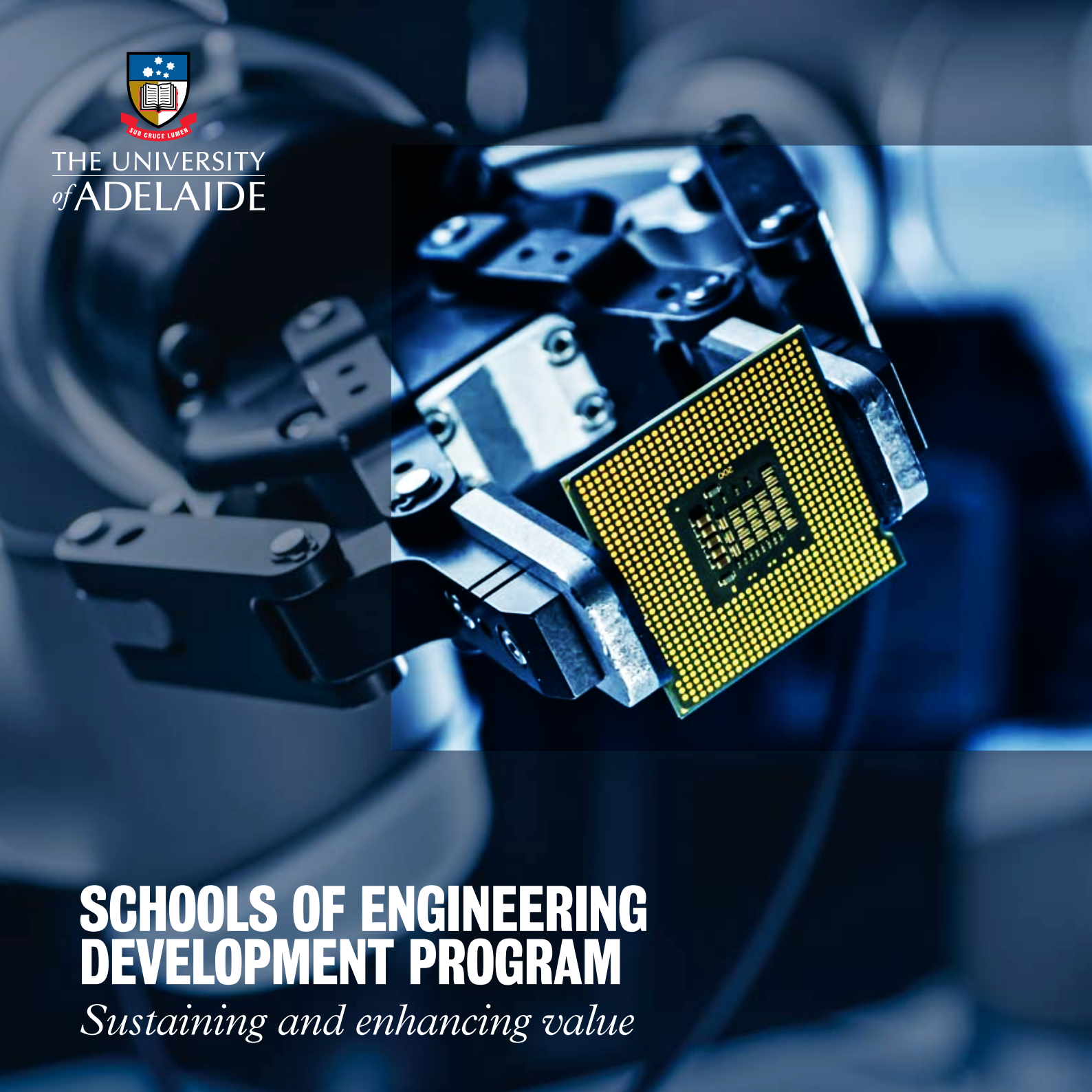


SCHOOLS OF ENGINEERING DEVELOPMENT PROGRAM

Sustaining and enhancing value

"As alumni of the Faculty of Engineering, we have been fortunate to benefit from the education and research opportunities that the University offered us.

