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HKU's double professional civil engineering and law programme

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The scale and complexity of civil engineering projects are increasing exponentially. Coupled with the growing trend of globalisation, the demand for high-calibre civil engineers who are also knowledgeable in legal matters is increasing. Driven by an aspiration to prepare civil engineering graduates with a solid foundation in both civil engineering and law, The University of Hong Kong has developed the first 5-year credit-based double professional degree programme in Hong Kong, which leads to the award of the degrees of Bachelor of Engineering in Civil Engineering (Law) and Bachelor of Laws. The considerations, development process and launching details of the programme are presented in this paper. The students admitted to date perform better academically than other civil engineering students on civil engineering courses. However, they do not perform as well as law students and other law-related double-degree students.

1. INTRODUCTION

Since the beginning of civilisation, civil engineers have worked closely with other professionals to meet the ever-changing needs of society. In his acceptance speech for the 1995 Parcel–Sverdrup civil engineering management award of the American Society of Civil Engineers (ASCE), Dr Louis Berger explicitly emphasised the importance of skills in management, law, accounting and personnel management over and above the normal civil engineering training for a modern civil engineer (Berger, 1996). Moreover, the impact of societal changes and demands of the public regarding the quality of higher education are also increasing (Yeung, 2006). The need to re-shape various aspects of the civil engineering curriculum to meet the challenge of increasing complexity and globalisation of civil engineering projects is being echoed by many prominent educators, practitioners and public administrators (Bordogna, 1998; Bowman and Farr, 2000; Boxall and Tait, 2008; Chau, 2007; Cheah *et al.*, 2005; Chinowsky, 2002; Dudman and Wearne, 2003; Galloway, 2008; Jennings and Ferguson, 1996; Jha and Lynch, 2007; Koehn, 2004; Le and Tam, 2008; Li and Liu, 2005; Nehdi and Rehan, 2007; Russell and Stouffer, 2003).

Driven by an aspiration to prepare civil engineering graduates with a solid foundation in both civil engineering and law, The University of Hong Kong (HKU) has developed the first 5-year credit-based double professional degree programme in Hong Kong. Successful completion of the course leads to the award of the undergraduate degrees of Bachelor of Engineering in Civil Engineering (Law) (BEng(CivE–Law)) and Bachelor of Laws (LLB). As a novel concept to amalgamate two distinct professional degree programmes with very different objectives, emphases and specialisations, the major challenge is to design a well-balanced, practical, stimulating and recognised syllabus that can answer the needs of both society and students. Moreover, the programme has to be accredited by the relevant engineering and legal professional organisations.

In the past, most civil engineers in Hong Kong interested in pursuing law-related professions such as dispute resolution, mediation or arbitration had to study for a separate law course part time or through distance learning. Simultaneous study and employment can mean that the study is not coherent, can be distracted by work priorities and takes far longer. Nevertheless, there are some successful dual practitioners in Hong Kong.

This paper presents the objectives, development process, curriculum and launching details of the double professional programme at HKU. The performance of students admitted to the programme to date is also reported.

2. OBJECTIVES OF THE DOUBLE-DEGREE PROGRAMME

The primary objective of the programme is to nurture legally sensitive civil engineering professionals and/or legal practitioners with civil engineering expertise. Graduates of the programme are expected to benefit from a distinct blend of professional expertise that traditionally trained civil engineers or lawyers do not possess; that is, a balanced integration of state-of-the-art civil engineering knowledge and legal know-how. As a result, a diversity of career options may exist for these graduates. The programme will prepare students to develop fruitful careers in either civil engineering or law, both professions being well respected, or indeed a combination of the two to meet new challenges in the rapidly changing global economy.

The programme is accredited by the Hong Kong Institution of Engineers (HKIE, 2010) and the Law Society of Hong Kong (LSHK, 2010). The HKIE is a signatory organisation of the Washington Accord, a multi-national agreement signed by

various professional organisations in 1989. The accord recognises the substantial equivalence of education programmes accredited by organisations responsible for accrediting professional engineering degree programmes in each of the signatory economies and recommends that graduates of accredited programmes in any of the signatory economies be recognised by the other economies as having met the academic requirements for entry to the practice of engineering (WA, 2010). As the statutory duties and powers of the HKIE and the LSHK are respectively promulgated by the HKIE Ordinance (chapter 1105 of the Laws of Hong Kong) and the Legal Practitioners Ordinance (chapter 159 of the Laws of Hong Kong) (DoJ, 2010), the accreditation requirements place tremendous difficulties and pressure on the development of the programme, as the developed curriculum has to satisfy the well-structured legal and stringent requirements for corporate membership of the two independent and well-established professional organisations.

