Engaging Students in a Physically Distanced Classroom: Activity Planner

This activity planner is relevant **only** if you are teaching a course where you **and/or** your students will have regular in-person interactions during the semester.

*Please note that, even if you are teaching an in-person class, you may have students who will join you synchronously via Zoom or complete some activities asynchronously due to COVID-19 concerns and constraints.*

Preparing for the fall 2020 in-person classroom experience will require renewed focus on logistics, flexibility, and classroom management. This activity planner will help you think about how your students might continue to interact, collaborate, and produce and share learning artifacts in current teaching and learning circumstances.

# Course information

* Course number and name: ECE 20200 Linear Circuits II
* Course level (check box that applies to this course, click on the box to check it [x] )

[ ]  Freshman/first-year experiences

[x]  Lower-level

[ ]  Upper-level

[ ]  Graduate

[ ]  Other (please explain)

* Where will your students be located during your class meeting? Check **all** that apply for your course format.

[x]  In the classroom

[x]  Online on videoconference (Zoom\*)

* Where will you be located? Check **all** that apply for your course format.

[ ]  In the classroom

[x]  Online on videoconference (Zoom\*) and co-facilitating with a classroom assistant

\* *Zoom is the official IU technology supported in classrooms for video-conferencing*

* What types of technology will be available in the classroom you will be teaching your in-person/hybrid class? E.g., Zoom, Kaltura, document Camera, etc.

Zoom, Kaltura, document camera, Cresteron touch screen with computer

# How to use the planner

1. The planner consists of four tables –planning and introducing your activity, implementing and monitoring it, debriefing on activity outcomes, and reflections and troubleshooting.
2. Each tables has two columns - comparing a pre-pandemic classroom and a physically-distanced classroom with several guiding questions to help you plan your activity.
3. If you are wondering how to **modify an existing in-class activity** that usually worked well in your pre-pandemic class, **start with the left column** first.
4. If you have **not used specific in-class activities**, you can **directly start with the right** column. You can get some ideas for in-class activities by looking at these handouts on [classroom assessment techniques](https://vcsa.ucsd.edu/_files/assessment/resources/50_cats.pdf) and [collaborative learning techniques](https://library.gwu.edu/sites/default/files/tlc/CoLT%20Quick%20Reference%20%281%29.pdf).
5. Before your begin planning your activity in the physically distanced classroom, watch [this simulation video](https://iu.mediaspace.kaltura.com/media/1_3f1earnj) created by UITS to get an idea what your physically distanced classroom could look like.

# **Planning and introducing the activity**

Briefly answer the following questions

|  |  |
| --- | --- |
| **Pre-pandemic Classroom** | **Physically-Distanced Classroom** |
| Complete this column **only** if you already have a previously implemented activity in mind. If not, complete only the right column* What was the purpose of the activity? How does this activity connect to a learning objective/outcome in your course?
* What were the tasks involved?
* Did students work individually or in pairs or small groups? How did you set up the pairs or small groups?
* How much time did the activity and debrief take?
* Did you grade them on their participation or any products they create?
* How did you introduce the activity to your students?
* How do you confirm your students understood what you are asking to do?

*Purpose: practice circuit drawing and analysis skills.**Learning objective: model mutual voltage in coupled inductors circuit and compute circuit currents* *Tasks: On a practice problems worksheet, work in pairs or groups of three to redraw the circuits with mutual voltages using the dot convention. Next, write down if the inductors or additively or subtractively coupled.* *Why do you think so? Finally, write the basic KVL equations to calculate circuit currents.**Students worked in pairs or groups of 3. They self-selected on the first day. The only instruction I gave them was that groups should not be larger than three or smaller than 2 ☺* *Time taken: 3 minutes to introduce activity, 12 -15 minutes student solve worksheet, 10 minutes debrief**No grades assigned for the practice activity. Students usually completed a short low-stakes quiz the following class session**Presented the worksheet in class as a way to practice circuit analysis and problem-solving skills. Clearly indicated deliverables on the worksheet and connected it to the next quiz.**After introducing the activity, I paused for student questions and walked around as students were working to confirm understanding.* | * What is the purpose of the activity? How does this activity connect to a learning objective/outcome in your course?
* Do you need to do this activity in the classroom? Or can it be done asynchronously and still help students meet the learning objective?
* What are the tasks involved?
* Do you want students to work individually or in pairs or small groups? How will you set up the pairs or small groups?
* How much time will the activity and debrief take? Remember, to build in some flex time for any tech issues and set-up for your classroom context.
* Will you be grading them on their participation or any products they create? If graded, consider keeping it low-stakes, i.e., accounts only for a small portion of their total grade?
* How do you plan to introduce the activity to your students?
* How will you confirm your students understood what you are asking them to do?
* If you will be online and have a classroom assistant in class, what role will they play in planning and introducing this activity?

