

# CE3101 Lab 2: Diode I-V Characteristics

## Objectives

- Review Analog Discovery 2
- Review Diode I-V Characteristics
- Compare real diodes vs specifications

## Prelab

student  
check off

- Download the Digilent Waveforms Tool:  
<https://digilent.com/shop/software/digilent-waveforms/>
- Checkout an Analog Discovery 2 kit from the Tech Center
- Checkout a red LED, 1N4148 Diode and 1N4007 Diode from the Tech Center

## Assignment

- Do not start the assignment portion of the lab before the lab class. We will walk through the first process prior to starting the student portion of the lab.

Part 1: Setup the circuit from Lab2\_Circuit\_1 schematic using an LED for the diode  
Setup the AD2 as documented in the Lab2\_Circuit\_1 schematic  
Run the Diode I-V curve and compare to expected values  
Estimate  $I_s$  and  $n$  for the diode

Part 2: Repeat the measurements and comparison from Part 1 on the:  
1N4148 diode  
1N4007 diode  
Estimate  $I_s$  and  $n$  for each diode

Part 3: Change the Triangle Wave from Part 1 to a Square Wave at 100Hz. Compare the Diode transient response (all 3) to expectations. Repeat with a 5KHz and 100KHz Square Waves. Explain the results.

## Check Off

- Demo and document part 1 20%
- Demo and document part 2 50%
- Demo and document part 3 30%

**Demo (in-person or via Teams chat) and Report (in the box) due by 4:00 pm  
Wednesday of the week following the lab.**