

An experience in Improving Student Engagement & Academic Mobility with Microsoft OneNote and Screencast-O-Matic

Gregory P. Harstine, PE
Department of Applied Science and Technology
University of Akron
Akron, Ohio 4432
Email: gph@uakron.edu

Abstract

For years we have all faced the prospect of offering and teaching engineering & engineering technology classes on line. This paper & presentation is an investigation of one professor's experience with incorporating Microsoft OneNote into the lecture classroom experience. The paper will present a walk through a first semester freshman level Circuit Fundamentals lecture which is a four credit hour course that has a weekly three hour lecture and three hour lab. Topics will include basic introduction to using OneNote as the lecture tool and the other required components including the use of a 2 in 1 PC, SMART podium alternative and overhead projector. Also, creating a permanent record of the lectures will be presented through the use of Screencast-O-Matic and uploading the lecture to Youtube. Lastly, several students will be utilized to provide their perspective of the use these techniques and the availability to have unlimited access to the lectures through student laptops, 2 in 1's and SmartPhones. The use of OneNotes collaborative abilities for future engagement will also be discussed. In addition, the professor's perspective of the availability of the lectures and schedule through a desktop PC, 2 in1 and SmartPhone will be discussed.

Keywords

OneNote ScreenCast Omatic Mobility Classroom Engagement

Motivation to Adapt

This author began teaching at the collegiate level in 1998 at a time when the internet was still in its infancy. Discussions were begun about how this new technology could be used in the classroom and of course all will recall that some, often times those outside of academia, the notion that education could be completely supplanted with a computer. Now that we are a couple decades and a iterations removed from that we have all probably adapted in some way with the use of current technology. All colleges now a days at least have web explorer interfaces for posting grades and relaying a variety of types of information as well even providing the means to use explorer based testing.

As the means have improved, the most interesting adaptations for this author has been how to continually evolve the lecture setting in courses of Electrical/Electronic Engineering Technology. These classes typically involve a lot of interactive problem solving sessions as topics appropriate to the subject matter are investigated. With that being said, the next iteration has arrived for this author. This iteration is the result of the advent of dependable high powered

Tablets(2 in 1s), collaborative softwares such as OneNote¹. Lectures can be captured using recording softwares such as Screen-Cast-Omatic².

Implementation and Utilizing OneNote

This adaptation began in earnest during the Fall semester of 2016. Over the summer the author had severe arthritis set in his ankles which, according to medical professionals, was the result of several athletic injuries in his use. Smartboards had been on the market for some years but standing and writing on the board was still required.

Upon investigation of alternatives, it was discovered that the University of Arkon had available a device known as a Smart Podium. An example of which is pictured in Figure 1.

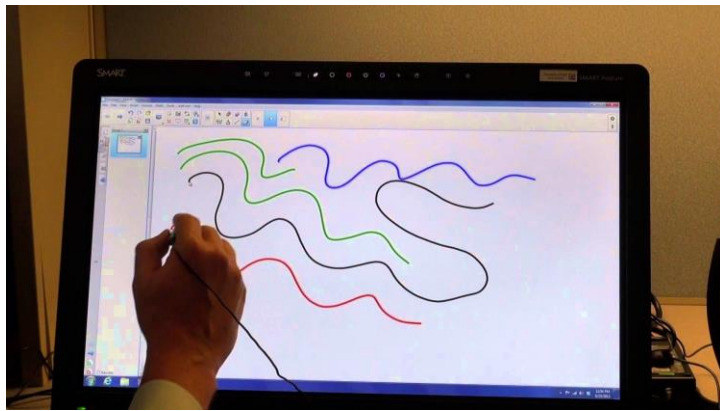


Figure 1

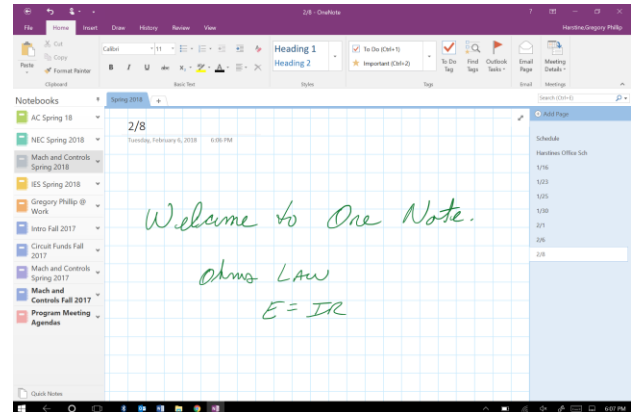


Figure 2

And with the use of OneNote¹ Figure 2, lectures could be provided with the Smart Podium, keep in full detail using OneNote and shared with students in real time.

The change was not without its issues. The Smart Podium drives have to be available on the respective computer and is also the monitor for the computer. The stylus is rechargeable via a USB connection but is wireless once charged. The podiums have come down in price but are not very portable. Fortunately all my lectures were in one room. All in all this is a fine solution but technology has provided another step.

