

**ME Open Forum  
January 15, 2021  
12:00 – 1:00 PM**

**Attending:**

Ajay Malshe	George Chiu	Mike Logan
Alex Chortos	Gordon Pennock	Mike Sherwood
Amy Marconnet	Guillermo Paniagua	Nicole Key
Anil Bajaj	Holly Englert	Pam Graf
Arezoo Ardekani	Ivan Christov	Rebecca Ciez
Benxin Wu	Jackie Baumgardt	Richard Buckius
Bert Gramelspacher	Jay Gore	Salil Bapat
Beth Hess	Jeremy Wampler	Sameer Naik
Betsy Baxter	Jim Jones	Satish Boregowda
Bin Yao	Jitesh Panchal	Sheri Tague
Bob Lucht	John Pearson	Steve Kessler
Carl Wassgren	Julia King	Steve Son
Carol Hewitt	Kay Shepherd	Steve Wereley
Chuck Krousgrill	Kejie Zhao	Tahira Reid Smith
Dave Cappelleri	Klod Kokini	Tami Armstrong
David Warsinger	Kristi Moses	Thomas Siegmund
Davide Ziviani	Kristin Deckard Dawson	Todd Nelson
Davin Piercey	Liang Pan	Xianfan Xu
Eckhard Groll	LouAnna Eichrodt	Xiaomin Qian
Emma Cox	Marcial Gonzalez	Xiulin Ruan
Euiwon Bae	Marisol Koslowski	Yan Chen
Farshid Sadeghi	Martha Lucht	
Galen King	Marty Mylarnaik	

**Minutes**

1. Share a value, make a point – Eckhard
  - Joe Pearson passed away. He represented our core values and how we want to represent ourselves to our peers, students and sponsors.
2. Announcements – Eckhard
  - Martin Luther King Jr Holiday, Monday, January 18<sup>th</sup>
  - Start of Spring Semester Instruction, Tuesday, January 19<sup>th</sup>
  - Thomas Siegmund named a Fellow of the Society of Engineering Science
3. Proposed schedule for ME Open Forums during the Spring Semester
  - Open Forums will be scheduled on a monthly basis. They will be scheduled on Tuesday or Thursday afternoons instead of using the lunch hour.

- Will also use the designated faculty and staff meetings to distribute information
- If anyone has any comments/concerns, send Eckhard and Jackie an email.

#### **Proposed schedule for Spring Open Forums, Faculty and Staff Meetings**

- Friday, January 15, 2021      Open Forum - Scheduled from 12-1 pm
- Tuesday, February 16, 2021      ME Faculty Mtg – Scheduled from 3-5 pm
- Tuesday, February 23, 2021      ME Staff Mtg – Scheduled from 3-4:30 pm
- Tuesday, March 16, 2021      Open Forum – Scheduled from 4-5 pm
- Thursday, April 15, 2021      Open Forum – Scheduled from 3-4 pm
- Wednesday, April 21, 2021      ME Staff Mtg – Scheduled from 3-4:30 pm
- Tuesday, May 4, 2021      ME Faculty Mtg – Scheduled from 3-5 pm

#### 4. Discussion on Instructional Methods from Fall 2020 and looking forward to Spring 2021

- Panelists presented what worked well and what didn't work well

- **Beth Hess (ME 354 and ME 354-01)**

*Fall 2020 was the first time they offered ME354 as ME354, previously the material was covered in ME452. Was a 3-credit hour lecture and they also had a stand alone 1-credit hour machine design lab which was a first offering designed to get students more hands-on experience in machine design topics. Had an enrollment of approximately 150 students which included 20 in the Online section. They were separated over 3 campus lecture sections and 5 on campus lab sections where the labs were held face-to-face. Recorded the lecture videos and video solutions for example problems. All were available on BrightSpace. Found that the videos definitely were watched in the week or day or two before the assignments were due. They alternated topics between the instructors (fall instructors were Jitesh Panchal and Dave Cappelleri). Students expressed that they would have preferred a consistent instructor throughout the semester, but this was a better balance for the instructor workload. Held bi-weekly quizzes proctored on Zoom during the lecture time (in a normal semester, they would have held evening exams, and mid-terms). Because they had 3 different lecture times, that meant they had 3 or 4 versions of 6 quizzes throughout the semester which was a lot of work for the instructors in terms of writing the quizzes and grading the quizzes. The lecture time was used for instructor facilitated small group discussions on Zoom. They assigned students to groups of 5 to 8 students and assigned them topics throughout the semester where the student could dig in and present some sort of machine design aspect that was of interest to them and share with their peers. They had two objectives with this, 1) encourage more autonomous or self-directed learning and 2) help with peer-to-peer interactions and instructor to student interaction. They saw that it achieved the first goal of self-directed learning, but also saw that interactions between students didn't seem to continue outside of lecture times. The hope was that they would take these and use them as creating study groups, but it didn't happen. Also used Slack extensively for discussions between instructors and TA's and also as a mechanism for the TA's to work*

