

## Engineering Economics

Due dates are noted in the syllabus

To demonstrate that most engineering decisions must be communicated to someone in the business world, this writing assignment should convey the following information:

- 1) Orient the reader to what you have done and why
- 2) Describe your approach to the problem
- 3) Give results of your analysis ( not the analysis)
- 4) Draw conclusions and recommend action

**The assignment will count as 10% of your final grade. Clarity, grammar and presentation will be evaluated in each assignment.**

### **Assignment #1 Problem 5-54, 13<sup>th</sup> Edition Transmittal Letter**

Engineering firms often issue brief technical reports in the form of a letter. These reports are formatted as a business letter with a formal salutation to a specific person, a closing and signature, etc. They are single spaced and may contain headings for different sections and figures and tables as appropriate. These letters are impersonal in tone. They usually open with a statement of what work was to be performed, briefly describe the method used, present the results of the analysis, and close with an offer to answer questions or discuss the work. Equations are avoided, as are the details of computations and intermediate results. The end results of the analysis are highlighted and appropriate recommendations are made.

Write a business letter to an appropriate PennDOT official as if you were assigned the task of estimating the cost of alternative road paving surfaces. Your goal is to determine how much funding must be provided now to pay for all future maintenance and upgrading using Capitalized Cost. Use standard business letter format to report your results. You can invent your own firm and letterhead.

You are limited to one page (single spaced), so you will have to succinctly summarize your analysis and recommendations. In the letter, give the data inputs, the method you used, and summarize the results. Do not give detailed calculations in the body of the letter or a table of results. Include an attachment that summarizes the calculations in enough detail enough so that someone else in the class could reproduce your calculations. You may wish to attach a sheet with detailed calculations but do not include these in the letter. Use standard business letter format.

Consult the rubric.

# Writing Assign

cost and to replace the treatment plant every 40 years. The plant and future replacement plants will cost \$150,000 each. If the trust fund earns 8% interest, what is the developer's capitalized cost?

5-54 Use capitalized cost to determine which type of road surface is preferred on a particular section of highway. Use 12% interest rate.

A

	A	B
Initial cost	\$500,000	\$700,000
Annual maintenance	35,000	25,000
Periodic resurfacing	350,000	450,000
Resurfacing interval	10 years	15 years