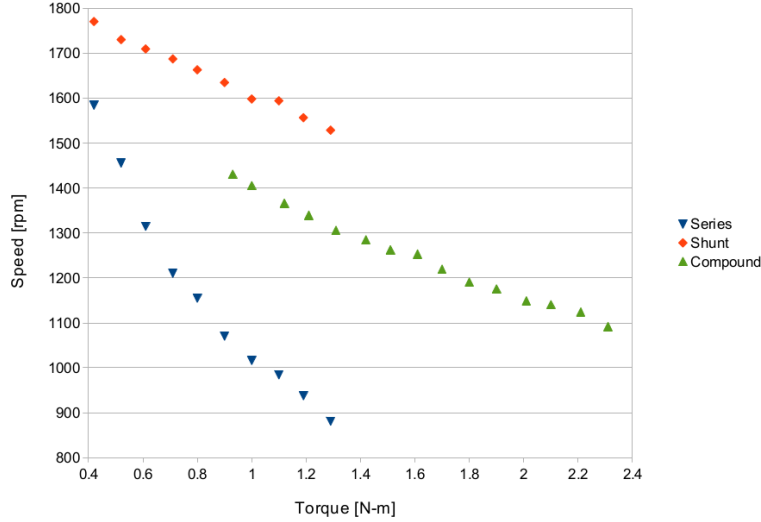|	
Lab 7:	DC Motor Configurations
Performed:	March 11, 2013
Partners:	Rawley Dent
	Charles Pittman
Instructor:	Dr. Weatherford

Abstract

Results

Figure 1: **Comparison of Speed vs. Torque Plots**

Conclusions

In Figure 1, the linear relationship between DC motor speed n_m and torque τ is exemplified. The DC motor was initially operating at approximately 1500-rpm. As the load torque was increased, the DC motor experienced a decrease in speed. The armature current was also increasing while the load torque was increasing, and thus the internal generated voltage E_A was decreased.

In Figure 1, the DC motor saturation effects are shown. This plot is similar to a DC motor magnetization curve, where the field current is plotted against the internal voltage. Here, the field current was plotted against the output torque. Since the torque in any real machine depends on the flux in the machine, and the internal voltage E_A is directly proportional to the flux produced, the y-axis in Figure 1 can be represented by torque and not E_A as in a DC machine magnetization curve. This plot shows that initially a large increase in field current correlates to a sharp increase in output torque. Initially the dynamometer load torque was set to its max value. Thus as the DC motor output torque nears this max dynanometer load torque, further increases in field current produce less and less increases in output torque.