*with their live groups and get more feedback and interaction. Lessons learned: students appreciated organization and routine. They organized the BrightSpace page by week and also sent weekly emails to the students with “to do” lists, what lectures to watch, what examples to review, and what home-works to review. Saw that office hours on Zoom worked well. They were well attended and something to consider continuing post-pandemic times. The Slack channel worked great for them to deal with small things happening during the week. They held a weekly meeting between instructors and the TA’s helping them to be more responsive to the needs of the students. Plans for the spring will remain mostly the same. They have twice the enrollment for spring so some of the things done in the fall may need to be adjusted. They will move the discussions from the lectures to the lab and will go back to the evening exam structure and having two mid-term exams and a final. Still working to see if these will be in person or held via Zoom. If Zoom, there would be Zoom proctoring as well.*

- **Xiulin Ruan (ME 315)**

*They had 5 divisions of Heat Transfer (ME315) last semester. Xiulin was the coordinator.*

*Lecture portion:*

*The lecture instructors rotated to teach sections of the classes in order to make time for more interactive sessions for students. Some students complained about a switch in the teaching style, but later on many appreciated the variation of the teaching style and having instructors teaching the parts where they had the most expertise. They had a Groupme chat where students could get questions answered by peers or faculty. Their experience was that it was better to set up a large group with maximum effectiveness. The Groupme chats were very heavily used by students and the students praised the Groupme chat in the course evaluations. These chats also served as a virtual social tool. For the homework part of the lecture portion, they carefully selected problems that align with the key learning objectives and avoided tedious problems. They also reduced the number of problems to 5 – 6 per week (used to be a 6 problem per week and longer problems), making the workload lighter. Some students complained it was still too much work. Found that “C” students complained more on the homework and exams. The “C” students also rated the course somewhat 0.8 lower than “A” and “B” students out of a 5.0 scale.*

*Exams:*

*What worked well was they carefully designed the exam problems to aim at a reasonable and good average. The 3 averages for the exams were in the high 70’s for the first exam and the high 60’s in the next two. They did some curving using GradeScope, curving up the high 60’s to low 70’s. They felt this was a good average. They had TA’s do a mock exam before the real exam. They also provided in person and online options for the two mid-terms. Students liked the flexibility. The Zoom proctoring worked very well. They compared the averages between the in-person and online groups and they were consistent (this alleviated concerns of online cheating). One top complaint on the exams was some students still complained it was too hard. The “A”*

and “B” students thought the exams were fair and helpful and the “C” students rated the exams lower.

Quizzes:

What worked here is that a quiz was posted after each lecture video and was due before midnight the next day. The quizzes were designed so that they were simple and conceptual (taking ~one minute to finish) but students had to watch the video to get it right. Seemed to work very well to enforce students watch lecture videos.

- **Carl Wassgren (ME 309)**

Had similar experiences to what Beth described for ME354. Prepared some online lectures and examples and hosted on You Tube. Used the lecture period to do face-to-face Q&A sessions. These were recorded with BoilerCast and posted on BrightSpace. They handled office hours using Piazza and had some live Zoom office hours. Students wanted convenience. Instead of mid-terms and a final, they had weekly homework and weekly quizzes (14 homework's, and 14 Zoom proctored quizzes). Had to have 3 versions in order to accommodate students with the timing (creating a lot of work). They used GradeScope to turn everything in and grade everything. One complaint regarding the weekly quizzes was that it forced the students to do work every week. One thing Carl will try new in the spring semester is to do weekly checklists for students.

