David Loveland Professor Ayala MET 350 03/21/2024

Test 2 Reflection

This test applied an intuitive understanding of how to apply the first different thermal systems. Rankine Cycle with superheating, re-heating, and regeneration to steam power plants.

I think I drew the cycle diagrams and the p-v and t-s diagrams correctly. Although I did miss a couple of things on both the p-v and t-s diagrams. For this test, I did the proper format for the test. I wrote out all 10 stages and calculated all the enthalpies and entropies. As for finding the work of the turbine, mass flow rate, y1, heat rate for space heater, and Utilization factor, I used the correct formulas for most of them but I used the wrong numbers. I could not figure out how to get y1. For the work of the turbine, I did not use (1-y1). Even though I've looked over the formulas several times, I think I may have been rushing it. Based on my calculations from the list, I got a 51. I think it could have been higher for sure. The weaknesses of my test are the correct answers and formulas.

I was getting hung up on finding y1=y2. Professor Ayala told me to let it go, so I let it go. For the things I was getting hung up on, I had to keep moving on, then circle back around to attempt it again. I think engineers could use these concepts at coal-fired power plants and nuclear reactors. I think I would use the concepts if I worked at a nuclear power plant. If I get into working for power plants, these concepts would be important to learn. I have not been able to apply these concepts anywhere. I think I did the stages well and have improved in using the tables. I'm not sure if this content would intersect with my career. I think I spent about 5 hours. I took a few breaks here and there.

Purpose	0.5/10.0
Drawings	0.8/10.0
Sources	1.0/10.0
Design considerations	0.8/10.0
Data and variables	0.5/10.0
Procedure	1.0/10.0
Calculations	1.5/10.0
Summary	0.2/10.0
Materials	0.5/10.0
Analysis	0.2/10.0
TOTAL	7.0/10.0

PROBLEM 1)

Actual cycle diagram	1/14
P-v and T-s diagrams	1.8/14
State calculations (10 of them)	1.6/14
Double interpolation for state 6	1/14
Calculate y1	0/14
Turbine work	0.2/14
Mass flow rate	0.5/14
Heat rate at space heating	0.4/14
Heat released in condenser	0.4/14
Utilization factor (need pumps & Qin)	0.6/14
Final results	0.2/14
TOTAL	7.5/14

FINAL GRADE:

 $7.0 + (80)^{*}(7.7/14) = 51$