



UNIVERSITY OF  
**AUCKLAND**  
Waipapa Taumata Rau  
NEW ZEALAND

**ENGINEERING**

***Postgraduate Q & A***  
**Materials Engineering**

# what

## ... IS MATERIALS ENGINEERING?

Materials engineering challenges us to discover and design new materials that look in detail at the structure, properties and performance of basic resources that make up the world. Innovations in this space are often at the core of new technologies that change the way we live. The University programme offers a balanced understanding of materials design, synthesis and deployment, whilst cultivating management skills.

We understand the wide-ranging effect our innovations can have on humanity and the environment. Therefore, the programme teaches collective responsibility in line with the Māori traditions of *kaua e moumou* – do not be wasteful, and *riro taona mai, hoki taona atu* – what we take from the earth we need to return.

## ... ARE THE POTENTIAL CAREER PATHS?

The University wants to catapult your career to the next level by developing your technical and entrepreneurial skillset. Employers are actively recruiting employees with these skills in the manufacturing and energy industries, materials processing and production, as well as new metals deployment. Growth in the energy and resource management sectors means companies are calling out for new leadership that can address complex new technologies that are becoming available.



# what

## Program pathways:

- ***Master of Materials Engineering***  
(MMaterialsEng): 120 and 180, taught and research
- ***PGDipMaterialsEng***
- ***PGCertMaterialsEng***

## ... WILL I STUDY IN THE DEGREE?

Immerse yourself in a world of possibility, delving into the technical detail of materials engineering in its human and economic context. Graduates of the program can gain endorsements in biomaterials engineering, energy and environmental materials, and advanced materials processing. You can decide between a research project path or a research portfolio of independent work. Industry is also looking for candidates willing to develop research projects and portfolios that draw on Māori and indigenous knowledge, such as novel materials for green energy (eg. New Zealand plant fibres or biomass-derived graphite) or extracting valuable metals from industry waste.

# who

## ... SHOULD TAKE THE COURSE?

Materials can no longer be just efficient or economic. Today's world needs materials that work toward a greater goal of clean energy, respect for the environment and native practices, and a low-carbon economy. New Zealand is calling out for specialists who can inspire that change with innovative engineering technology, and professionals with the commercial expertise to bring those technologies to the world. The University of Auckland is looking for motivated people to consider the future of materials science in our environment, energy, food, water and even nanotechnology sectors. With your passion we can lead a materials engineering industry that truly respects the needs of humanity and the planet.

## ... IS LEADING THE PROGRAMME?

**Professor Peng Cao** is a leader of the Chemical and Materials Engineering programme who specialises in such materials as light alloys, powder metallurgy, metallic biomaterials, casting and electrode materials. Prior to his work with the University of Auckland, Dr Cao has researched and studied across the Asia/Pacific, earning his PhD at the University of Queensland and holding positions at the University of Waikato, National University of Singapore and Central South University, China.





# why

## Reskilling needs



A 2021 report by the World Economic Forum shows the rise of automation and digitisation has transformed the world of work – increasing productivity but also creating a major societal problem: the stark mismatch of people with the right skills for available jobs. The COVID-19 pandemic has accelerated and exacerbated these trends. As a result, the need to upskill and reskill people so they can participate in the economy is more critical than ever before.\*

## ... STUDY AT THE UNIVERSITY OF AUCKLAND?

You can count on our reputation as New Zealand's top university and engineering faculty, as well as our track record of innovation in the field of materials engineering. Our staff is dedicated to supporting the sector by moulding employable candidates who can improve the field of development and deployment of upcoming technologies in the materials space. Not only will you work with some of the industry's finest academics, but you will have the option to work alongside industry on applied and fundamental research to better understand the industry behind the technology and how those technologies affect the world around us.



PGCertMedicalEng



PGDipMedicalEng



MMedicalEng



@UoAEngineering