This document recognises that, whilst the schools brand quality has supported us to be where we are today, its future reputation rests on the ability to anticipate the direction of travel in an ever changing environment, offering avenues to students today and going forward.

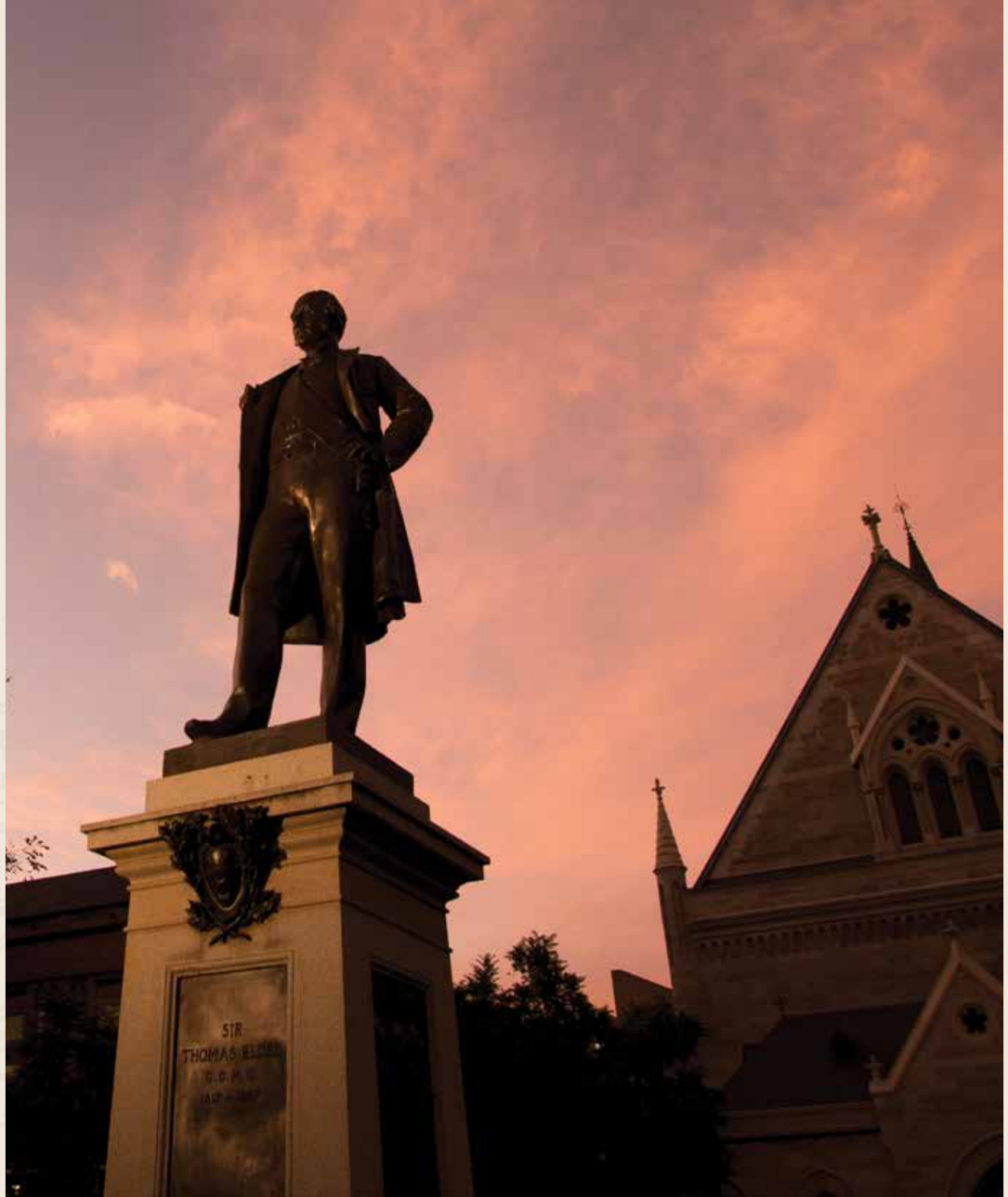
Through innovative teaching and research, we will give impetus to technological, socio-economic, and intellectual developments by providing education in a multi-disciplinary way and serving society through partnered research for positive impact.

