# 2017 UNDERGRADUATE ENGINEERING AND DESIGN



# CIVIL ELECTRICAL AND ELECTRONICS MECHANICAL MECHATRONICS DESIGN TECHNOLOGY



# ENGINEERING AND DESIGN AT DEAKIN

Engineers and designers contribute to our society in diverse and fascinating ways. Engineering surrounds us in the modern world – it is part of every aspect of our lives. Engineers are responsible for the design, construction and project management of essential infrastructure and systems, from roads, airports and railways, to water supply, sewerage, power generation and distribution.

Engineering and design technology professionals are also involved in designing mechanical systems that are used by millions each day, such as cameras, anti-lock brakes, disk drives and surgical robots.

Our graduates are well-rounded engineers with significant exposure to professional practice, making them well equipped to meet issues of global importance, including climate change, energy resources and environmental sustainability.

Excited about a career in engineering and design? Keep reading to start your journey at Deakin.







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Deakin Hallmarks are awards that recognise students' outstanding achievement of Graduate Learning Outcomes, which are highly valued in the workplace.















management

Global citizenship

Communication Digital literacy

Teamwork

Critical thinking

Problem solving

Self-



# WHY DEAKIN?

An innovative approach to engineering and design technology education, strong industry links, facilities ahead of the rest and outstanding employment prospects are just some of the reasons to choose Deakin.

### Innovative course design

Innovation is at the heart of great engineering, with design playing a central role. Deakin's Centre for Advanced Design in Engineering Training (CADET) provides some of the best future-focused engineering and design facilities, a curriculum framework configured around 'design-based learning' and industry collaboration, enabling our graduates to become as visionary and forward thinking as CADET itself.

# Project-oriented design-based learning (PODBL)

PODBL in collaboration with industry is a key feature of our engineering degrees. This new, innovative teaching methodology means that practical learning experiences are woven throughout the duration of our engineering and design technology courses.

In addition to traditional theory-based classes, you will learn through team-based projects, in which you will take real-world industry problems, and design, research, test and evaluate solutions, with the support of an academic.

In addition, the work-integrated learning program gives you the chance to undertake a full-time or part-time industry placement as part of your studies.

To learn more about industry placements, visit deakin.edu.au/sebe/enhance-study/ work-integrated-learning.

### Virtual Reality (VR) Lab

The VR Lab is a unique facility in which you can walk through virtual reality representations of products that are yet to be realised, from a prototype compressed-air-powered car, or ball robot. In the cave, you are able to feel the weight of an object, as well as the resistance of push back and pull, creating a heightened sense of realism in a virtual environment. Watch the lab in action at **youtube.com/watch?v=cLXTvoQD3bs**.

# World-class facilities

Studying at the Geelong Waurn Ponds Campus offers a huge range of benefits to Deakin engineering students, including access to the Geelong Technology Precinct and the cutting-edge Centre for Advanced Design in Engineering Training (CADET) – a partnership between Deakin University and the Australian Government.

# CENTRE FOR ADVANCED DESIGN IN ENGINEERING TRAINING (CADET)

CADET enables students to explore endless possibilities through desktop manufacture and computer modelling, virtual reality environments, 3D printing, one of the largest high voltage teaching labs and world-leading rapid prototyping capabilities.

Having access to some of the best future-focused engineering and design facilities in the Australian university sector gives students practical experience in next generation computer controlled manufacturing systems and processes, allowing them to experience tomorrow's manufacturing today.

CADET is a partnership between Deakin University and the Australian Government.

Find out more at deakin.edu.au/engineering/cadet



We have one of the largest virtual reality laboratories in the Southern Hemisphere.







## Professionally accredited courses

The School of Engineering's long-standing partnership with Engineers Australia is an important relationship and informs our teaching program. This ensures our curriculum is relevant and that our graduates develop the skill set that employers want, as well as giving our engineering degrees professional accreditation, allowing graduates to practise as professional engineers in many countries around the world.

### Valuable links with industry

In addition, we receive input from industry through student placements, projects and our industry advisory group, which includes members from the following companies: Cyient, AusNet, Iscar, Thales, Norman Disney & Young, Barwon Water, Ford and Hatch.

'We don't use classrooms, we use super smart labs where creativity, design and problem-solving is at the heart of the curriculum, and students design, build and learn at the same time.'

**PROFESSOR JANE DEN HOLLANDER** Vice-Chancellor, Deakin University

# **GETTING INTO DEAKIN**

Life doesn't always follow a straight line – and your path to Deakin doesn't have to either.

# Finishing Year 12?

If you are finishing Year 12, you can apply for most of Deakin's undergraduate courses commencing in Trimester 1 (March) through the Victorian Tertiary Admissions Centre (VTAC) at **vtac.edu.au**. For courses commencing in Trimester 2 (July), apply directly to Deakin at **deakin.edu.au/apply**.

