

Engin 103
October 21, 2010

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Topics:

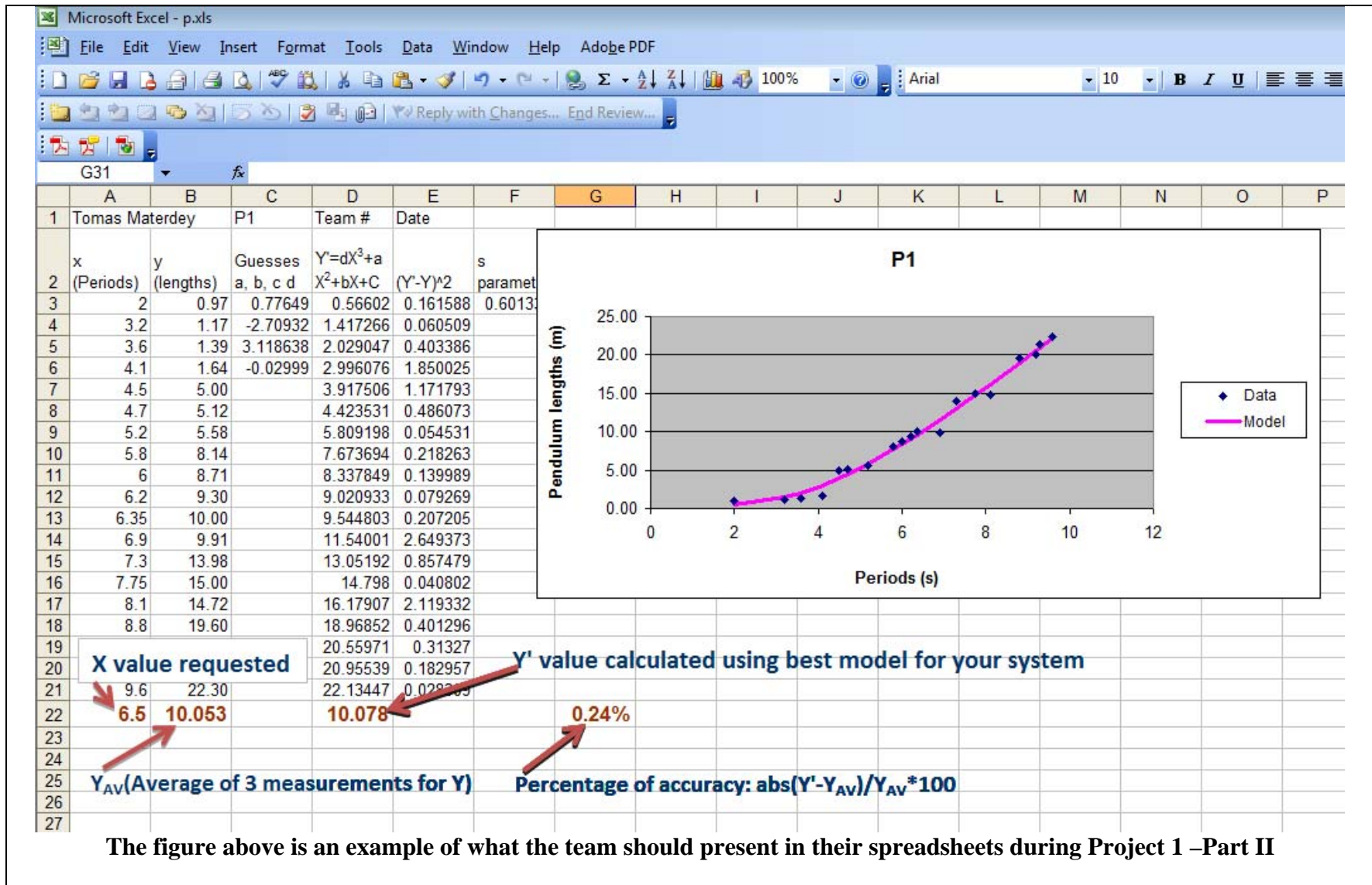
[Project 1 -Part II Presentations](#)

[Logbook questions](#)

Project 1 Part II Presentations: Data Modeling and System Predictability Testing

Excerpt from Project 1 specifications (see link in e-syllabus): *“In the second day, you will show the class the predictability of your system. The predictability will be checked as follows: you will be required to show a sufficient (at least 10) number of data (X,Y)’s you measured using your system, and the best model or equation $Y=f(X)$ you found with Excel in relating these data. Next you will be required to use this model to make a prediction Y' for some new value X , given by the audience, with your model. Next you will run your system for that input X , obtaining the actual output Y . Your system will be considered predictable if Y' and Y differ by less than 10%.”*

Project 1 leaders: please copy this document and fill in your team response below. Then save as a web page: name “p1p2.html” and upload to your *files* folder.