The Engineering Development Plan broadly outlines the key triggers that will enable us to deliver a gold-standard program; and how you, as alumni and friends of the Faculty, can make it a reality.

We are proud of what the Schools of Engineering have already achieved at the University of Adelaide; and grateful for what they have done for us. Their standing, reputation and value will equally depend on what we, as custodians, do now.

Please join us on that journey and help sustain and enhance the engineering contribution to South Australia and the wider world."

From the Executive Dean,
Professor Katrina Falkner



CORE VALUES

Recruit and retain students of the highest calibre, regardless of background and financial means, for an education in engineering that will support and develop an emerging generation of life-long learners.

Deliver analytical and experiential teaching methodologies that enable the University of Adelaide graduates to lead the way in a future of continuous technological change.

Enhance world rankings and reputation across the University of Adelaide's Schools of Engineering by attracting world-class academics and investing in cutting edge facilities.

Cultivate the next generation of problem solving entrepreneurs that answer the call from industry for technological innovation within South Australia and beyond.

ALUMNI AND DEVELOPMENT

With an outstanding reputation and the exceptional quality of our graduates, the Schools of Engineering are at the forefront of high-impact teaching and research and home to world-class institutes and centres.

Through a highly engaging program of class reunions, the Engineering Schools connect with consecutive alumni cohorts, year-on-year. They build a continuous relationship that strengthens the mutual bond, re-visiting the student experience that has delivered a formative education and contributed to their professional progress to the present day.

The program underlines the importance of endowment, which, as it grows, strengthens the Engineering Schools' position permanently and continuously. The benchmark gift of $25,000, payable over a time period of up to 10 years, qualifies for life membership of the Board of Benefactors (Engineering Foundation) and an annual invitation with spouse, partners and guests to the Benefactors' Festum.

Looking to build the development pathway, a number of key requirements are highlighted in this document, some of which can be funded through alumni cohorts giving at Board of Benefactors' level, often in the follow-up to a class reunion. Others will depend on major gifts to achieve transformative outcomes for our students and the community.

Support to any part of the program will enhance the value of a degree, both for members of the Engineering Schools and, more widely, the University of Adelaide.

From top: Neil Weste, Andy Thomas, Andrea Boyd and Luisa Panuccio.

ENGINEERING AT THE UNIVERSITY OF ADELAIDE

Teaching of engineering at the University began in 1883, making it one of Australia's earliest tertiary providers of the discipline. Today engineering is taught across eight core areas; mechanical, chemical, civil, environmental, mining, electrical, electronic and petroleum; and discipline specialisation is set to align with state, national and global priorities to meet future industry needs.

The Schools of Engineering at the University of Adelaide have an enviable record in producing successful, pragmatic and intuitive engineers. Among our alumni are Neil Weste, an Australian inventor and visionary technologist noted for having designed the world's first wireless LAN chipsets. Also included are Andy Thomas, Australia's first Astronaut, Andrea Boyd who is leading the way in the new South Australian Space Agency, and Luisa Panuccio, who in 2019 received the Graduate of the Year Award from The National Association of Women in Construction (NAWIC) and in 2020 was a finalist in two Channel 7 Young Achiever Awards.

Our excellence in research and education is also noted internationally with consistent placings in the top 50 of global university rankings. In 2020, the Academic Ranking of World Universities placed six of the School's subjects in the Top 50 internationally. Nationally, the Schools of Engineering have ten subjects in the top four of the Go8, including two that are number one in Australia. In addition, in the 2018 Excellence in Research Australia, all schools receive the highest rating of well above world class. With appropriate additional funding, the Schools of Engineering have the ability to attract and retain top talent students and academics, whilst continuing to enhance world-class engineering research.

They will focus on advanced engineering technology, as well as being a hub for commercialisation in South Australia with The Portal supporting young engineers in innovation and commercialisation.

Together with alumni and industry, the Schools of Engineering are now reinventing degrees to offer a new generation of unique learning experiences across a breadth of disciplines; producing real-world problem-solvers and effective leaders in our graduates.

This is demonstrated annually at ***Ingenuity***, South Australia's largest student exhibition, which showcases research projects from final year honours undergraduates – the technology leaders of tomorrow.