3. HONG KONG EDUCATION SYSTEM

A very brief description of the education system in Hong Kong (which is very similar to the English system) is given here to facilitate further discussion. 2–3 years of non-compulsory kindergarten education is offered to children younger than primary school age. Free and universal basic education is provided for children aged six to 15, comprising 6 years of primary school education and 3 years of basic secondary school education. The first 3 years of secondary school (forms 1–3) focus on general education. In forms 4 and 5, students prepare for the Hong Kong certificate of education examination (HKCEE), which is taken after form 5 (similar to GCSEs in the UK).

Students obtaining satisfactory HKCEE results will be admitted to a 2-year sixth-form (forms 6 and 7) matriculation course to prepare for the Hong Kong advanced level examination (HKALE). The HKALE is the *de facto* university entrance examination, similar to 'A' levels in the UK or the SAT reasoning and subject tests in the USA. Students can also be admitted to participating tertiary institutions through the early admissions scheme (EAS) upon completion of form 6, thus bypassing the HKALE. The scheme was devised by the government to retain the best secondary school students to continue their tertiary education in Hong Kong. Participating universities include HKU, The Chinese University of Hong Kong and The Hong Kong University of Science and Technology. Form 6 students studying in local schools are eligible to apply for admission to these three universities if they satisfy specific requirements on their examination results in one sitting of HKCEE. Approximately 450 students are eligible for EAS each year.

The education system in Hong Kong is, however, shifting towards a US-style system. This involves decreasing the duration of secondary school education from 7 to 6 years and increasing that of tertiary education from 3 to 4 years, merging HKCEE and HKALE into a single examination and expanding the use of school-based assessments. These changes took effect at form 1 level in 2006.

4. SIMILAR UNDERGRADUATE PROGRAMMES OVERSEAS

Similar civil engineering–law double-degree programmes are being offered at Australian universities such as Monash University, University of South Australia, University of Adelaide and Edith Cowan University. However, the BEng–LLB programmes of Australian universities also include other engineering courses.

(*a*) The double-degree programmes offered by Monash University (MU, 2010) cover electrical and computer systems engineering, materials engineering, mechanical engineering and mechatronics engineering.
(*b*) The programmes at University of South Australia cover computer systems engineering, electrical and mechatronic engineering, electronics and microengineering, telecommunications and mechanical and manufacturing engineering (UniSA, 2010).
(*c*) University of Adelaide offers double degrees including chemical engineering, civil and environmental engineering, civil and structural engineering, computer systems engineering, electrical and electronic engineering, mechanical engineering and telecommunications engineering (UoA, 2010).
(*d*) The 6-year BEng–LLB programme at Edith Cowan University combines a full engineering degree programme with a full law degree programme that satisfies the academic requirements for the admission of law graduates as legal practitioners in Western Australia. Students can choose engineering programmes majoring in civil engineering, mechanical engineering, mechatronics engineering, electronics and communications engineering, instrumentation control and automation engineering, computer systems engineering or electrical power engineering (ECU, 2010).

Nonetheless, the approaches taken by Australian universities are very similar to that of HKU.

5. THE DEVELOPMENT PROCESS

Discussion on the possibility of developing a double professional degree (DPD) programme between the faculty of engineering and the faculty of law at HKU was formally initiated in December 2000. The initial programme structure was developed emulating two existing double-degree programmes within HKU – BBA(Law)/LLB (Bachelor of Business Administration (Law) and Bachelor of Laws) and BSS(G&L)/LLB (Bachelor of Social Sciences (Government and Laws) and Bachelor of Laws). However, simultaneous accreditation of the new programme by two professional organisations had to be secured, a hurdle that did not exist for the two existing double-degree programmes. Students were required to take 72 credits a year, so that students could obtain the BEng(CivE–Law)/LLB double degree in 4 years.

In September 2002, the LLB curriculum was changed from a 3-year to a 4-year programme. As a result, the initial structure of the DPD programme was revised to incorporate requirements of the 4-year curriculum of the LLB degree. Most administrative issues (response of government and university administration to the programme, details of seeking formal approval of the programme from government and university administration, details of seeking accreditation of professional organisations, admission requirements, procedure of admitting students, coordination of administrative matters between departments, degree requirements, etc.) were discussed at faculty level. After most of these issues had been resolved and a concrete directive had been formulated at faculty level, a

detailed programme implementation plan was jointly developed by the department of civil engineering (DoCE) of the faculty of engineering and the department of law of the faculty of law. Series of meetings between faculty members of the two departments were held to fine-tune the implementation details (e.g. selection of courses, course taking sequence, continuity of the two programmes, quality control of academic standard of students and so on). A new 5-year DPD curriculum with all the necessary implementation details was finally developed in June 2003 and submitted to university administration for approval. The programme was approved by the academic development committee of HKU in September 2003 to facilitate the first admission of students in the academic year 2004–2005.

