MEETING MINUTES

Topic: Analytical Report

Tuesday, October 17, 2017
5:33 pm – 6:00 pm

Minutes recorded by: Jeremy Tilden

Meeting called by: David Trevas

Attendees: Andrew Robinson, Isaac Keene, Adam Wedell

Table 1. Record of meeting.

5:33 pm – 5:38 pm	**Brayton Cycle Equations** • Variable form for factor of safety • Assume 2:1 compression ratio • H2 instead of h3 (no combustion) • Messed up equations from no combustion • Efficiency must depend on compression ratio • Pressure max depends on compression ratio • Mass flow rate in and pressure to calculate the thrust • Thrust less than 10 lbs	duBois Room 11

5:38 pm – 5:42 pm	**Stresses on casing mount**
	• Stresses on Casing mount
	• Beam calculations
	• Don't know how much thrust we could expect
	• Scale down an actual engine
	• How to choose a train gauge
	  ○ Use what strain gauge is in the fluids lab
	  ○ Design around this
	• Find if thrust is x pounds, find strain
	• Hold it by the plate
	• Design this for resolution in strain gauge
		duBois Room 11

5:42 pm – 5:55 pm	**Shaft Design** • 5 inch in diameter • Hollow • Press fit for all bearings • How many bearings? 3-5 • Hub and set screw would be good for blades • Machine a flat on the shaft for the set screw (bears down on flat surface) • Focus on loading conditions, where you put bearings, bending from weight and thrust • Calculate torque	duBois Room 11

	• Do shear and moment diagrams • What is the worst-case scenario	
5:55 pm – 6:00 pm	**Compression Ratio** • Given 2000 rpm, calculated compression ratio is 1.5:1 • Good for internal pressure and heat constraints • Find Volumetric Flow Rate given compression ratio • Use guessed values for the equations if needed	duBois Room 11

Table 2. Tasks Assigned.

Task	Person Assigned	Due Date	Date Complete
Analytical Report	All		

Next formal meeting: 10/24/2017, Room 11, duBois Center, at 5:30 pm.