

# CE 331

## Concrete testing lab grading rubric

		Criteria			NOTES
Component		Marginal (1)	Acceptable (2)	Exceptional (3)	
<b>1</b>	<b>Executive Summary</b>				<p>Should be &lt; 1 pg</p> <p>The reader should have a good understanding of the report after reading this section</p>
	1. Objectives	Identify < 4 objectives of the report	Identify at least 4 of the objectives of the report	Identify all major objectives of the report	
	2. Experiment Description	Summarizes < 4 of the experiments conducted in the lab session	Summarizes at least 4 of the experiments conducted in the lab session	Summarizes all the experiments conducted in the lab session	
	3. Major Findings	Highlights <4 of the findings of the report	Highlights at least 4 of the findings report	Highlights the major findings of the report	
<b>2</b>	<b>Introduction and Background</b>				<p><b>No</b> points will be awarded if this section describes the test methodology (i.e. how we did it in our lab).</p> <p>After reading this section, the reader should have a good idea of why these are important to concrete manufacture and/or performance</p>
	1. Mixing	One of the issues on the right	Two of the issues on the right	Background of concrete mixing; why it is an important step; what could go wrong if mixing process is not done correctly (e.g. aggregate moisture)	
	2. Testing	Provides a background of only one test	Provides background but not how to interpret results	A background on the two main tests conducted in lab with a description of what conclusions can be drawn	
	3. Power's Model	One of the issues on the right	Two of the issues on the right	A background and the primary equations of powers model and its potential to help understanding cement microstructure	
<b>3</b>	<b>Materials and Methods</b>				<p>After reading this section, the reader should have a good idea how to conduct the tests and repeat the same procedure you used in class</p>
	1. Materials / Mixing	One of the items on the right; description is unclear	Describes both items, but not clearly enough that the reader can understand	Describe the materials that were used; describe the mixing procedure we used in lab	
	2. Strength testing	Does not provide information on how to interpret results	Describes both items, but not clearly enough that the reader can understand	Describe the strength testing methodology we used; how to interpret results	
	3. Electrical testing	Does not provide information on how to interpret results	Describes both items, but not clearly enough that the reader can understand	Describe the resistivity testing methodology we used; how to interpret results	
	4. Isothermal calorimetry	Does not provide information on how to interpret results	Describes both items, but not clearly enough that the reader can understand	Describe the isothermal calorimetry methodology; how to interpret results (e.g. how to obtain DOH?)	

<b>4</b>	<b>Results and Discussion</b>				
	1. $f'c$ vs age	different plots for each mixture, P instead of $f'c$	both data sets on same plot, data points are not clear	$f'c$ vs age; includes both mixtures on same plot, data points are clear	
	2. $f'c$ vs w/c	w/c calculated incorrectly, P instead of $f'c$	units not clear	$f'c$ vs w/c; w/c calculated correctly (see handout or ask your TA)	
	3. discussion of $f'c$ plots	Only 1 of the issues are discussed	Only 2 of the issues are discussed	Discuss both plots: effects of fly ash, effect of w/c, time dependency	
	4. $\rho$ vs age	different plots for each mixture, R instead of $\rho$	both data sets on same plot, data points are not clear	$\rho$ vs age; includes both mixtures on same plot, data points are clear	
	5. $\rho$ vs w/c	w/c calculated incorrectly, R instead of $\rho$	units not clear	$\rho$ vs w/c; w/c calculated correctly (see handout or ask your TA)	
	6. Formation Factor (F) vs w/c at 14 days	Incorrect units	Plots is not clear, no discussion is provided	Graph of F for different w/c at 14 days	No axis should be negative (set excel axes to be at a min of 0)
	7. discussion of $\rho$ & F plots	Only 1 of the issues are discussed	Only 2 of the issues are discussed	Discuss all 3 plots: effects of age and fly ash, effects of w/c, discussion of the formation factor	A figure with no label/caption will receive a 1
	8. Heat flow	Only 1 of the issues are discussed	Only 2 of the issues are discussed	Show the heat flow over the first 24 hours for three w/c materials, discuss the implications, highlight the regions discussed in class	A figure with axes that are unlabeled/no units will receive a 1
	9. Degree of hydration (DOH)	Only 1 of the issues are discussed	Only 2 of the issues are discussed or plot is unclear	Plot the DOH calculated using calorimetry for the three mixtures, can you approximate the max DOH (how does this correspond to values from Powers?), make one additional observation from the plots	Power's Model Hint: You can use the excel file on the course website
	10. Power's Model	Missing two or more elements	Missing one of the elements to the right	Prepare graphs of powers model for mixtures given in calorimetry curves. Determine the max DOH for each of the mixtures. Make two observations from these plots	
	11. Comparison of workability	Discussion is incomplete and doesn't make sense	Only discusses one of the elements to the right	Provide a comparison of the workability of different w/c, how effective was the water reducing admixture?	
<b>5</b>	<b>Summary and Conclusions</b>				
	1. Provide Main Conclusions	Identify < 3 findings	Identify at least 3 findings of this study	Identify all major findings of this study	Should be < 1 pg
	2. Identify 2 possible errors	Identify only 1 error, no discussion	Identify two errors, no discussion of how these might influence the results	Identify two possible errors in the experiments conducted in lab, and how these errors can influence the findings	The reader should have a good understanding of the major findings of the report after reading this section
	3. Clear and concise	The writing is superfluous and tends to ramble.	The summary is a little wordy but relatively clear	The summary should be clear, yet concise	
<b>6</b>	<b>Format, Units, General</b>	Poor formatting. Mixed units. Improper use of significant figures.	Average formatting. Proper units. Improper use of significant figures.	Professional formatting. Proper units. Proper significant figures.	

This lab report will be worth three times the value of the other labs