# Finished Year 12 a few years ago?

If you're returning to study after a break, you can apply for most of Deakin's undergraduate courses (bachelor's degrees) commencing in Trimester 1 (March) through the Victorian Tertiary Admissions Centre (VTAC), or you may be able to apply directly to Deakin. For courses beginning in Trimester 2 (July), apply directly to Deakin at **deakin.edu.au/apply**.

# For international students

Once you have chosen a degree and checked all entry requirements, applying to study at Deakin is simple.

## When can I apply?

Applications for international students are open all year. There are three trimester intakes for which you can apply – March, July and November – depending on your chosen course.

## How do I apply?

Once you have organised all the necessary documentation, you can submit your application using one of the following methods:

### Applying online

To apply online, visit the applicant portal at **deakin.edu.au/apply**.

### Applying by email

After completing the relevant application forms you can email your application to deakin-int-admissions@deakin.edu.au.

# What are pathways?

Pathways provide alternative options for entry into university if you currently do not meet the requirements. You can choose pathways through TAFE, other tertiary institutions or private providers, through the workforce or even through other Deakin courses or campuses.

### Pathways through Deakin

You can take many different pathways through Deakin to get into your dream course, including transferring between Deakin courses or campuses or undertaking a single unit of study, which can be used as credit towards a degree.

### Pathways through Deakin College

Deakin College offers an excellent pathway to Deakin for students who do not meet the admission requirements. The first year of a Deakin College diploma is equivalent to the first year of the relevant Deakin degree. Upon satisfactory completion of a Deakin College diploma, and subject to meeting University entrance criteria, domestic graduates are eligible to apply for a Commonwealth Supported Place in the second year of the relevant Deakin undergraduate degree.

Deakin College is located at Deakin's Melbourne Burwood Campus, Geelong Waterfront Campus and Geelong Waurn Ponds Campus, giving you access to Deakin's facilities and services and allowing you to get involved in uni life while at Deakin College.

### Pathways through TAFE

If you undertake an eligible TAFE course in a field similar to the Deakin course of your choice, you may be able to gain a guaranteed place at Deakin and credit for prior learning towards your Deakin degree.

#### Complete a guaranteed entry pathway

Guaranteed entry pathways enable you to progress seamlessly from selected TAFE courses to Deakin degrees. Deakin offers guaranteed entry pathways from a number of TAFE partners to university in a growing range of disciplines.

If you are taking a guaranteed entry pathway, as long as your study performance meets the required standard, you will be guaranteed a place at Deakin following successful completion of your TAFE course and benefit from up to 18 months' credit towards your Deakin degree.

Currently, guaranteed entry pathways are available at Bendigo TAFE, Box Hill Institute, Chisholm, The Gordon, Kangan Institute, Melbourne Polytechnic, South West Institute of TAFE and TAFE NSW – Riverina Institute. For the most up-to-date list of guaranteed pathways, visit **deakin.edu.au/pathways**.

#### Complete a relevant TAFE course

If you undertake an eligible TAFE or Registered Training Organisation (RTO) course in a field similar to the Deakin course of your choice, you may gain credit towards your Deakin degree. A wide range of courses lead to credit transfer and recognition, and all TAFE qualifications are considered for application to Deakin.

### Pathways through other educational institutions

If you're currently studying at another university and wish to transfer to Deakin to finish your degree, you can apply for credit for prior learning. All university and private education provider qualifications are considered for application, even if the qualification is unrelated to what you want to study at Deakin.

### Pathways through the workforce

You may be able to gain entry to Deakin, or credit towards a Deakin course, based on your work experience or prior industry training.

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For more information on getting into Deakin, visit deakin.edu.au/pathways.

# COURSES

Course duration in years 3 Melbourne Burwood Campus B Geelong Waterfront Campus WF Geelong Waurn Ponds Campus WP Warrnambool Campus WB Cloud Campus C

|  | Campus                           | Trimester<br>intake options | Duration | Fees <sup>#</sup> | IELTS~ | Page |
|--|----------------------------------|-----------------------------|----------|-------------------|--------|------|
| Bachelor of  |                                  |                             |          |                   |        |      |
| Civil Engineering (Honours)   S460                       | B <sup>¥</sup> WPC <sup>†</sup>  | T1, T2                      | 4        | \$8917            | 6/6    | 9    |
| Electrical and Electronics Engineering (Honours)   \$461 | B <sup>¥</sup> WPC <sup>†</sup>  | T1, T2                      | 4        | \$8917            | 6/6    | 10   |
| Mechanical Engineering (Honours)   S462                  | B <sup>¥</sup> WPC <sup>†</sup>  | T1, T2                      | 4        | \$8917            | 6/6    | 12   |
| Mechatronics Engineering (Honours)   \$463               | B <sup>¥</sup> WP C <sup>†</sup> | T1, T2                      | 4        | \$8917            | 6/6    | 12   |
| Design Technology   S307 <sup>ø</sup>                    | WP                               | T1, T2                      | 3        | \$8515            | 6/6    | 16   |
| Global Science and Technology Program*                   | WP                               | ٨                           | ٨        | N/A               | 6/6    | 19   |
| Related course   |                                  |                             |          |                   |        |      |
| Bachelor of  |                                  |                             |          |                   |        |      |
| Construction Management (Honours)   S346                 | WF                               | T1, T2                      | 4        | \$8928            | 6/6    | 13   |