In late Spring 2017, office computers were upgraded and faculty were given the choice of what would be a traditional laptop at this point in time or a 2 in 1 and this author opted for the 2 in 1 and so far this has been an outstanding choice. It has enough power to provide CADD software, circuit design software and math modeling software and still runs effortlessly. The 2 in 1 provided is a Dell Latitude 5000 series computer. A USB-C to VGA adapter is necessary and the stylus has to be purchased separately. In addition, this author prefers USB wireless mouse and keyboard combination. The hope would be to upgrade to Bluetooth connected mouse and keyboard.

Student viewing of the OneNote¹ file is most easily provided with a link generated through OneNote sharing:

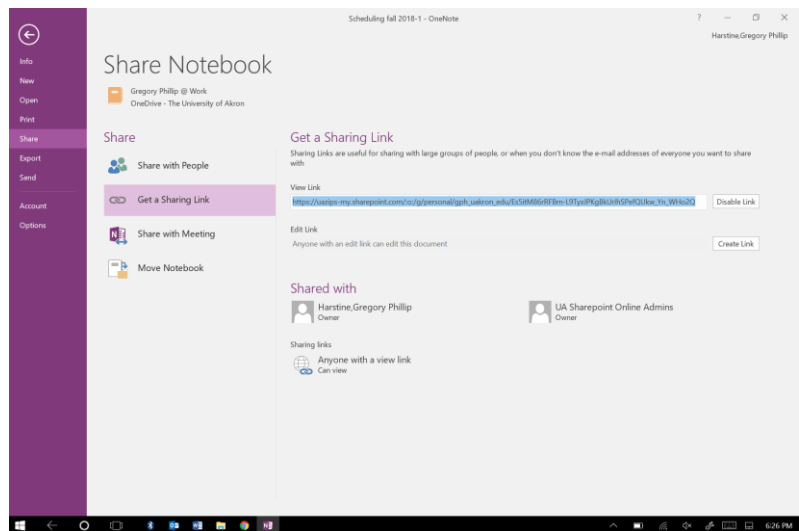


Figure 3

Where the link is copied and pasted into a class list email. See Figure 3.

Mobility of the OneNote¹ file is best illustrated with the OneNote smartphone app shown in Figure 4 and 5 below.

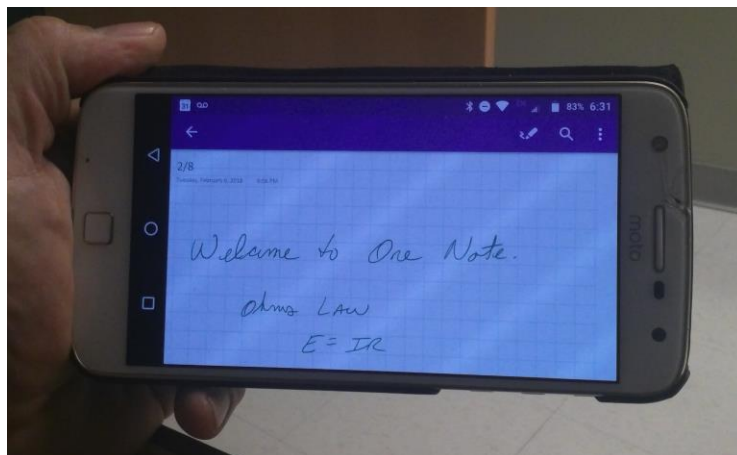


Figure 4

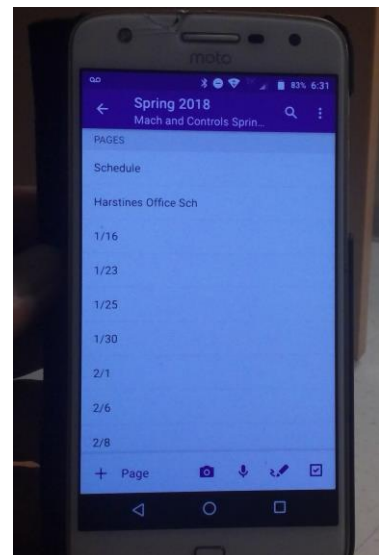


Figure 5

Where students can follow up directly with questions from the lecture. Also the I find it a very convenient way to see where we left off and what direction the next lecture needs to take.

Scrcast-O-Matic

There have been a number of methods employed to capture lectures. From videotaping to other more modern software base audio and visual capturing tools. Screencast-O-Matic is an internet explorer based capturing tool. This author currently uses the tool to provide lectures when I have to miss a class and web enabled enhance to a class. Also, when a subject needs some additional or repetitive coverage it is a useful tool. In addition, there are some many extra “tools” like Excel, AutoCad and Multisim to name a few, that it is very convenient to be able to provide additional lecture coverage on and it is an excellent tool for that as well.

