Master of Science (International Sports Technology)

This postgraduate degree is the first of its kind in the southern hemisphere and will give you the skills to take on leading roles in international sporting organisations and industries.

You’ll gain an in-depth understanding of scientific and engineering disciplines related to modern sports technology and encompassing:
- performance enhancement with smart solutions
- design customisation
- injury prevention
- sustainable design and manufacturing.

The engineering and scientific disciplines involve mechanical, materials, manufacturing, aerospace, electrical, chemical, biomedical and construction engineering, sports science, business, textile technology, media studies and mathematics.

Global sport is an expanding industry worth about US$800 billion a year. Growth in the sports equipment sector is 2.5 times faster than the growth of general consumer spending, and the global sports industry is growing faster than the overall gross domestic product (GDP).

This program includes intensive laboratory work, from classroom-integrated projects to practical work in world-leading facilities such as RMIT’s large industrial wind tunnel.

You’ll develop skills in problem-solving and innovative thinking along with extensive knowledge in developing sports products and specialist skills in developing methods and tools for the improvement of training and performance assessment.

RMIT University has a history of developing award-winning sports products, such as the RMIT Superbike. A more recent collaboration with Kookaburra and Cricket Australia is developing a smart cricket ball that helps improve bowling skills and makes previously unmeasurable performance indicators assessable.

Learning and teaching
You will learn from industry professionals from a wide range of technology and management sectors. They will share their insights into developing award-winning products, successful Olympic bidding processes, and managing and organising international sporting events.

You’ll also have access to highly qualified visiting staff from overseas industry and universities who are well versed in current and future trends in the global sports industry.
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Industry connections
Throughout the program, you will work on industry-based projects with leading sports equipment companies and sports organisations such as:
- Mizuno
- Adidas
- Australian Institute of Sport
- AFL
- International Paralympic Committee.

RMIT University is committed to providing you with an education that strongly links formal learning with professional or vocational practice.

Career outlook
Graduates will be able to work as leading sports technology specialists in multi and trans-disciplinary teams in the global sports industry and in sports organisations. The flexible approach to sports technology will cater for specialisation in:
- sports industry: leading and senior positions in research and development departments or in product development and management
- sports organisations: high-performance managers, head coaches or senior biomechanists (capable of innovative product and method design and development).

Professional recognition
The International Sports Engineering Association (ISEA) is developing an international accreditation system for sports technology and engineering courses. Graduates of this program are likely to be accredited on graduation.

International opportunities
Throughout the program, you will be given options to work on projects with international and leading sports companies and organisations.

International Industry Experience 2 allows a one-semester placement within the sports industry or in a sports organisation through the RMIT International Industry Experience and Research Program (RIIERP).

The Masters Research Project also provides a one-semester placement within the sports industry or in a sports organisation involved in research collaboration with RMIT.

You can also choose to complete the double masters' degree program with two European universities. You will spend two semesters at RMIT and two semesters at one European partner university (University of Applied Science in Vienna, Austria, or the German Sports University in Cologne, Germany), earning a master's degree from each university.

Program structure
The Master consists of 192 credit points.
Upon completion of the first year of the program (96 credit points), including core courses, you will be eligible to exit the program with the Graduate Diploma in International Sports Technology.

Semester 1
During the first part of the program, you will study the foundation courses for sports technology.

Sports Analytics (including performance statistics, match analysis and forecasting)
This course introduces you to the use of statistical analysis in a variety of contexts applicable to sport. You will learn how to apply the theory of statistical methods to tasks such as the analysis of game-day (in-play) sports data and pre and post-game sports performance modelling.

Sports Biomechanics (including muscle and joint mechanics and movement analysis)
The course introduces you to musculo-skeletal mechanics and biomechanics of selected sports disciplines. The main focus of the course is targeted at problem solutions based on mechanical modelling and optimisation, as well as biomechanical testing.
Sports Management (including managing international sports events, entrepreneurship and innovation, and sports business leadership)

You will learn the principles of Sports Management, Sports Marketing, and Sports Economics.

Sports Materials (extending to intelligent and nano-materials)

You will be introduced to the principles of materials science and engineering, improvement of sports performance through material modification, protection and prevention of injuries through materials, and practical examples of materials innovation. It will cover the spectrum of sports materials including metals, polymers, composites, biological materials, and nano and functional materials.

Semester 2

You will cover the core courses of sports technology.

Design and Mechanics of Sports Equipment (testing and optimising of selected equipment)

This course covers sports equipment including balls, implements and protective equipment. It will introduce you to principles of equipment design and optimisation, performance characteristics of equipment, methods of improving sports performance, and practical examples of design innovation.

Design and Technology of Sports Shoes and Apparel (developing energy transfer shoes)

You will learn about sports footwear and clothing including the design of sports shoes and the principles of textile engineering, garment comfort and sports fashion.

Sports Aerodynamics and Hydrodynamics (wind-tunnel testing of sports balls and winter sport garments)

This course covers aerodynamics and hydrodynamics topics relevant to sport such as the principles of aerodynamics and hydrodynamics, aerodynamics of sports balls, equipment and garments, hydrodynamics in swimming and sailing, and aerodynamics of skiing. The application of computational fluid dynamics (CFD) to sports aerodynamics is also covered.

Sports Measurements and Instrumentation (providing theory and hands-on experience in use of sensors for measurement, feedback provision and ultimately performance improvement)

The course introduces you to principles of measurements and principles of instrumentation of sports equipment for measurement of performance parameters and optimisation of training.

Semester 3

This semester includes the Research Methods in Engineering course, which serves as the starting point of the masters thesis research project, as well as three of the following electives:

- Management of Technology
- Project Management
- International Engineering Management
- Advanced Manufacturing Technologies
- Product Lifecycle Design and Management
- Advanced CAE
- Sportswear and Performance Textiles
- Exertion Games.

Alternatively, the entire third semester can be completed as a placement with an international sports company or organisation.

Semester 4

Devoted to the Masters Research Project and writing the thesis. This project can be carried out at RMIT or at a partner sports company or organisation.
## Entry requirements

A bachelor, master or doctoral degree with a GPA of at least 2.0 out of 4.0 (where applicable) in one of the following areas is mandatory.

- Engineering – BEng or MEng or PhD
- Science – BSc or MSc or PhD in the areas of human movement, exercise and sports science, physical education, sport coaching, physiotherapy, disability, nursing, biology, mathematics, pure sciences, applied sciences
- Medicine – MBBS, MD.

Relevant work experience in industry or sports organisations or sports experience as an athlete or coach is also desirable but not compulsory.

International qualifications are assessed according to the Australian Qualifications Framework (AQF).

## Fees

### 2017 indicative fees

- Commonwealth supported places (CSPs) range from AU$6,349 to AU$10,596
- Full-fee: AU$29,760 per annum

How much you’ll pay will depend on whether you’re offered a Commonwealth supported place or a full-fee place.

Entry for this program is primarily through CSPs. Government financial assistance is available to eligible students regardless of the type of place you enrol in.

Fees shown above apply to 2017 only and are based on an annual full-time study load of 96 credit points unless otherwise noted. A proportionate fee applies for more or less than the full-time study load. Tuition fees are adjusted on an annual basis and these fees should only be used as a guide.

For more information and to learn how to calculate your exact tuition fees see: [rmit.edu.au/programs/fees/postgraduate](http://rmit.edu.au/programs/fees/postgraduate)