 # 2016 indicative Commonwealth Supported Place (CSP) fee. Fees quoted are for Australian domestic students and are based on a typical enrolment in one year of full-time study. They should be used as a guide only and are subject to change. International students: refer to deakin.edu.au/study-at-deakin/fees for more information on fees.
 ~ IELTS is the International English Language Testing System (for international students only). The IELTS scores in the table above reflect the minimum overall score required as well as

the lowest score allowed for any band (overall score/lowest band score). ¥ Only the first year of this course is available at Melbourne Burwood Campus. Students will then be required to transfer to the Geelong Waurn Ponds Campus or Cloud Campus to

Complete their course is available at Melbourne Burwood Campus. Students will then be required to transfer to the Geelong Waurn Ponds Campus or Cloud Campus to complete their course. Due to visa requirements the Melbourne Burwood Campus offering of this course is not available to International students.

† Cloud Campus students will be required to participate in campus-based intensive activities each trimester at the Geelong Waurn Ponds Campus.

 ${\it \varnothing}~$  Not available in 2016, offering subject to review for 2017.

\* Available for high-achieving students with a minimum ATAR of 80.00. Applicants must also meet the published prerequisites for their specific course preference within the Faculty of Science, Engineering and Built Environment.

Refer to specific course entry.

#### Please refer to deakin.edu.au/courses

for the most up-to-date information on courses.

# FIND OUT WHAT CREDIT YOU'RE ELIGIBLE FOR

Your previous studies and experience can lead to credit towards your chosen course. This not only saves you time and money, but also increases your educational options. To find out what credit you may be eligible for, search our Credit for Prior Learning database at **deakin.edu.au/courses/credit/search.php**.



Deakin engineering students have access to leading facilities, including 3D printing (left) and laser cutting (right).



# ENGINEERING

Engineers are involved in all aspects of designing, building and testing new technologies, products and systems, offering enormous variety, exciting career prospects and job security. Creativity and problem-solving skills are at the core of every field of engineering.



Hear what students have to say about studying engineering at Deakin by visiting **deakin.yt/eng-students**. Interested in the staff perspective? Visit **deakin.yt/eng-staff**.





# **GROWTH SECTOR**

Career opportunities in the professional, scientific and technical services are forecast to increase in the coming years, with an estimated growth of 14.4 per cent. Within this area, there will be particularly strong growth in architecture and engineering. Roles in these fields are expected to rise by 429 000, or 17.3 per cent, in the next five years. Source: Australian Government's Industry Employment

## **INGENIOUS ENGINEERING**

So what's Engineering all about? To find out more, visit **bit.ly/engingenious**. Hands-on learning and site visits are an important component of civil engineering at Deakin.

### Engineers are in demand around the world

Our graduates get jobs. With an international skills shortage in the engineering industry, Deakin graduates are in demand. Not only that, employers seek out Deakin graduates for their forward thinking, innovative and entrepreneurial qualities.

### Leading the way in engineering

Deakin engineering is ranked highly by Excellence in Research for Australia (ERA), a national research evaluation framework. ERA awarded Deakin the highest ranking possible of 5 in the categories of Materials Engineering and Manufacturing Engineering, with Mechanical Engineering, Electrical and Electronic Engineering and Manufacturing Engineering awarded a ranking of 4 (which is classed 'above' world standard), highlighting Deakin's strength in engineering-related research. This research excellence helps to inform the teaching curriculum to ensure our undergraduate students are aware of the developments that will shape the engineering industries of the future.

### Experience the world while you study

#### Study Abroad

Our Study Abroad and Exchange Office offers various programs, including exchange, study abroad, short-term study programs, study tours and international volunteering opportunities, with Deakin engineering students having studied in a wide range of countries, including China, India, Thailand, USA and Sweden. For more information, visit **deakin.edu.au/studyoverseas**.

#### **Global Science and Technology Program**

The Global Science and Technology Program is designed to add an international experience to your engineering degree, supporting you to develop new skills and a broader world view while studying overseas. You can work in an international organisation and explore real-world issues from a different perspective. For more information, visit **deakin.edu.au/sebe/global**.

Turn your design concept into reality using the machinery and design equipment available at CADET.

As an engineering student you will undertake at least 12 weeks of practical experience during your course.



# ENGINEERING

'I am fascinated by the the idea of creating and building sustainable structures to improve people's quality of life. I witnessed the positive impact this can have when my dad brought electricity, running water and road access to a remote village, where people had previously lived in small, muddy houses.'

**BEAULA BENNY** Civil engineering student



# **ENGINEERING AT BURWOOD**

From 2016, first-year engineering is offered at the Melbourne Burwood Campus. At Burwood, you can complete your first year studies in a thriving metropolitan environment and discover the full range of engineering study options available to you. After completing your first year of study at Burwood, you can either transfer to the Geelong Waurn Ponds Campus or study online via the Cloud Campus in either civil, mechanical, electrical and electronics or mechatronics engineering, giving you the flexibility to choose when, where and how you study.



