

CALSTEP SURVEY SUMMARY – CIRCUITS (Online & FTF Delivery Mode)

Monterey Peninsula College: Professor Tom Rebold

Responses

Survey responses collected May 2016.
Total number of responses received: 28 responses, including 7 fully online students.
A total of 21 FTF and 4 online students completed the entire survey.

Key Findings:

4 of the online students were taking only Circuits at MPC during the Spring semester. Most Face-to-Face (FTF) students were taking all their courses at the college.

Many students work many hours in addition to taking classes (underscore in any presentations with 4-year college representatives): 5 of 7 online students work more than 20 hours/week with two working 40 and 50 hours/week.

Over 40% of FTF students work more than 20 hours/week

On average, online students spent longer on lab assignments than FTF students. One-third of online students (2) estimated the average time spent at 3-3.75 hours with another one-third (2) estimating an average 4-4.75 hours. By comparison more than 75% of FTF students reported the average time spent on labs at 2-2.75 hours. Further, while more than two-thirds of FTF students reported the longest time spent on a lab at 3-3.75 hours, 4 among 5 online survey respondents to this question reported spending 5 or more hours on the longest lab assignment.

In a related point, the online students felt it was reasonable to spend more time on a lab assignment than the FTF students who overwhelmingly (81%) felt that 2-2.75 hours is “reasonable.” Two-thirds of the 6 online students who responded to the question felt it is reasonable to spend more than 3 hours with two feeling that over 5 hours is “reasonable.” Note: The willingness to and expectation that lab assignments require more time should be used as a criteria to guide students considering whether online enrollment is a good option for them. There is also an interesting question here about whether the online students, because they are spending more time and possibly working things out on their own more, are learning more. The Thevenin Equivalents took the longest time for the largest number of FTF students (5). There was no clear “winner” in terms of longest time required among the Online students.

Students identified written lab handouts and discussions with lab partners as the most useful resource for completing the lab. They also gave very high ratings to discussions with their lab partner(s) Rachel’s videos received high ratings among 4 of the online students, but were identified as not applicable or only moderately useful by the FTF students. This is noted here because they were so pivotal for especially, but not only the online students in 2015. Were they perhaps not promoted as much this time?

Recorded live classroom lectures was the preferred lecture format followed by recorded “Studio” lectures among FTF students. Ease of being able to refer back to material was the main reason given for this preference.

The online students preferred Google+ as their preferred technology for discussions and lab work – this was also underscored in the student interviews.

Once again, a relatively large number of FTF and online students said their reason for not participating in the Q&A forum is that the “like to figure things out” on their own. The majority of FTF students also noted that they don’t use the forum because they get their work done during class time. This may suggest that the ways in which to use the Q&A forum is not entirely clear to them. The students themselves suggested as a way to increase use of the forum to make it mandatory (7 FTF and online) or provide incentives (4 FTF and online).

An overwhelming majority of online students felt the labs helped them understand Circuits. Two-thirds of the FTF students also gave the impact of the labs on their understanding of Circuits very high ratings (“4” or “5” with 5 being extremely helpful), although almost one-third of the respondent assigned the impact on understanding only a “2” or “3” rating on a scale from 1-5 where “1” was not at all helpful and “5” extremely helpful.

Over two thirds of FTF students agreed or strongly agreed that there was a strong connection between lecture/class component and labs, they had sufficient guidance on how to do the labs, they understood the learning objectives for the lab before starting and when concluding, doing the labs made them understand the concepts introduced in videos or the book, and doing the labs taught them additional skills and concepts. The majority of the online students agreed or strongly agreed with all of these statements.

The largest number of FTF students (5) identified Breadboard as the lab activity that was most helpful in understanding Circuits followed by Nodal and Mesh Analysis (3).

In identifying what they liked most in the class, students pointed to hands-on-theory/practical applications (8 FTF and 2 online) followed by building circuits (4 FTF) and collaboration (4 FTF)

Below student suggestions for improvements.

FTF student suggestions for improvements

- *I think the greatest challenge for me to critically understand what the labs were trying to illustrate to me. I always had a hard time knowing how to start the labs.*
- *Understanding the objectives of the lab and how to do them*
- *The greatest challenge was getting started, I think it took me a while to actually understand the concept of the lab. A lot of students rushed to get out so I felt like I was slowing my lab partner down when I took the time to read the Lab carefully.*

Note: Some students may need more explanation and guidance before they start the labs. This in spite of the fact that 18 among 21 FTF respondents agreed or strongly agreed they had sufficient guidance on the labs. However, 8 among 21 respondents also assigned a “2” or “3” rating (with “1” the lowest”) to the statement of “I understood the learning objectives before starting the lab. Further in identifying the greatest challenge in the class “understanding lab objectives” received the largest number of votes (6 FTF and 1 online).