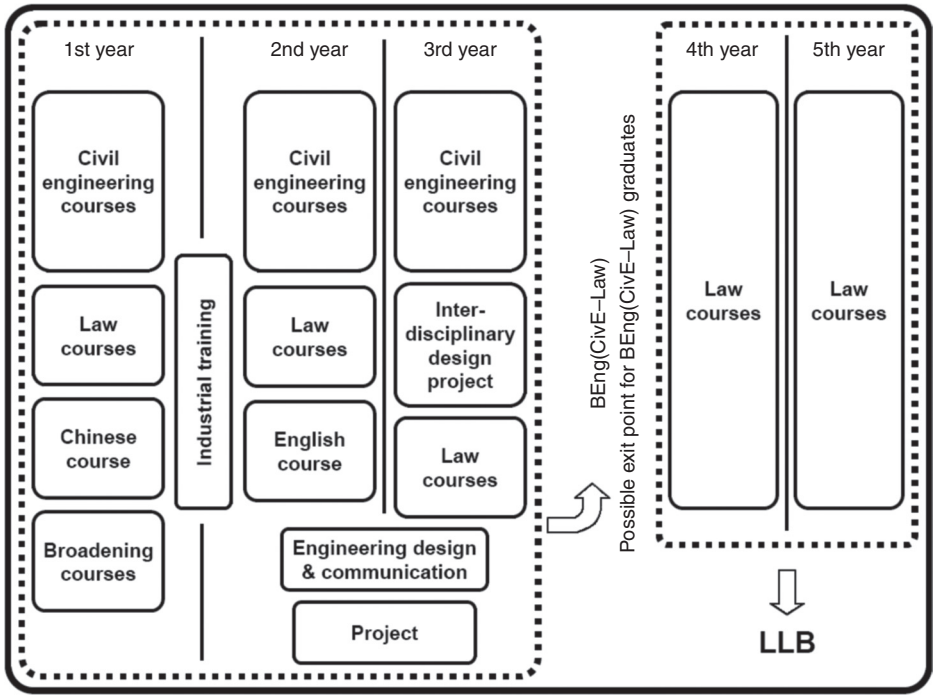

Figure 1. Structure of the CivE–Law double-degree programme

6. THE CURRICULUM

The 5-year DPD programme comprises two distinct but inter-related parts (Figure 1). The civil engineering department is responsible for the development of admission criteria, controlling the admissions process, screening applicants and handling admissions logistics. Students are initially admitted to the DoCE. Successful completion of the first 3 years of study will lead to the award of the BEng(CivE–Law) degree. Graduates may choose to continue studies immediately afterwards or may work in the industry (for no longer than 5 years) to obtain further practical experience and/or professional qualifications in civil engineering before resuming their studies in law. Students can choose the best time to resume their studies, taking due consideration of personal financial situation, stage of career development, maturity, professional experience, etc. The subjects to be covered in the fourth and fifth year of study would be predominantly in law, with successful completion leading to the award of the LLB degree.

6.1. BEng(CivE–Law)

During the first 3 years of study, students are required to complete the core subjects of the entire civil engineering programme. They are required to start working on a final-year project on a selected civil engineering topic in the summer at the end of their second year and submit a project report in the third year of their study. Students are also required to undertake industrial training during the summer at the end their first year of study. The teaching methods and other learning activities are identical to those of the civil engineering programme. At the same time, students are also required to take some law courses specified by the faculty of law to prepare them for the fourth and fifth years of study.

The usual study load is normally not more than 36 course credits each semester and the BEng(CivE–Law) curriculum comprises 195 course credits. Students are required to complete

(*a*) 108 credits of civil engineering core courses (Table 1)
(*b*) 30 credits of compulsory civil engineering in-depth courses including (Table 2)
(*c*) 18 credits of CivE–Law elective courses
(*d*) 24 credits of law core courses (Table 3)
(*e*) 3 credits of an English language course (i.e. writing solutions to legal problems)
(*f*) 3 credits of a Chinese language course (i.e. practical Chinese language for CivE–Law students

Course	Number of credits
Computer applications in civil engineering	6
Construction materials	6
Engineering drawing	6
Engineering mathematics I	6
Engineering mathematics II	6
Environmental engineering	6
Fluid mechanics	6
Structural mechanics	6
Theory and design of structures I	6
Theory and design of structures II	6
Surveying	6
Engineering design and communication	6
Engineering geology and rock mechanics	6
Hydraulics and hydrology	6
Soil mechanics	6
Principles of civil engineering management	6
Project	12
Total	108

Table 1. Civil engineering core courses

Course	Number of credits
Construction project management	6
Engineering hydraulics	6
Foundation engineering	6
Inter-disciplinary design project	6
Theory and design of structures III	6
Total	30

Table 2. Compulsory civil engineering in-depth courses

(*g*) 3 credits of industrial training
(*h*) 6 credits of broadening courses including 3 credits in humanities and social sciences and 3 credits in culture and value studies (a great variety of courses offered by departments outside the faculty of engineering and the faculty of law are available to students to satisfy these requirements).

