UNIVERSITY ENROLMENT PLANNING

by

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SUMMARY

At the University of Adelaide, the total number of students enrolled in any course is controlled by quotas on the number of new entrants to the course each year. A linear relationship is used to forecast total enrolment given the number of new students in each previous year; for future years, the number of new students is taken to be the size of the quota.

Chapter 1 relates the methods in use at the University of Adelaide to the work of other authors and demonstrates how a Markov model may be used to obtain the lifetimes of students in a particular course, namely the Ph.D.-degree course. Chapter 2 then develops a linear programming model which mimicks the forecasting method already in use and which determines the intake quotas over a period of years that use as much as possible of the course capacity while satisfying certain constraints. These constraints ensure that the total enrolment each year is no greater than the capacity in that year and that the intakes are non-decreasing and no greater than some maximum value. In particular, the programme is designed to be used to determine strategies which move the course into a constant enrolment, or non-growth, period while accounting for restrictions on the permissible rate of growth. It is shown that the special structure of the problem may be exploited to find a particular solution which is optimal for several, commonly encountered objective functions. The requirement that the intakes should be integral is discussed and is shown to pose very little additional difficulty. An example from the University of Adelaide is used to illustrate the methods.

Chapter 3 considers extensions of the basic model (the single-grade, single-course case) to situations where there are several

grades within a course with capacities on some of these grades or where several inter-related courses are to be planned at the same time. Finally, chapter 4 contains a discussion of the applicability of the work of the thesis and suggests possibilities for further extensions.

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