

# ECE 2100

## Lab. III – Thévenin and Norton Equivalent Circuits

### Important note:

This write-up is only for the pre-Lab of Lab. III. It is not the full Lab instruction. The latter can be found on [course webpage here](#):

[http://courses.egr.uh.edu/ECE/ECE3340/Class%20Notes2100/TheveninEC\\_lab.html](http://courses.egr.uh.edu/ECE/ECE3340/Class%20Notes2100/TheveninEC_lab.html)

Lab III is to explore Thévenin and Norton Equivalent Circuits. There will be a research project on digital-analog-converter that is a most well-known example of Thévenin's theorem and is related to Lab III. The research question for Lab III is a part of the project and you will address it in your formal report.

Submit this pre-lab approximately one-hour (10 AM) after the start of the first session of Lab III (9 AM) after you finish question 2 below.

### Prelab:

Item 1 should be done at home. Item 2 should be done in the Lab within the 1<sup>st</sup> hour of the start of Lab III.

1. Fill in the table below values you expect to measure (see the related app).

Item	V open circuit [V]	I shorted circuit [mA]	VOC/ISC	R equiv
Ladder bit 0 and 1				
add ladder bit 2				
add ladder bit 3				
add ladder bit 4				
add ladder bit 5				
add ladder bit 6				
add ladder bit 7				

2. Measure 16 resistors that you will use: 7 x R (1 kOhm) and 9 x 2R (2 kOhm), determine the relative deviation from the design values (e. g. 0.7%, 1.2 %, etc..., but save the raw data in your lab notebook or your computer), find the mean and the standard of deviation of the data and report below. (You can use the APP on the course page that automatically calculates the mean and standard deviation as well as a histogram that you **will use for the project report**). After finishing this, turn the pre-Lab to the TA.