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Associate degree or advanced diploma? A case study

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About the research

Associate degree or advanced diploma? A case study

Tom Karmel, Tham Lu, National Centre for Vocational Education Research

This paper presents a case study in which the authors attempted to understand the impact, on student choice, of reforms in tertiary education in Australia, namely, a shift towards a demand-driven system and the blurring of the distinction between vocational education and training (VET) and higher education.

The authors compared the advanced diploma and the associate degree in engineering and related technologies offered as a pathway to a four-year degree, using data available in October 2011 on the websites of providers and from the Victorian Government, the first jurisdiction to adopt an entitlement model and the state in which most mixed-sector tertiary institutions operate.

Key messages

- A VET advanced diploma is a substantially cheaper proposition than a higher education associate degree.
  - This makes the advanced diploma very attractive from the perspective of a student seeking a two-year qualification for immediate entry to the labour market.
- If the student subsequently wishes to articulate into a four-year degree, then the associate degree is the better proposition.
  - This is because the associate degree is given more credit in a degree program (and so the advanced diploma graduate has to bear the cost of delayed entry into the labour market).
  - The advanced diploma would need to be restructured if it were to provide as much credit as the associate degree.
- From a provider's perspective, government-funded higher education places are worth more than VET (at least in engineering).

The case study shows that the differences in fees, academic credit arrangements and level of government funding are likely to impact on both student choice and institutes' provision of education and training.

Tom Karmel
Managing Director

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Introduction

In response to structural changes in the economy, the Australian Government has initiated policies that emphasise the importance of higher-level skills, the aim being to achieve greater productivity. The government has set targets for higher-level qualifications and greater representation of students from lower socioeconomic backgrounds at university. Following the Bradley Review of the Australian higher education system, the Australian Government aims by 2020 to have increased to 40% the proportion of the Australian population aged 25 to 34 years who have attained at least a bachelor qualification. Also by 2020 the government aims to achieve the target of students from low socioeconomic backgrounds making up 20% of undergraduate enrolments.

Part of the strategy to achieve these targets is to encourage the creation of education and training markets in both the vocational education and training (VET) and higher education sectors. In 2012, the higher education sector shifts from a traditional, supply-led approach, in which governments promote education through certain funding allocations, to a more responsive system. A student demand-driven system now allows public universities to compete for Commonwealth funding on the basis of student demand. A student entitlement model is also an innovation in the VET sector. Victoria is the first state allowing VET funding to follow the choices of individuals to competing providers, irrespective of ownership structure. This is having major implications for the way higher education providers and VET institutions operate, collaborate or compete. The reform push has led to different funding and fees arrangements that influence student choice of which VET or higher education qualification they should invest.

This paper uses a case study to examine how both education and training providers and students are likely to respond to these arrangements. The focus is a comparison between advanced diplomas and associate degrees, which are categorised at Australian Qualifications Framework (AQF) level 6 and are offered as a pathway to degrees. We first provide some historical background on funding arrangements for the higher education and VET sectors. We then present a case study that looks at the provision of the advanced diploma and the associate degree in the field of engineering and related technologies under the entitlement system in Victoria.

We show that, while higher-level VET qualifications may come at a cheaper up-front cost, they are increasingly being seen as a poorer investment than a university course of study. In particular, the cost of delayed entry to the labour market, curriculum mismatch, and the greater ease of getting a loan for a university qualification will influence a student's decision to undertake higher-level VET qualifications.

Historical background

Until 2012 the Commonwealth Government determined the total number of Commonwealth-supported places to be provided in higher education and classified them into different funding cluster categories (see appendix A). Institutions gained access to Commonwealth-supported places on an ad hoc basis after lobbying the federal government (Norton 2009). Approved higher education providers, mainly public universities and a small number of other institutions providing national priority courses of study, received grants from the Commonwealth Government. Students were eligible to undertake their studies in Commonwealth-supported places if they met the citizenship and residency requirements and had enough student learning entitlement to cover each unit of study in which they were enrolled. Under this model, eligible students were entitled to have seven years of equivalent full-time study as Commonwealth-supported students over their lifetime.

This type of central planning allocation has also applied in the VET sector but with more complex arrangements between the federal government, state governments and public and private VET providers. The Commonwealth Government has funded state governments to set out the plans for VET, including the number of contact hours and types of training programs to be delivered. This planning has taken into account perceived local industry and community needs. State governments have allocated their funds directly to VET providers, mainly public TAFE (technical and further education) institutes, and then ensured that these providers supplied the training according to the plans.

This approach has seen governments directing money to areas identified as in the public good, including by directing funds towards areas of perceived skill shortages and to specific groups of disadvantaged students. This approach has drawbacks. The model relies on forecasts of future labour force needs, which can be problematic, since labour demand is subject to factors such as technological innovation and economic cycles, which are outside the ambit of skills planning (Richardson & Tan 2007). Moreover, governments have to juggle the demands of an array of special interest groups. Typically, institutions with a history of gaining access to government funds can negotiate to change the funding arrangements at the margin only; most allocations are fixed. Student demand does affect institutions' supply of education and training programs — albeit slowly — except in the provision of expensive courses such as medicine. This is because institutions are reluctant to offer expensive courses without knowing whether they will be receiving adequate government funding. The inflexibility of the model also makes it difficult for providers to innovate. For instance, since publicly funded institutes have to aim primarily to deliver the agreed load of training, they are less able to devote resources to the introduction of new courses or to an improvement in their quality. Finally, individual preferences for courses of study are not necessarily taken into account in the planning process.

Both the higher education and VET sectors are heading towards a model in which market forces will determine the flows of funding from the government. Markets are associated with contestability and competition. Contestability refers to the situation where governments competitively tender out the provision of education and training programs. Public funding will flow to the provider who is successful in competing for the right to deliver the services. The amount of government funding for an educational provider depends on how many students demand access to the funded places. Unlike the central planning approach, in which students have to choose some specific courses of study to receive government funding, under the market model students can undertake study programs in government-subsidised places that align with their personal interests. Although market distribution withdraws the

central role of governments in planning fixed resource allocation, governments can still intervene in the education and training markets if necessary. For example, they can use funding as the price signal to influence the decisions of educational and training providers and students, or place some restrictions on student eligibility.

From 2012 there will be an additional $1.2 billion over four years to make more university places available for Australian students. Public universities will be allowed to decide how many Commonwealth-supported places they offer and in which disciplines. Students who meet the citizenship and residency requirements are entitled to choose the provider with whom they want to undertake their higher education programs as a Commonwealth-supported student. The Commonwealth Government will then provide funding to that provider on the students' behalf. Under this arrangement, with the exception of postgraduate and medical courses of study, the Commonwealth Government no longer places any limits on how much study higher education students can undertake as Commonwealth-supported students.

In the VET sector, governments have used contestable funding for over a decade to ensure the effective delivery of training. A newer trend is towards funding based on entitlement. In other words the dollars are attached to eligible students and follow the choices of individuals to competing providers. Under the establishment of the Victorian Training Guarantee, the Victorian Government was the first to provide Victorian students under the age of 20 with an entitlement to a government-subsidised training place in any accredited course on offer, and those from the age of 20 and over in any accredited course at a level higher than that which they already hold. A variety of Victorian providers are able to compete for VET funding on the basis of how many students they can attract. These include TAFE institutes, private providers, and universities that offer VET qualifications. South Australia will adopt a similar entitlement model in July 2012. Other jurisdictions, including New South Wales, Western Australia and Queensland, are also considering market-like solutions to increase training participation.

Education and training providers respond to the market according to the price by which they are willing to deliver courses of study, while students choose a course of study according to the price at which they are willing to purchase. Tuition fees in this context play a role as the price signal that affects the decisions of students and institutes. On the demand side, students respond to the price signal by considering the provider with whom they should make the investment in their education, given their financial circumstances. In addition, financial assistance such as income-contingent loans is another signal that students have to take into consideration when responding to the market, and they need to understand the true cost of their education. On the supply side, the amount of money flowing to a provider is subject to student demand. As a result, a provider will respond to the market by deciding how many places should be provided and in which discipline, to meet its student demand.

