

## MIT 430 Final Assignment

### Instruction:

1. For each of the following problems, conduct the engineering economic analysis then prepare a report that consists of cover page, analysis/solution, summary table, and decision/recommendation with strong justification supported by principles, concepts and guidelines of Engineering Economics.
2. Deadline of submission is on or before 14 April 2021 at 11:59 PM.

**PROBLEM 1:** You are given pertinent data (see table at the right) about a new system to be implemented in the manufacturing department of your company.

**Required:** Evaluate this project proposal using all relevant and applicable project assessment tools and techniques. Do you recommend the approval of this project if MARR = 20%?

Investment (machine) at n=0 (\$)	32,000.00
Additional Investment at n=1 (\$)	15,000.00
Useful Life (years)	10
Salvage Value (\$)	3,200.00
Estimated units to be produced/sold per year	15,800
Selling Price per Unit (\$)	2.67
Variable Cost per Unit (\$)	0.85
Annual Maintenance Cost (\$)	2,000.00
Annual Operating Costs (\$)	8,000.00
Other Costs per Year (\$)	500.00
NOTE: <i>The first revenues and expenses will occur at the end of Year 2.</i>	

**PROBLEM 2:** The owner of a 10-year old asphalt plant is considering two alternatives:

Option A: To continue with the old equipment for possibly 5 years more, at which time there will be no residual value. Its present value is \$4,000 and its annual output is 10,000 tons. Annual repairs cost \$1,000 and operating cost is \$2.00 per ton of output.

Option B: To sell the old equipment based on its present value now and purchase a new equipment at a cost of \$50,000. It has a capacity of 12,000 tons per year and has an estimated life of 20 years and will be scrapped at the end of its life. Operating costs will be about \$1.60 per ton of output and annual repairs about \$500.

**Required:** If MARR is 12%, which of these alternatives should be selected?