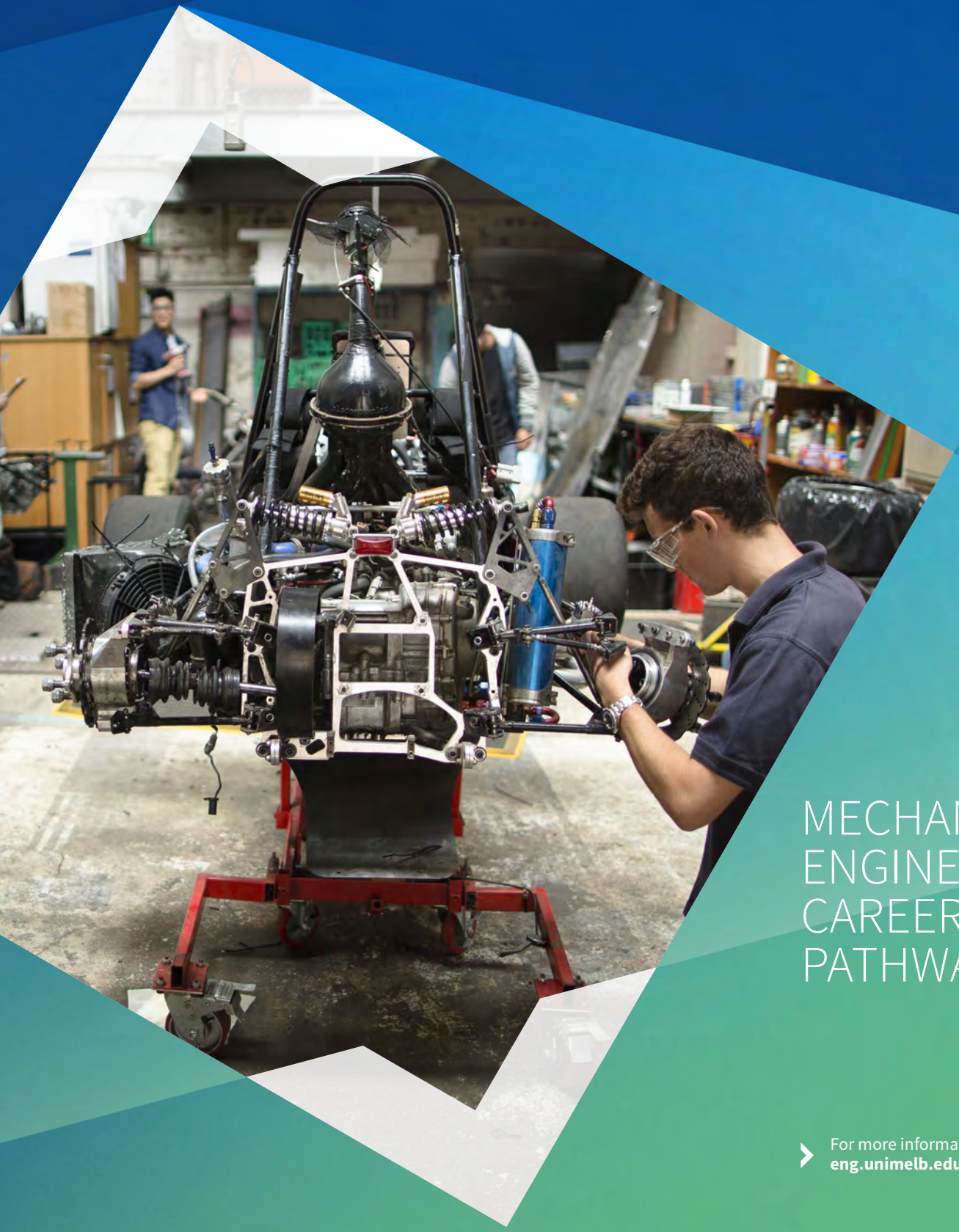
THE UNIVERSITY OF MELBOURNE

Melbourne School of Engineering



MECHANICAL ENGINEERING CAREER PATHWAYS

For more information, visit
eng.unimelb.edu.au

MECHANICAL ENGINEERING AT MELBOURNE

Mechanical engineering offers diverse career options in areas including the aeronautics and automotive industries, acoustics, biomechanics, manufacturing, minerals and energy technology, robotics, and construction.

The Melbourne School of Engineering is the leading provider of engineering and IT education in Australia*, and ranked No.1 in Australia for Mechanical, Aeronautical and Manufacturing Engineering. Whether you are interested in a professional qualification, a career change, expanding your technical skills or pursuing a new interest, the Melbourne School of Engineering has a range of world class programs to meet your needs.

Mechanical Engineering at Melbourne Our professional Master of Engineering is the first graduate program in Australia to offer accreditation from Engineers Australia and EUR-ACE®, enabling graduates to practice as engineers in Australia, Europe, the US, Japan, Singapore, and more.

Mechanical engineering programs that we offer include:

- Master of Engineering (Mechanical)
- Master of Engineering (Mechanical with Business)
- Master of Philosophy (Engineering)
- Doctor of Philosophy (Engineering)

Enhance your studies with an internship

During her Master of Engineering (Mechanical), Catherine Phillips completed an internship with ExxonMobil, where she worked as a subsurface engineer, developing a plan to reinstate hydrocarbon production from a damaged offshore well. Catherine developed a technical understanding of subsurface engineering techniques and technologies and learnt to use software relating to oil and gas production.