Lessons learned:

Takes a lot of time to put together good video lectures and examples and so he thinks the lesson is to not let the perfect be the enemy of the good. It is better to get something good and finished than something that is perfect and unfinished. They had a lot of staff involved in 309 last semester, and more staff equaled more problems. It is a logistical problem to keep everyone on the same page and get things done in a timely manner and stay on the same message. This could be more of a problem as enrollments get bigger. It doesn't scale linearly, it gets harder and harder the more people you have involved. It was by far the most stressful part of the class for Carl (the organization issues). Another thing that was time consuming was accommodating everyone with having 3 different version of the quizzes each week. Some students stated that they thought some students received quizzes that were easier than others. Carl worked to make the quizzes equivalent and also bulletproof. It was difficult and time consuming. Carl has started to put together the weekly checklists for students for the spring semester and one thing that stands out is time expectations. As he started putting them together, he realized that we expect a lot from students, especially when you start to put together the lists with the times it would take to meet the course expectations. We are asking a lot of the students. Carl worries that we have this expectation creep and we are graduating burned out students. We may want to talk about this, as a faculty, at another time. Carl encourages everyone to sit and write out the time they expect for the student to complete all the various tasks and compare it to the number of credit hours for the course.

**Comments:**

**Eckhard:** *It would be good for us to take a look at time commitments of our students for various ME core courses to see how realistic the current estimates really are.*

- **Euiwon Bae (ME 365)**

*They had 5 sections with 4 instructors. It was the “on-semester” for ME 365 so they had 330 students including some online students. One of the things Euiwon tried (experimental thing) was to do a group quiz. He sent the students to the break-out rooms in Zoom and gave them simple problems and asked them to discuss and come back with a solution. Gave them about 3 minutes on the quizzes. Euiwon thought that this was the most thriving factor for students to participate in the synchronous lecture. All of the instructors recorded the video and when reviewed at the end of the semester, Euiwon’s section showed that the student participation went down to about 80% where the other sections stated the student participation went down to 30%. Felt that giving the students an incentive to come, made a difference.*

*At the start of the fall semester they also reduced the percentage of the grade coming from the exams. It used to be 65% of the 3 exams and they put it to 40%. That way they encourage the student to cover more of the baseline . Also sent out a weekly reminder to students. Will continue this in the spring. For the exam they did a Zoom proctoring and it went pretty well. He can see view about 50 students scrolling back and forth at one time. Euiwon had one TA to help monitor and they did 120 students at a time. Also, did dry-runs of the exams.*

*Things for improvement for the spring semester:*

*Organizational things. Add content to BrightSpace for multiple section integrations. Will continue to do the Zoom breakouts, but maybe allow more than 3 minutes for them to work on a problem. Some students complain that there are students in their group that do not participate.*

*Regarding My Rio, will need to start earlier getting the devices to the students. They need to receive them a good time before the class starts.*

**Comments:**

**Dave Cappelleri (chatroom):** You can merge BrightSpace sections so you just have to post things on page for all. We did this in ME 354 last semester.

**Richard O Buckius (chatroom):** Yes, Brightspace requires long scroll lists. Inverting the lists with the latest on top helps.

- **Jim Jones (ME 270)**

*They had over 900 students with 11 sections and 6 instructors. The biggest success was with the tutorial room. They were running the tutorial room 14 hours a day. Another*

*thing they did was to double up the number of TA's. Students praised them for the tutorial room assistance. The blog also worked well. There were multiple posts put on the blog. Students didn't like that there was percentage aligned to it so they made it extra credit (if helpful they can do it for extra credit). Biggest problem faced was the ongoing decline in participation as the semester went on. Hoping we can turn participation around. One thing that came out was students would like to have face-to-face office hours. Jim is not a fan of this and would rather handle multiple students at once. Jim thinks the Zoom office hours went well for those that participated. Zoom exams: the Zoom process has done wonders for reducing the cheating on the exams. It has been a real winner for them and students have embraced the Zoom approach being used. On the downside, there are perpetual problems with cheating on homework. They have not been able to resolve this problem. Trying to target the posters because that is the biggest problem. They have become better at avoiding techniques that allow them to be identified. Added a Supplemental Instruction Instructor (SI) instructor this fall. This is good for students that struggle with a topic and they can go and do small interactions with the SI instructor.*

*Encourage the faculty to check the reading days for the spring 2021. One site posted the dates incorrectly. If you go to the official university calendar, they have the right dates.*

**Comments:**

**Tahira Reid (chatroom):** Is this the right website:

<https://www.purdue.edu/registrar/calendars/2020-21-Academic-Calendar.html>

**James D Jones (chatroom):** Tahira: Yes, that is the correct site.

**Xiulin Ruan:** Had a similar experience. Saw a decline in student participation on Zoom.

- **Marcial Gonzalez (ME 323)**

*Delivered face-to-face instruction for the fall semester. Had 360 students with 5 sections. Had a variety of delivery methods. Had 3 face-to-face scenarios, 1 hybrid with pre-recorded videos, and 1 face-to-face with small group interactions (peer to peer) and 1 online section. At the end, all performed equally well compared to past semesters. The conclusion was that the key is not in the delivery method itself but rather in the quality of the delivery and in doing our best to keep the engagement high. They have a blog available to students with a large number of video solutions. For the sections Marcial was responsible for (online/dist and face-to-face), both had similar performance in terms of end of the semester evaluations and scores.*