Supporting any part of the development program will enhance the value of a degree, both for members of the Engineering Schools and, more widely, the University of Adelaide.

THE ENGINEERING DEVELOPMENT PROGRAM

The Student and Teaching Support Fund (STSF)

This fund aims to attract, enable and support students to achieve the best outcomes in results and employability through the following programs.

Access and Competitive Awards

To achieve this the brightest students require financial backing, commensurate with competing universities and to identify opportunities that develop their skills in ways they may not get elsewhere. In the first instance, there remains the focus to encourage students into engineering as their chosen avenue of study, particularly from historically underrepresented sectors.

Education and Technology Teacher in Residence

Disruptive technology will revolutionise the future of South Australia with science, technology, engineering and mathematics (STEM) skills underpinning the States' socio-economic transformation. This will create the need for highly trained professionals with a strong foundation in maths and science. Embedding key engineering principles into the high school curriculum will provide learning that connects young people to engineering concepts, university offerings and future employment.

Much can be achieved with targeted workshops which connect into secondary curriculum. The Schools of Engineering are proposing a scheme radically more effective than currently available at universities.

Proposal

To develop a STEM learning space for secondary school students, with a teacher in residence who provides interactive sessions, encouraging students to choose engineering as their educational pathway.

Annual cost $150,000

Commencement and Continuation Awards

To ensure that all potential students with a passion for engineering have the opportunity to access tertiary study, there is a need for infrastructure to support the most financially disadvantaged who may not otherwise be able to attend university. With a large number of potential engineers in the making, an opportunity exists to change the future for budding students from low socioeconomic status (SES) regions. Contributions are used to cover associated costs for equipment, relocating and student set up. This start-up package can be made more effective with further financial support on an annual basis to students for whom the four-year duration of an engineering degree might be at risk on financial grounds.

Proposal

To develop a bursary program which provides one-off grants of $5,000 targeting 25 commencing students annually across regions within the lowest 10% SES backgrounds. On the same criteria, four Continuation Awards annually, valued at $5,000 per year.

Commencement awards Annual cost: $125,000
Continuation awards Annual cost: $80,000

High Achievers Undergraduate Scholarships – Retaining Talent in SA

The high achievers' market is a competitive space, with interstate universities offering very high-value scholarships and experiences. Top talent students, from both local or interstate, are a key part of our future industry and research pipeline, so it is critical that we attract and retain them, both as students; and, more broadly, to South Australia as leading engineers.

Proposal

To introduce a high value ($10,000 per annum) continuing scholarship program that will attract and support ten high achieving undergraduate students annually (40 at any time) from across South Australia and interstate.

Annual cost $400,000

The high achievers' market is a competitive space, with interstate universities offering very high-value scholarships and experiences. Top-talent students are a key part of our future research pipeline, so it is critical that we attract and retain them, both to the University of Adelaide as students; and, more broadly, to South Australia as leading engineers.

Experiential and Immersive Learning Support

The "learn by doing" model is particularly important, but not yet well developed, in the engineering profession. With a focus on problem solving, it offers students the chance to experience real world learning, and prepares them for their engineering career. This also offers highly trained candidates to industry, with expertise well beyond a standard university graduate, enhancing the Engineering Schools' standing in terms of student employability.

Proposal

To offer engineering students a range of opportunities that will develop their personal and professional skills alongside their academic study, preparing them with the technical, project management and leadership qualities sought after by industry. Below are a number of targeted experiential learning initiatives to place the Schools ahead of the game by national and international comparisons.

Internships/Work Experience

In addition to the theoretical grounding provided by an engineering degree, students are required to complete an eight week internship as part of their study. This enables them experience in engineering situations where they are working on real-world problems. Such internships, mostly unpaid, put considerable pressure on students from lower income levels. An internship grant of as little as $2,000 to 50 students per year will help cater for this essential part of an engineering degree.

Annual cost $100,000

Global Skill Development (study tours)

These short term academic programs allow students to complete an intensive course overseas. Study tours may include stops at multiple destinations, or be an immersive experience in one location. International study opportunities are an important part of experiential learning for undergraduate and masters engineering students, can create international professional connections and develop the ability to communicate and adapt to new environments. For some students the cost of $2,000 is prohibitive; and the ability to support 15 students annually would make a significant impact.

