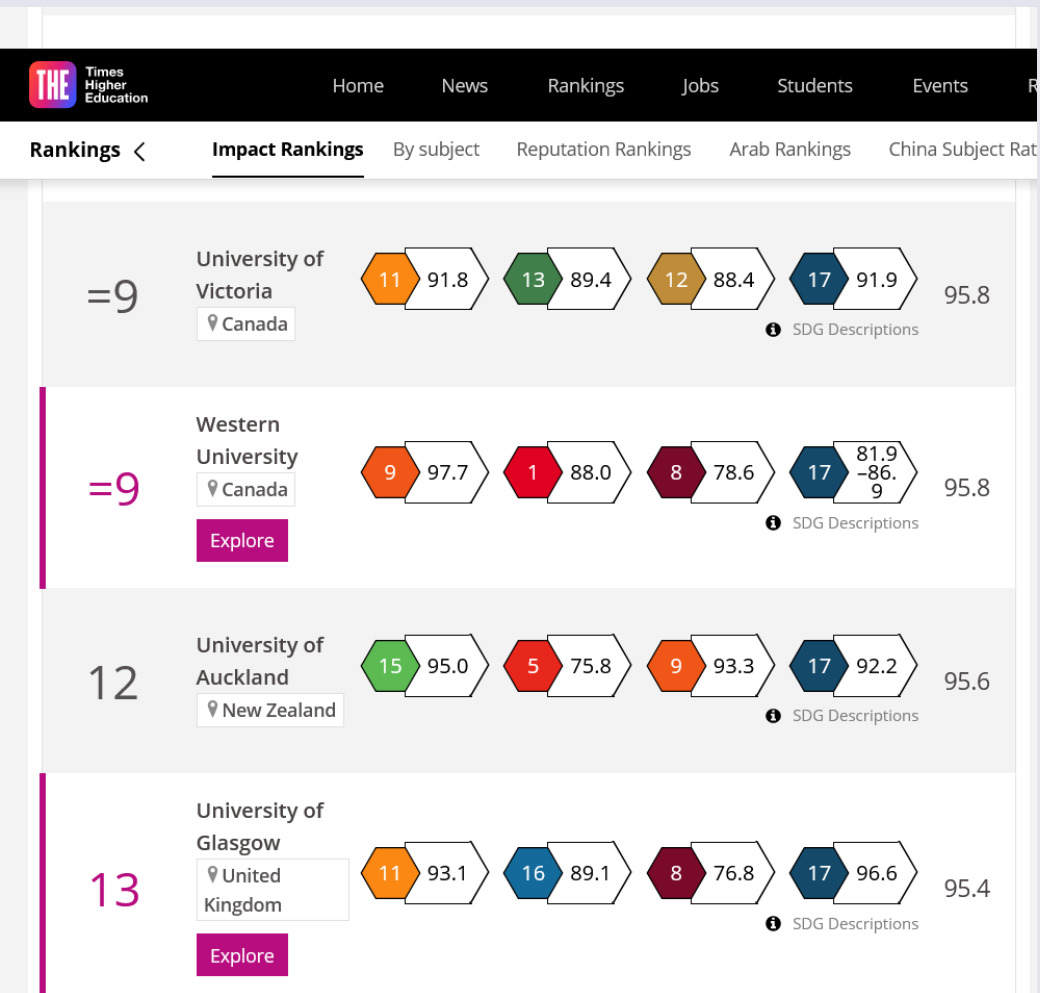
*Poukairangi | Associate Dean Postgraduate Research*