# BACHELOR OF CIVIL ENGINEERING (HONOURS) I C # 1 \*

| DEAKIN CODE   | DURATION   | 2016 CLEARLY-IN ATAR   |  |
|---|--|--|--|
| S460  | 4  | WP 61.85<br>C Unpublished~<br>B Unpublished~   |  |
| YEAR 12 PREREQUISITE  | S  | NON-YEAR 12 REQUIREMENTS   |  |
| VCE units 3 and 4 – a study score of<br>at least 25 in English (EAL) or 20 in<br>English other than EAL and a study<br>score of at least 20 in one of maths:<br>mathematical methods (CAS) or<br>maths: specialist mathematics. |  | Educational history including<br>GPA. Applicants who wish for<br>experience to be considered must<br>include this information on their<br>VTAC Personal Statement. |  |
| International stude<br>deakin.edu.au/stu  | ent entry requireme<br>I <b>dy-at-deakin/inter</b> r | nts can be found at:<br>national-students.   |  |

Civil engineers are responsible for the design, construction and project management of roads, airports, railways, water supply and sewerage systems, water resources management, buildings and other infrastructures. The Bachelor of Civil Engineering (Honours) covers the broad range of civil engineering disciplines including engineering materials, structural, water, geotechnical and transport engineering. You will be involved in planning and analysis, requiring real-life community considerations, and gain relevant industry knowledge through site visits and field trips.

#### Career opportunities

Extensive employment opportunities await in design, construction and project management of roads, airports, railways, harbours, water supply and sewerage systems; with water authorities, government bodies, public works departments and in consulting.

#### **Course structure**

32 credit points – 30 core units and two elective units.

- # Cloud Campus students are required to participate in campus-based intensive activities each trimester at the Geelong Waurn Ponds Campus.
- \* Only the first year of this engineering program is available at the Melbourne Burwood Campus. Students enrolled at the Melbourne Burwood Campus will be required to transfer to the Geelong Waurn Ponds Campus or Cloud Campus for the second year of their program. International students: Due to visa regulations, this course can only be undertaken at the Geelong Waurn Ponds Campus.
- Unpublished means that the course is available at that campus, but the clearly-in ATAR isn't available.

| •) | deakin.edu.au/study-at-deakin/find-a-course/ |
|----|--|
|    | civil-engineering                            |

Student measures sections of a robot created for the Warman robotics competition.

### **GETTING TO GEELONG**

Travel to the Geelong campuses is easy, whether by train, bus, car or bike. If you're based in Melbourne, the commute to Geelong with the new regional rail link is incredibly fast, with travel from Southern Cross Station to Waurn Ponds taking just over an hour. If you live in Melbourne's west, you may find your commute is as short as 30 minutes by car.

We also offer accommodation at each of our campuses, providing an affordable and secure living and learning community, ideal for personal growth and academic success. Find out more about our locations at **deakin.edu.au/life-at-deakin/ our-locations** and our accommodation by visiting **deakin.edu.au/life-at-deakin/accommodation**.

# **ENGINEERING**

Course duration in years Melbourne Burwood Campus Geelong Waterfront Campus WF Geelong Waurn Ponds Campus WP Warrnambool Campus WB Cloud Campus C

# **BACHELOR OF ELECTRICAL AND ELECTRONICS** ENGINEERING (HONOURS) WP C # B\*

| DEAKIN CODE  | DURATION   | 2016 CLEARLY-IN ATAR   |
|--|--|--|
| S461   | 4  | WP Unpublished~<br>C Unpublished~<br>B Unpublished~  |
| YEAR 12 PREREQUISITE   | S  | NON-YEAR 12 REQUIREMENTS   |
| VCE units 3 and 4 –<br>at least 25 in Englis<br>English other than<br>score of at least 20 | - a study score of<br>sh (EAL) or 20 in<br>EAL and a study<br>in one of Maths: | Educational history including<br>GPA. Applicants who wish for<br>experience to be considered must<br>include this information on their |
| score of at least 20 in one of iviatins.   |  | include this information on their  |

mathematical methods (CAS) or Maths: specialist mathematics.

International student entry requirements can be found at: deakin.edu.au/study-at-deakin/international-students.

Electrical and electronic engineers are responsible for the design, construction, protection and project management of power generation, distribution, transmission, scheduling and usage, automation and control.

VTAC Personal Statement.

This program covers the broad areas of electrical and electronic engineering disciplines, including renewable electrical power generation; smart distribution; urban, industrial, rural and regional power usage; and the role of energy production and efficiency in climate change. The course is designed to attract students who can be trained to fulfil the shortage of electrical and electronic engineers. It also is designed to encourage responsible use of electrical power in a changing climate.

> Deakin's high-voltage lab is located within the CADET building and is capable of reaching voltages up to 500kV.