Annual cost $30,000 per study tour

Flagship Project Development

Flagship projects are defined as multi-year projects spanning across the Faculty and beyond, open to students in all year levels, and focused on a topic of global relevance. These projects create a stimulating environment where students learn the skills required to work in a professional setting, while delivering tangible results. Such projects highlight to the community how fulfilling studies can be, through active participation in cutting edge challenges that reflect contemporary societal needs. An endowed project assistance fund to support Flagship Projects will go to supporting activities, help raise the profile of these initiatives with students, and support their participation in high profile international competitions.

Annual cost $100,000

Postgraduate Coursework Scholarships: (upskill and re-skill)

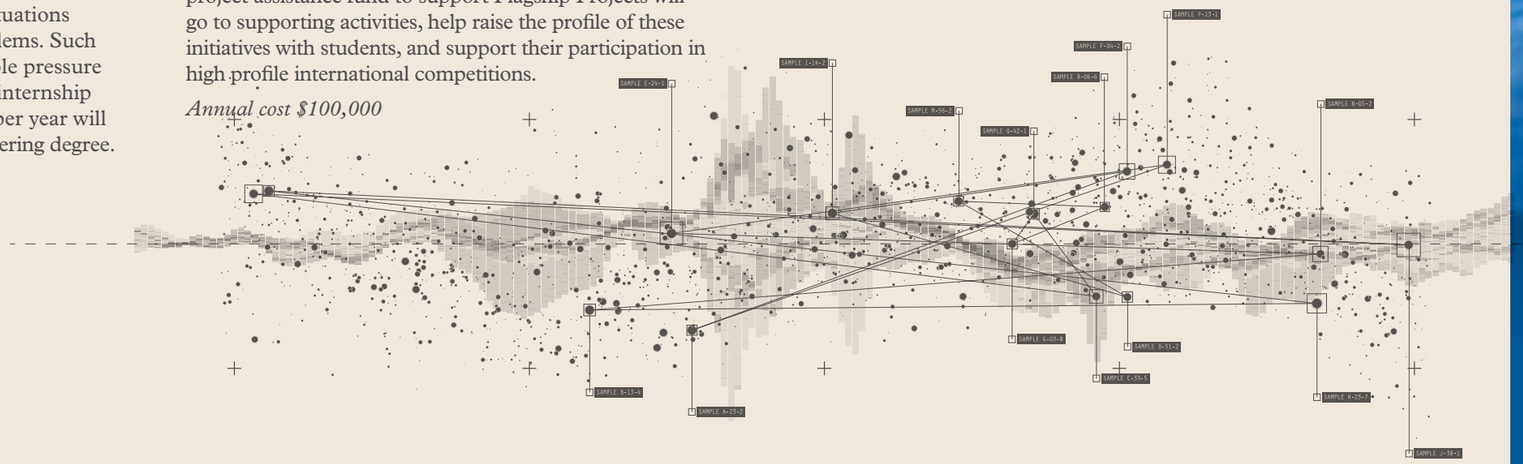
The Schools of Engineering at Adelaide have a focus on the upskilling and re-skilling of students into emerging growth industries. This incorporates a range of degree and sub degree opportunities to support adult learning into new economic development industries.

Graduate certificate, graduate diploma and master of engineering programs provide the foundation and pathway to career opportunities and research study. To encourage outstanding applicants into high value scholarships, targeting the six areas of emerging importance for the Schools is required. These areas of focus are Marine Engineering, Machine Learning, Data Science, Cyber Security, Materials Engineering and Bio-pharmaceutical Engineering.

Proposal

To offer a two-year course work scholarship at $20,000 per annum in each of the six identified areas. As a top up, it will give a competitive edge against other universities nationally and worldwide.

Annual cost $240,000



The faculty's immersive learning program will offer engineering students a range of opportunities to develop their personal and professional skills alongside their academic study, preparing them with the technical, project management and leadership qualities sought after by industry.

