Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
IND 511	Advanced Engineering Economy	1	3	0	0	3	6

Prerequisites	
Admission Requirements	

Language of Instruction	English
Course Type	Compulsory
Course Level	Masters Degree
Objective	
Content	- Introduction and organization - Review of discrete cash flow models - Uniform and gradient series - Nominal versus effective interest rates - Continuous compounding and continuous cash flows - Mid-period convention - Time-dependent interest rates - Loans - Laplace, Z and Mellin transforms in cash flow modeling - Equivalent methods for comparing alternatives (single project) - Present worth, future worth and annual worth methods - Benefit-cost ratio method - Rate of return method and variations - Internal rate of return method - External rate of return method - Decision rules for selecting among multiple alternatives - Present worth, future worth and annual worth methods - Benefit-cost ratio method - Internal rate of return method - Approximate and supplementary methods - Payback method - Profitability index - Depreciation methods - After-tax economy studies - Index numbers - Incorporating inflation into economic analysis - Replacement models - Retirement with identical replacement - Generalized replacement model - Dynamic programming formulations - Mathematical programming formulations for capital budgeting - Risk analysis - Statistical moments of random variables - Random cash flows - Random project life - Decision criteria and methods for risk and uncertainty - Fuzzy discounted cash flow analysis - Introduction to real options approach
References	- Park, C.S., Sharp-Bette, G.P., Advanced Engineering Economics, John Wiley & Sons, 1990. - Fleischer, G.A., Introduction to Engineering Economy, PWS Publishing Company, Boston, 1994.

Theory Topics

Week	Weekly Contents