Balancing Theoretical and Practical Goals in the Delivery of a University-Level Data Communications Program

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EXECUTIVE SUMMARY

This case examines the experience of introducing the Cisco Networking Academy Program as part of two data communications courses taught in the School of Business and Economics at the University of Auckland. This case discusses the advantages and disadvantages encountered in the administration and delivery of the combined (traditional content plus the Cisco-based content) material. The case also analyses the impact of the program on the learning outcomes and objectives of the existing courses. The feedback presented was obtained informally through conversations with students and formally by using end-of-semester surveys and by reviewing students' assignments and tests. The case describes how the program combined traditional "sage on the stage" lectures plus hands-on lab experiments as part of the educational experience. The availability of on-line curricula and testing is also considered as an important element in the learning process.

BACKGROUND

The University of Auckland was established in 1883 and it is New Zealand's largest research university with more than 28,000 students. It offers a comprehensive range of study programs attracting postgraduate and undergraduate students from over 50 countries. In 2000 the university was New Zealand's top-ranked institution in *Asiaweek* magazine's annual

survey of Asian and Australian universities (*Bachelor of Commerce—The Undergraduate Handbook*, 2002). The university has four campuses with seven faculties representing a number of disciplines: Architecture, Property, Planning and Fine Arts; Arts, Education and Music; Business and Economics (also known as the University of Auckland School of Business); Engineering; Law; Medical and Health Sciences; and Science. More than 4,000 students are enrolled for postgraduate studies (nondoctoral) and around 900 for doctorates. Some departments are associated with more than one faculty and various research centres cross disciplinary boundaries (Slattery, 2002).

The university's governing body is the Council, a mixture of elected staff, students and graduates, and outside appointees. The vice-chancellor, the university's chief academic and administrative officer, is also a member of Council. On academic matters the Council is bound to consult the Senate, which the vice-chancellor chairs. The Senate includes all the full professors, some nonprofessorial staff and student representatives. Each faculty is a subcommittee of the Senate and is headed by a dean who is responsible for overseeing the academic and research activities of individual departments and, in coordination with Registry and Senate committees, manages aspects related with staff appointments, research funding, time-tabling, etc. The Registry performs central administration, and it is divided into Information Technology Systems and Services (ITSS), Finance, Human Resources, Student Administration, and Property Services sections (Slattery, 2002). Financial information (university revenues and expenditures) for the year 2000 is included in Appendix 1.

The School of Business has over 200 academic staff and seven departments: Accounting and Finance, Commercial Law, Economics, International Business, Management and Employment Relations, Management Science and Information Systems, and Marketing. The school offers more than 350 courses in 15 major fields of study, and there are approximately 6,000 students currently enrolled in the faculty programs (*Bachelor of Commerce—The Undergraduate Handbook*, 2002).

SETTING THE STAGE

The courses studied in this case study, Data Communications and Advanced Data Communications, are taught on the second and third years of a three-year bachelor of commerce (BCom) degree in information systems. Students enrolled for the BCom degree have to follow a program that is equivalent to three full-time years and pass courses with a total value of at least 42 points. A typical one-semester course is worth two points. Of the 42 points required for this degree, a student must pass at least 22 points in course above Year I, and s/he must complete one or more majors, including at least six points in Year III in each major. A normal course load is comprised of 14 points per year. The maximum load per semester is nine points.

The data communications courses can also be taken by BSc (computer science) and BTech (information technology) students; however it is important to note here that the courses are optional and are not part of the mandatory core of any major approved for BCom, BSc or BTech students.

The second-year course typically has enrolments of approximately 360 students roughly distributed in three classes of about 120 students each. Around 120 students take the third-year course. In the past the material has been delivered by lecturing three hours per week (12 weeks per semester) and by making available to students one optional tutorial hour per week during eight weeks. The coursework assessment consisted of two tests, two research assignments, a laboratory assignment (running CACI's Comnet III networking