The Research Quality Support Fund (RSF)

This fund provides finance for on-going research projects as needed, and is independent of volatile government funding and revenue cross-subsidy.

Amidst a research environment that is globally competitive for the best potential, the Schools of Engineering must offer not only state of the art teaching and facilities, but also the financial and career enhancing incentives that compare favourably to the rest. The research pathway begins with PhD study; attracting top quality applications requires financial backing for world class researchers and innovative programs.

Talent Top-ups

The development of a PhD program to train the next generation of Australian researchers is critical. With a guaranteed source of funding, Schools could recruit some of the best PhD students and give high level development opportunities to embed them into the growing economy.

While PhD students who are successful in winning a scholarship receive a stipend (e.g. $28,597 per annum in 2021), it is necessary to offer top-up funding to attract and select the very best in such a competitive market. This will have a game-changing impact on the permanent quality of research, ranking and reputation.

Proposal

To establish an endowment fund that will allow recruitment of three outstanding PhD students annually through top-up funding, averaging $20,000 per student per annum.

Annual cost $180,000

With a guaranteed source of funding, Schools could recruit some of the best PhD students and offer high level development opportunities to embed them into the growing economy. This will have a game changing impact on the permanent quality of research, ranking and reputation.

Evolution Fund Projects

This program is for game changing initiatives, wherein a single substantial contribution will enable the Schools of Engineering to operate in a significantly higher league.

The Schools of Engineering need to be at the forefront of the technology revolution. Future advances in these areas are predicted to lead us past the information age and into 'Society 5.0' where we begin to harness the full potential of advanced technology for the benefit of humanity.

Increasingly, the 21st Century will be shaped by broad technology impact in traditional engineering areas. There is a growing need to intersect the digital and physical worlds to drive world-leading research impact and to create the job pathways and agile graduates of the future. For the University of Adelaide to be pre-eminent in this area, there are a number of high value projects which would be possible with support from major gifts.

The Portal – A Gateway to Commercialisation

Our Commercialisation Portal office assists in finding a path to market for researchers and students' inventions, and bridges the gap between university and industry by fostering end-user driven research to deliver solutions to real world challenges.

An endowment fund would fund projects that will receive between $10,000 and $50,000 to fast track to the next stage of technology readiness and mentor our students to become the next leading entrepreneurs.

Annual cost $500,000

Investing in Talent

In line with the University's strategic plan – *Future Making*, the Schools of Engineering are looking to invest in world class talent with the appointment of professorial Chairs in the key areas of research development, which will make major contributions to ranking and reputation in those areas.

Proposal

The cost of securing world-class academics will be variable, and depend on identification of exceptional candidates in these fields. Individual naming opportunities for endowment of a Chair or similar role will be offered at 60% of full cost, including research support.

A donation of around $5 million, when added to the Faculty's own investment will allow recruitment from amongst the world's best, with consequential impact on ranking and reputation.

Annual cost between $5-$6 million

Further details can be discussed with the Executive Dean of the Faculty, or with the Director of Advancement, External Relations Branch.

Infrastructure Funds (spaces for creativity and innovation)

Infrastructure is increasingly a magnet for student talent. Spaces are needed, which allow them to work with the most up to date technology, better preparing our students for their transition into industry. There is an opportunity to update and create student-centred interactive maker spaces with high-tech teaching and research equipment.

Proposal

To this end, the Faculty is looking to fund three functional areas that will house transformational improvements in teaching and research capacity:

Future Industries Laboratory

A new research and teaching space, located close to the Australian Space Agency at Lot 14, North Terrace Adelaide, will attract international collaboration with partner countries. The first laboratory of its kind in the world, integrating the space value chain and ecosystem with expertise will translate across strategically important sectors for South Australia.

Annual cost $20,000,000

21st Century Engineering Spaces

A new range of innovative engineering teaching spaces, with the most up to date technology on hand, will offer our undergraduate and postgraduate students the best experience and skillset from their engineering education.

Annual cost $5,000,000

Humanitarian Engineering Laboratory

A specially designed makerspace for humanitarian engineering will support a key component of the newly designed undergraduate engineering curriculum.