Candidates have to successfully complete no fewer than 180 credits to be eligible for admission to the degree of BEng(CivE–Law). Moreover, students who plan to continue on to the LLB programme are also required to successfully complete eight additional law courses (Table 4), although these additional courses are not part of the graduation requirements for the BEng(CivE–Law) degree.

At the end of the third year of study, upon successful completion of the BEng(CivE–Law) degree, students may choose to defer entry to the LLB programme or not to continue at all. If deferring entry, graduates may work for no longer than 5 years to obtain the necessary practical experience and/or professional qualifications in civil engineering before resuming studies for the LLB degree. The current minimum post-graduate training/work experience required to obtain professional qualifications in civil engineering or related disciplines in Hong Kong and the UK is in general 4 years.

6.2. LLB

During the fourth and fifth years of the programme, students are required to complete 69 credits of core law courses (Table 5) and 54 credits of elective law courses. Students are also required to participate in a compulsory workshop and complete a dissertation in law.

7. LAUNCHING DETAILS OF THE PROGRAMME

7.1. Admission

The DPD programme was first offered in the autumn semester of 2004 with an initial enrolment quota of 20 students (this quota being part of the total annual admissions quota of the DoCE). The DoCE is solely responsible for the admission of students to the DPD programme, with due consideration of the admission requirements of the department of law for future admission to the LLB degree.

Course	Number of credits
Law of contract I	6
Law of contract II	6
Land law I	6
Land law II	6
Total	24

Table 3. Law core courses

Course	Number of credits
The legal system	6
Legal research and writing I	3
Legal research and writing II	3
Legal research and writing III	3
Critical thinking and logic	6
Law of tort I	6
Law of tort II	6
Law and society	6
Total	39

Table 4. Additional courses required for admission to the LLB programme

Through the EAS, six students were admitted to the programme in 2004 and seven in 2005. A summary of national HKCEE results for 2003 and 2004 is shown in Table 6; for comparison, HKCEE results of the students admitted to the DPD programme in 2004 and 2005 are shown in Table 7. (Students taking the 2003 and 2004 HKCEE were eligible for the 2004 and 2005 EAS, respectively.)

Fourteen students in 2004 and five students in 2005 were admitted to the programme through the normal route. The overall HKALE results from 2004 and 2005 are summarised in Table 8 and the HKALE results of students admitted to the DPD programme in the same years are shown in Table 9 for comparison (students taking the HKALE examination in a particular year are eligible for admission in the same year). A final-year undergraduate civil engineering student was permitted to transfer to the DPD programme in 2004 and one student from the UK was also admitted to the DPD programme in 2005.

Course	Number of credits
Business associations	6
Constitutional law	6
Commercial law	6
Criminal law I	6
Criminal law II	6
Introduction to Chinese law	6
Legal research and writing IV	3
Legal research and writing V	3
Administrative law	6
Equity and trusts I	6
Equity and trusts II	6
Introduction to legal theory	6
Mooting	3
Total	69

Table 5. Core law courses on the LLB degree

		2003	2004
All subjects	No. of candidates	658 150	638 070
	Grade A: %	2·5	2·7
	Grade C or above: %	19·5	20·5
	Grade E or above: %	69·0	69·8
Chinese language	No. of candidates	90 180	87 146
	Grade A: %	2·5	2·6
	Grade C or above: %	15·5	16·1
	Grade E or above: %	64·1	64·9
English language (syllabus B)	No. of candidates	46 609	43 686
	Grade A: %	2·7	2·6
	Grade C or above: %	11·8	12·9
	Grade E or above: %	64·5	69·6
English language (syllabus A)	No. of candidates	16 528	20 236
	Grade A: %	1·1	0·9
	Grade C or above: %	10·9	10·8
	Grade E or above: %	44·3	44·6

Table 6. Summary of 2003 and 2004 Hong Kong certificate of education examination national results (HKEAA, 2010)

		2003	2004
English language (syllabus B)	No. of students Grade A	3	4
	No. of students Grade B	2	3
	No. of students Grade C	1	0
Chinese language	No. of students Grade A	4	4
	No. of students Grade B	1	3
	No. of students Grade C	1	0
Other subjects	No. of students with 7 As	0	1
	No. of students with 6 As	2	4
	No. of students with 5 As	4	1
	No. of students with 4 As	0	1

Table 7. HKCEE results of EAS students admitted to the CivE–Law programme

Tables 6–9 show that students admitted to the DPD programme are secondary school graduates of highest academic achievement in Hong Kong. Every applicant was also interviewed to determine suitability for the programme, with special attention paid to their language and presentation capabilities.