*Te Herenga Mātai Pūkaha | Faculty of Engineering*

*Ahonuku | Associate Professor*

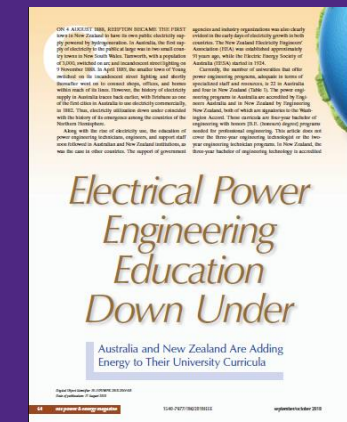
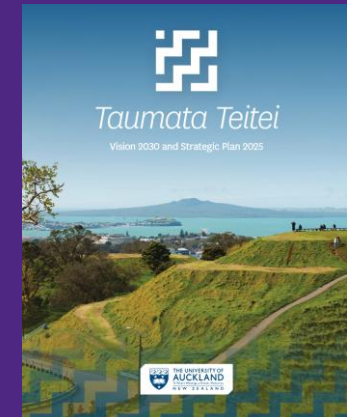
*Te Kura Pūhanga Hiko, Rorohiko me te Pūmanawa | Department of Electrical, Computer, and Software Engineering*

# University of Auckland Current Standing



# Documents for Pre-reading

- Taturanga Māori (Appendix 1 in line with UoA Taumato Teitei strategy)
- 2012 UoA ECE Department Colmar Brunton Poll (Appendix 2)
- 2014 *Global Understanding of Perception around ECE* (Appendix 3 IEEE PES Panel Presentation)
- 2018 *Australasian Status around Electrical Power Engineering Education and Training* (Appendix 4: IEEE PES Article)
- 2022 *New curriculum for UoA ECSE Specialisation* (Appendix 5 supporting <http://careerpath.foe.auckland.ac.nz/>)



# Faculty of Engineering Campus and Facilities

## City Campus

- 20 Symonds st, Auckland, 1010
- The City Campus is where most of our undergraduate teaching takes place. It's also home to some specialist labs and the new multi-disciplinary learning spaces (MDLS). The latter have been open since March 2017 and several undergraduate classes are taught in there.
- This campus is also where our newest Engineering building, purpose-built for students, is situated. After years of investment into refurbishment, design and build, it now stands proudly on Grafton Road and is also accessible via the Symonds Street entrance. Dedicated to NZ in early 2020, the building provides tailor-made spaces to support learning, accommodate larger student cohorts, and encourage multi-disciplinary collaboration.

## Ardmore Field Station

- Pastoral Land, South Auckland
- This 10.5-hectares of pastoral land in South Auckland is currently used as a field site for meteorological and radio research. Due to its size and location, researchers are able to conduct large-scale experiments on the site that are not possible on our major University Campuses.
- Research at the site began with long-distance radio communications, before evolving into ionospheric physics and later antenna testing and meteorology. More recently, research has centred on microwave and acoustic remote sensing, along with ozone and solar radiation measurements in overcast environments.
- The site has two fully instrumented state houses that provide space to conduct research into building environments. Examples include measuring the effect of solar heating on interior temperature and humidity. Researchers are also looking at the impact of unvented gas heaters on moisture accumulation and carbon monoxide rates.

## Newmarket Campus

- 314-390 Khyber Pass Road
- While our main Engineering building is located on the City Campus, many of our postgraduate students are based at our Newmarket Campus.
- This state-of-the-art property is a hub for multidisciplinary research activity, where valuable industry links are forged. The campus consists of four interconnected buildings, as well as a large, custom-built civil structures testing lab, which houses the shake table – used in earthquake testing – and the largest 'strong wall' in Australasia.
- Opened in 2015, the campus contains around 3,000 pieces of specialist equipment and purpose-built research and lab facilities. It operates with environmental sustainability in mind, so energy saving initiatives – such as making maximum use of natural light and ventilation – are important and contribute to a creative atmosphere and comfortable working space. This is where many ideas can be conceived and ground-breaking solutions will be designed.

## Specialist Food-processing Facilities

- 85 Park Road, Grafton
- Grafton Campus is situated in the central city suburb of Grafton – largely occupied by the Faculty of Medical and Health Sciences – opposite Auckland Hospital and adjacent to the Auckland Domain. Logistically, it is located in between the City and Newmarket campuses, making it accessible either on foot or via public transit. By 2020, most of our labs are hosted within City and Newmarket Campuses, though some large-scale food processing equipment are still based in Grafton Campus.