Annual cost $2,000,000

Further details and opportunities for naming such spaces can be offered in discussion with the Executive Dean of the Faculty, or with the Director of Advancement, External Relations Branch.

With a strong focus on design thinking we will run the program with dedicated space and support for potential entrepreneurs to collaborate, mentor and incubate technical business ideas and commercialisation development.

MAKING A GIFT TO THE UNIVERSITY OF ADELAIDE SCHOOLS OF ENGINEERING

Any gift to the Schools of Engineering is ring-fenced to supporting the development plan as outlined in this document.

Giving to the Schools of Engineering allows for a choice between supporting either students or research. But donors can also singly choose to underwrite a substantial proportion of one of the Engineering Evolution options.

Gifts of $25,000 or more qualify for Board of Benefactors at the point of pledge. They are particularly appropriate to the endowment funds which can, when combined with other gifts, make a significant contribution to support the Schools of Engineering and University.

Amount	Instalment payable		Higher rate tax		
Gross Gift	Annually (five years)	Monthly (five years)	Net Cost 32.5%	Net Cost 37%	Net Cost 45%
$25,000	$5,000	$417	$16,825	$15,625	$13,750
$100,000	$20,000	$1,667	$67,300	$62,500	$55,000
$250,000	$50,000	$4,167	$168,250	$156,250	$137,500

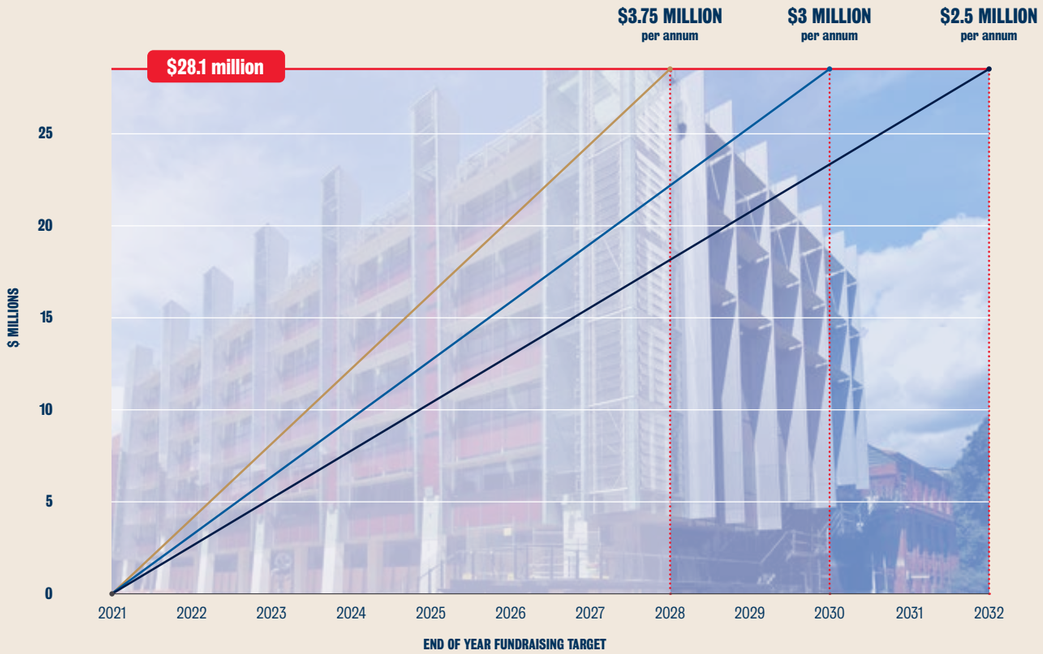
The above table shows the giving costs for Board of Benefactors and above, with the implications of higher rate tax relief and gifts made over time.

