

Financial Decisions in Engineering Project Management (3 Credits)

工程项目管理中的金融决策

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Synopsis	The course introduces widely-used financial techniques for project evaluation. Based on the time value of money concept, the course examines how to analyze and value various cash flow patterns and provides popular economic measures for project assessment and selection, including the net present value and the rate of return, along with the application criteria for single and multiple project decisions. The course also addresses decision under uncertainties using techniques such as breakeven analysis, sensitivity analysis, decision tree, etc. Students will have an opportunity to perform a financial analysis of their interested problem in a group project and create management report and presentation.		
Offering	2018 July Semester (Julmester)		
Audience	Undergraduate and Graduate Students (all majors and all levels) with no prerequisites		
Classroom	Room TBA, Teaching Bldg. No. TBA, Peking University		
Schedule	Class: 8-11 AM, M-F, July 2–20, 2018	Total Contact Hours: 45	Final Exam: No Exam
Objective	To develop an understanding of financial techniques used for project evaluation, project selection and decision under risk and uncertainties. Students will apply their knowledge to a real-world problem in a team environment.		
Topics	<ol style="list-style-type: none"> <li>1. Time Value of Money, Interest Rate, Economic Equivalence, Simple and Compound Interests</li> <li>2. Cash Flow Analysis and Valuation: Single Cash Flows, Cash Flow Series</li> <li>3. Nominal and Effective Interest Rates: Discrete Time Period, Continuous Compounding</li> <li>4. Present Value Analysis: Equal-life Alternatives, Different-life Alternatives, Capitalized Cost, Payback Period</li> <li>5. Annual Value Analysis: Capital Recovery, Equivalent Annual Value</li> <li>6. Rate of Return Analysis: Single Alternative</li> <li>7. Rate of Return Analysis: Multiple Alternatives</li> <li>8. Breakeven Analysis: Single and Multiple Alternatives</li> <li>9. Decision under Uncertainties: Sensitivity Analysis, Three Estimates, Expected Value Decision, Decision Tree</li> <li>10. Financial Analysis Modeling</li> <li>11. Creating Report and Presentation for Management</li> </ol>		
Text	Lecture Notes provided by the instructor.		
Reference	Blank, L. and A. Tarquin. <i>Engineering Economy</i> , 7 <sup>th</sup> edition. McGraw-Hill, 2012.		
Grading	Quiz 1 (Topic 1-3)	25%	
	Quiz 2 (Topic 4-7)	35%	
	Group Project Presentation and Report	30%	
	Attendance and Participation	10%	
		Total	100%