

## Assignment 9

100 Points (Due: 5:00PM Wednesday April 20th)

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**Assessment Goals:** (Incremental ROR Analysis of Multiple Alternatives, EXCEL use, Report quality). Show your work. Use 2 decimals for dollar values and 4 decimals for factors if needed. Use formulas, tables, and EXCEL as you wish.

### PROBLEM 1: (40 pts)

An international private partnership (iSpace) launches satellites for different clients. To reduce its expenses, NASA has decided to use iSpace to launch its next generation micro satellite. Five satellite manufacturers have provided competing proposals to NASA. Purchasing and launch cost of the competing satellites are given in the table below. All satellites have the useful life of 4 years after which they will be considered inaccurate for NASA's mission. Satellites perform tasks for clients ranging from surveillance to communication to research through which they generate annual revenue for NASA. However, running and maintaining the satellites require annual operating costs too. Both, annual revenue and operating cost depend on the type of satellite selected. Although, satellites are considered not accurate for NASA's mission after 4 years, they still can be used by private contractors for less reliable tasks who buy the satellites at salvage values from NASA. NASA uses a MARR of 14% per year. Determine which satellite NASA should select for launch on the basis of an incremental rate of return analysis.

Satellite Manufacturer	Initial Investment 1000 \$	Operating Cost 1000 \$	Annual Revenue 1000 \$ per Year	Salvage Value 1000 \$
APCO Technologies	750	200	520	120
Boeing	600	300	460	85
General Dynamics	550	350	455	80
Lockheed Martin	650	275	480	95
Northrop Grumman	500	400	450K	70

### PROBLEM 2: (60 points)

Solve the same problem except that Northrop Grumman and General Dynamics satellites have 3 years life each. All projects can be repeated with the same values as above. (Do not worry about multiple rate of returns, use the first one that you get.)