The simple interface is shown in Figure 6 below:

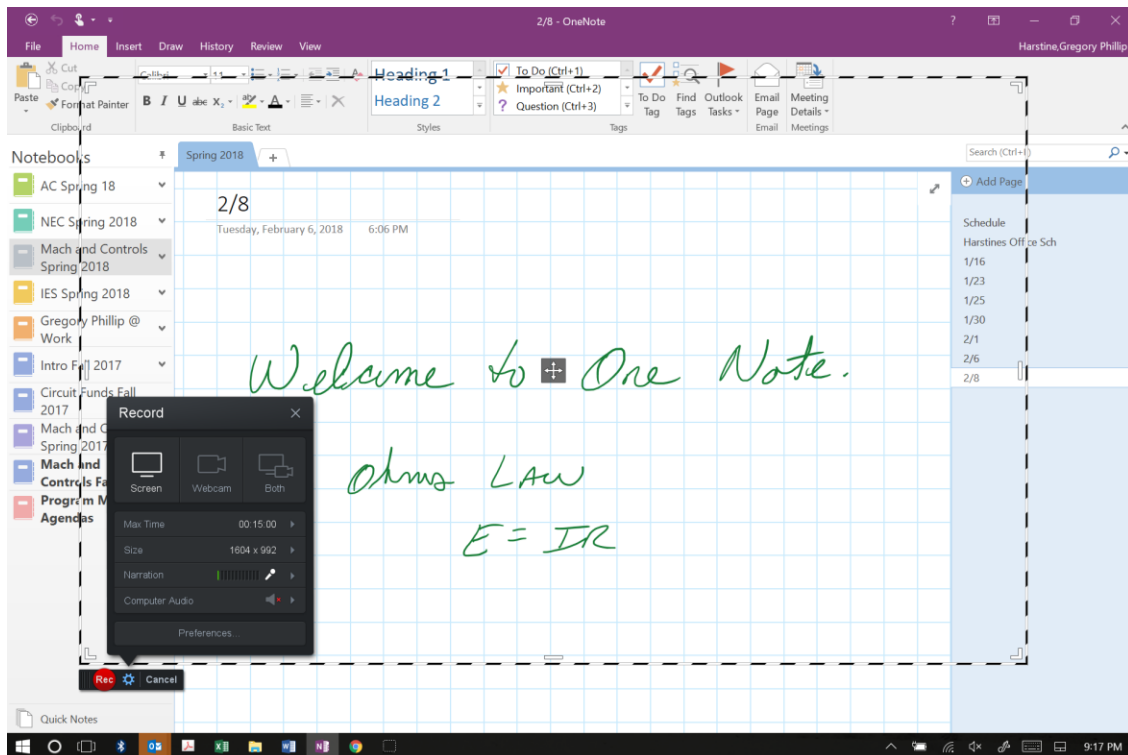


Figure 6

And an example video can be found at: <https://www.youtube.com/watch?v=OsNtUst5718>

The basic interface is a free application available at <https://screencast-o-matic.com/> with which you can make up to 15 min videos and if you have a gmail account, your video can be automatically uploaded to your gmail Youtube channel. A fuller function version, which I understand is extremely easy to use, is available for a fairly low annual subscription.

Student Feedback

Charles Tolbert, Graduating Senior, Electronic Engineering Technology.

As an engineering student at the University of Akron, course work becomes very difficult as the content of lectures builds from one to the other. Lectures and class participation are crucial in developing skills for future careers. After class is over, following up with assignments and other course work allow for critical thinking and to set professional skills. Mr. Harstine’s use of OneNote pushes the envelope in this

process by allowing students to focus more on the content of the lecture. This entails working through problems in class that will reflect assignments, setting motion for professional standards, and approaching problems in an effective manner. The use of OneNote is new to me but I quickly realized that the approach is for the better. I no longer have to worry about writing everything down before it becomes erased, I can focus on the calculations, main points of discussions, make side notes in my notebook for later review alongside Mr. Harstine's OneNote, and become more involved in the class. It has been a great help in my studies and also post semester reviews when I am at work.

Brody Gorges, Freshman Second Semester, Electronic Engineering Technology

I personally like the one note application because it means we can review your process instead of relying on our own note taking, where we might miss a step here or there trying to keep up. So being able to review class notes is a step up from trying to decipher the chapter material that we may or may not include.

Observations & Conclusions

The road to get this point has been bumpy at times and technology still has its hiccups, for example a light bulb going out in a projector can bring my lecture to halt. The progress made however, especially with the advent of receiving a 2 in 1 with enough capacity to store and run engineering related programs vastly outweighs a consideration of returning to white boards and erasable markers. OneNote and Screencast-O-Matic is a definite step forward in my progress as a college professor.

References

1. OneNote, <https://www.onenote.com>
2. Screencast-O-Matic, <https://screencast-o-matic.com/>

Gregory Harstine

Gregory P. Harstine is an Associate Professor of Practice in Electronic Engineering Technology program at the University of Akron with 19 years teaching power type classes in Electrical and Electronic Engineering Technology programs.. Greg has extensive experience in the power utility industry. He has an MBA from Ashland University and is owner of an electrical engineering consulting firm providing consulting services in the electrical power distribution and controls field. Has assisted several local companies in implementing electrical safety plans and modifying electrical safety plans to include the latest requirements of the NFPA 70E.