7.2. Problems

7.2.1. Scheduling for students who need to re-take a course. As 7 years of coursework are packed into a 5-year curriculum without any significant reduction of course contents, the programme schedule is extremely tight. Re-taking a course (due to illness or examination failure for example) without delay to graduation was therefore extremely difficult.

Many students, including LLB students, fail the 'the legal system' course. The department of law has thus made a special arrangement that allows students to re-take the examination in the following semester without having to repeat lectures and coursework, although they have to re-enrol for the course to satisfy the requirements of the enrolment system. The DoCE therefore has to grant special permission to DPD students who fail a particular course to take additional credits so that they are able to re-enrol.

Students who fail a civil engineering course are given permission to overload themselves for one course above full load so that they can re-enrol the failed course. However, these students have to juggle their timetable very carefully to fit in every course required for the schedule.

Unfortunately, one student underwent major surgery in 2005 and missed most of the final examinations. However, the student applied for transfer to another major upon recovery as he considered his health conditions did not permit him to pursue such a demanding degree. His application was granted.

7.2.2. Provision of industrial training. The industrial training for DPD students is scheduled in the summer following completion of the first year of study. However, with only 1 year of study in civil engineering completed, students' technical capabilities may not

	Level		2004	2005
All subjects	A	No. of candidates	75 703	71 472
		Grade A: %	3·3	3·6
		Grade C or above: %	21·2	22·9
		Grade E or above: %	72·8	73·8
	AS*	No. of candidates	82 790	77 992
		Grade A: %	1·3	1·7
		Grade C or above: %	16·4	17·6
		Grade E or above: %	81·0	79·6
Use of English	AS*	No. of candidates	34 158	32 164
		Grade A: %	0·6	0·6
		Grade C or above: %	13·1	13·6
		Grade E or above: %	75·2	72·8
Chinese language and culture	AS*	No. of candidates	32 432	30 447
		Grade A: %	1·6	2·5
		Grade C or above: %	19·6	21·7
		Grade E or above: %	91·8	91·9

*Two AS-level courses are equivalent to one A-level course in admission evaluation

Table 8. Summary of 2004 and 2005 Hong Kong advanced level examination national results (HKEAA, 2010)

		2004	2005
Use of English	No. of students Grade A	1	0
	No. of students Grade B	3	0
	No. of students Grade C	3	3
	No. of students Grade D	7	2
	No. of students Grade E	0	0
Chinese language and culture	No. of students Grade A	2	0
	No. of students Grade B	0	2
	No. of students Grade C	6	1
	No. of students Grade D	5	2
	No. of students Grade E	1	0
AL subjects*	No. of students with 3As	6	1
	No. of students with 2As and 1B	5	1
	No. of students with 2As and 1C	0	1
	No. of students with 1A and 2Bs	1	1
	No. of students with 1A, 1B and 1C	1	0
	No. of students with 1A, 1B and 1D	0	1
	No. of students with 1A and 2Cs	1	0
	No. of students with 2Bs and 1C	0	0
	No. of students with 1B and 2Cs	0	0

* Two AS-level subjects are equivalent to one AL-level subject

Table 9. HKALE results of students admitted to the CivE–Law programme

satisfy the requirements of engineering organisations employing summer interns. While it is acknowledged that there may be potential problems in identifying suitable work experience opportunities, no difficulties have been encountered thus far. This may be due to rapid recovery of the civil engineering market in Hong Kong and the superior academic achievement of DPD students.

7.2.3. Scheduling of summer courses. The engineering design and communication (ED&C) and project courses are taken by DPD students starting in the summer following completion of the second year of study. ED&C requires students to perform planning and design of civil engineering projects, open-ended schematic design of multi-disciplinary projects, project appraisal and feasibility study, environmental impact assessment and/or project implementation on a group basis under the joint supervision of a faculty member and an industrial tutor. Students are also required to make oral and written presentations as work progresses. For the final-year project, under the supervision of a faculty member, every student has to complete an individual dissertation or project report on a topic consisting of design and experimental or analytical investigation.

Although these are practically self-paced projects, students do require supervision from faculty members and the support of technical staff throughout the summer. Faculty members on campus in the summer offer projects to DPD students under their supervision. As the number of students is relatively small, the requirement is not overly demanding on faculty members, most of whom are on campus working on research projects anyway. Furthermore, as there are only DPD students working on campus in the summer, progress is faster and more technical support is available for them.

8. PERFORMANCE OF ADMITTED STUDENTS

As this is a new programme, the progress of students is being monitored very closely. The DoCE is offering three parallel Bachelor of Engineering degree programmes – civil engineering, civil engineering (environmental engineering) and civil engineering (law) (CivE–Law). Students in these three programmes take the same eight core civil engineering courses in the first year (Table 10).

