**Tutorial 8**

#1:
When is EAC analysis appropriate for comparing two or more projects? Why is this method used? Are there any implicit assumptions required by this method that you find troubling? Explain.

#2:
Parker & Stone, Inc is looking at setting up a new manufacturing plant in South Park to produce garden tools. The company bought some land six years ago for $6 million in anticipation of using it as a warehouse and distribution site, but the company has since decided to rent these facilities from a competitor instead. If the land were sold today, the company would net $6.4 million. The company wants to build its new manufacturing plant on this land; the plant will cost $14.2 million to build, and the site requires $890,000 worth of grading before it is suitable for construction. What is the proper cash flow amount to use as the initial investment in fixed assets when evaluating this project? Why?

#3:
Winnebagel Corp. currently sells 30,000 motor homes per year at $53,000 each, and 12,000 luxury motor coaches per year at $91,000 each. The company wants to introduce a new portable camper to fill out its product line; it hopes to sell 19,000 of these campers per year at $13,000 each. An independent consultant has determined that if Winnebagel introduces the new campers, it should boost the sales of its existing motor homes by 4,500 units per year, and reduce the sales of its motor coaches by 900 units per year. What is the amount to use as the annual sales figure when evaluating this project? Why?

#4:
You are considering expanding your product line that currently consists of skateboards to include gas-powered skateboards, and you feel you can sell 10,000 of these per year for 10 years (after which time this project is expected to shut down with solar-powered skateboards taking over). The gas skateboards would sell for $100 each with variable cost of $40 for each one produced, while annual fixed costs associated with production would be $160,000. In addition, there would be a $1,000,000 initial expenditure associated with the purchase of new production equipment. It is assumed that this initial expenditure will be depreciated using the simplified straight-line method down to zero over 10 years. The project will also require a one-time initial investment of $50,000 in net working capital associated with inventory, and this working capital investment will be recovered when the project is shut down. Finally, assume that the firm's marginal tax rate is 34 percent.
a. What is the initial cash outlay associated with this project?
b. What are the annual net cash flows associated with this project for years 1 through 9?
c. What is the terminal cash flow in year 10?
d. What is the project's NPV given a 10 percent required rate of return?

#5:
The Minot Kit Aircraft Company of Minot, ND uses a plasma cutter to fabricate metal aircraft parts for its plane kits. The company currently is using a cutter that it purchased used 4 years ago which has an $80,000 book value and is being depreciated $20,000 per year over the next 4 years. If the old cutter were to be sold today, the company estimates that it would bring in an amount equal to the book value of the equipment. The company is considering the purchase of a new automated plasma cutter that would cost $400,000 to install and which would be depreciated over the next 4 years toward a $40,000 salvage value using straight-line depreciation. The primary advantage of the new cutter is the fact that it is fully automated and can be run by one operator rather than the three employees that are currently required. The labour savings would be $100,000 per year. The firm faces a marginal tax rate of 30%.
a. What are the differential operating cash flow savings per year during year 1 through 4 for the new plasma cutter?
b. What is the initial cash outlay required to replace the existing plasma cutter with the newer model?
c. If the company requires a 15 percent discount rate for new investments, should the fleet be replaced?

#6:
Dangerfield Industrial Systems Company (DISC) is trying to decide between two different conveyor belt systems. System A costs $430,000, has a four-year life, and requires $110,000 in pretax annual operating costs. System B costs $570,000, has a six- year life, and requires $98,000 in pretax annual operating costs. Both systems are to be depreciated straight-line to zero over their lives and will have zero salvage value. Whichever project is chosen, it will be replaced when it wears out. If the tax rate is 34 percent and the discount rate is 11 percent, which project should the firm choose?

#7:
As the manager of The Homey Depot, you are tasked with upgrading a computerized inventory system at a retail outlet. The remaining period of the lease of this outlet is 10 years and management has no intention of renewing the lease. The required return is 12.5% and the tax rate is 34%. The expected life and incremental cash flows for the two models of computerized inventory systems are as follows:

**Current Computerized Inventory System:**
Initial cost outlay: $1.2m
Annual depreciation: $100,000
Accumulated depreciation: $400,000
Remaining useful life: 10 years
Annual operating costs (excluding depreciation): $450,000
Current Salvage Value: $400,000
Estimated salvage value at year 10: $50,000

**New Computerized Inventory System:**
Initial cost outlay: $1.5m
Useful life: 10 years
Annual depreciation: Straight-line full depreciation
Annual operating costs (excluding depreciation): $215,000
Estimated salvage value at year 10: $180,000

a. What is the initial cash outlay associated with this project?
b. What are the net cash flows associated with this project for years 1 through 10?
c. What is the terminal cash flow in year 10?
d. What is the project's NPV? Would you replace the current inventory system with the new one?