Why should a Laboratory be required for Linear Circuits I?

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Abstract --- **When in the fall semester of 2017 at the University of Pittsburgh at Bradford, a Laboratory was added to Linear Circuits I , it provided an absolute amazing insight into the absence of practical knowledge of students. They could not identify resistors, or capacitors. They had in most cases no idea what a DMM was and how to use it. Setting up fairly simple circuits on a proto-board and making voltage and current measurements had to be shown to each Lab group. A Lab experiment with an Op-Amp meant, that several of the Op-Amps were sacrificed to the smoke god. Students were amazed by what an Oscilloscope could do and how one could see the charge and discharge of a capacitor. At the end of each experiment, MatLab was used to verify the practical results obtained. What was gratifying at the end of the semester that each student group had high praise for the inclusion of a Laboratory into the curriculum. All the frustration and the extra work involved was worth it if one looked at the final result and that a practical component had been added to the students background, which would serve them well in a summer internship or in the Co-op program.**

Key Words – Practical Knowledge, Simple Circuits, Proto Board, DMM, Matlab

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