**Assignment 9: Engineering Economics**

Submit digitally before 11:00 pm Monday 4-11-19

1. What is the difference in a car payment for a $20,000 car financed for 60 months at 8% and the amount of money you would need to invest every month starting at the end of the first month (just like a car payment) to have $20,000 at the end of five years? (Use 0.08/12 for the monthly interest rate.)
2. If for the above problem, inflation increases the amount of money needed to have the same buying power at the end of 60 months from $20,000 to $23,000, how much would need to be invested at the end of each month to have the same buying power in 60 months?

3. How many years would you need to invest $1,000 per year starting today at 8% to be able to withdraw $1,000 per year from the accumulated investment starting a year after your last deposit? Assume the annual interest rate on your nest egg is 8%.

4. Which of the two alternatives has the minimum annual cost?

A: Keeping your old car that is worth $2,000 and costs $2,400 to operate annually.

B: Buying a new used car for $10,000 that costs $1,000 to operate annually.

The old car will have a salvage value of $1,000 in three years while the new used car will have a salvage value of $4,000 in three years. Assume the time value of your money is 10%.

5. When is the break even if a new product costs $1M to launch and nets $0.2M annually if i = 12%?