Waipapa
Taumata Rau
University
of Auckland



Mechanical Engineering

LEARN MORE

Mechanical Engineering involves the development and application of scientific principles to improving our vital mechanical systems, and shaping new technologies.

Offered by our Department of Mechanical and Mechatronics Engineering, this specialisation may suit you if you enjoy mathematics and physics, mechanical technologies and automation, problem solving and innovation, and design and manufacture.

Te Herenga Auaha, Faculty of Engineering and Design

MECHANICS OF MATERIALS

Learn about failure mechanisms, safe working loads, and product life-expectancy to develop efficient, cost-effective structures and components. You'll also explore the vast potential of composite materials in the next generation of engineering applications.

THERMODYNAMICS AND FLUID MECHANICS

Thermodynamics and fluid mechanics play a strong, and often hidden, role in modern technology, from the cooling of the modern smartphone CPU through clean energy generation to the aerodynamic performance and efficiency of a modern aircraft. Understand the fundamental principles that govern these phenomena to meet the technological challenges of a sustainable, energy-efficient future.

DESIGN

Engineering design is about addressing real-world problems with modern engineering tools and knowledge, such as computer-aided design and manufacturing, and finite element analysis. You will gain experience through a series of open-ended design projects that have increasing complexity, preparing you to meet the engineering challenges of the future.

DYNAMICS AND CONTROL

From precisely positioning surgical robots to controlling autonomous vehicles, many exciting technological opportunities involve systems that vary over time. Use mathematical skills to model, analyse, predict, control and optimise the behaviour of these dynamic systems, and subsequently develop the next generation of technology—faster, quieter, safer, and more accurate and efficient than its predecessors.

MANUFACTURING SYSTEMS

Being at the forefront of rapid technological change in manufacturing gives you a competitive advantage. Key topics include Smart Manufacturing Solutions, Industry 4.0, IoT-enabled manufacturing, Cyber-physical production systems, Internet of Services, human-machine cooperation, CAD/CAM/CNC, cloud manufacturing, additive manufacturing, and manufacturing systems design and simulation.