Under market systems, educational providers have greater flexibility to respond to student demand, while students have greater freedom to exercise their choices. From students' applications and information provided by employers and industries, institutions build up their knowledge about students' preferences and adjust their supply of programs to meet the individual and diverse needs of students. Market systems rely not only on the *input* of information but also on the *provision* of good information to potential customers. The absence of such information can lead to the poor allocation of resources.

Case study: choosing to do engineering

We look at whether the funding and tuition fees arrangements under the student entitlement model are likely to influence an institution's provision of study programs and a student's choice of a VET or higher education course of study. Educational providers and students in Victoria are examined in this case study since Victoria has had a head start in implementing the demand-driven system. We set out to see what it would cost in 2012 for a full-fee-paying student and a government-subsidised student to undertake an AQF level 6 qualification in the field of engineering and related technologies. The AQF level 6 qualification in engineering is either an associate degree offered by universities, or an advanced diploma of engineering technology delivered by TAFE institutes, private VET providers and universities. We then compare the trade-offs between an associate degree and an advanced diploma as end qualifications and as a pathway to a four-year degree.

In October 2011, the Victorian Government announced the removal of the annual tuition fee caps for government-funded training places in VET. This means that, from 1 January 2012, providers can charge commencing students the full cost of the training delivered to them. In May 2012, the Victorian Government made another announcement, whereby the hourly fee cap will be removed for all new commencements from 1 July 2012. The case study is conducted without taking into account the Victorian Government's latest announcement in May 2012. For comparative purposes, it is also noted that our analysis uses the fees charged by those training providers (including RMIT University, Swinburne University, Box Hill Institute of TAFE, Chisholm Institute of TAFE) who continued, after the Victorian Government's 2011 announcement, to use the previous fee cap of $2500 as an overall annual tuition fee for all government-funded commencements from 1 January 2012 at the diploma level and above.

This exercise reveals how complex the funding and fees arrangements have become and how it is not an easy task for a student to work out the real dollar cost of their investment in tertiary education.

Funding VET and higher education delivery: providers' perspectives

The new targets for Australians in tertiary education are having an impact on institutional behaviour, with universities, TAFE institutes and private education providers considering how to expand their qualifications offerings in ways that will attract demand. Some are going further and positioning themselves as a new type of provider of a range of education offerings at both secondary and tertiary level. The number of universities and other higher education providers offering VET qualifications has increased, while several TAFE institutes and other VET institutions are now delivering higher education programs (Wheelahan et al. 2012). The latter are all deemed to be private higher education providers.

In terms of the Australian Qualifications Framework, parts of VET and higher education overlap. In particular, diplomas and advanced diplomas are qualifications that are awarded across the two sectors. The associate degree, which is offered by universities and a very small number of TAFE institutes, exists in the same band (AQF 6) as advanced diplomas in the VET sector. It is this band that is the subject of our case study, where we explore how each type of qualification in the field of

engineering is faring in an environment that is encouraging attainment of higher qualifications and more university attendance.

In our Victorian case study of engineering at the AQF 6 level, we examine the changes since mid-2009 in the number of enrolments at both universities and TAFE institutes under the implementation of the student entitlement model. We then compare the funding level that educational providers could receive in delivering these qualifications. Under the Victorian Training Guarantee scheme, VET public funding in Victoria has been allocated to the registered training providers with whom government-subsidised students choose to undertake their training programs. These registered training providers include TAFE institutes, universities and private providers. Universities are referred to as dual-sector universities if they have two characteristics: they have a substantial student load in both vocational education and higher education, and they undertake substantial research and they award research doctorates (Moodie 2009). The institutions in Victoria that identify themselves as dual-sector universities are Swinburne University of Technology, RMIT University, the University of Ballarat, and the Victoria University.

Table 1 Reported advanced diploma enrolments in engineering and related technologies by training organisation type, Victoria, 2008–10

Provider	2008	2009	2010	% change 2008–10
Total enrolments				
TAFEs	2 529	2 237	1 957	-22.6
Dual-sector universities	2 782	3 103	3 137	12.8
Government-funded enrolments				
TAFEs	2 268	1 973	1 694	-25.3
Dual-sector universities	2 460	2 634	2 707	10

Source: NCVER VET Provider Collection.

As shown in table 1, the total number of reported advanced diploma enrolments of engineering and related technologies at TAFE institutes was 1957 enrolments in 2010. This is a fall of 22.6% compared with 2008, when the Victorian Training Guarantee had not yet been implemented. Over the same period, enrolments in this field at dual universities increased by 12.8%. Moreover, TAFE institutes are losing a part of their public funding share to universities at the advanced diploma level. In 2010, there were 1013 more government-funded enrolments in engineering and related technologies at dual-sector universities than at TAFE institutes. While there was a 10% increase in the number of government-funded enrolments at dual-sector universities from 2008 to 2010, TAFE institutes suffered a 25.3% loss. There was also an increasing trend in the number of university enrolments at the bachelor level and associate degrees and diplomas level from 2006 to 2009 (table 2).[1] In particular, universities in Victoria had 622 enrolments at the associate degree and diploma level in 2009, nine times higher than the reported enrolments in 2006.

Table 2 University enrolments in engineering and related technologies by qualification level, Victoria, 2001–09

Level	2006	2007	2008	2009
Bachelors	15 802	16 482	16 686	17 090
Associate degrees and diplomas	67	283	450	622

Source: Data provided by the Department of Education, Employment and Workplace Relations and used by Kaspura (2011).

[1] University enrolments in table 2 are derived from the Higher Education Statistics Collection, which do not include advanced diploma enrolments derived from the National VET Provider Collection.

We are seeing that universities are increasingly providing higher-level VET qualifications, and higher-level VET qualifications offered by TAFE institutes may not be able to compete with higher education qualifications delivered by universities. In this period of market design, however, governments do still have levers for controlling competition. For example, on 1 November 2011, to avoid further expansion of the university sector at the expense of TAFE institutes and other VET providers, the Minister for Tertiary Education, Skills, Science and Research announced that courses offered by public universities leading to qualifications below bachelor degree level will be subject to annual allocations agreed between the government and each university.

We next look at the funding level that educational and training providers receive to deliver VET and higher education qualifications. Institutes provide education and training programs at a price that is the combination of the subsidy funded by the government and the amount of tuition fees students are required to pay.

Subsidy + *Tuition fee* = *Price of delivery*

The government funding can take many different forms. To simplify the calculation, we only take into account the contestable funds that are allocated to the providers on the basis of their student demand. Other types of funding, including the full service provider funding for infrastructure and other fixed costs, are excluded. In the VET sector, the amount of funding allocated to training providers is determined by three main components: the base hourly funding rates; the student or industry weightings; and the number of student contact hours. As shown in table 3, the base hourly funding rate per hour in 2012 varies with the type of course provided by the registered training organisation. TAFE and non-TAFE training providers receive different levels of funding from the Victorian Government for each hour of training they deliver. Non-TAFE providers receiving contestable funding have lower base hourly funding rates than those of TAFE institutes for delivering courses that are categorised as foundation skills, skills creation, or skill building. At the higher-level VET qualifications, the base hourly funding rate is the same for both TAFE institutes and non-TAFE institutes. As a result, universities or private providers who win the right to deliver VET qualifications at the diploma and advanced diploma level receive the contestable funding at the same rate as TAFE institutes.

Table 3 Base hourly funding rate as at 1 January 2012

Funding structure	Affected TAFEs	Other TAFEs (per hour)	Non-TAFE (per hour)
Foundation skills	$9.31	$9.75	$7.99
Skills creation	$8.83	$9.21	$7.70
Skills building	$8.42	$8.66	$7.70
Skills deepening	$6.50	$6.50	$6.50

Note: TAFE institutes affected by the Victorian Government's announcement in October 2011 are Box Hill Institute of TAFE, Chisholm Institute of TAFE, Holmesglen Institute of TAFE, Kangan Batman Institute of TAFE, Northern Melbourne Institute of Technology, RMIT University, Swinburne University and Victoria University.

Source: Skills Victoria, October 2011.