# WOMEN IN POWER ENGINEERING **SCHOLARSHIP**

AusNet Services has created a scholarship to encourage successful female students into engineering disciplines. The Women in Power Engineering Scholarship is available to females entering the Bachelor of Electrical and Electronics Engineering (Honours), with successful applicants receiving a cash payment of up to \$10 000 per year for the normal duration of the course.

For more information, visit deakin.edu.au/study-atdeakin/scholarships-and-awards/ausnet-serviceswomen-in-power-engineering-scholarship.

#### **Career opportunities**

Extensive employment opportunities in power generation and distribution, electronic design, factory control, local government, public works and consulting.

#### Course structure

#### 32 credit points - 30 core units and two elective units.

- # Cloud Campus students are required to participate in campus-based intensive activities each trimester at the Geelong Waurn Ponds Campus.
- Only the first year of this engineering program is available at the Melbourne Burwood Campus. Students enrolled at the Melbourne Burwood Campus will be required to transfer to the Geelong Waurn Ponds Campus or Cloud Campus for the second year of their program. International students: Due to visa regulations, this course can only be undertaken at the Geelong Waurn Ponds Campus.
- Unpublished means that the course is available at that campus, but the clearly-in ATAR isn't available.

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deakin.edu.au/study-at-deakin/find-a-course/ electrical-and-electronics-engineering

# **PROFESSIONAL RECOGNITION**

Deakin's undergraduate courses in civil, mechanical, electrical and electronic, and mechatronic engineering are all accredited with Engineers Australia, giving our courses international recognition and our graduates the qualifications required to work as professional engineers in many countries around the world.



Engineering student Abrar Aziz with the robot he developed with a team of engineering students to compete in the Warman robotics competition.

> Deakin graduates are ready to be the design-driven, innovative and entrepreneurial engineering professionals of the future.

# ENGINEERING

Course duration in years 3 Melbourne Burwood Campus B Geelong Waterfront Campus WF Geelong Warrn Ponds Campus WP Warrnambool Campus C

# BACHELOR OF MECHANICAL ENGINEERING (HONOURS) I C # 13\*

| DEAKIN CODE  | DURATION | 2016 CLEARLY-IN ATAR  |  |
|--|----------|---|--|
| S462   | 4        | <ul> <li>₩P 62.70</li> <li>C Unpublished~</li> <li>B 65.25</li> </ul> |  |
| YEAR 12 PREREQUISITES  |          | NON-YEAR 12 REQUIREMENTS  |  |
| VCE units 3 and 4 – a study score of at least 25 in English (EAL) or 20 in |          | Educational history including<br>GPA. Applicants who wish for         |  |

experience to be considered must

include this information on their

VTAC Personal Statement.

at least 25 in English (EAL) or 20 in English other than EAL and a study score of at least 20 in one of Maths: mathematical methods (CAS) or Maths: specialist mathematics.

International student entry requirements can be found at: deakin.edu.au/study-at-deakin/international-students.

Mechanical engineering is the application of technology and science to the design, production and operation of systems, mechanical devices and machinery. Mechanical engineers are involved with almost every design imaginable, especially complex items like cars, robots and aeroplanes. The Bachelor of Mechanical Engineering (Honours) draws heavily on Deakin's world-class research teams in automotive engineering and advanced materials. Throughout the course you develop project management, communication and financial management skills, as well as a solid understanding of product and process modelling and designing for sustainability.

#### Career opportunities

Extensive employment opportunities in the automotive, aircraft, ship-building, aerospace and railroad industries, supplier companies and other leading manufacturing and design companies.

#### Course structure

32 credit points – 30 core units and two elective units.

- # Cloud Campus students are required to participate in campus-based intensive activities each trimester at the Geelong Waurn Ponds Campus.
- Only the first year of this engineering program is available at the Melbourne Burwood Campus. Students enrolled at the Melbourne Burwood Campus will be required to transfer to the Geelong Waurn Ponds Campus or Cloud Campus for the second year of their program. International students: Due to visa regulations, this course can only be undertaken at the Geelong Waurn Ponds Campus.
- $\sim\,$  Unpublished means that the course is available at that campus, but the clearly-in ATAR isn't available.



deakin.edu.au/study-at-deakin/find-a-course/ mechanical-engineering

# BACHELOR OF MECHATRONICS ENGINEERING (HONOURS) I d# 10\*

| DEAKIN CODE  | DURATION | 2016 CLEARLY-IN ATAR   |  |
|--|----------|--|--|
| S463   | 4        | WP 60.50<br>C Unpublished~<br>B Unpublished~   |  |
| YEAR 12 PREREQUISITE   | S        | NON-YEAR 12 REQUIREMENTS   |  |
| VCE units 3 and 4 – a study score of<br>at least 25 in English (EAL) or 20 in<br>English other than EAL and a study<br>score of at least 20 in one of Maths:<br>mathematical methods (CAS) or<br>Maths: specialist mathematics |          | Educational history including<br>GPA. Applicants who wish for<br>experience to be considered must<br>include this information on their<br>VTAC Personal Statement. |  |
|  |          |  |  |

International student entry requirements can be found at: deakin.edu.au/study-at-deakin/international-students.

