Use of Video Camera (TIG #5) Kit to Enhance Student Learning of Key Concepts and Problems in Chemistry

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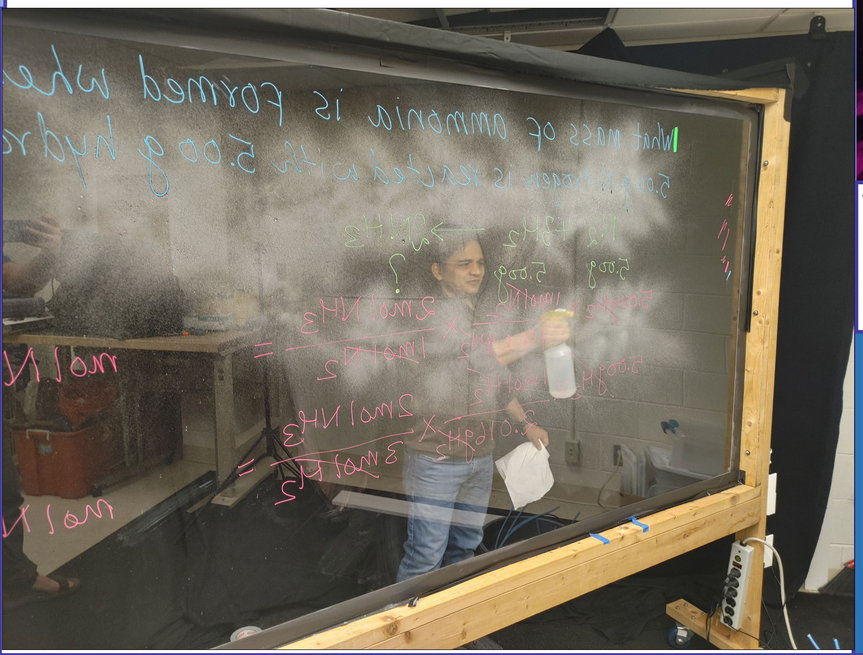
Introduction

Many students, especially those who never had chemistry in high school, find it a challenging subject. In order to create an inclusive learning environment, it is important to realize that different students learn differently. For example, some are visual learners whereas others learn better with more hands-on activities. In our continuous effort of creating and implementing engaging study materials for students, this project aims to provide short and illustrative videos for first semester general chemistry (CHEM 115) and first semester organic chemistry (CHEM 233) courses.

In this project, we are using the video camera kit received as TIG from TLC-WVU along with a light board to record the instructor explaining difficult concepts and solving chemistry problems. The major advantage of doing this over recording the same material using a document camera is that learners are able to see the face and other motor activities of their instructor when describing the concept or solving a problem. Additionally, we are breaking the difficult concepts or longer calculations into shorter parts so that the students feel less overwhelmed with information while going through the materials.

Design and Scope

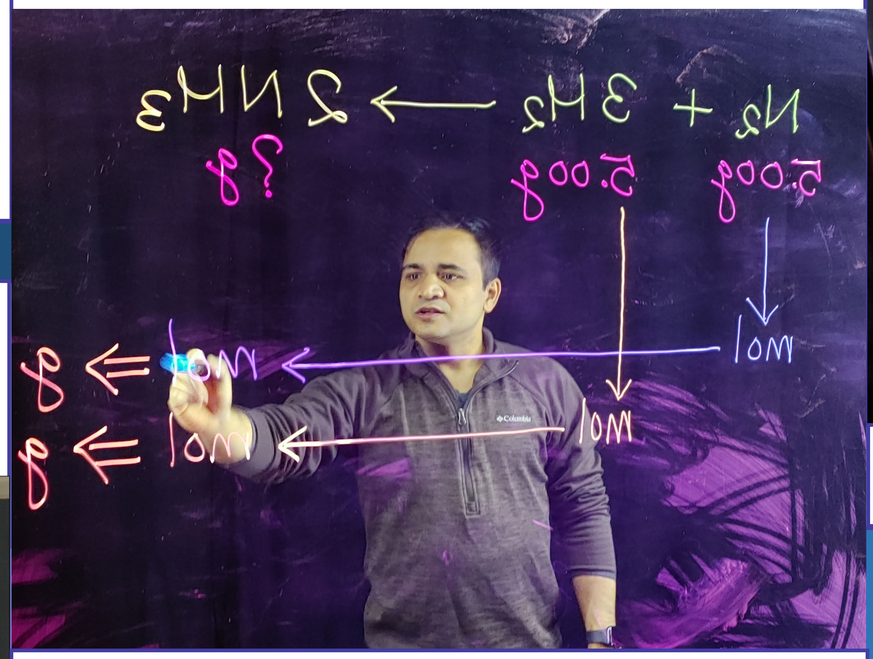
A locally designed light board at Potomac State College library is being used. The video is being recorded by the Canon Camcorder (TIG #5). The recorded video and audio is edited using a video editing software. The finalized video will be incorporated into the courses through eCampus learning modules.



Furthermore, The videos will serve as valuable addition to the online CHEM 115 course offered at Potomac State College.
The next phase of this project will be to incorporate interactive quizzes with the videos.

General Chemistry

The following topics are chosen for general chemistry (CHEM 115) course:
1.Dimensional analysis
2.Electronic configuration
3.The mole and molarity
4.Reaction stoichiometry and limiting reagent
5.Molecular structure (VSEPR models)



The videos will be made more accessible and mobile friendly by generating the QR code. The QR code below is an example of an actual video from general chemistry (CHEM 115).

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Organic Chemistry

The following topics are chosen for organic chemistry (CHEM 233) course:
1.Hybridization and bonding of carbon
2.Conformational analysis
3.Stereochemistry
4.Infrared Spectroscopy
5.NMR Spectroscopy

The QR code below is an example of an actual video from organic chemistry (CHEM 233).

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Acknowledgement

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