The second parameter contributing to the determination of the funding allocation is the student or industry weighting. Students with different characteristics receive different weightings. For this part of the analysis, we used the industry weighting of 1.3 for engineering, which was prescribed by Skills Victoria (Essential Services Commission 2011). The third component, student contact hours, is equivalent to the nominal hours that are assigned by registered training organisations. Nominal hours are defined as the anticipated hours of supervised learning or training deemed necessary to conduct training, or learning, and assessment activities. In Victoria, the number of student contact hours

required for the advanced diploma of engineering technology is 1400, with a duration of two years. As a result, the amount of funding that training organisations receive per student undertaking the advanced diploma as at 1 January 2012 is $11 830 ($6.50 x 1.3 x 1400).

In the higher education sector, the funding allocated to public universities and several private higher education providers delivering national priority courses of study is based on the funding clusters in the Commonwealth Grant Scheme. The government contribution depends on the funding cluster to which a unit of study is classified and on the weight of the unit in the course of study. The Commonwealth contribution of a unit of study is determined as follows:

EFTSL value of the unit	*x*	*Commonwealth Grant Scheme amount specified in the funding cluster*	=	*Commonwealth contribution amount for a unit*

The pedagogical approach for an associate degree in engineering is designed to meet the employment requirements of engineering associates, which are 'detailed knowledge of standards and codes of practice to selecting, specifying, installing, commissioning, monitoring, maintaining, repairing, and modifying complex assets such as structures, plant, equipment, components and systems' (Kaspura 2011). As a result, the curriculum for an associate degree at universities has a fairly common structure and includes practice and technology-based topics and mathematics to ensure that accreditation and occupational requirements are met in students' engineering specialisations. Moreover, a year of full-time study comprises eight units of study in the associate degree, which is very similar to the structure of a four-year bachelor degree. More information on the curriculum structure of associate degrees at universities can be found in appendix C.

We calculate the Commonwealth contribution to a two-year associate degree on the assumption that the student chooses engineering subjects as their specialist elective subjects. To illustrate the calculation of the Commonwealth contribution, we look at the curriculum in which the student has to take one unit in mathematics and seven units in engineering in their first year. In the second year, the student enrols in two units in mathematics and six units in engineering. Each unit of study has the EFTSL (equivalent full-time student load) value of 0.125. By following the above formula, the amount the Australian Government pays directly to the student's provider will be calculated as follows:

Year	Funding cluster	EFTSL		Commonwealth contribution per band		Number of courses	Commonwealth contribution
Year 1	3	0.125	x	$9 142	x	1	$1 143
	7	0.125	x	$15 983	x	7	$13 985
Year 2	3	0.125	x	$9 142	x	2	$2 286
	7	0.125	x	$15 983	x	6	$11 987
Total							**$29 401**

Engineering is classified in funding cluster 7, which has the Commonwealth contribution of $15 983 in 2012, while units of study in mathematics are classified in the funding cluster 3 of $9142 (appendix A). Hence, based on the 2012 rate, public universities offering the associate degree of engineering with a duration of two years will receive total funding of $29 401 per student.

Table 4 VET public funding versus higher education public funding in engineering as at 1 January 2012

Provider type	Associate degree	Advanced diploma			
		Funding rates	Industry weighting	Student contact hours	Funding
TAFE institutes	-	$6.50	1.3	1 400	$11 830
Universities	$29 401	$6.50	1.3	1 400	$11 830

Funding for government-subsidised places is available to training providers who apply and are approved for funding, irrespective of their type. Table 4 shows that, at the advanced diploma level, contestable funding per student allocated to universities delivering the advanced diploma is the same as that of TAFE institutes, an amount of $11 830. From a provider's perspective, government-funded higher education places are worth more than VET. The amount of funding per student flowing to universities delivering the associate degree is more than double that allocated to TAFE institutes offering the advanced diploma.

In terms of tuition fees, tables 5 and 6 in the next section show that the fee gaps between universities and TAFE institutes offering the advanced diploma are not much different, which may steer students away from undertaking the higher VET qualifications at TAFE institutes. For example, a full-fee-paying student has to pay $16 380 at Chisholm Institute of TAFE, whereas it is $16 800 at Swinburne University of Technology. On the other hand, Box Hill Institute of TAFE charges advanced diploma students around $3200 more than the Swinburne University of Technology.

Policy settings relating to funding arrangements are not uniform. In higher education, the introduction of the demand-driven system in 2012 will only allow public universities to compete for Commonwealth funding. With the very few exceptions of TAFE institutes providing national priority courses of study, there is no such access to this funding for TAFE institutes operating in the degree market.

Tuition fees: students' perspectives

To see how the tuition fee of a university associate degree compares with the fee of the advanced diploma, in October 2011 we consulted providers' websites and policy documents. The fee differential depends on the nature of the provider, the student's citizenship, which state the student lives in, what loan they want to take out, and whether they are a full-fee-paying student or a government-subsidised student. In addition, the two sectors use different mechanisms to measure the amount of the student contribution. In the VET sector, student contact hours are the main parameter for deriving the tuition fee of a training program, whereas tuition fees of higher education qualifications are mainly based on credit points. This inconsistency affects both the funding mechanisms and the granting of credits toward further study.

Full-fee-paying students

Since the tuition fees vary with student choice of units of study, we assume that students who wish to undertake the associate degree will select courses that are recommended on universities' websites. We take the example of four particular providers to illustrate the price differential that full-fee-paying students are charged by TAFE institutes and universities. They are: Box Hill Institute of TAFE, Chisholm Institute of TAFE, RMIT University, and Swinburne University. Figures in table 5 are indicative only. The fees represent the total costs of two-year programs according to 2012 rates. More information of the fee per EFTSL for the associate degree can be found in appendix C.

Table 5 Tuition fees for domestic full-fee-paying students by provider type and level of qualification in engineering, Victoria, 2012

Provider type	Provider name	Associate degree			Advanced diploma 21622 VIC		
		Fee per credit point	Total program credit points	2012 total program price	Fee per student contact hour	Student contact hours	2012 total program price
TAFE institutes	Box Hill Institute of TAFE	-	-	-		1 400	$20 000
	Chisholm Institute of TAFE	-	-	-	$11.7	1 400	$16 380
Universities	RMIT University	$200	192	$38 400	$17.50	1 400	$24 500
	Swinburne University	$188	200	$37 600	$12.00	1 400	$16 800

Note: Total program price may vary depending on electives chosen by the student. More information about a student's tuition fee for each year of the associate degree is available in appendix C.

Source: Figures are extracted from providers' websites.

As shown in table 5, a full-fee-paying student has to pay between $16 380 and $20 000 at TAFE institutes, and between $16 800 and $24 500 at universities to undertake the advanced diploma. The cost of the advanced diploma delivered by TAFE institutes is cheaper, by around $17 600 to $22 020, compared with the total cost of the associate degree offered by universities.

Currently, all four examined providers have approval to access Australian Government assistance. As a result, full-fee-paying students are eligible to access the income-contingent loan, FEE-HELP, for a higher education qualification, or VET-FEE-HELP for a higher VET qualification to cover all or part of their tuition fees (appendix A). A loan fee of 25% is applicable if a full-fee-paying student requests FEE-HELP, whereas it is 20% for VET-FEE-HELP. For example, if a full-fee-paying student requests FEE-HELP to pay the tuition fees of $38 400 for the two-year associate degree, a loan fee of 25% will be $9600. Therefore, the total HELP debt that the student is required to pay will be $48 000, which is the sum of the tuition cost and the applicable loan fee if the student's income is at or above the minimum income threshold. Similarly, if VET-FEE-HELP is requested to pay off a tuition cost of $24 500 of a two-year advanced diploma, a full-fee-paying student has to pay a total HELP debt of $29 400, which includes the 20% loan fee of $4900. In the circumstance that a full-fee-paying student decides to take out an income-contingent loan, it is cheaper for them to undertake the advanced diploma than the associate degree.

Government-subsidised students

Since the implementation of the Victorian Training Guarantee, Victorian students who meet the requirements of residency are eligible to access government subsidies. They are also required to contribute toward their tuition costs. As at 1 January 2012, subsidised students are charged by their providers up to $4.33 per student contact hour. The overall annual fees of the subsidised student's 2012 enrolments will be up to $2500.

