

1. Example from Lecture Slides:

Simple NPV Example

- A fabrication company is considering in investigating in a new CNC milling machine. Interest rate (ROI) is 9%. The cash flow for the machine is as follows:
- Purchase Price= \$50,000, annual operating cost = \$2000, annual income = \$9,000, salvage value is \$10,000, life = 10 years.
- Is this investment worth undertaking?
- $P = \$50,000$, $A = \text{annual net income} = \$9,000 - \$2,000 = \$7,000$, $n = 10$.
- Evaluate the Net Present Value = present value of benefits – present value of costs.

18

2. Hand calculation of NPV using the Interest Tables:

$$\text{NPV} = -\$50\text{K} + (\$9\text{K} - \$2\text{K}) * (P/A, 9\%, 10) + \$10\text{K} * (P/F, 9\%, 10) = -\$50\text{K} + \$7\text{K} * 6.418 + \$10\text{K} * 0.4224 = -\$0.85\text{K}$$

(Negative NPV indicates this is a bad investment at a desired ROI of 9%)

3. See the attached Excel file for how to model this cash flow using the template provided. Modifications to the template necessary for this problem were:

- Change the number of years and modified year 1 to reflect no Design/Development costs.
- Change interest rate
- Change formula in row 18 to reflect this is a before tax (BT) analysis, i.e. make tax rate zero.
- Model the sales as follows: unit sales = 1, and unit price = \$9,000.
- Model purchase price of the machine as capital cost in year 0.
- Change the number of significant figures so you can see the NPV in millions of dollars (cell D22)