*Purpose: practice circuit drawing and analysis skills.**Learning objective: model mutual voltage in coupled inductors circuit and compute circuit currents* *Activity can be done asynchronously as they do a similar homework assignment, but I cannot catch misconceptions in real time and provide immediate feedback prior to their quiz. So, anyone missing class can still complete the worksheet and email a scanned copy to me for feedback.**Tasks: On a practice problems worksheet, work in pairs or groups of three to redraw the circuits with mutual voltages using the dot convention. Next, write down if the inductors or additively or subtractively coupled. Why do you think so? Finally, write the basic KVL equations to calculate circuit currents.**Students will work in pairs or groups of 3. They self-select on the first day. The only instruction I gave them was that groups should not be larger than three or smaller than 2 ☺* *Since all students are on Zoom and use the digital Google Jamboard for collaboration, students in the classroom can work with online students. Asking in-person students to work with only other in-person students may inadvertently lead them to get closer of share objects. This set up would really depend on how many students I have in-person and how many on Zoom.**Time taken: 3 minutes to introduce activity , 5 - 7 minutes for setting up breakout rooms, log into Jamboard, and confirm understanding, 12 -15 minutes students solve worksheets and collaborate on their group Jamboards, 10 minutes debrief,* *No grades assigned for the practice activity. Will include a 1 point Top Hat question on a verification problem to quickly check for understanding prior to quiz. Students usually completed a short low-stakes quiz the following class session, which will now be administered on Canvas.**I will introduce the worksheet from Canvas and the Jamboards on Zoom and go over the instructions. All the instructions will be available in written form on the Jamboards. Classroom Assistant will also be logged into Zoom and have access to all Jamboards. All students will be logged into Zoom. All students will listen to my introduction, read the Jamboard instructions, and then use the non-verbal feedback on Zoom to show thumbs-up if they have understood the prompts. Questions can be posted on chat and answered on Zoom and/or chat by me and classroom assistant. This will be done prior to moving students into Zoom breakout rooms.* |

# **Implementing and monitoring the activity**

Briefly answer the following questions

|  |  |
| --- | --- |
| **Pre-pandemic Classroom** | **Physically-Distanced Classroom** |
| Complete this column **only** if you already have a previously implemented activity in mind. If not, complete only the right column.* How did you ensure every student was on task? Did you walk around the classroom and provide feedback as students worked?
* How did you handle classroom disruptions and off-task students?
* What tools, physical and electronic, were required to complete the activity successfully? How did you and your students use them? Physical tools could include paper, writing instruments, models, kits, artifacts, etc. Electronic tools could use computers and associated applications, videos, audio, etc.

*My class size was typically 30 – 45 students and it was not difficult to walk around monitoring student work and responding to questions.**If students were off task, I would usually check in to see what was distracting them. If they had completed the task, I would ask them to think ahead of a case where the positions of the dots or the positions of the inductors were changed.* *The worksheet was handed out as a printer paper copy. Students made notes on their own sheets, sometimes marked on peers’ sheets when they explained. Some students used their laptops to access example problems posted on Canvas modules.*  | * How will you ensure your in-person students are on task while still following physical distancing protocols? If they have questions, how will you clarify them?
* How will ensure your virtual students are on task? If they have questions, how will you know and clarify them?
* How do you plan to handle classroom disruption, off-task students, in both the in-person and virtual setting?
* If required, can you and your students safely use and share any physical tools such as paper, writing instruments, models, kits, etc. for this activity?
* How will the virtual students make use of these tools?
* Will you and your students require any electronic tools? How will you and your students use them? Electronic tools could could include computers and associated applications, videos, audio, etc. Think how you can leverage Zoom, Canvas, and Google tools to make this more fun, productive, and safe for your students. Visit [Tool Finder at IU](https://toolfinder.iu.edu/) to explore options!
* If you will be online and have a classroom assistant in class, what role will they play in helping you in implementing and monitoring this activity?

*As the activity progresses, students can post questions about the problem or the tasks directly on their Jamboards using a sticky note. This would help them keep a record of questions and the classroom assistant or I would not miss questions posted on the chat. The Jamboards will be monitored by me and classroom assistant and we can move between Zoom breakout rooms and Jamboards and respond to them.**5 and 2 – minute reminders will be sent to all breakout rooms. Students will work through the problems in their own notebooks and post a picture of their circuits to their groups’ Jamboard and have a discussion either verbally (if they have headsets) or using Zoom chat or Jamboard sticky note. The deliverable on each Jamboard is the final circuit, answers to the questions, and the required KVL equations. Groups that have already completed the activity can leave the breakout room and join the main room.**Tools: All students logged into Zoom through a phone or a computer. Preferably, students and classroom assistant in the classroom have a headset for verbal communication to minimize audio feedback and volume issues. Zoom chat will be used extensively for students to pose questions to minimize audio feedback issues for students in the classroom.* *Ad hoc Zoom breakout rooms will be created and used. Each student group will have access to a unique Jamboard to post individual work and group comments.* *Students can work through problems in their notebooks and take pictures and post them on the Jamboard. These links can also be shared between groups if they choose to do so at the end of the activity. Students will be asked to download the Jamboard app to their phones to make the process of posting pictures seamless.**Students will be instructed to write clearly and take clear pictures of their work. Students without phones can consider using their laptop cameras to take pictures, but may find it easier to participate in the conversations and provide feedback on group members’ pictures.*[Sample Google Jamboard response](https://jamboard.google.com/d/1VOYDcLzsIHIX52IAoAfqi0kn691ZThnHCeQ_L7s5V68/edit?usp=sharing) |