In higher education, Commonwealth-supported students are required to contribute an amount towards their cost of education. The student contribution amount of a unit of study is specified as follows:

EFTSL value of the unit **x** *Student contribution amount set by the provider* = *Student contribution amount for a unit*

To illustrate the fee calculation, we look at the curriculum in which the student has to take one unit in mathematics and seven units in engineering in their first year. In the second year, the student

enrols in two units in mathematics and six units in engineering. Each unit of study has the EFTSL value of 0.125. The calculation of the student contribution amount is based on the assumption that the student chooses engineering subjects as their specialist elective subjects. By following the above formula, the student contribution will be calculated as follows:

Year	Course band	EFTSL		Maximum student contribution amount per band		Number of courses	Student contribution per band
Year 1	National priority	0.125	x	$4 520	x	1	$565
	2	0.125	x	$8 050	x	7	$7 044
Year 2	National priority	0.125	x	$4 520	x	2	$1 130
	2	0.125	x	$8 050	x	6	$6 038
Total							**$14 777**

There are a number of different types of fees that may be paid by students in government-subsidised places, including tuition fees, recognition of prior learning fees, services and amenities fees, and material and equipment fees. The figures in table 6 are the indicative prices for a two-year program and only represent the arrangements relating to tuition fees. At the 2012 rate, the total cost of a two-year advanced diploma is $5000, which is a third of the tuition fee a subsidised student has to pay for an associate degree offered by the universities.

Table 6 Tuition fees per year for government-subsidised students by provider type and level of qualification in Engineering, Victoria, 2012

Provider type	Tuition fees for Commonwealth-supported student associate degree	Tuition fees for government-subsidised student advanced diploma		
	2012 total program price	Fee per student contact hour	Annual tuition fee	2012 total program price
TAFE Institutes	-	$4.33	$2 500	$5 000
Universities	$14 777	$4.33	$2 500	$5 000

Note: Total program price may vary depending on electives chosen by the student.

Which qualification is the better investment?

The labyrinth of information and rules makes it very difficult for a prospective student to know whether they are making a wise decision if they choose the cheaper up-front payment for a VET qualification.

For students seeking a two-year qualification, the advanced diploma is clearly the choice. This is because the tuition cost to government-subsidised students of a two-year advanced diploma is $5000, while they have to pay $14 777 for a two-year associate degree, on the assumption that the starting earnings will be the same after the completion of their qualifications. Similarly, we compare the advanced diploma with the associate degree for full-fee-paying students seeking a two-year qualification. Again assuming that earnings will be the same, there is no contest from an investment perspective because the tuition cost of an associate degree is almost double that of an advanced diploma, as shown in table 5.

We next look at the return on investment if a student is interested in the option of converting a two-year diploma or a two-year associate degree into a four-year degree. Due to the lack of aggregate

data of how much universities and TAFE providers in Victoria will charge full-fee-paying students undertaking advanced diplomas or associate degrees in engineering in 2012 at the time of conducting the case study, we do not examine the trade-offs of full-fee-paying students in this case. Instead, we examine the trade-offs of government-subsidised students. To illustrate how HELP loans might influence students' return on education investment, we set out two alternative scenarios for a government-supported student to pay the tuition cost: paying up-front tuition fees in full or taking out an income-contingent loan to pay all tuition fees.

Advanced diploma holders transferring to a four-year degree would typically need to take additional mathematics before they are ready for the program at the point of entry (King, Dowling & Godfrey 2011). As a result, a student with a two-year advanced diploma will have to study for a further two-and-a-half years, while a student with an associate degree will have to study for only two further years. Additionally, the student choosing the advanced diploma route will delay entry into the workforce by six months. Because the costs occur at different times, we need to discount them to net present value (NPV). The discount rate depends on an individual's time preference. For illustrative purposes, we use the long-term bond rate at 2.5%. We increase the discount rate to 8% to reflect an individual who values the future less, to provide a comparison. The cost of delayed entry into the labour force is derived from the difference between the total NPV wage that an individual who articulates from an advanced diploma into a four-year degree could have earned and that from an associate degree. More detail of calculation can be found in appendix B.

Up-front payment

The total cost of a student who can afford to pay up-front tuition fees in full is:

Tuition cost of first qualification	+	*Tuition cost of second qualification*	+	*Cost of delayed entry to the labour market*	=	*Total costs*

In higher education, Commonwealth-supported students will receive a 10% discount for their up-front student contribution payments of $500 or more on or before the census date. For example, when students can afford to pay up-front the whole tuition cost of $7600 for their first year of an associate degree, it means that they only need to make a payment of $7600 x 0.9 = $6840 to their provider. VET subsidised students are not eligible to receive any discount for their up-front payment. By using the tuition fee figures specified in table B1 in appendix B, we discount the tuition costs accordingly to the fees arrangements. The costs are then discounted back to their present value as shown in table 7.

Table 7 Costs of converting a two-year diploma or a two-year associate degree into a four-year degree with up-front payment of all tuition fees

Qualification	Tuition cost of first qualification (NPV)	Tuition cost of second qualification (NPV)	Cost of delayed entry (NPV)	Total cost (NPV)
Discount rate 2.5%				
Advanced diploma	$4 939	$16 408	$27 147	$48 494
Associate degree	$13 162	$13 539	-	$26 701
Total cost differential				$21 793
Discount rate 8%				
Advanced diploma	$4 815	$14 246	$21 826	$40 887
Associate degree	$12 840	$11 888	-	$24 728
Total cost differential				$16 159

NPV = net present value

We calculate the costs of delayed entry to the market to be $27 147 at the 2.5% discount rate and $21 826 at the 8% discount rate in net present value (NPV) terms for an 18-year-old choosing the advanced diploma route. The cost of delayed entry represents two costs: a cost of not working for six months and a cost of being behind by six months in career progression. The former accounts around 78.7% of the cost at the discount rate of 2.5%, whereas it is 77.4% of the cost at the 8% discount rate. The total cost is made up by the amount of tuition fees that students pay up front for their study and the cost of delayed entry to the market. At both discount rates, a government-subsidised student suffers a higher cost of converting an advanced diploma to a four-year degree than the cost of choosing the associate degree pathway. The total cost differential is $21 793 at the 2.5% discount rate, and $16 159 at the 8% discount rate.

HELP request to pay all tuition fees

The total cost of a student who requests a HELP loan to pay all tuition fees is:

Tuition cost of first qualification paid by HELP loan	+	*Tuition cost of second qualification paid by HELP loan*	+	*Cost of delayed entry to the labour market*	=	*Total costs*

In higher education, Commonwealth-supported students can choose to pay their student contribution by requesting HECS-HELP to cover all tuition fees. Students are required to repay their HECS (Higher Education Contribution Scheme) debt through the tax system if their income is above the minimum threshold for the year. The income-contingent loan scheme FEE-HELP for full-fee-paying students was extended for the first time to parts of VET sector in the 2007—08 federal Budget. The Victorian Government has a different arrangement with the Commonwealth Government, which allows VET subsidised students to request VET-FEE-HELP to cover their tuition fees. In this scenario, we assume that students can only repay their debt after graduating. The debt is indexed by our assumed consumer price index (3%) compounded each six months.

Table 8 shows that tuition costs vary with the discount rates and according to the pathway a student chooses in order to articulate into a four-year degree. The difference from the previous case is that government-subsidised students can take out HELP loan to cover their entire student contribution amounts and defer their payments through the tax system. As shown in table B2 in appendix B, students are required to repay their HELP debt at the repayment rates determined by the

Commonwealth Government, when their repayment income is above the minimum repayment threshold. For example, given a student's repayment income is $60 000, the student's compulsory repayment for 2011—12 is $60 000 x 5.0% = $3000. Compulsory repayments continue until the student has repaid their whole debt.