Mechatronics engineers integrate electronic devices with mechanical design and information technology. They design mechanical systems such as chassis-stabilising systems, cameras, anti-lock brakes, engine control units, disk drives, service and surgical robots, and artificial hearts. This course combines electronic, mechanical and robotic engineering, with mechanical engineering and robotics featuring more strongly than in other degree programs. It offers studies in autonomous systems, robotic system design and industrial communication design.

#### **Career opportunities**

Extensive employment opportunities in areas including factory control, automation and control system design, as electronic control systems engineers or robotics engineers.

#### Course structure

#### 32 credit points – 29 core units and three elective units.

- Cloud Campus students are required to participate in campus-based intensive activities each trimester at the Geelong Waurn Ponds Campus.
- \* Only the first year of this engineering program is available at the Melbourne Burwood Campus. Students enrolled at the Melbourne Burwood Campus will be required to transfer to the Geelong Waurn Ponds Campus or Cloud Campus for the second year of their program. International students: Due to visa regulations, this course can only be undertaken at the Geelong Waurn Ponds Campus.
- Unpublished means that the course is available at that campus, but the clearly-in ATAR isn't available.



deakin.edu.au/study-at-deakin/find-a-course/ mechatronics-engineering





# WARMAN COMPETITION

The Warman competition challenges students to design and develop a robotic system that's able to satisfy a defined task, such as pick up an object. Deakin first and second-year engineering students put their mechanical and mechatronic design skills to the test in this challenging competition against other Australian universities.

Watch students experience the competition at **bit.ly/warmancomp**.





# **RELATED COURSE**

# BACHELOR OF CONSTRUCTION MANAGEMENT (HONOURS)

The Bachelor of Construction Management (Honours) provides an excellent mix of hands-on practice and theory, and integrated studies in technology and building management, including building economics and law, project management, building technology, measurement and estimation, quantity surveying and building practice.

As a graduate of this professionally accredited course, your qualifications are recognised for practice in more than 50 countries, providing a global passport for work in this field in Australia and overseas.

For more information about this course, please refer to the 2017 Undergraduate Architecture and Built Environment booklet or visit deakin.edu.au/study-at-deakin/find-a-course/ construction-management.

# DESIGN TECHNOLOGY



Innovation is at the core of design technology at Deakin, recognising the importance of creativity and problem-solving in enhancing technological solutions for product development and delivery.

> Sketches for the future-forward wetsuit design that was a partnership between Deakin University researcher, Dr Paul Collins, and Quicksilver.



3D printed objects are examined by a class of engineering students.



Help solve complex industry problems by conceptualising and designing sustainable products, services and systems of the future.









# **Dynamic industry**

There is a worldwide shift towards increasingly agile and adaptable industries, where manufacturing companies are becoming smaller and adopting more diverse interests and product lines. Most notably, is the shift towards increased customisation in product development and delivery.

## **Design technology**

Deakin's Bachelor of Design Technology is focused on developing versatile, technologically minded professionals with the design, project management and entrepreneurial skills to drive the product innovations of the future.

## An international perspective

There is an increasing trend towards design and design-led innovation as points of difference in the manufacturing sectors of the US and Europe. Australia too is showing significant growth in this area. To continue this momentum, the Bachelor of Design Technology has been developed with international input from industry and collaborating universities, ensuring Deakin graduates are at the forefront of this shift and well prepared to drive future change.

# DESIGN TECHNOLOGY

Course duration in years 3 Melbourne Burwood Campus B Geelong Waterfront Campus WF Geelong Waurn Ponds Campus WP Warrnambool Campus Cloud Campus C

# BACHELOR OF DESIGN TECHNOLOGY\* 🚥

| DEAKIN CODE   | DURATION   | 2016 CLEARLY-IN ATAR   |
|---|--|--|
| S307  | 3  | WP N/A*  |
| YEAR 12 PREREQUISIT   | ES   | NON-YEAR 12 REQUIREMENTS   |
| VCE units 3 and 4<br>at least 25 in Engli<br>English other thar | – a study score of<br>ish (EAL) or 20 in<br>I EAL. | Educational history including GPA.<br>Applicants who wish for experience<br>to be considered must include this<br>information on their VTAC Personal<br>Statement. |

International student entry requirements can be found at: deakin.edu.au/study-at-deakin/international-students.

Industrial designers visualise, conceptualise and design solutions to complex industry problems. This course develops technology-focused professionals capable of creating creative, engineering and technology-based solutions to industrial design-related problems and the ability to plan and design, for example, consumer products, medical and physiological instrumentation, prosthetics and other sports-related devices.

#### Course structure

24 credit points – eight core units (11 credit points), an industrial design major sequence (10 credit points) and elective units (3 credit points).

#### Career opportunities

Graduates typically create and design consumer, sports, medical and industrial products, and make models and prototypes of these designs for mass or customised production.