## **Debriefing on activity outcomes**

Briefly answer the following questions

|  |  |
| --- | --- |
| **Pre-pandemic Classroom** | **Physically-Distanced Classroom** |
| Complete this column **only** if you already have a previously implemented activity in mind. If not, complete only the right column.* Did students create a physical or electronic product at the end of the activity? Did every student create a product? Or did each group create one product? Did you ask your students to submit that product?
* How did you and your students reflect on/discuss the activity outcomes and give feedback at the end of the class meeting? Or did you collect the product and provide feedback during the next class meeting or later?

*By the end of 15 minutes, each student was expected to have an almost or fully completed worksheet. Students were not asked to submit the completed worksheet but use it as study tool for the upcoming quiz. Solutions to some of the easy problems would not be posted on Canvas so that students will try to complete them accurately in class.* *The worksheet was discussed using the document camera. I partially solved the problems as students contributed solutions, questions, and alternate methods.*  | * Will students create a physical or electronic product at the end of the activity? Does every student create a product? Or will each group create one product?
* With the risk that physical products run the risk of virus contamination, can you require that students create and submit only electronic products? What would that look like?
* How will you and your students reflect on/discuss the activity outcomes? At the end of the class meeting? Or will you review students products later and provide feedback during the next class meeting?
* If you will be online and have a classroom assistant in class, what role will they play in helping you in debriefing on activity outcomes?

*Each student group should have a Jamboard with photographs of their work and sticky notes of comments and questions.* *After the 15 minute mark, I will regroup the students back into the main Zoom room and go over the circuit, bringing up Jamboards from volunteer groups to discuss responses. Finally, I will share the entire set of solutions and provide students a few minutes to fill in the gaps and complete their notes.* *Before we end the class, I will have a 1-point Top Hat question, which will be a verification problem. Students will see a slide with a solved problem and identify all the incorrect steps, if any, in the problem and respond via Top Hat individually. This will be a quick check of understanding. These discussions will be connected to the problems that students will see on the low-stakes quiz the following class session.* |

# **Reflections and Troubleshooting**

Briefly answer the following questions

|  |  |
| --- | --- |
| **Pre-pandemic classroom** | **Physically-distanced classroom** |
| Complete this column **only** if you already have a previously implemented activity in mind. If not, complete only the right column.What issues did you encounter when you and your students engaged in this activity? If and how did you solve them?Think logistical, technological, and/or social issues.*This was a regular practice activity and usually went very smoothly in class. This activity helped student practice accuracy and speed in problem-solving and also get a feel for the types of questions that could show up on the quiz and the exam.**Students usually argued over the methods and worked in groups they formed in class – typically their neighbors. They work collaboratively on exams and tend to stay with the same set of students during practice problem-solving during class well. Sometimes groups used the large whiteboard in the class to solve the problems and then return to their seats for debriefing.*  | What issues might you encounter when you and your students engage in this activity? Think logistical, technological, and/or social issues in the context of the physical distancing protocols and any new technology you will be using.*I would need to set up these groups at the beginning of the course – self-selected by students.* *Since students are working in breakout rooms, sometimes they can get off-task. Period monitoring – e.g., every 5 – 7 minutes by myself and the classroom assistant will be necessary.* *I have to be intentional about using positive reinforcements and encouragement for students to* *feel comfortable to give permissions to share their Jamboard widely with their peers to highlight both incorrect and correct responses.* *If we have at least one virtual student in every group, that could helpl minimize the temptations for students to get closer to another student or borrow their notebooks.**It will be a learning curve for all of us to use the breakout rooms, Jamboard, and I see the classroom assistant being very helpful here in managing technology questions and issues.* *If students lose connection during the activity, then they can still refer to their peers’ work on the Jamboard and fill in the gaps..* *Students who forget their phones, do not have a smart phone may not be able to post a picture of their work,, but can definitely contribute to their group and check their own work based on Jamboard responses. This is assuming that they will at least have a working computer to join the class synchronously. Students missing class can do the activity asynchronously and access their classmates Jamboard links.*  |