

# Articulating your pathway through university towards professional registration as a land surveyor

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## **Introduction**

It is widely identified that there is a shortage of trained professionals and tradesman across a wide spectrum of occupations in Australia. The surveying profession is just one of those identified by the federal government. The current status quo in the surveying employment market ensures that demand for professional land surveyors far outstrips supply. Many organisations are headhunting overseas or looking towards their current semi-skilled employees and encouraging those employees to obtain qualifications by either providing a support structure or offering a cadetship.

This article will examine the financial implications of a mix of study and employment options faced by students/employees.

## **Tertiary articulation of NSW TAFE students**

Many employees may or may not have any qualifications and recognised prior learning in surveying. However many employees may have studied in the well entrenched NSW TAFE system and have either gained qualifications in surveying or the variations that have existed over the years which provides a solid grounding for an articulated pathway that will hopefully lead to registration as a Land Surveyor. The conferral of a degree by articulated progression of TAFE to tertiary studies from the vocational to higher education sector has as a basis for seamless transition guidelines established by the Australian Qualifications Framework (AQF) (1995). The aim of the AQF was to promulgate credit transfer guidelines by recognising prior learning and establishing linkages and guidelines for both qualifications and credit between various institutions in the vocational and higher education sectors.

At the University of Southern Queensland (USQ), the NSW TAFE graduates/students represent a significant proportion of the students studying surveying (Young, 2007). For past NSW TAFE students, USQ has well identified articulation pathways, for example the 2yr Advanced Diploma in Surveying NSW TAFE will receive 1.5 yrs credit in the full Bachelor of Spatial Science (4 yr program).

## **Modes of study**

The most likely scenario for the NSW TAFE student studying at USQ involves studying in a distance education mode. However, once a student is enrolled at an academic institution they may have the opportunity to choose the mode of study with which they complete their degree.

For example, at the University of Southern Queensland there are three modes of study:

- \* On-campus (typically full-time);
- \* External (typically part-time distance education, but can be full-time); and
- \* On-line.

Studying on-campus as a full time student typically involves enrolling in four courses each semester. Depending on the courses being studied, students attend a combination of lectures, tutorials and practical laboratory sessions and are expected to spend about forty hours per week in

their studies. Assessment is usually through submission of assignments and sitting examinations at the university.

Studying externally off-campus through distance education provides students with the opportunity to study the same programs and obtain the same award as those studied by on-campus students. External students access study packages sent by mail and/or delivered via the internet as on-line study mode. Assessment is usually through submission of assignments by post or email and sitting examinations at centres in your regional location. The majority of external students enrol and study part-time, whilst maintaining full-time employment. A typical week for the external student would be forty hours employment and twenty hours of study (two courses).

### **The impact of factors that affect the mode of study**

At some stage in the student's program they may be faced with the difficult choice of studying externally by distance education or attending on-campus. There are three factors that primarily affect the choice of mode of study:

- \* Finances;
- \* Time; and
- \* Family.

A brief explanation of how the three factors impact on the mode of study is summarised as follows:

**Finances:** a student must have the financial resources or mechanisms in place to be able to support and meet any financial commitments with respect to the cost of living and servicing any debt.

**Time:** impacts in two ways, the time spent studying per week and the overall length of time taken to graduate. The on-campus student is expected to spend about 40 hours per week studying and attending classes. The external student is probably spending about 60 hours per week, in both full-time employment and part-time study. The on-campus full time student can graduate in minimum time eg two years (Associate degree), three years (Bachelor of Spatial Science Technology degree) or four years (full Bachelor Spatial Science degree) years, the external student studying part-time will take twice as long ie four, six, or eight years. Not many external students graduate in the minimum time possible for those enrolled part-time. Exogenous factors relating to family commitments, health and employment impact on study patterns, time available to study and hence performance.

**Family:** family commitments may restrict the time available for study and it also might be difficult to relocate a family temporarily to another location to attend on-campus studies.

### **Choosing the mode of study**

If any one of the three factors above acts as a barrier to attending on-campus then the alternative of studying externally by distance education is the most likely chosen option. For on-campus study you must be able to tick all three boxes, which means the student is more likely to be forced to opt for external study. This is confirmed by student enrolment patterns at USQ where the ratio of external students to on-campus students across the entire university is around the ratio of three to one. In surveying at USQ, that ratio is around seven to one. The impact of the shortage of skilled workers is obvious.

The current buoyancy in the employment market in surveying is certainly dragging students away from on-campus studies. Government agencies and private practitioners are having difficulty obtaining graduates to fill positions and the offer of cadetships by private practices and government agencies is common where employees are enrolled in a surveying tertiary program and employed

to work and study under a cadetship scheme.

### Case studies of student options

The student is placed in the position of choosing between on-campus and external mode study. I have chosen three students as case studies to highlight what may be a typical study/work pattern for a student whom may study either in on-campus mode, external mode or a mixture of both modes. The case studies are real patterns for mature age students destined for graduation in the two and three year degree programs.

The three students - Peter, Harry and Donna have the following personal characteristics:

- Harry Worker: a bright character, enjoys outdoor work, loves going out and having a good time, but struggles for application to study after work. He has been generally on average passing one course and failing one course each semester in external mode.
- Peter Slacksmith: a fairly bright employee, loves his work, applies himself to his employment but really struggles for application to study after work. In fact he probably would never graduate if he stays in external mode. He just never finds time to study and has been generally failing a lot of courses in external mode.
- Donna Professional: bright, ambitious and self-disciplined. She will graduate in minimum time in either mode.