Section 1 (9:30 AM)

Team #	Snapshot of Spreadsheet showing best mathematical model for your system	a) Your best model" A=; B=; C=; D= b) What are the requested X= and predicted output Y= along with their units	c) List the three values obtained Y ₁ =; Y ₂ =; Y ₃ =; d) List their average Y _{av} e) $ Y' - Y_{av} / Y_{av} * 100 = \%$	f) Explain your thoughts on what design elements most influenced the predictability obtained g) Explain what can be done to further improve its predictability
<u>1</u> section 1				
<u>2</u> section 1				
<u>3</u> section 1		a)	b)	c)
<u>4</u> section 1			a)	b)
<u>5</u> section 1				
<u>6</u> section 1				
<u>7</u> section 1		a)	b)	
<u>8</u> section 1				
<u>9</u> section 1				
<u>10</u> section 1				

Section 2 (2:00 PM)

Team #	Snapshot of Spreadsheet showing best mathematical model for your system	h) Your best model" A=; B=; C=; D= i) What are the requested X= and predicted output Y'= along with their units	j) List the three values obtained Y ₁ =; Y ₂ =; Y ₃ =; k) List their average Y _{av} l) $ Y'-Y_{av} /Y_{av} * 100 = \%$	m) Explain your thoughts on what design elements most influenced the predictability obtained n) Explain what can be done to further improve its predictability
<u>1</u> section 2				
<u>2</u> section 2				
<u>3</u> section 2				
<u>4</u> section 2				
<u>5</u> section 2		i.)		
<u>6</u> section 2				
<u>7</u> section 2				
<u>8</u> section 2				
<u>9</u> section 2				
<u>10</u> section 2				

Section 1

Project 1 -part II P&D/ Teams	1	2	3	4	5	6	7	8	9	10
19-Oct-10	Pendulum	Ball on Ramp	21st Century Slingshot	Cork Bumper	Ball Chute	Input Outpuck	Catapult	Air Canon		
Percentage error	2.30%	5.22%	0.14%	1.96%	3.77%	1.32%	2.60%	30.00%		
Project completed (35)	35	35	35	35	35	35	35	35		
Spreadsheet and data modeling (15)	15	15	15	15	15	15	15	15		
System predictability (25)	23	19	25	24	20	25	22	15		

Presentation (15)	15	15	15	15	16	15	15	15		
Total part II P&D (90)	88	84	90	89	86	90	87	80	0	0

Section 2

Project 1 -part II P&D/ Teams	1	2	3	4	5	6	7	8	9	10
10/19/2010	Mouse-a-pult	Car	Mousestr ap Car	Catapult	Tall Launcher	JJES Hammer	Catapult	Series Circuit	Catapult	Circuit
	14.90%	9.50%	8.18%	2.78%	2.06%	4.40%	1.75%	2.31%	8%	1.17%
Project completed (35)	35	35	35	35	35	35	35	35	35	35
Spreadsheet and data modeling (15)	12	15	15	15	15	15	15	18	15	16
System predictability (25)	15	16	18	23	24	20	24	24	18	25
Presentation (15)	15	15	15	15	15	15	15	15	15	15
Total part II P&D (90)	77	81	83	88	89	85	89	92	83	91

Report for team #		
Submitted		On time Late
Uploaded electronic copy		Yes No
Project 1 web page		Yes No
Team participation table		Yes No
Report submitted (80)	Progress Report: p1pr.html (5)	
	p1p1.html (5)	
	p1p2.html (5)	
	Introduction (10)	
	Design/Building (25)	
	Analysis: Spreadsheets	

		(20)	
		Conclusions (10)	
	Good writing practices (20)	Grammar and presentation (5)	
		Logical arguments and structures (5)	
		Accurate, completeness; non-plagiarism (10)	
	Deduction		
	Project report total (100)		
	Project presentation total (200)		Performance and Design (180):
		Web pages Parts I and II (20):	
Project 1 total (300)			

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LOGBOOK: [example of a logbook page](#)

-Use a quadrille notebook; number all pages; date all entries

-Write your notes for all activities, thoughts, problems and solutions, and learning conclusions related to Engin 103. You should write down progress, outcomes, and conclusions on projects and teamwork; conclusions from class work (including LabVIEW) and homework.

-In addition you should answer in the logbook all questions listed in these notes in blue, as shown below:

27) Insert the spreadsheet made by your team for the system presented. Make a table of the coefficients and parameter s for the different models considered by the team, similar to that submitted in CW4. Explain which model was chosen to be the best

and why.

28) For each of the other teams, list their predictability results (in percentage error between prediction and average measurement done in class) and try to critically relate these results with their system designs, based on your own points of view.

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