Online student suggestions for improvements		
<ul style="list-style-type: none"> • <i>Time management and the pace of topics being discussed weekly.</i> • <i>I would suggest adding more optional activities to each lab for students who want to learn more. I did all of those that were suggested and found them enormously helpful.</i> • <i>If the labs were a bit shorter, its hard finding time with online partners.</i> • <i>Possibly having more video tutorials with the lab in using whatever you will need to build the circuit or similar circuits with the materials used in the lab.</i> 		
	FTF	Online
Q2. MPC Enrollment Status N=28	85.7% (18) Taking all courses at MPC 14.3% (3) Taking several courses at MPC and other courses at other colleges	3 students: taking all courses at MPC 4 students: ENGR 12 & ENGR 12L are the only courses being taken at MPC
Q3. Enrollment by units current semester (incl. Circuits) N=28	0 - 0-5 units 9.5% (2) 6-10 units 47.6% (10) 11-15 units 19.1% (4) 16-20 units 23.8% (5) 21-25 units	1 student: 0-5 units 1 student: 6-10 units 5 students: 11-15 units
Q4. Average number of hours of scheduled activities outside of school work. N=29	14.3% (3) 0-5 hours 23.8% (5) 6-10 hours 19.1% (4) 11-20 hours 23.8% (5) 21-30 hours 14.3% (3) 31-40 hours 4.7% (1) Over 40 hours	2 students worked 10 hours/week 3 worked 20-25 hours/week 1 works 40 hours/week 1 works 50 hours/week
Q5. Type of participation in the class N=29	25% (7) Online student 61% (17) Classroom student 14% (4) Listed as online but mostly do labs in the classroom	
Q6. If taking ENG 12/12L Online, what is main reason for choosing this format N=11		4 - Class scheduling conflict 2 - Live too far from campus to attend class in person 1 - Prefer online delivery over classroom instruction
Q7. Free Response: Why prefer online delivery N=1	N/A	One student reported that they prefer the online delivery because "it allows me to work at my own pace and to work on a lesson in advance of its presentation in class if my schedule requires that. Also, I've found that I can more effectively learn new material working in the comfort of own home. Furthermore, the time required to drive back and forth to campus is wasted in