The course grade point averages (GPAs) of the first-year civil engineering students taking these courses in 2004–2005 by programme are shown in Figure 2. Table 11 shows the allocation of grade points and scores to different letter grades. Although the grading system appears to be quite lenient, it should be noted that faculty regulations require scaling the average course GPA of all students taking a particular course to between 2 and 3. Figure 2 shows that the examination results of the CivE–Law DPD students compare favourably with their peers in the other civil engineering programmes. Figure 3 shows the GPA distribution of the first-year CivE–Law students.

All LLB and law-related double-degree students take the same three law core courses in the first year

(*a*) LLAW 1008 The legal system (6 credits)

Course code	Course	Number of credits
CIVL 1001	Computer applications in civil engineering	6
CIVL 1002	Construction materials	6
CIVL 1003	Engineering drawing	6
CIVL 1004	Engineering mathematics I	6
CIVL 1005	Engineering mathematics II	6
CIVL 1006	Environmental engineering	6
CIVL 1007	Fluid mechanics	6
CIVL 1008	Structural mechanics	6
CIVL 1010	Theory and design of structures I	6

Table 10. Core civil engineering courses for all first-year students

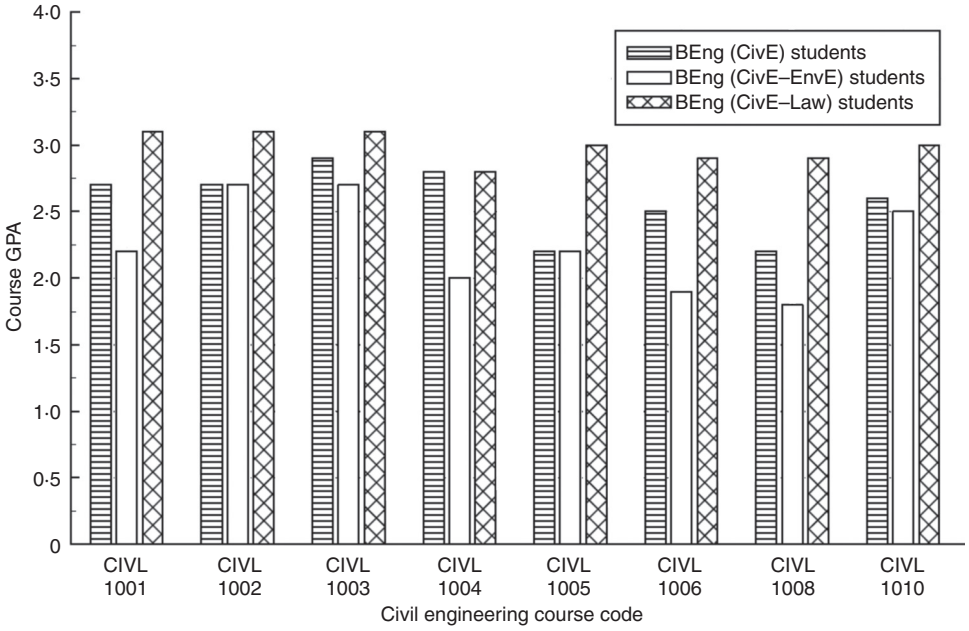

Figure 2. Analysis of examination results of first-year civil engineering students

(*b*) LLAW 1010 Legal research and writing I (3 credits)
(*c*) LLAW 1011 Legal research and writing II (3 credits).

The performance of CivE–Law students in law courses can therefore be evaluated by comparison of their examination performance with students in other law programmes. The course GPAs of first-year CivE–Law, LLB, BBA(Law)/LLB and BSS(G&L)/LLB students taking these courses in 2004–2005 is shown in Figure 4, which indicates that CivE–Law students are not doing as well as their peers on other law courses. In particular, there appears to be quite a significant difference in the results of course LLAW 1008 (the legal system). Three out of 21 CivE–Law students failed this course, and this resulted in a significant lowering of the class GPA. There were also a few exam failures on the other degree programmes (with student numbers of 95, 56 and 48), but their impact on overall GPA was not so significant because of the larger student numbers.

The examination results show that the performance of CivE–Law students in civil engineering courses is superior to that of other civil engineering students (Figures 2 and 3). However, they do not perform as well as law students or other law-related double-degree students in law courses. This could be attributed to the fact that the pre-university training of those admitted to the CivE–Law programme is identical to that of other civil engineering students. Already higher academic achievers, they might well be expected to outperform other students in civil engineering subjects. On the other hand, their pre-university training is different from that of students embarking on law, business and social sciences degrees and therefore it can be assumed that it will take CivE–Law students more time to adjust to the different format of lectures and tutorials, required mode of thinking and examination style.

