Wind Turbine Project Team Requirements and Grading Rubric - Fall 2016
For a VAWT using four ceramic magnets and four 200-turn coils

	Team:				
	Points				
Criteria	1	2	3	4	**Earned Points**
Project Implementation					
Innovation	Improved turbine is essentially the same as the protype turbine	Improved turbine using the same blades as prototype but improve wind testing	Improved turbine using different blades than prototype with improved wind testing	Improved turbine using design elements not found on the Internet producing improved performance	
Construction and Craftsmanship	Improved turbine uses very basic materials with no finishing. Fits in a 16-in. cube	Improved turbine uses mixture of finished and unfinished parts and surfaces. Fits in 16-in. cube	Improved turbine components and surfaces finished professionally. Fits in 16-in. cube	Improved turbine is professionally finished and is weather proof . Fits in 16-in. cube	
Engineering Journal of all Team Memebers	Protype construction and testing documented	Protype documented. Improved turbine outlined	Protype documented. Improved turbine construction detailed	Protype documented. Improved turbine construction and all test data	
Improved Turbine Wind Tunnel Performance					
Optimal turbine position 15 mph No-load Voltage	less than 1.999 volts	2.0 - 2.999 volts	3.0 to 3.999 volts	greater than 4.0 volts	
Self-starting wind speed for 5% of 15 mph maximum No-load voltage	less than 11 mph	less than 10 mph	less than 9 mph	less than 8 mph	
90-degree from optimal turbine position 15 mph No-load Voltage	less than 0.999 volts	1.0 -1.999 volts	2.0 to 2.999 volts	greater than 3.0 volts	
13 mph Wind Tunnel and 15-ohm load test	less than 0.799 volts	0.8 - 0.899 volts	0.9- 0.999 volts	greater than 1.0 volts	
Construction and Durability at 17 mph and No-Load Voltage	Less than a 5% change in voltage for 5 minutes or greater	Less than a 5% change in voltage for 6 minutes or greater	Less than a 5% change in voltage for 8 minutes or greater	Less than a 5% change in voltage for 10 minutes or greater	
Project Report					
Description and Photo Presentation	Few phases of the project described and with appropriate photos	Some phases of the project described and with appropriate photos	Most phases of the project described and with appropriate photos	All phases of the project described and with appropriate photos	
Performance Analysis	No performance issues explained	Some performance issues explained	Most performance issues explained	All performance issues explained	
Team Resumes	No resumes well presented	Some resumes well presented	Most resumes well presented	All resumes well presented	
TOTAL GRADING POINTS (44 points max)					