Table 8 Costs of converting a two-year diploma or a two-year associate degree into a four-year degree with HELP request to pay all tuition fees

Qualification	Tuition cost of first qualification (NPV)	Tuition cost of second qualification (NPV)	Cost of delayed entry (NPV)	Total cost (NPV)
Discount rate 2.5%				
Advanced diploma	$4 951	$18 362	$20 431	$43 744
Associate degree	$14 661	$15 224	-	$29 885
Total cost differential				$13 859
Discount rate 8%				
Advanced diploma	$4 699	$14 717	$18 557	$37 973
Associate degree	$13 915	$11 633	-	$25 548
Total cost differential				$12 425

We first adjust the estimated income, which is obtained by the formula specified in appendix B to 2012 values, and then deduct the debt repayments to obtain the remaining income. After discounting the income remainder over a lifetime to NPV, we get the costs of delayed entry to the market of $20 431 at 2.5% discount rate, and $18 557 at 8% discount rate. This is the cost of not working for six months and being behind in career progression for a student choosing the advanced diploma route compared with the associate degree pathway. It brings the total cost differential for articulating into a four-year degree for an advanced diploma graduate and an associate degree graduate to $13 859 at 2.5% discount rate, while it is $12 425 at the 8% discount rate.

Both scenarios suggest that government-supported students are better off undertaking an associate degree as a pathway to a four-year degree in engineering than converting an advanced diploma to a degree. The costs of undertaking an advanced diploma compared with an associate degree vary, depending on how much students can afford to pay up front and the extent of HELP loans requested to cover their fees. We also explore the inconsistency and complexity in funding arrangements across the two sectors. Victoria, and later this year South Australia, currently have different funding arrangements, in which subsidised VET students are eligible to access income-contingent loans. By contrast, in other states eligible students accessing government-subsidised training places have to pay their student contribution amount up-front before commencing their study. Under this scenario, the associate degree offered by universities becomes more appealing to students since they can easily access income-contingent loans (FEE-HELP) at public universities without the financial stress of paying their tuition fees up front.

Another issue confronting the VET system that may steer students away from undertaking advanced diplomas as a pathway to a degree is the curriculum mismatch. The advanced diploma of engineering and technology is competency-based and primarily designed to produce graduates with advanced skill and specific knowledge in their designated area (AQF 2011). At this level, students are required to complete 1400 hours of study from the 74 available units, where each has a specific assigned value. While this program offers a variety of selective units to accommodate students' interests, it does not ensure that graduates will meet the expected requirements of knowledge to practise in their designated engineering disciplines or to articulate into an engineering degree program (King, Dowling & Godfrey 2011). By contrast, the AQF equivalent associate degree programs at universities are curriculum-based. These often incorporate higher education units such as mathematics and sciences,

which makes the program structure of the associate degree not much different from the bachelor degree of engineering (appendix C). This is not to say it is not possible to combine the educational approaches. Swinburne University's associate degree of engineering has a balance of competency-based and curriculum-based pedagogies:

> The course structure of the Associate Degree in Engineering consists of 1.5 years of university engineering degree units of study and 0.5 years of vocationally oriented TAFE units of study ... Additional mathematics support will be offered during year 1. (Swinburne University's website)

As a result, graduates from associate degree programs appear to be better prepared to articulate into a bachelor of engineering than advanced diploma graduates (King, Dowling & Godfrey 2011), although both types of qualifications have the same duration of completion, within two years, and are classified in the same level of the AQF — level 6.

Students also have to take credit transfer and employment destination into consideration when they make their choice of study. Pathways from VET awards to the bachelor of engineering degree at RMIT University are an example. With the exception of two years credit for the advanced diploma awarded with merit, the credit for advanced diplomas is 1.5 years for VET graduates wanting to articulate into a four-year bachelor degree of engineering. Graduates from associate degrees are guaranteed two years credit for transferring to a four-year bachelor degree. This means that students with advanced diplomas offered by VET providers will take longer to attain a bachelor degree in engineering through articulation pathways than do those with associate degrees offered by most higher education providers. In terms of labour market outcome, the engineering associates level requires at least the equivalent of competencies in an associate degree in engineering or an advanced diploma in engineering from a university or TAFE institute. Graduates with advanced diplomas and diplomas are increasingly competing with associate degree graduates, who have a stronger foundation of mathematics, for the engineering associate occupation, possibly further detracting from the attractiveness of undertaking a VET qualification.

King, Dowling and Godfrey (2011), who offer a higher education perspective on engineering education, suggest that the VET sector needs to put more effort into having the right courses in the market. At the moment, the training packages in engineering are developed by five different industry skills councils, with insufficient attention given to ensuring that consumers of this education are being trained in the basic foundations of the engineering profession. They also point out the lack of take-up by providers of several of the advanced diploma training packages and the fact that only one advanced diploma is accredited with the professional body, Engineers Australia. They describe a very patchy range of offerings across the country, including the absence of courses available by distance. The message here is that the VET system may struggle to be competitive in the market for engineering students.

Final comments

Funding and fee arrangements are very complex across VET and higher education. The spider-web set of policy represents a challenge for providers in meeting the onerous requirements of different standards of administration and reporting. Our analysis also revealed what a difficult task a student would have navigating the complex map of arrangements and eligibility criteria to determine the real cost of a qualification they wished to study. Thus, it is vital that students, whom these policy settings are designed to help, have access to accurate information about the programs available, how much they cost, and what they can expect to gain from their investment. The Victorian Government has recognised the need to provide students with simpler, transparent access to information on course fees as well as the importance of monitoring the competitiveness of fees in different VET market segments.

From a provider's perspective, in relation to engineering, government-funded places in higher education are worth more than in VET. From a student's perspective, the advanced diploma is the better investment for both full-fee-paying students and government-subsidised students who are seeking a two-year program for immediate entry to the labour market. If a government-subsidised student wishes to articulate into a four-year degree, the associate degree pathway is the better option because of the curriculum-based approach of the associate degree, which aligns with the curriculum of a degree. Moreover, at the moment, advanced diploma graduates typically have to spend an additional six months of maths study when they do articulate into the degree. As a result, an advanced diploma graduate has to bear the cost of delayed entry into the labour market.

The message here is that to successfully operate in the competitive environment, TAFE institutes need to be more responsive and more innovative to meet student demand and industry needs, such that the advanced diploma graduates not only stay competitive in the labour market but are also well equipped for their articulation pathway.

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Appendix A

The appendix provides an overview of the operation of government-supported places and income-contingent loans, including HECS-HELP, FEE-HELP and VET-FEE-HELP. The information in this appendix is mainly collated from the Department of Industry, Innovation, Science, Research and Tertiary Education and Study Assist websites.

Commonwealth-supported places

Students who are Australian citizens, New Zealand citizens who will be resident in Australia during their unit of study, or permanent visa holders who will be resident in Australia during their unit of study are eligible for Commonwealth-supported places. In 2012, eligible Commonwealth-supported students are entitled to choose the public universities in which they wish to study and also the disciplines of their undergraduate study. Under this new arrangement, the student learning entitlement, which is equivalent to seven years of full-time study, will be no longer in place. It means that eligible students will have no constraints on the amount of study they can undertake as Commonwealth-supported students over their lifetime. The Australian Government will subsidise students' costs of education by providing grants to public universities under the Commonwealth Grant Scheme. The Commonwealth funding provided to public universities will depend on their student demand for undergraduate courses of study (also referred as non-designated courses of study) rather than on the basis of student places allocated by the government. Public universities will also be able to make decisions on how many places they can offer and in which disciplines. The government will continue to allocate Commonwealth-supported places for non-research postgraduate courses of study, courses of study in medical disciplines, and courses of study at other eligible higher education providers in the approval list. Courses of study for which places are allocated are referred to as designated courses of study. For designated courses of study, universities will be paid up to the limit of Commonwealth Grant Scheme funding, which is specified in their funding agreements and is also referred to as the maximum basic grant amount. For non-designated courses of study, although the government can specify an upper limit for Commonwealth Grant Scheme funding to restrict the growth in funding of undergraduate places if necessary, the government has no intention of specifying this maximum basic grant amount in funding agreements for 2012.