Graduates may find employment in the medical device and diagnostics industry working in hospitals, government and private organisations to design and develop medical and physiological instrumentation, prosthetics and other health care devices. Graduates may also be suited to roles requiring the design and development of sports equipment, instrumentation and other sports-related products with a focus on human performance.

\* Not available in 2016, offering subject to review for 2017.



deakin.edu.au/study-at-deakin/find-a-course/ design-technology

'The Australian economy is changing, requiring a broader-thinking graduate. Design thinking and the ability to design allows students to really explore boundaries, understand project management and be more creative in their thinking. This is what is needed in today's graduates: a change in the way they think, to become the industrial designers and thought-leaders of the future.'

# **PROFESSOR IAN GIBSON**

Industrial design professor



'With engineering, you get to leave a legacy and it is a privilege to be able to make changes to create a more sustainable world.'

Ö.

# **AZALEA CHUI**

Civil engineering (Honours) student





# **Engineering student societies**

# Deakin Engineering Society (DES)

The Deakin Engineering Society (DES) is one of the most active clubs at Deakin in Geelong. The club provides guest speakers and information nights and is a must for aspiring engineers and all students wanting to meet new people. Ladies in Engineering at Deakin (LEAD) LEAD provides a unique networking group for female students in the engineering and ICT fields of study, with a focus on building social connections and professional development opportunities.

> 'I'd always had an interest in how things work, so engineering seemed like a natural fit for me. Deakin has given me so many opportunities, allowing me to grow as a person, mature as a leader and succeed at university.'

> > TOM SUDHOLZ

Mechanical engineering student



# GLOBAL SCIENCE AND TECHNOLOGY PROGRAM

| DEAKIN CODE   | DURATION                                  | 2016 CLEARLY-IN ATAR   |
|---|---|--|
| Refer to specific co  | urse entry.                               | WP 80.00*  |
| YEAR 12 PREREQUISITE  | S   | EXTRA REQUIREMENTS   |
| Applicants must m<br>prerequisites for th<br>engineering prefer<br>ATAR of 80.00. | eet the<br>neir specific<br>ence. Minimum | All applicants must complete and<br>submit the Global Science and<br>Technology Program Supplementary<br>Information Form (deakin.edu.au/<br>sebe/global). |

The Global Science and Technology Program at Deakin is designed to add an international experience to your engineering degree. A minimum clearly-in ATAR of 80.00 is required for entry into this program. Successful applicants are offered a scholarship of \$3000 to assist with travel costs and participate in the Deakin Global Citizenship Program.



# JOIN THE PEER SUPPORT PROGRAM

The Faculty of Science, Engineering and Built Environment offers a Peer Support Program as part of its commitment to providing new students with the best possible transition into university life. By joining the program, first-year students receive support and guidance from more senior students in their course, helping them to become familiar with the support services and facilities available, while gaining useful tips about studying at Deakin.

Find out more at deakin.edu.au/sebe/students/ peer-support-network.

#### Course structure

You are able to select any one of the undergraduate degrees offered by the Faculty of Science, Engineering and Built Environment through a single VTAC preference for the Global Science and Technology Program. It is recommended that applicants also apply separately for their Deakin engineering or design technology-based course as a lower preference.

# Refer to specific course entries and campus offerings in this booklet for the list of courses available.

\* Minimum clearly-in ATAR. Applicants must also meet the published prerequisites for their specific course preference within the Faculty of Science, Engineering and Built Environment.

deakin.edu.au/sebe/global

## ENGINEERS WITHOUT BORDERS

The Deakin University Chapter of Engineers Without Borders (EWB) Australia, is run by students who have a common interest in local and global humanitarian engineering.

The Chapter's goals include community outreach and development, preparation for international placements and equipping members to make meaningful and sustainable contributions to humanitarian challenges.

Our first-year Cloud Campus students made the 2015 Victorian Regional Finals of the Engineering Without Borders Challenge with their design of an alternative energy supply system for a remote community in Cameroon as part of their Humanitarian Engineering design project in SEB121 Engineering Practice.

#### www.ewb.org.au/whatwedo



# **COURSES TO CAREERS**

At Deakin, we're about careers and experience, not just courses. Here are just a few of your future career opportunities.

#### COURSE **POSSIBLE CAREERS** · Civil engineer Aeronautical engineer Bachelor of Civil Engineering (Honours) Stormwater engineer Structural drafter Electrical design engineer **Bachelor of Electrical and Electronics** Computer engineer Engineering (Honours) Telecommunications engineer PLC programmer Mechanical engineer **Bachelor of Mechanical Engineering** Industrial designer (Honours) Industrial engineer Rail systems engineer Automation engineer Bachelor of Mechatronics Engineering **Biomedical service engineer** (Honours) Electronic test engineer Control systems engineer CAD designer

Bachelor of Design Technology



# **FEATURE CAREER**

### **Civil engineer**

As a civil engineer, you plan, design and manage construction projects, ranging from the relatively small-scale, for example bridge repairs, through to large national schemes, such as the building of a new stadium.