ENDOWMENT SUMMARY

Schools of Engineering Development Plan Annual Endowment and Infrastructure Costs

Development Plan Items	Steady state target	Annual cost EACH	Annual cost TOTAL	Endowment cost EACH	Endowment cost TOTAL
Student and Teaching Support Fund					
Access and competitive awards					
Teacher in Residence	1	-	$150,000	-	$3,000,000
Commencement Awards	25	$5,000	$125,000	$100,000	$2,500,000
Continuation Awards	16	$5,000	$80,000	$100,000	$1,600,000
High Achievers Undergraduate Scholarships	40	$10,000	$400,000	$200,000	$8,000,000
Experiential and immersive learning support					
Internships	50	$2,000	$100,000	$40,000	$2,000,000
Global Skill Development (Study Tours)	15	$2,000	$30,000	$40,000	$600,000
Flagship Project Development	-	-	$100,000	-	$2,000,000
Post graduate coursework scholarship (upskill and re-skill)	12	$20,000	$240,000	$400,000	$4,800,000
					$24,500,000
Research Quality Support Fund					
Talent top-ups (average cost)	9	$20,000	$180,000	$400,000	$3,600,000
Evolution Fund Projects					
The Portal - A Gateway to Commercialisation					$500,000
Investing in Talent					$5-6 million
Infrastructure Funds					**TOTAL COST**
Future Industries Laboratory					$20 million
21st Century Engineering Spaces					$5 million
Humanitarian Engineering Laboratory					$2 million

ENGINEERING DEVELOPMENT FUND TARGETS



Gifts of $25,000 or more qualify for Board of Benefactors at the point of pledge.

They are particularly appropriate to the endowment funds which can, when combined with other gifts, make a significant contribution to support the Schools of Engineering and University.

UNIVERSITY OF ADELAIDE ENGINEERING DEVELOPMENT PATHWAY

POINT OF ENTRY	4 YEARS	2 YEARS	3 YEARS PLUS
Competitive and Open Access	Quality reputation Employability Adapting to technological change	Best outcomes Employability Higher Degree Research pathway	Ranking, reputation Technological advance Industry partnership Research and commercialisation Developing Research Workforce
ADMISSIONS AND ACCESS →	**UNDERGRADUATE** Diploma and Bachelor with embedded Honours Engineering (Multiple disciplines) →	**POSTGRADUATE COURSEWORK** Graduate Certificate, Graduate Diploma and Master of Engineering (Multiple disciplines) →	**RESEARCH/ PhD/ POST-DOCTORAL**
Funding Priorities STEM engagement Secondary teacher in residence Commencement and continuation awards High achievers scholarships	**Funding Priorities** Experiential and immersive learning support Internships / work experience Flagship Project Development Global skill development - Study tours Innovative engineering teaching spaces Humanitarian engineering makerspace	**Funding Priorities** Postgraduate coursework scholarship program Innovative engineering teaching spaces	**Funding Priorities** Talent top-up PhD program The Portal - A Gateway to Commercialisation Investing in world class talent Infrastructure and facilities development

"Ingenuity is simply the biggest initiative of its kind in South Australia."

INGENUITY

The annual flagship initiative for the Faculty, **INGENUITY** is an interactive platform for real-life applications of engineering, computer and mathematical sciences; it showcases over 300 student projects, information displays and achievements.

Industry presence has always been welcomed and well supported. It provides a great opportunity for networking and making contacts – many students have received job offers or internships as a direct result of the opportunities provided by *Ingenuity*.

Annually, *Ingenuity* welcomes over 5,000 attendees, including primary and high school students, industry representatives, university staff and students, and the general public, to engage and share experiences, learn more about studying at university and offers a unique insight into career opportunities.

Ingenuity provides an invaluable professional development opportunity for students, serving as a platform to present their work, develop communication skills and prepare for job interviews and future careers.

For further details about the customised collaboration opportunities, please contact the Executive Dean of the Faculty.

PARTNER WITH US

Collaborate with us in support of *Ingenuity*.

Associate your brand with the University of Adelaide.

Contribute to the learning outcomes of tomorrow's leaders.

Enjoy visibility and networking amongst government, students and alumni.

The development program and broader needs of the Schools may be subject to change over time. The Schools of Engineering Endowment Fund will be held in perpetuity to support those plans and needs, in accordance with the fund rules, which are available on request.

FOR FURTHER ENQUIRIES

University of Adelaide Development
The University of Adelaide SA 5005 Australia

TELEPHONE +61 8 8313 5800

EMAIL development@adelaide.edu.au

WEB adelaide.edu.au

SOUTH AUSTRALIA