Table A1 Commonwealth Grant Scheme funding cluster amounts, 2012

Funding cluster		Commonwealth Contribution ($)
1	Law, accounting, administration, economics, commerce[1]	$1 861
2	Humanities	$5 168
3	Mathematics, statistics, behavioural science, social studies, computing, built environment, other health[2]	$9 142
4	Education	$9 512
5	Clinical psychology, allied health, foreign languages, visual and performing arts	$11 243
6	Nursing	$12 552
7	Engineering, science, surveying[2]	$15 983
8	Dentistry, medicine, veterinary science, agriculture	$20 284

Notes: 1. The Australian Government provides an additional $1189 per EFTSL for pre-2008 students undertaking units of study in accounting, administration, economics, and commerce.
2. The Australian Government also provides an additional $3499 per EFTSL for mathematics, statistics, and science units for students who are covered by the lower contribution amounts introduced in 2009.

Source: Department of Industry, Innovation, Science, Research and Tertiary Education.

The amount the Australian Government contributes towards students' costs of education depends on the funding cluster in which a unit of study is classified and on the weight of the unit (the EFTSL value of the unit) in the course of study. The government's contributions will be paid directly to higher education providers. The Commonwealth contribution amounts for one EFTSL in 2012 are specified in table A1. The Australian Government also pays other grants to eligible higher education providers to support teaching and learning, including funding for research programs and infrastructure improvement.

Students who are eligible for Commonwealth Government support are also required to contribute an amount towards their costs of education. The student contribution amount for an individual unit will be determined by students' higher education providers within ranges set by legislation. The range for a unit of study depends on the student contribution band in which the unit is classified. Table A2 shows the student contribution band and the maximum annual student contribution amounts for a place (EFTSL) that may be charged for units of study in 2012.

Table A2 Student contribution bands and student contribution amounts, 2012

Band		Funding cluster	Student contribution range (per EFTSL)
3	Law, accounting, administration, economics, commerce[1]	**1**	\$0–\$9 425
	Dentistry, medicine, veterinary science	**8**	
2	Computing, built environment, other health	**3**	\$0–\$8 050
	Allied health	**5**	
	Engineering surveying	**7**	
	Agriculture	**8**	
1	Humanities	**2**	\$0–\$5 648
	Behavioural science, social studies	**3**	
	Education[2]	**4**	
	Clinical psychology, foreign languages, visual and performing arts	**5**	
	Nursing[2]	**6**	
National priority	Mathematics and statistics[3]	**3**	\$0–\$4 520
	Science[3]	**7**	

Notes: 1. Accounting, administration, economics, commerce: for pre-2008 students, the maximum annual student contribution amount that may be charged for accounting, administration, economics and commerce units is \$8050. This amount applies to Commonwealth-supported students who commenced a course of study before 1 January 2008 and who are covered by the savings provision in Schedule 7 of the *Higher Education Legislation Amendment (2007 Budget Measures) Act 2007*.

2. Education and nursing:

a. For pre-2010 students, the maximum annual student contribution amount that may be charged for education and nursing units is \$4520.

b. From 1 January 2010, the maximum annual student contribution amount for commencing Commonwealth-supported students undertaking education and nursing units of study has been increased from the 'national priority' rate to the band 1 rate.

c. The increased maximum annual student contribution amounts affect only students who commenced their course of study at a higher education provider on or after 1 January 2011.

3. Mathematics, statistics and science:

a. For pre-2009 students, the maximum annual student contribution amount that may be charged for mathematics, statistics, and science units is \$8050.

b. The national priority maximum annual student contribution amount applies to students studying mathematics, statistics and science who commenced their course of study on or after 1 January 2009, regardless of the course of study. The national priority maximum also applies to continuing students who transfer to a course of study in the natural and physical sciences from one that is not.

c. Mathematics, statistics and science units of study are those units of study in the natural and physical sciences field of education that are classified in Chapter 9 of the Commonwealth Grant Scheme Guidelines as being in the funding clusters applying to 'Mathematics and Statistics' and/or 'Science'.

Source: Department of Industry, Innovation, Science, Research and Tertiary Education.

The amount of student contribution also depends on the weight of the unit and on the time students start their course of study. One EFTSL means a year of equivalent full-time study. Not all units in a given course of study are classified in the same student contribution band and have the same EFTSL values. Hence, the student contribution amount for one unit of study can be calculated by multiplying the EFTSL value of the unit set by the provider with the student contribution within the range set by the Commonwealth Government.

HECS-HELP

Commonwealth-supported students can choose to pay their student contribution in a number of different ways, including paying up front or participating in the higher education loan program (HECS-HELP). Firstly, Commonwealth-supported students can make a full up-front payment of their student contribution on or before the census date and receive a 10% discount. Secondly, they can choose to make a partial payment of less than 80% of their student contribution and receive a 10% discount on payments of $500 or more. The rest of their student contribution can be paid by HECS-HELP if they meet the residency requirements. Thirdly, they can request HECS loans for their entire student contribution amount. Those opting to defer payments are required to repay their HECS debt through the tax system if their income after graduating is above the minimum threshold for the year. On the other hand, for any voluntary repayments on the HECS debt at any time, students will receive a 5% bonus for payments of $500 or more. The debt is indexed on 1 June each year to maintain its real value by adjusting it to the changes in the cost of living. In 2012, the conditions of commencing HECS-HELP will become less generous than in previous years. The HECS-HELP discount will decrease from 20% in 2011 to 10% in 2012, while the bonus for voluntary repayments will fall from 10% in 2011 to 5% in 2012.

FEE-HELP AND VET-FEE-HELP

FEE-HELP is a loan scheme that assists eligible fee-paying students who are not Commonwealth-supported to pay their tuition fees. Students are entitled to FEE-HELP assistance if they meet residency requirements and undertake units of study which:

- are part of a course of study leading to a higher education award with an approved higher education provider
- are made available by a higher education provider, access to which is provided through Open Universities Australia
- are part of bridging studies for overseas-trained professionals.

Those undertaking enabling courses that meet the entry requirements into a course of study leading to a higher education award, or courses of study that require research and lead to a higher education award such as doctor of philosophy or master's degree, are also eligible for FEE-HELP.

This income-contingent loan scheme FEE-HELP was extended for the first time to parts of the VET sector in the 2007—08 federal Budget. As a part of the higher education loan program, VET-FEE-HELP provides assistance for full-fee-paying students to pay all or part of their VET tuition fees at approved VET providers when studying one of the following courses:

- graduate diploma
- graduate certificate

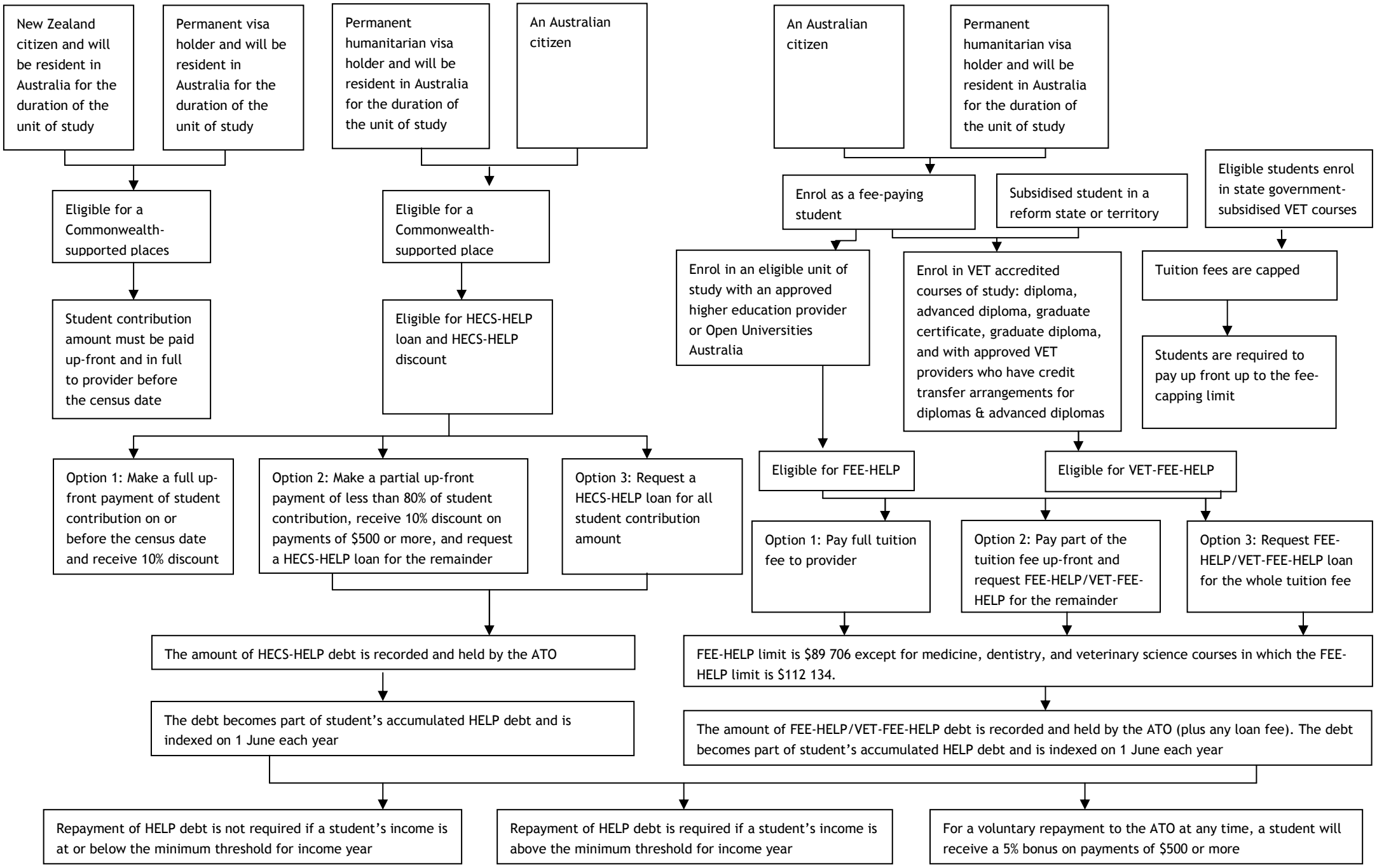
- advanced diploma
- diploma.

To be eligible for VET-FEE-HELP, the advanced diploma and diploma must have an approved VET credit transfer arrangement to a bachelor degree with a higher education provider, while neither graduate diploma nor graduate certificate requires this arrangement. Unlike HECS-HELP, under which students only need to pay their student contribution, VET-FEE-HELP applies to full-fee-paying students and some subsidised students who are enrolled in those courses listed above. A subsidised student is only eligible for VET-FEE-HELP assistance for a VET course only if the course is delivered in a reform state or territory (currently Victoria) and it leads to an award of a VET diploma or a VET advanced diploma. Providers who want to provide VET-FEE-HELP assistance to their students must be a registered training organisation and have to apply with the Australian Government for approval, given that the credit transfer arrangements for each diploma or advanced diploma course should be already in place. Those with their registration in a reform state or territory, however, are exempted from having a VET credit transfer arrangement in place when applying to the Australian Government for approval. In 2011, there are around 90 approved providers at which students can access VET-FEE-HELP, including VET providers and higher education providers that offer those eligible courses of study.

Eligible students can borrow up to a FEE-HELP limit, which applies for either VET-FEE-HELP or FEE-HELP over their lifetime. In 2012, the FEE-HELP limit is $89 706, except for medicine, dentistry, and veterinary science courses, in which the FEE-HELP limit is $112 134. Similar to HECS, full-fee-paying students who are eligible for FEE-HELP or VET-FEE-HELP can choose to pay up front, in full, their tuition fees to their provider, or obtain FEE-HELP or VET-FEE-HELP assistance to pay all or part of their tuition fees. Those opting to request FEE-HELP or VET-FEE-HELP assistance will have a loan with the Australian Government, who will pay their tuition fees to their approved providers on the student's behalf and collect the repayments through the tax system. Students are only required to commence repayment of their debt when their income is above the minimum repayment threshold for the income year. For any voluntary repayments to the tax system, students will receive a 5% discount on repayments of $500 or more. The debt will be indexed on 1 June each year to maintain its real value, aligning with changes in the cost of living. Students requesting FEE-HELP assistance will be charged a loan fee of 25% on the amount they borrow. Full-fee-paying students will be charged a loan fee of 20% if they request VET-FEE-HELP. For example, if a student takes out a VET-FEE-HELP loan of $500 for his/her unit of study, the loan fee will be $100 (500 x 0.20) and his/her VET-FEE-HELP debt will be $600. This loan fee is not included in the FEE-HELP limit. Next year, students will also obtain fewer bonuses for any voluntary repayment, a decrease from 10% in 2011 to 5% next year.

Victorian students and Victorian VET providers currently have different VET-FEE-HELP arrangements with the government. Students who are subsidised by the Victorian Government for undertaking all non-apprenticeship diplomas, advanced diplomas, and vocational graduate qualifications in the Skill Deepening category are exempt from incurring a 20% loan fee as part of their VET-FEE-HELP debt. VET providers who offer diploma and advanced diploma courses in Victoria and want to apply for VET-FEE-HELP provision for these courses are not required to have a VET credit transfer arrangement in place for the government approval process.

Figure 1 Funding arrangements in VET and higher education



Appendix B

An unpublished study by Karmel (2008) suggested that males who had diplomas and degrees in engineering have estimates as follows:

$$Ln(wage) = 5.2321 + 0.0818 \times (age) - 0.0009 \times (age)^2$$

The data come from the Australian Bureau of Statistics' Income and Housing Costs Survey in 2005, and the models are run for full-time wage and salary earners. We use the above equation, assuming that an individual starts work at the age 22 (for associate degree) or 22.5 (for advanced diploma) and retires at the age 65.[2] For example, if we substitute the value 23 into the age variable, an advanced diploma student articulating into a four-year degree will have the starting salary for the first six months after graduating estimated as follows:

$$Exp[5.2321 + 0.0818 \times 23 - 0.0009 \times (23)^2] \times 26 = \$19\,840.82$$

The estimated wages are then discounted back in NPV terms for an 18-year-old student. The cost of delayed entry into the labour force is then derived from the difference between the total NPV wage that an individual could have earned with an advanced diploma and that with an associate degree during the working life. The cost is then adjusted from the 2005 value to the March quarter 2012 to allow for inflation and general wage increases since 2005.

The tuition costs specified in table B1 are based on the assumption that government-subsidised students still select engineering units of study as their electives. An additional half year of study for advanced diploma students articulating into a four-year degree includes a maths subject and three subjects in engineering.

Table B1 The tuition costs a government-subsidised student has to pay to convert an advanced diploma or an associate degree into a bachelor degree in engineering, 2012

Qualification	First qualification		Second qualification		
	Year 1	Year 2	Additional 0.5 year	Year 3	Year 4
Advanced diploma	$2 500 (VET-FEE HELP)	$2 500 (VET-FEE-HELP)	$3 500 (HECS-HELP)	$8 000 (HECS-HELP)	$8 000 (HECS-HELP)
Associate degree	$7 600 (HECS-HELP)	$7 200 (HECS-HELP)	-	$8 000 (HECS-HELP)	$8 000 (HECS-HELP)

Note: Income-contingent loans in the parentheses indicate the loan type that government-subsidised students can request to pay their tuition fees.

[2] There are some discrepancies between the graduate starting salary for engineering determined by the above formula and that estimated in the Graduate Destinations Survey in 2005. Inflation is not added when we use only the age to estimate the wage.

Students are required to repay their HELP debt when their repayment income is above the minimum repayment threshold, even if they are still studying.

