421-671 Financial Analysis of Complex Projects

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2009, This subject commences in the following study period/s: Semester 1, - Taught on campus.
Time Commitment:	Contact Hours: 36 Hours; Non contact time commitment 84 Hours Total Time Commitment: Not available
Prerequisites:	None
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry. It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: http://services.unimelb.edu.au/disability
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Subject Overview:	This subject analyses the profitability of complex technological projects so that different alternative investment opportunities can be compared within a legislative, societal, environmental, financial and economic framework as part of a business plan. It introduces accounting concepts, and explains the estimation of capital and manufacturing costs for engineering projects, where insufficient data are available. The effects of depreciation, inflation, taxation, maintenance scheduling and uncertainty are considered in discounted cash flow calculations in order to evaluate equipment alternatives, including retrofitting of facilities. Various profitability criteria are established for project evaluation and decision-making on risk /return considerations.
Objectives:	On successful completion, students should be able to: # estimate the capital cost of engineering equipment based on historical data, cost indices and scaling factors # estimate the capital cost of a total production facility using the bare module cost, grass roots costs and total module costs as a function of capacity-cost relationships and multiplying factors # estimate manufacturing cost equations as a function of direct, indirect and general manufacturing expenses, plant availability and waste treatment/recycling costs # estimate the cost of research and development and technology transfer projects # incorporate inflation, effective annual interest and continually compounded interest in discounted cash flow calculations for technological projects # interrelate uniform or non-uniform cash flow transactions to present or future worth using sinking fund or capital recovery factors for complex projects # calculate depreciation of capital investment, using straight line, sum of years digits, or double declining balance methods

	# understand basic accounting concepts, including fixed and working capital, taxation, financial ratios, earnings, and cost of capital # incorporate risks of exchange rate variability and changes in international taxation in profitability calculations for global projects # use non-discounted and discounted profitability criteria in order to compare the investment potential of large projects on the basis of their risk profile # evaluate equipment alternatives with the same or different expected operating lives using the capitalised cost method, the equivalent annual operating cost method or the common denominator method # optimise decision-making for maintenance scheduling versus replacement of equipment # optimise investment allocation in multiple projects with different production capacities and different technological characteristics # perform an economic analysis of retrofitting production facilities, compared with investment in new facilities # determine the effect of risk and probability distributions of sales and equipment failures on profitability, using simulations # develop a business plan for complex technological projects
Assessment:	One three-hour written examination (60%) and one written assignment of approximately 2,500 words or equivalent (40%). Passing the exam is a hurdle requirement of this subject
Prescribed Texts:	None
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Related Course(s):	Master of Engineering Management Master of Engineering Science (Engineering Management) Master of Engineering Structures