

Name:

Documentation:

1. Consider the following hypothetical trade study for three potential UAV system options for search and rescue where you would like the UAV to be able to search for as long as practical. Through pair-wise comparison, you establish that “Payload Capacity” and “Programming Ease” are equally valued and are valued twice as much as either “Cost” or “Flight time” which are also equally valued. Establish the Weighting Factors for each metric (remember, they must sum to one!), then use a decision matrix to rank the three options. For “Programming Ease”, 1 is the most difficult and 5 is the easiest.

Raw data

	Cost	Payload	Programming Ease	Flight time
UAV 1	\$4,300	750g	3	60 min
UAV 2	\$2,500	750g	5	45 min
UAV 3	\$1,900	500g	4	30 min

Normalized scores

	Cost	Payload	Programming Ease	Flight time
UAV 1		1.0		1.0
UAV 2		1.0	1.0	
UAV 3	1.0			

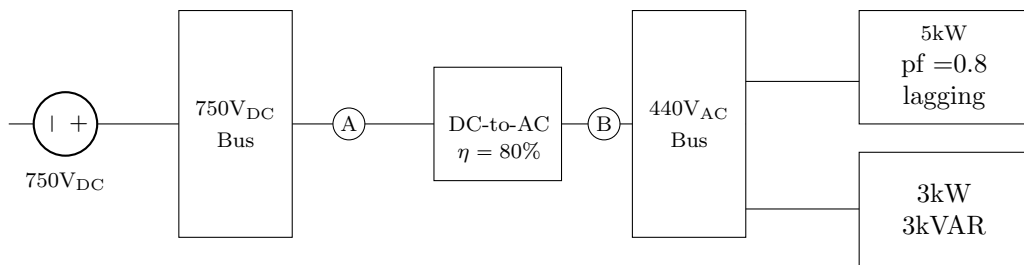
Weighted scores

	Cost	Payload	Programming Ease	Flight time	Total
Weight	1/6	1/3	1/3	1/6	
UAV 1					.774
UAV 2					.918
UAV 3					.739

Optimal choice =

UAV 2

2. Given the following section of a power system, choose rated values for circuit breakers A and B.



A =

15.0A

B =

26.5A