# Engagement pipeline to standards/best practices



**IEEE STANDARDS ASSOCIATION**



**SC B5  
Protection and Automation**



**International  
Electrotechnical  
Commission**



**ENGINEERING**



# UoA Electricity Researchers NZ Engagement

**Centre of Research Excellence**

*Te Pūnaha Matatini*

*QuakeCoRE*

**National Science Challenge**

*Building Better Homes, Towns and Cities*

*Resilience to Nature's Challenges*

**Strategic Science Investment Fund  
(Advanced Energy Technology  
Platform)**

Architecture of the future low-carbon,  
resilient, electrical power system



Left to right: PhD candidates Ebad Ur Rehman and Harsh S Suresh, a solarZero battery, Dr Nair, and Minister James Shaw.

# Supporting Regular Life-Long Learning Opportunities



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**CIGRE NZ 2023 Technical Workshop**

NZ.B5 Protection and Automation

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**CIGRE NZ 2023 Winter Workshop**

12<sup>th</sup> – 13<sup>th</sup> July, Te Whanganui-a-Tara | Wellington

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IEEE POWER & ENERGY SOCIETY



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# Global workforce Initiative Consortium

## Subgroups

### THE PES WORKFORCE INITIATIVE CONSISTS OF 7 SUBGROUPS FOCUSED ON FOLLOWING AREAS:

#### Subgroup 1: (Community Colleges, Career Fairs)

Officers: Shuhui Li and Jessica Bian

The focus of Subgroup 1 is to increase the number of students from 2-year trade schools and 2-year community colleges getting into the clean energy or power and energy systems workforce. Tasks include reaching out to the 2-year trade schools and community colleges, helping them develop or improve educational or training programs in the clean energy area, and helping students navigate the clean energy job market.

#### Subgroup 2: (High School (9-12), Career Fairs)

Officers: Shuhui Li and Jessica Bian

The focus of Subgroup 2 is to increase the number of students from Grades 9 to 12 getting into the workforce or advanced study in the clean energy or power and energy systems area. Tasks include reaching out to high schools or associated student sectors, helping them develop or improve educational or training programs in the clean energy area for Grades 9 to 12, and helping students navigate the clean energy and power and energy systems job market.

#### Subgroup 3: (Global Initiatives i.e., LRP-SC4)

Officers: Nirmal Nair and Shay Bahramirad

#### Subgroup 4: (Website and Communication Tools, New Initiatives)

Officer: Chan Wong

#### Subgroup 5: (University Outreach, Career Fairs)


Officer: Babak Enayati

#### Subgroup 6: (Industry/Government Outreach, Career Fairs)

Officer: Masood Parvania

#### Subgroup 7: (IEEE PES Scholarship Plus Initiative, Membership and New Plans etc.)

Officer: Julio Agüero



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ABOUTMEMBERSHIP & CHAPTERSTECHNICAL ACTIVITIESCONFERENCES & MEETINGSPUBLICATIONSEDUCATION

## WORKFORCE INITIATIVE

Home / Membership & Chapters / Workforce Initiative

## IEEE Power & Energy Workforce Initiative

The IEEE PES Workforce Initiative has been established to increase the value of membership for those seeking:

- New professional opportunities
- Improving skill-sets
- Assisting our industry participants in identifying qualified candidates
- Supporting STEM education programs
- More



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Description	Workforce Initiative Members	Subgroups
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### Workforce Initiative Members



**EZIKIEL  
ADJOKATSE**  
IEEE PES STUDENT  
VOLUNTEER



**JULIO ROMERO  
AGÜERO**  
IEEE PES VICE  
PRESIDENT,  
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MEMBERSHIP



**THIAGO  
ALENCAR**  
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**KAMAL GARG**  
PROJECT MANAGER,  
IEEE PES WORKFORCE  
INITIATIVE



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IEEE PES VICE  
PRESIDENT, NEW  
INITIATIVES/OUTREACH



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CHAIR OF IEEE PES  
PRE-UNIVERSITY  
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IEEE PES VICE  
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***Thank you for reading!***



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