Table 1 lists the enrolment patterns for two options in study mode for each student leading to graduation in the length of time it took to graduate from the chosen program.

**Table 1: Comparison of enrolment profiles for each graduating student, in two modes of study**

	Harry Worker EXT only	Harry Worker EXT/ONC	Peter Slacksmith EXT only	Peter Slacksmith EXT/ONC	Donna Professional EXT only	Donna Professional ONC only
Years P/T External Study	4	4	6	6	6	0
Courses passed/failed	8/6	8/6	5.5/12.5	5.5/12.5	24/0	0/0
Years to complete externally at current rate of progress	8		11		0	
Courses passed/failed	16/12		11/25		0/0	
F/T years on-campus	0	2	0	2	0	3
Courses passed/failed		16/0		11/2		24/0
Program graduate	BSST (3yr) 12 yrs	BSST (3yr) 6 yrs	ADSV (2yr) 17 yrs	ADSV (2yr) 8 yrs	BSST (3yr) 6 yrs	BSST (3yr) 3 yrs

Harry if he stayed in external mode would have taken twelve years to graduate, where he would have passed twenty-four courses and failed eighteen courses in that time. However, after four years of external study he studied on-campus for two years and graduated.

Peter if he stayed in external mode would have taken seventeen years to graduate (in fact he probably would have been excluded and never graduated), where he would have passed sixteen courses and may have failed a massive thirty-seven courses in that time. However, after six years of external study he studied on-campus for two years, he failed a couple of courses on-campus but he graduated, which certainly would not have been the case in external mode only.

Donna, well she just would have blitzed either mode and passed in minimum time collecting a number of prizes and awards along the way.

Table 2 rationalises each alternative for each student in attempting to determine which mode of study option was the most beneficial, by listing and comparing the net economic benefit for each graduating student, for the maximum time length leading to graduation between the two modes of study.

The rationalisation is based on two of the factors that determine mode of study, these being time and money:

\* Time is rationalised by the total time spent both working and studying for the time period specified for each student.

\* Money is rationalised by Discount Cash Flow (DCF) analysis for each alternative based on income and outgoings for tax and student contribution charges (HECS) for the time period specified for each student. A DCF model for each situation documenting income generation and subtracting the tax payable and student charges for the time period specified was created. The simplicity of a DCF model is that for any number of future time periods the economic benefit can be brought back to a single point figure representing a present value. Examination of the present values for the single point figure in each of the models is directly comparable. Living expenses in each model are ignored, as they would be the same for each mode of study and thus would not impact on the differentiated costs in the models.

Harry would have gained a small economic benefit (about 10%) by studying a mix of on-campus and external mode but certainly would have had much greater leisure time by studying a mix of on-campus and external modes with substantially less time spent studying and working (about 8,300 hrs). The best option for Harry was to enrol on-campus to complete his program.

Peter would have gained a huge economic benefit (about 50%) by studying a mix of on-campus and external mode and also certainly would have had much greater leisure time by studying a mix of on-campus and external modes with substantially less time spent studying and working (about 11,400 hrs). The best option for Peter was to enrol on-campus to complete his program.

Donna would have gained an economic benefit by studying in external mode only (about 30%) but would have spent substantially more time studying and working (about 6,200 hrs). Either option would be fine for someone as dedicated as Donna.

The net economic benefit has been calculated on annual Salary less Student Contribution Charges and Tax for the time period specified for the model.

**Table 2: Comparison of the economic benefit for each graduating student, for the maximum time length leading to graduation, in two modes of study.**

	<b>Harry Worker</b>	<b>Harry Worker</b>	<b>Peter Slacksmith</b>	<b>Peter Slacksmith</b>	<b>Donna Professional</b>	<b>Donna Professional</b>
	<b>EXT only</b>	<b>EXT/ONC</b>	<b>EXT only</b>	<b>EXT/ONC</b>	<b>EXT only</b>	<b>ONC only</b>
Net Economic Benefit	\$245K	\$270K	\$275K	\$380K	\$124K	\$95K
Hours worked/studied	37,440	29,120	53,040	41,600	18,720	12,480
Time period	12	12	17	17	6	6
Program	BSST(3yr)	BSST(3yr)	ADSV(2yr)	ADSV(2yr)	BSST(3yr)	BSST(3yr)

The benefits would be even greater for the four year program.

### **Conclusion**

The conclusions to be drawn from the above will be left to the reader as the analysis above ignores the influence and importance of the third factor: the family. Graduation with a recognised qualification forges progress towards registration as a surveyor which is particularly important for the family unit.

On-campus study, as well as being an enjoyable life experience has future economic benefits to the student that may be particularly applicable to those that are studying externally and struggling to balance study discipline with work commitments. The student must critically assess whether external study is the best study mode to achieve graduation status in their academic program, especially if there is a struggle to maintain study discipline.

Hopefully, the lifestyle, remuneration and career opportunities currently available to students may see an increase in enrolments for spatial science related courses. To be a vibrant and sustainable profession, bright enquiring young minds are required in sufficient numbers to meet the demand for spatial services provided by registered land surveyors and NSW TAFE is a source to meet that demand through an articulated pathway.

### **References:**

Queensland Government, Surveying (Private Practice) Award State, Available from URL: <http://www.wageline.qld.gov.au/awardsacts/showDoc.jsp?Awards/S1225/prelude>

University of Southern Queensland Publication 2005, Pocket Statistics 2005, USQ, Toowoomba.

Young, F.R 2007, Articulation pathways to surveying and spatial information qualifications, Azimuth, Institution of Surveyors NSW Inc, Vol. 45, Issue 3, p.22-25.