"My role involved liaising with vendors and technical experts, and then presenting my recommendations to senior management. I most enjoyed the independent nature of my work, as I was able to manage my own progress and drive the direction of my project. It was also really valuable getting to practice communicating technical ideas to non-technical audiences, and learning about the standards required in a professional environment."

Catherine has recently obtained a graduate engineering role with IBM.

Catherine Phillips
IBM

Specialisations

As a mechanical engineer, you could specialise as an:

- **Aeronautical Engineer:** perform and supervise the design, development, manufacture and maintenance work of all types of flight vehicles. This may include military and civilian aeroplanes, helicopters, missiles, launch vehicles, spacecraft, satellites and control and guidance systems.
- **Automotive Engineer:** design, manufacture and operate groundbased vehicles, such as motorcycles, automobiles, buses and trucks and their respective engineering subsystems.
- **Building Services Engineer:** design and develop the inner workings of buildings to provide a safe and functional work environment.
- **Construction Engineer:** plan and manage the construction of structures such as highways, bridges, airports, railroads, buildings, dams, and reservoirs.
- **Consultant Engineer**: undertake independent contract work for clients in a particular field. Consulting Engineers generally work on a project-by-project basis for a variety of clients.
- **Engineering Project Manager:** plan, administer and review engineering and technical projects.
- **Management Consultant:** study the procedures and systems used in an organisation to assess how individuals and the organisation as a whole can best operate.
- **Manufacturing Systems Engineer:** design and improve systems and equipment that complete tasks accurately and change raw materials into products with minimal wastage of time, materials and energy.

*No. 1 in Australia; No.28 in the world. QS World University Rankings by Subject 2017. #QS World University Rankings by Subject 2017.

- **Mechanical Design Engineer:** design new machines, equipment or systems taking into account cost, availability of materials, strength and maintenance requirements.
- **Mining Engineer:** plan and direct the engineering aspects of extracting mineral resources from the earth.

Job Outlook

Engineering professionals are in demand, not only in Australia, but across the globe. With a rapidly growing population, the need for engineers will become more critical than ever to ensure our cities have adequate transport, power, water, telecommunications and healthcare.

Students are advised to begin building their employability skills whilst at university, to give themselves the best start to their careers. Visit the University Careers Service to find out more: careers.unimelb.edu.au

For more information about the job outlook for this sector, please visit the Australian Government's Employment Projections and Job Outlook website: joboutlook.gov.au

For information about salaries see: graduateopportunities.com

Sectors & Employers

MECHANICAL ENGINEERING SECTORS & INDUSTRIES		EXAMPLES OF EMPLOYERS	
Acoustics	Manufacturing	BAE Systems	Fluor
Aeronautics	Minerals and Energy	Boeing Aerostructures Australia	Origin Energy
Automotive	Power Generation	BP Australia	OZ Minerals
Biomechanics and Biomedical	Robotics	DSTO	Shell
Construction	Transport	ExxonMobil	Toyota
			SKM

Career Progression

GRADUATE	3-5 YEARS EXPERIENCE		10 YEARS
Graduate Mechanical Engineer	Aeronautical Engineer	Mechanical Design Engineer	Lead Mechanical Engineer
Graduate Mechanical Design Engineer	CAD Product Design Engineer	Mechanical Design Engineer – Automotive	Principal Mechanical Engineer
Graduate Mechanical Process Engineer	Marine Engineer	Mechanical Design Engineer – Heavy Industry Design	Senior Mechanical Engineer
Manufacturing Systems Engineer	Mechanical Engineer	Mechanical Design Engineer – Underground Drilling	
	Mechanical Engineer – Building Services	Mechanical Equipment Engineer	
	Mechanical Engineer – Materials Handling	Mechanical Maintenance Engineer	
	Mechanical Engineer – Mining	Mechanical Process Engineer – Design & Documentation	
	Mechanical Engineer – Oil & Gas/Pipelines	Mechanical Project Engineer – Oil & Gas	
	Mechanical Engineer – Plant Performance	Mechanical Systems Engineer	
	Mechanical Engineer – Power Station	Piping Engineer	
	Mechanical Engineer – Solar Industry	Reliability Engineer – Mechanical	
	Mechanical Engineer – Underground	Tool Engineer	
	Mechanical Engineer – Water Treatment Projects	Underground Mechanical Construction Engineer	

Alternative Careers

An engineering degree at the University of Melbourne gives you a solid technical and design foundation combined with strong analytical, problem solving and communication skills valued across a range of industries. Other areas our graduates have moved into include:

- Management consulting
- Finance, economics and banking
- Business analysis
- Project management
- Technical sales, marketing and communications
- Intellectual property management
- Technical writing
- Government and policy

Careers in Research

If you are passionate about a field of electrical engineering and would like to advance your research skills, enrolling in a graduate research degree could be a great option for you. Graduate research enhances your ability to problem solve, think autonomously and creatively, and analyse. Careers in research are diverse and may include:

- academic positions at universities;
- policy-making or research positions at public sector organisations;
- private sector research and development projects;
- self-employed consulting positions on technical or policy issues in your area of expertise.

Employability Services and Industry Links

Students undertaking our programs have access to a range of employability services, and benefit from a curriculum that offers excellent opportunities to connect with industry through:

- an elective internship subject
- student projects partnered with industry
- guest lectures led by industry leaders and experts
- site visits hosted by key organisations
- industry networking events
- career panels featuring industry representatives
- career question drop-in service
- an online jobs and internships portal

Mechanical Engineering Career Pathways. Authorised by the Manager, Marketing and Communications, Melbourne School of Engineering. Published August 2017.