*Homework and exams were handled using GradeScope. Exams were held proctored via Zoom. Had two mid-terms and one final exam. The times were scheduled in both evening and morning to accommodate students. Meant having to prepare 2 different versions of the exam which took a lot of work. Thought the proctored exams via Zoom went very well and they had no issues. Had the Zoom session recorded helped during the entire semester in two scenarios with, after careful review, no cheating issues. Having access to a camera during the Zoom sessions truly helped. All exams were 2 hours with*

*an additional 30 minutes to upload. Questions were answered one-to-one via chat. The online group was quiet demanding. There was a lot of email interactions and one-to-one office hours with Marcial. The students did take advantage of the TA office hours (Zoom office hours). It was lot of work to coordinate the different groups and scenarios that popped up during the semester and having to work on 2 versions of the exams and figure out exam assignments (who would be taking the morning exam and who would be taking the evening exam). Overall it was a very good semester. In the spring they will have a smaller group, but will follow the same approach. They will have a face-to-face section, online section, and a hybrid section. ME323 has a lab component for the students to opt in for these activities. For the lab component, they recorded the activities online, had zoom sessions with small groups, and took care of related activities one-to-one. Marcial will also work on two virtual labs for ME323.*

- **Sameer Naik (ME 200)**

*Had large class in the fall. Had four on campus sections, two were hybrid, two were face-to-face, and three synchronous online sections, and one asynchronous section. To start the semester, they had more than 825 students, later on some dropped off. Every instructor had their own different lectures. Some students requested access to other lectures, but they thought it was not necessary and it was better for them to get used to one instructor and go throughout the semester. His BrightSpace was organized week by week. Students appreciated this aspect. Sameer's lectures were hybrid, he had online recorded lecture videos. There were only about 35-40 students to come in on any given day and ask questions and do more problems. Sameer's lectures were at 7:30 and 8:30 in the morning. He had extremely poor attendance in them with maybe 5-6 students out of the 35+ expected. The face-to-face sections at 11:30 and 1:30 had better attendance and the synchronous online section attendance starting dropping later on as well. Sameer wonders if the students want to be there, but are concerned about how things are going in terms of the virus transmission. He would not be surprised if we start slow this semester and pick up later on.*

*One of the comments he received from his class was how much we expect from students per week. Originally Sameer was making long videos for his lectures to cover everything (70 minutes). The mid semester feedback helped him and he cut back on the time. The students appreciated all the knowledge given through the videos to do well in the homework and exams, but it also still needs balanced out in terms of how much time we ask student to spend.*

*Homework: They didn't have many complaints about the workload. They had a total of 90 hours in the tutorial room and 20 hours in all instructor office hours. They also had the blog which was helpful. Sameer may continue the online office hours post-pandemic. He thinks students are more comfortable with the online office hours. There were a few issues of Chegg postings and they were handled. Penalized the posters more than others accessing the posts.*

*Exams: Did the Zoom proctored exams. Felt they were mostly effective. Some students raised the concern of bad actors out there that are trying to be creative in cheating the system. It was difficult to watch all of them simultaneously. By and large, thinks it works well.*

*They had two versions of each exam and it worked well. They provided student feedback within a few days.*

**Comments:**

**Carl R Wassgren (chatroom):** Regarding time expectations, I was surprised when I started to make the first week's checklist and put my time estimates into Excel. Since I have video lectures and examples, I know exactly how much time those take. When I added in time to attend the lecture, do reading, visit office hours, study, do the homework, etc., I realized that the expectations were really high. And this is just for an "average" student. I think it'd be worthwhile if we all did this sort of time accounting. I'm concerned that we're graduating students who are burned out and no longer like engineering.

**John Pearson (chatroom):** In our advising meetings we are seeing this concern from students but also from the stakeholders in their success (parents, family members, etc.). Many of the students and their support systems have come to expect burn out, etc.

