So at the end of the class, there are really two major forms of assessment. One is an online written exam, which is an exam where the questions and the way to submit the answers is fully online. And that link is unveiled, and then I give three to four days for the students to answer this exam. It is an open book, open internet exam. They can use any materials they want, but no collaboration.

So I don't have a formal way to check for this but essentially it's an individual exam. And by submitting the answers online, again using for example a mechanism like Google Forms, you can relatively quickly compare the answers and grade these exams very efficiently and also see if there's any patterns. So this is a way to essentially check individual learning with all the materials at hand.

The way I structure the online exam is a mix of multiple-choice questions, essay questions, but also some calculations. And the exam starts with some very easy questions that can be referenced in readings or materials in textbooks, interpretive questions. And then they get progressively more difficult.

And the last two questions-- in one of the questions, I give them a calculation that they have to do that has a very non-obvious answer. And it's interesting to see some students that force an answer that's not actually the right answer because somehow they believe that any question given on an exam must have this one correct answer. And other students scratch their heads and say, I don't think this question has the right answer. And so it's a very interesting thing because, in the real world, you often get requirements from customers that are unrealistic or can't be fulfilled. And so the purpose of these questions is to really get students to think and connect the material to real-world situations that they will encounter.

In the last question, I then ask about systems engineering-relevant things that have happened that they might have seen in the news. So for example, one year I asked about the Volkswagen emissions scandal, which is very related to system engineering, trade offs between fuel efficiency, cost, NOx emissions. It's very much current affairs. This year, I asked the students about the problems that Samsung experienced with their Galaxy Note 7 batteries and what is the root cause of those problems. And how are those problems related to the material that we teach in class? So I recommend that one of the last questions connect the students with things that they're seeing in the news.

The oral exam is given either in person in the same room or through an online platform like Skype or WebEx or Google Hangouts. The quality of the online experience, the image, the sound, is generally so good that there's virtually no difference between doing the oral exam in person or over the web.

And the oral exam is anywhere between 15 to 20 minutes per student. That doesn't sound like a lot of time, but

with well-structured questions you can learn a lot and have a great dialogue with the students. I try to put the students at ease. It is more a discussion than a classical exam. Nevertheless, it's a great way for them to engage with the material again, to engage with us as instructors and TAs, and usually it sort of puts a nice bow on the class, and it's a nice finishing touch to the class.

Logistically, the way we do the oral exam is we open up typically one or two full days. So I have to reserve a couple of days on my calendar just dedicated to the oral exams. And then there's sign-up slots where students can just sign up online and show up at the right time. And it's been working pretty well.