In 2006, the transfer student continued his study in the LLB programme. In 2007, the first batch of 18 students graduated

Letter grade	Score	Grade point
A+	⩾85	4·0
A	⩾80 and <85	4·0
A−	⩾75 and <80	3·7
B+	⩾71 and <75	3·3
B	⩾68 and <71	3·0
B−	⩾65 and <68	2·7
C+	⩾62 and <65	2·3
C	⩾59 and <62	2·0
C−	⩾56 and <59	1·7
D+	⩾53 and <56	1·3
D	⩾50 and <53	1·0
F	<50	0

Table 11. Allocation of grade points and scores to letter grades

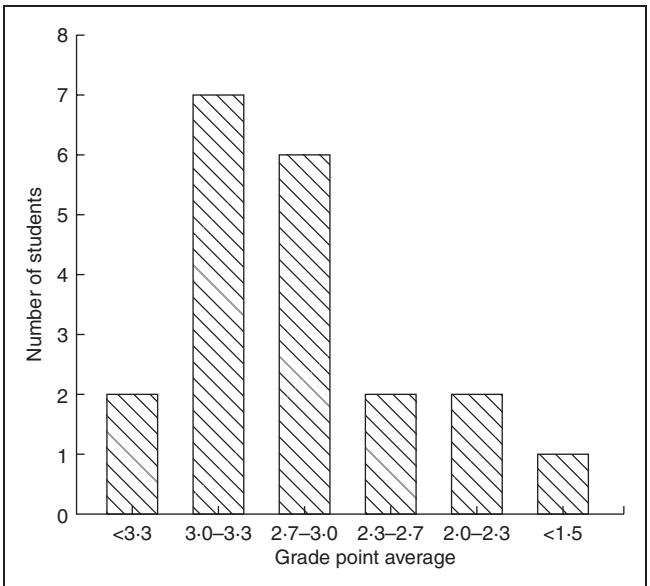

Figure 3. Grade point average distribution of first-year CivE–Law students in civil engineering courses

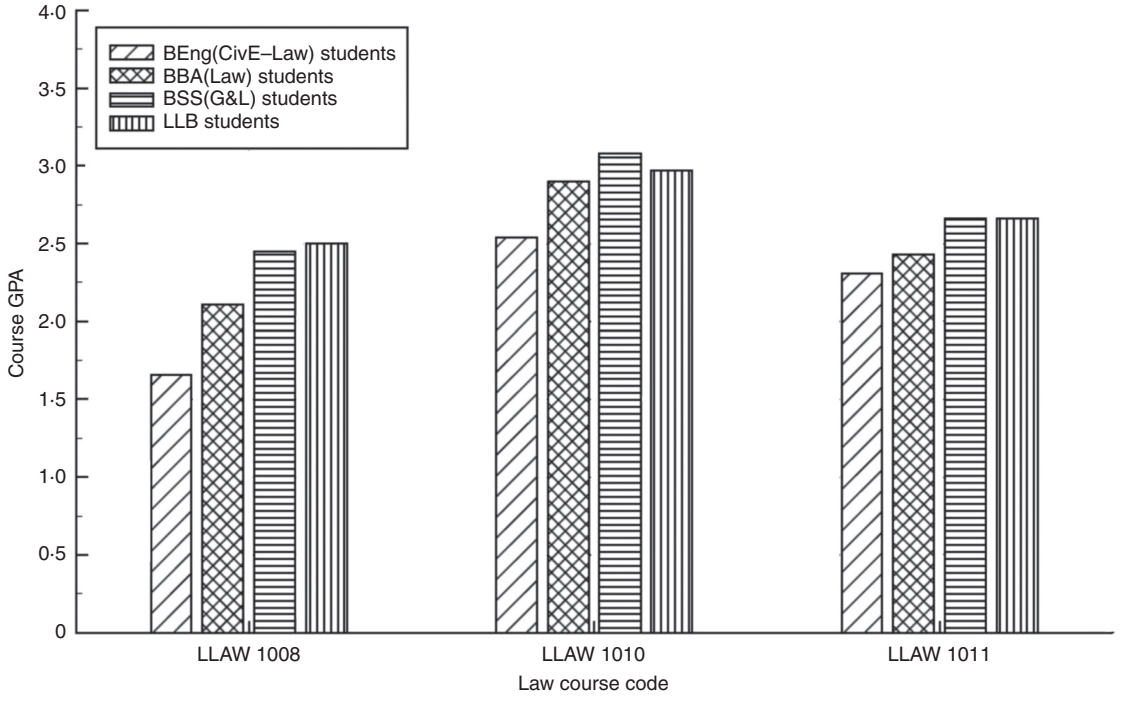

Figure 4. Analysis of examination results of first-year double-degree students in law courses

from the BEng(CivE–Law) programme. Of these, 14 continued on to the LLB programme, one accepted a position in the Hong Kong Special Administrative Region Government, one took a post in a major consulting firm in Hong Kong, one accepted a position as legal assistant in an engineering firm and one is pursuing a post-graduate diploma in education. It is encouraging that the majority of students were able to take full advantage of the DPD programme in order to obtain two degrees in the shortest possible duration.