#### Attributes

Analysis and critical thinking skills; strong communication skills; attention to detail; teamwork and project management skills.

Indicative average salary \$71 000

# KICKSTART VOLID COLIDSE AND CAREER EXPLORATION

Visit explore.deakin.edu.au to kickstart your course and career exploration at Deakin. With more than 600 paired courses and careers, it's the perfect destination for you to explore your future career.

# **AREAS YOU COULD WORK IN**

- Automation and control system design
- **Civil engineering**
- Electronic design
- Industrial design
- Manufacturing and design
- Power generation and distribution
- Structural engineering
- Transportation engineering
- Waste water engineering
- Water engineering

### WHAT EMPLOYERS WANT IN THEIR EMPLOYEES

- Interpersonal communication skills
- Passion
- Logic and technical skills
- Good academic results
- Work experience
- A good cultural fit
- **Emotional intelligence**

Graduate Careers Australia



# FEATURE INDUSTRY

# Mechatronics engineering

Mechatronics engineering is concerned with the research, design, implementation and maintenance of intelligent engineered products and processes enabled by the integration of mechanical, electronic, computer and software engineering technologies.

#### Attributes

Creative thinking; logic and technical skills; analysis and critical thinking skills; attention to detail; teamwork and project management skills.

Indicative average salary

\$72 000

- Electrical design engineer
- Digital designer
- Sport equipment designer

- Teamwork skills
  - Leadership skills

Source: Graduate Outlook Survey,





# **GO ONLINE**

Visit us online at **deakin.edu.au** for detailed information on everything at Deakin.

See also ...

deakin.edu.au/study-at-deakin/ find-a-course/engineering

deakin.edu.au/engineering

deakin.edu.au/study-at-deakin/find-a-course/ new-courses for up-to-date information on new courses and unit offerings

**deakin.edu.au/courses** for more information about course structures

# **TALK TO US**

For more information and all general enquiries, please phone 1800 MYFUTURE (1800 693 888). You can also contact us via email at myfuture@deakin.edu.au.

# **VISIT US**

There are many opportunities throughout the year to visit Deakin, experience a campus tour and talk with representatives in person.

To organise a campus tour and presentation for an individual or group, please phone 1800 MYFUTURE (1800 693 888), email myfuture@deakin.edu.au or visit **deakin.edu.au**.

For our 2016 Open Day dates, see the back cover of this booklet.

For more information on event dates, visit **deakin.edu.au** or phone 1800 MYFUTURE (1800 693 888).

## Social media at Deakin

Connect with Deakin University on Facebook, Twitter, Instagram and LinkedIn. Gain an insight into life and study at Deakin and talk with other future and current students.

| facebook.com/DeakinUniversity |  |
|-------------------------------|--|
| Stwitter.com/Deakin           |  |
| Stwitter.com/DeakinSEBE       |  |

instagram.com/DeakinUniversity

in Search Deakin University

# Other useful websites

Victorian Tertiary Admissions Centre. vtac.edu.au

Australian Government site detailing higher-education options in Australia. studyassist.gov.au

Online career exploration and information service. www.myfuture.edu.au

Australian Government site providing advice for young people thinking about their future and looking for work. www.youth.gov.au

Victorian Government site with information about jobs and careers. www.youthcentral.vic.gov.au

# Further reading

Deakin University produces a range of booklets to help you choose the right course.

You can download copies of these brochures at **deakin.edu.au/course-guides**, or to request copies email myfuture@deakin.edu.au or phone 1800 MYFUTURE (1800 693 888).

Deakin University also produces course guides specifically for international students. To request a copy, phone Deakin International on +61 3 9627 4877 or email deakin-international@deakin.edu.au.



# YOUR DIGITAL LEARNING TOOLS

DeakinSync is a personal online hub giving Deakin students, staff and alumni easy access to relevant University resources, customised to their specific needs. You can access everything from unit sites to enrolment details, study tools to your calendar, as well as IBM Watson – a question and answer tool.

Visit deakin.edu.au/deakinsync or ibmwatson.deakin.edu.au for more information.

IBM Watson is a trademark of International Business Machines Corporate, registered in many jurisdictions worldwide.

# 👹 IBM **Watson**™



# 2016 DEAKIN UNIVERSITY OPEN DAYS

# 07.08.16

9 AM-3 PM WARRNAMBOOL CAMPUS Princes Highway Warrnambool Victoria

# 21.08.16

9 AM-3 PM GEELONG WAURN PONDS CAMPUS 75 Pigdons Road Waurn Ponds Victoria

GEELONG WATERFRONT CAMPUS 1 Gheringhap Street Geelong Victoria

# 28.08.16

9 AM-4 PM MELBOURNE BURWOOD CAMPUS 221 Burwood Highway Burwood Victoria

# 1800 MYFUTURE (1800 693 888) deakin.edu.au

Published by Deakin University in April 2016. While the information published in this guide was accurate at the time of publication, Deakin University reserves the right to alter, amend or delete details of course offerings and other information published here. For the most up-to-date course information please view our website at **deakin.edu.au**.