Table B2 2011–12 repayment rates

Repayment income	Repayment rate (% of repayment income)
Below $47 196	Nil
$47 196–$52 572	4.0%
$52 573–$57 947	4.5%
$57 948–$60 993	5.0%
$60 994–$65 563	5.5%
$65 564–$71 006	6.0%
$71 007–$74 743	6.5%
$74 744–$82 253	7.0%
$82 254–$87 649	7.5%
$87 650 and above	8.0%

Appendix C

Table C1 Tuition fees per year for Associate Degree in Engineering Technology at RMIT University

Course name	Course ID	Credit points	Commonwealth-supported students			Domestic full-fee-paying student	
Year 1			EFTSL	Maximum student contribution amount	Student contribution per course	Fees per credit point	Total fee
Industrial studies	MIET2137	12	0.125	$8 050	$1 006	$200	$2 400
Mathematics I	MATH2167	12	0.125	$4 520	$565	$200	$2 400
Electrical principles	EEET2276	12	0.125	$8 050	$1 006	$200	$2 400
Computer application	EEET2277	12	0.125	$8 050	$1 006	$200	$2 400
Engineering management	MIET2138	12	0.125	$8 050	$1 006	$200	$2 400
Engineering materials	PROC2097	12	0.125	$8 050	$1 006	$200	$2 400
Engineering science	MANU2112	12	0.125	$8 050	$1 006	$200	$2 400
Student elective		12	0.125	$8 050	$1 006	$200	$2 400
Total		**96**	**1**		**$7 607**		**$19 200**
Year2			EFTSL	Maximum student contribution amount	Student contribution per course		
Mathematics II	MATH2168	12	0.125	$4 520	$565	$200	$2 400
Mechanics of materials	MIET2139	12	0.125	$8 050	$1 006	$200	$2 400
Mechanics of machines	MIET2340	12	0.125	$8 050	$1 006	$200	$2 400
Thermo-fluids I	MIET2341	12	0.125	$8 050	$1 006	$200	$2 400
Mechanics of solids	MIET2342	12	0.125	$8 050	$1 006	$200	$2 400
Mathematics III	MATH2169	12	0.125	$4 520	$565	$200	$2 400
Thermo-fluids II	MIET2344	12	0.125	$8 050	$1 006	$200	$2 400
Engineering project for associate degrees	0ENG1053	12	0.125	$8 050	$1 006	$200	$2 400
Total		**96**	**1**		**$7 166**		**$19 200**

Note: Total program price may vary depending on electives chosen by the student.

Source: Figures and the program structure are extracted from the provider's website.

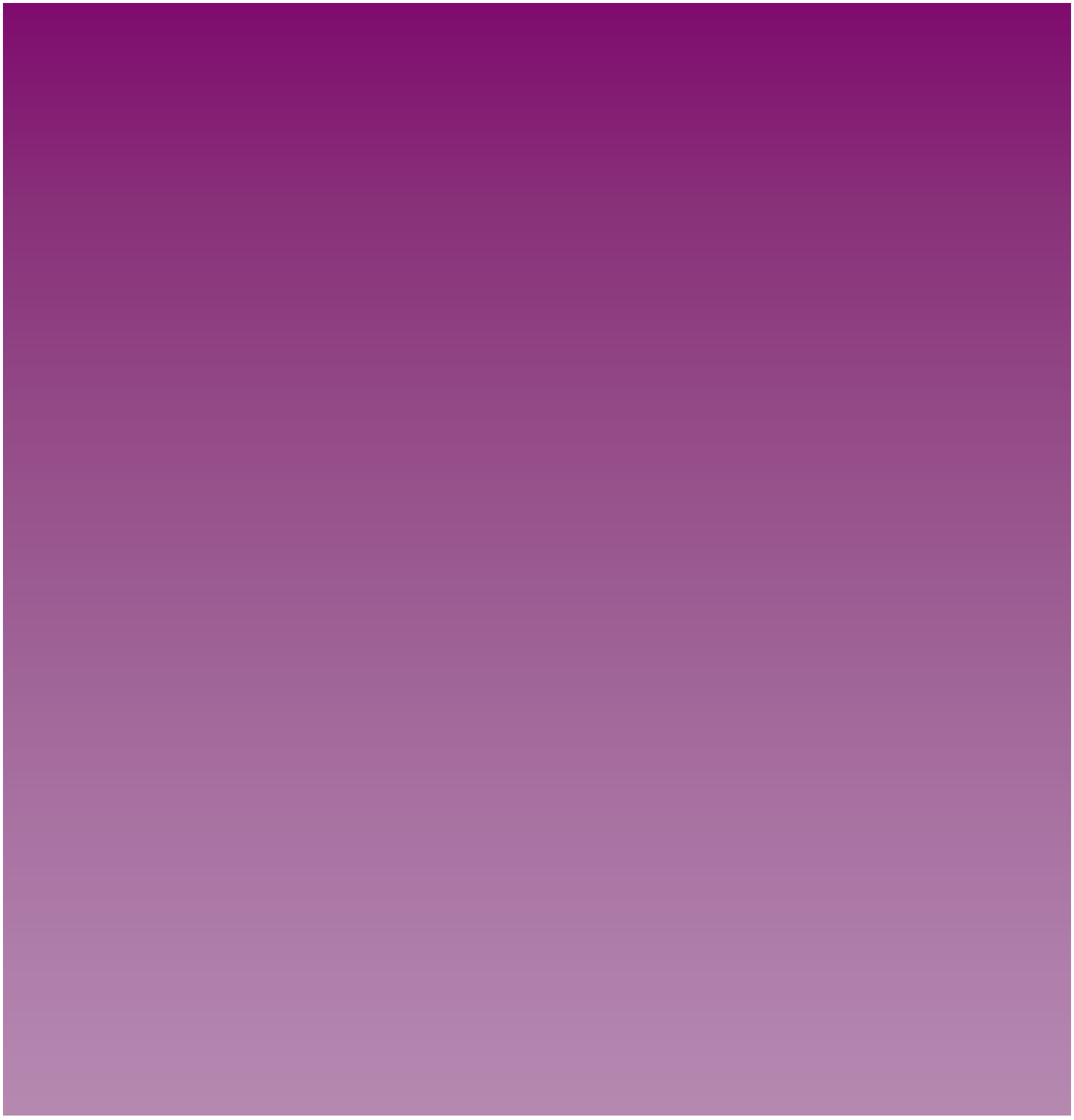
Table C2 Tuition fees per year for Associate Degree in Engineering Technology at Swinburne University of Technology

Course name	Course ID	Credit points	Commonwealth-supported students			Domestic full-fee-paying student	
Year 1			EFTSL	Maximum student contribution amount	Student contribution per course	Fees per credit point	Total fee
Professional engineering	UHT1000	12.5	0.125	$8 050	$1 006	$184	$2 300
Engineering mathematics I	UHT111	12.5	0.125	$4 520	$565	$184	$2 300
Mechanics of structures	UHT1125	12.5	0.125	$8 050	$1 006	$184	$2 300
Energy and motion	UHT124	12.5	0.125	$8 050	$1 006	$184	$2 300
Engineering mathematics II	UHT112	12.5	0.125	$4 520	$565	$184	$2 300
Materials and processes	UHT1230	12.5	0.125	$8 050	$1 006	$184	$2 300
Electronic system	UHT182	12.5	0.125	$8 050	$1 006	$184	$2 300
Computer-aided drafting I	UHT235	12.5	0.125	$8 050	$1 006	$184	$2 300
Total		**100**	**1**		**$7 166**		**$18 400**
Year 2			EFTSL	Maximum student contribution amount	Student contribution per course	Fees per credit point	Total fee
Engineering mathematics IIIA	UHT211	12.5	0.125	$4 520	$565	$184	$2 300
Engineering management I	UHT3380	12.5	0.125	$8 050	$1 006	$184	$2 300
3D computer-aided drafting	UHT237	12.5	0.125	$8 050	$1 006	$184	$2 300
Sustainability concepts	UHT435	12.5	0.125	$8 050	$1 006	$184	$2 300
Engineering project	UHT1005	12.5	0.125	$8 050	$1 006	$184	$2 300
Project management	UHT419	12.5	0.125	$8 050	$1 006	$184	$2 300
Engineering management II	HES5380	12.5	0.125	$8 050	$1 006	$216	$2 700
Fluid mechanics I	HES2340	12.5	0.125	$8 050	$1 006	$216	$2 700
Total		**100**	**1**		**$7 607**		**$19 200**

Note: The structure program is recommended on the university's website.

Total program price may vary depending on electives chosen by the student.

Source: Figures are extracted from the provider's website.



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