9. CONCLUSION

In collaboration with the faculty of law, a unique 5-year credit-based double-degree programme in civil engineering and law has been developed. It is a heavy programme, but there have been no insurmountable problems for students or administrators to date. The programme has been recognised by the relevant professional organisations. The market's response to the first batch of graduates is currently being evaluated.

REFERENCES

Berger L (1996) Emerging role of management in civil engineering. *ASCE Journal of Management in Engineering* **12(4)**: 37–39.

Bordogna J (1998) Tomorrow's civil systems engineer – the master integrator. *ASCE Journal of Professional Issues in Engineering Education and Practice* **124(2)**: 48–50.

Bowman BA and Farr JV (2000). Embedding leadership in civil engineering education. *ASCE Journal of Professional Issues in Engineering Education and Practice* **126(1)**: 16–20.

Boxall J and Tait S (2008) Inquiry-based learning in civil engineering laboratory classes. *Proceedings of the Institution of Civil Engineers – Civil Engineering* **161(3)**: 138–143.

Chau KW (2007) Incorporation of sustainability concepts into a civil engineering curriculum. *ASCE Journal of Professional Issues in Engineering Education and Practice* **133(3)**: 188–191.

Cheah CYJ, Chen P-H and Ting SK (2005). Globalization challenges, legacies, and civil engineering curriculum reform. *ASCE Journal of Professional Issues in Engineering Education and Practice* **131(2)**: 105–110.

Chinowsky PS (2002) Integrating management breadth in civil engineering education. *ASCE Journal of Professional Issues in Engineering Education and Practice* **128(3)**: 138–143.

DoJ (Department of Justice) (2010) http://www.legislation.gov.hk/eng/home.htm (accessed 28/01/2010).

Dudman A and Wearne SH (2003) *Professional Engineers' Needs for Managerial Skills and Expertise*. Centre for Research in the Management of Projects, Manchester.

ECU (Edith Cowan University) (2010) http://www.se.ecu.edu.au/disciplines/engineering/info/courses/BEng-LLB.html (accessed 28/01/2010).

Galloway PD (2008) *The 21st-Century Engineer: A Proposal for Engineering Education Reform*. American Society of Civil Engineers, Reston, VA, USA.

HKEAA (Hong Kong Examinations and Assessment Authority) (2010) http://www.hkeaa.edu.hk/en/ (accessed 28/01/2010).

HKIE (Hong Kong Institution of Engineers) (2010) http://www.hkie.org.hk/ (accessed 28/01/2010).

Jennings A and Ferguson JD (1996) Integrating communication skills into civil engineering education. *Proceedings of the Institution of Civil Engineers – Civil Engineering* **114(2)**: 73–80.

Jha MK and Lynch DR (2007) Role of globalization and sustainable engineering practice in the future civil engineering education. In *Proceedings of the 3rd International Conference on Sustainable Development and Planning, Algarve* (Kungolos A, Brebbia CA and Beriatos E (eds)). WIT Press, Boston, MA, USA, pp. 641–650.

Koehn E (2004). Enhancing civil engineering education and ABET criteria through practical experience. *ASCE Journal of Professional Issues in Engineering Education and Practice* **130**(2): 77–83.

Le KN and Tam VWY (2008) On generic skill development: an engineering perspective. *Digital Signal Processing* **18**(3): 355–363.

Li CH and Liu SG (2005) Trajectory of consulting firms and the dynamics of the services: Comparative perspectives between USA and China. In *Proceedings of the 2005 International Conference on Services Systems and Services Management, Chongqing* (Chen J (ed.)). IEEE, New York, NY, USA, pp. 1295–1298.

LSHK (Law Society of Hong Kong) (2010) http://www.hklawsoc.org.hk/pub_e/default.asp (accessed 28/01/2010).

MU (Monash University) (2010) http://www.eng.monash.edu.au/prospective/ug/double-degrees.html (accessed 28/01/2010).

Nehdi M and Rehan R (2007) Raising the bar for civil engineering education: systems thinking approach. *ASCE Journal of Professional Issues in Engineering Education and Practice* **133**(2): 116–125.

Russell JS and Stouffer WB (2003) Some ethical dimensions of additional education for the 21st century. *ASCE Journal of Professional Issues in Engineering Education and Practice* **129**(4): 225–231.

UniSA (University of South Australia) (2010) http://www.unisanet.unisa.edu.au/programs/program.asp?Program=DBLE (accessed 28/01/2010).

UoA (University of Adelaide) (2010) http://www.law.adelaide.edu.au/student/doubledegreeplans/ (accessed 28/01/2010).

WA (Washington Accord) (2010) http://www.washingtonaccord.org/ (accessed 28/01/2010).

Yeung AT (2006) Reappraisal of university-level engineering education. *ASCE Journal of Professional Issues in Engineering Education and Practice* **132**(2): 103–111.