**Thomas H Siegmund (chatroom):** Burn out was sure an issue last semester.

**George Chiu:** I had 84 students in ME575 and we have a Brightspace discussion board and a Discord discussion site the students set up. I found the students really appreciate faculty and TA participate in both discussion board in an asynchronous manner (join discussion as our time allows). I also find that they really appreciate when I added additional videos to address common issues/questions raised in the discussion board... demands and TA office hours is not easy. [It is good to hear similar concerns from Xianfan as he talks about ME315]

**Marcial Gonzalez (chatroom):** I fully agree with Carl. This is something we try take into consideration in ME323 and how the inevitable changes imposed by COVID increased, or not, this workload. I would also like to add that we should also do an analysis of expectations and workload imposed on our TA's. I make a checklist and run time estimates for TAs every semester, and achieving a balance between grading

- **Xianfan Xu (ME 315 Lab)**

*The 315 in person lab was fine. They ran 6 sections per day, 5 days per week. Most students like the opportunity for the on-campus lab. Feedback was positive. ME315 lab had two parts, one was to schedule the lab and the students were coming to the workstations set up for them. The other half met in design groups and came up with their own projects. They moved to numerical projects. The projects went very well. Some students complained about the work load. Another issue is they need more TA support. TA's were responsible for 4 sections, grading, and office hours. At the end of the semester they found that the TA's were overloaded. They are determining now if*



*they want to offer a similar level of 315 lab including regular labs with the design component. They would need additional manpower. Overall, would go back to hands-on, in-person when pandemic is over.*

- **Yan Chen (ME 300)**

*ME 300 had 4 divisions. There were 3 synchronized and one distanced with a total of 170 students. They post homework, policies, schedules on the regularly ME website and had each division posted their videos on BrightSpace. Thinks they did well in handling the material. They used Piazza for the tutorial material due to a lack of TA's. They had over 300 posts there. Office hours were offered through Zoom. Yan pre-recorded one synchronized section. They used GradeScope for quizzes and homework and exams. Quizzes were multiple choice. Due to different time zones, they created different quizzes. They had open book and open note and added 30 minutes to download materials. They forgave about the calculator policy. For homework was made 1/3 of the problems. Caused some issues because of multi-revisions. Major issue was the TA support.*

- **Greg Shaver (ME 375) / submitted his comments via email**

ME375 Fall 2020:

- 130 on-campus students consolidated into one section instead of split between 3 sections.
  - F2F lectures in CL50 Room 224 from 5:30 – 6:20 Tuesdays/Thursdays + every other Friday. Room was large enough to for all 130 students with social distancing.
  - Was easier to communicate with students not split across on-campus sections.
  - 3 faculty rotated through topics, and each faculty member was responsible for the HW and exam questions that corresponded to the material they covered in the lecture.
  - Boilercast was used to record each lecture that was then subsequently posted on the Brightspace sites for both the on-campus and remote sections
  - F2F labs but with one student per workstation instead of two
  - F2F project work to the extent it could be mostly completed during the lab period
- 20 remote sections students
  - All materials from the on-campus section were also put on the Brightspace page for this section
  - The lectures, labs and none of the project work was F2F
    - Boilercast from on-campus section posted for use by remote students
    - Recordings were posted of the TAs doing the labs and robot assembly. Lab (but not project robot) data was provided to remote students so they could complete all of the lab write-ups (these videos and data were also made available to on-campus students who were isolated/quarantined, or who were not comfortable coming to lab)
- For both on-campus and remote sections:

- Software required for project was loaded on student machines, so that they could do meaningful work on their projects away from the lab
- One project robot kit per student, instead of being shared between two students
- Webex-based office hours covering most of the week
- Same homeworks for both sections
  
- Mid-Term Exams (Traditional content, 50 minutes)
  - Two options for on-campus students
    - Two F2F mid-term exams during lecture period (another reason it was good to have one super section in a very large room) --- most students did this
    - Zoom-based, proctored exam at the same time as F2F midterm (for on-campus students who were isolated/quarantined, or who were not comfortable w/ F2F exam)
  - Two exam times given for remote students
    - Zoom-based, proctored exam at the same time as F2F midterm
    - One ~12 hours later for students in time zones that required it (this exam was different than others used per above, and given later, to cutdown on cheating during this exam)
  
- Final Exam (Traditional content, two hours)
  - Zoom-based, proctored exam split across 4 faculty-proctored exams
    - 3 during time that work for on-campus students, but ~2/3 of the remote section students
    - 1 at an alternate time for remote sections with challenging timezones – the exam was given after the above, and was different than above (to cut-down on cheating during this exam)