		traffic. Instead, with online delivery I can use that time to learn the material.”																																												
Q8. Average number of hours the lab assignments took N=27	76.2% (16) 2-2.75 hours 19.1% (4) 3-3.75 hours 0 - 4-4.75 hours 4.7% (1) Over 5 hours	16.7% (1) 2-2.75 hours 33.3% (2) 3-3.75 hours 33.3% (2) 4-4.75 hours 16.7% (1) Over 5 hours																																												
Q9. Longest time spent on a lab assignment N=27	9.5% (2) 2-2.75 hours 66.7% (14) 3-3.75 hours 19.1% (4) 4-4.75 hours 0 - 5 hours 4.7% (1) Over 5 hours	0 - 2-2.75 hours 16.7% (1) 3-3.75 hours 0 4-4.75 hours 50% (3) 5-5.75 hours 33.3% (2) Over 5 hours																																												
Q10. Free Response: Name of the assignment that required the longest time.	<table border="1"> <thead> <tr> <th>Response N=21</th> <th># respondents (some identified several reasons)</th> </tr> </thead> <tbody> <tr><td>Lab 5: Nodal & Mesh Analysis</td><td>2</td></tr> <tr><td>Lab 6: Thevenin Equivalents</td><td>5</td></tr> <tr><td>Lab 7: Operational Amplifiers</td><td>1</td></tr> <tr><td>Lab 9</td><td>1</td></tr> <tr><td>Lab 10: First-Order Time-Domain Simulation</td><td>2</td></tr> <tr><td>Lab 13</td><td>1</td></tr> <tr><td>Lab 14</td><td>1</td></tr> <tr><td>Lab 15: Frequency Selective Circuits</td><td>1</td></tr> <tr><td>Phasor</td><td>1</td></tr> <tr><td>First Order Circuits</td><td>1</td></tr> <tr><td>Freemat Labs</td><td>1</td></tr> <tr><td>Arduino Lab</td><td>1</td></tr> <tr><td>AC Analysis</td><td>1</td></tr> <tr><td>A15</td><td>1</td></tr> <tr><td>“The Lab with the LEDs and Speaker Setups”</td><td>2</td></tr> <tr><td>Do not remember</td><td>3</td></tr> </tbody> </table>	Response N=21	# respondents (some identified several reasons)	Lab 5: Nodal & Mesh Analysis	2	Lab 6: Thevenin Equivalents	5	Lab 7: Operational Amplifiers	1	Lab 9	1	Lab 10: First-Order Time-Domain Simulation	2	Lab 13	1	Lab 14	1	Lab 15: Frequency Selective Circuits	1	Phasor	1	First Order Circuits	1	Freemat Labs	1	Arduino Lab	1	AC Analysis	1	A15	1	“The Lab with the LEDs and Speaker Setups”	2	Do not remember	3	<table border="1"> <thead> <tr> <th>Response N=6</th> <th># respondents</th> </tr> </thead> <tbody> <tr><td>Lab 5: Nodal & Mesh Analysis</td><td>33.3% (2)</td></tr> <tr><td>Lab 7: Operational Amplifiers</td><td>33.3% (2)</td></tr> <tr><td>Lab 15: Frequency Selective Circuits</td><td>16.7% (1)</td></tr> <tr><td>Audrudi</td><td>16.7% (1)</td></tr> </tbody> </table> <p>For Lab 5, one student reported spending 7 hours. Another stated they completed it over the span of three days.</p>	Response N=6	# respondents	Lab 5: Nodal & Mesh Analysis	33.3% (2)	Lab 7: Operational Amplifiers	33.3% (2)	Lab 15: Frequency Selective Circuits	16.7% (1)	Audrudi	16.7% (1)
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Q11. Reasonable amount of time to spend on a lab assignment N=27	81.0% (17) 2-2.75 hours 9.6% (2) 3-3.75 hours 4.7% (1) 4-4.75 hours 4.7% (1) 5-5.75 hours	33.3% (2) 2-2.75 hours 33.3% (2) 3-3.75 hours 0 - 4-4.75 hours 33.3% (2) Over 5 hours																																												
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obtain instruction for completing labs N=27	Classroom video recordings	3	0	5	7	4	2	Classroom video recordings	0	1	2	2	1	0
	Rachel's video demonstrations for hardware labs	2	1	6	3	2	7	Rachel's video demonstrations for hardware labs	0	2	0	2	2	0
	MPC online forum posts (reading other's questions and answers)	6	0	6	2	0	7	MPC online forum posts (reading other's questions and answers)	1	2	1	2	0	0
	MPC online forum posts (asking your own questions and getting answers)	6	0	5	2	0	8	MPC online forum posts (asking your own questions and getting answers)	1	2	1	1	1	0
	Additional hints linked on MPC Online	2	0	8	4	4	3	Additional hints linked on MPC Online	0	1	1	0	3	1
	Email the instructor questions	0	0	5	4	6	6	Email the instructor questions	0	1	1	1	3	0
	In-person or online discussions with my lab partner(s)	0	0	2	4	14	1	In-person or online discussions with my lab partner(s)	0	0	0	2	3	1
	Google for other resources	5	1	2	7	2	4	Google for other resources	0	0	4	2	0	1
Q13. Free Response: In the question above, what about the highest rated resource was so effective	Response N=21	# respondents (some identified several reasons)												
	Ability to Multi-task	3				Simulated Classroom Experience								
	Ease of Referring back to Materials	9				Relevance to study								
	Collaboration	12				Collaboration								
	Quality of Delivery	8				Quality of Delivery								
	Instant Feedback	5												
Q14. What type of lecture format is most preferred	1 being Most Preferred, 4 being Least Preferred. N=21	1	2	3	4	N/A	1 being Most Preferred, 4 being Least Preferred. N=6	1	2	3	4	N/A		
	Live streaming lectures; can ask questions remotely while class is in session	6	3	7	2	3	Live streaming lectures; can ask questions remotely while class is in session	1	0	2	3	0		
	Recorded live classroom lectures; can watch class after the session is over	8	6	1	3	3	Recorded live classroom lectures; can watch class after the session is over	2	0	3	1	0		
	Recorded "studio" lectures where teacher just covers the material more quickly with no classroom interruptions	7	5	4	3	2	Recorded "studio" lectures where teacher just covers the material more quickly with no classroom interruptions	2	1	3	0	0		
	Video indexing by topic	7	7	1	1	5	Video indexing by topic	1	2	2	1	0		
Q15. Free Response: What works best about the most	Response N=5	# respondents (some identified several reasons)				Response N=5								
						Sense of Community								
						1								

preferred lecture format	Speed of Completing Materials	2	Speed of Completing Materials	2																																				
	Ease of Referring back to Materials	8	Ease of Referring back to Materials	1																																				
	Best match for my learning style and preferences	7	Preferred Delivery of Material (textbook)	2																																				
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Q16. What type of forum technology is preferred for online discussions of labs and homework N=26	28.6% (6) Don't use online forums for questions, but read Q&A from others in email inbox 33.3% (7) Don't use online forums for questions, nor read Q&A in inbox 28.6% (6) MPC Online forum 9.5% (2) Google+		20% (1) Don't use online forums for questions, but read Q&A from others in email inbox 20% (1) Don't use online forums for questions, nor read Q&A in inbox 40% (2) Google+ 20% (1) Facebook																																					
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Q19. Overall impact of labs on understanding of circuits N=26	42.9% (9) 5 - Extremely Helpful 23.8% (5) 4 23.8% (5) 3 9.5% (2) 2 0 – 1 – Not at all helpful	80% (4) 5 – Extremely helpful 20% (1) 4 0 - 3 0 - 2 0 – 1 – Not at all helpful																																																																										
Q20. Level of agreement with following statements	<table border="1"> <thead> <tr> <th>5 being Strongly Agree, 1 being Strongly Disagree. N=21</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> </tr> </thead> <tbody> <tr> <td>There was a strong connection between the lecture/class component and the lab activities.</td> <td>0</td> <td>2</td> <td>0</td> <td>10</td> <td>9</td> </tr> <tr> <td>I had sufficient guidance on how to do the labs.</td> <td>0</td> <td>1</td> <td>2</td> <td>7</td> <td>11</td> </tr> <tr> <td>I understood the learning objectives for the lab before I started the lab activity.</td> <td>0</td> <td>2</td> <td>6</td> <td>8</td> <td>5</td> </tr> <tr> <td>I understood the learning objectives for the lab when I concluded the lab activity.</td> <td>0</td> <td>1</td> <td>5</td> <td>8</td> <td>7</td> </tr> <tr> <td>Doing the labs made me understand the concepts that had</td> <td>0</td> <td>1</td> <td>4</td> <td>9</td> <td>7</td> </tr> </tbody> </table>	5 being Strongly Agree, 1 being Strongly Disagree. N=21	1	2	3	4	5	There was a strong connection between the lecture/class component and the lab activities.	0	2	0	10	9	I had sufficient guidance on how to do the labs.	0	1	2	7	11	I understood the learning objectives for the lab before I started the lab activity.	0	2	6	8	5	I understood the learning objectives for the lab when I concluded the lab activity.	0	1	5	8	7	Doing the labs made me understand the concepts that had	0	1	4	9	7	<table border="1"> <thead> <tr> <th>5 being Strongly Agree, 1 being Strongly Disagree. N=5</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> </tr> </thead> <tbody> <tr> <td>There was a strong connection between the lecture/class component and the lab activities.</td> <td>1</td> <td>0</td> <td>0</td> <td>2</td> <td>2</td> </tr> <tr> <td>I had sufficient guidance on how to do the labs.</td> <td>1</td> <td>0</td> <td>1</td> <td>2</td> <td>1</td> </tr> <tr> <td>I understood the learning objectives for the lab before I started the lab activity.</td> <td>1</td> <td>0</td> <td>0</td> <td>2</td> <td>2</td> </tr> <tr> <td>I understood the learning objectives for the lab when I concluded the lab activity.</td> <td>1</td> <td>0</td> <td>0</td> <td>3</td> <td>1</td> </tr> <tr> <td>Doing the labs made me understand the concepts that had been introduced in the videos/book.</td> <td>1</td> <td>0</td> <td>0</td> <td>3</td> <td>1</td> </tr> </tbody> </table>	5 being Strongly Agree, 1 being Strongly Disagree. N=5	1	2	3	4	5	There was a strong connection between the lecture/class component and the lab activities.	1	0	0	2	2	I had sufficient guidance on how to do the labs.	1	0	1	2	1	I understood the learning objectives for the lab before I started the lab activity.	1	0	0	2	2	I understood the learning objectives for the lab when I concluded the lab activity.	1	0	0	3	1	Doing the labs made me understand the concepts that had been introduced in the videos/book.	1	0	0	3	1		
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