Mapúa Institute of Technology at Laguna
Malayan Colleges Laguna

ECE101-1L – FUNDAMENTALS OF ELECTRONIC CIRCUITS (LAB)

Activity #2: Diode Rectification

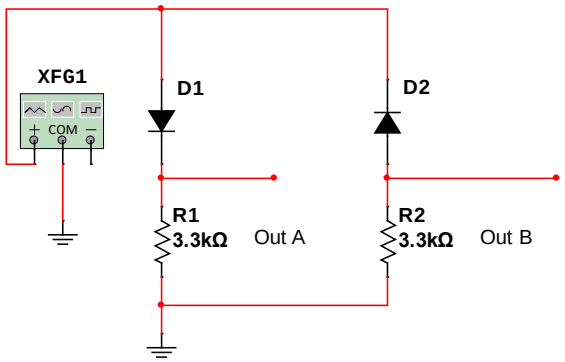
Objectives:

- Use a diode to produce half-wave and full-wave pulsating dc from an ac source
- Compare the operation of a full-wave rectifier with that of a half-wave circuit
- Use Multisim and TinkerCAD for the simulations

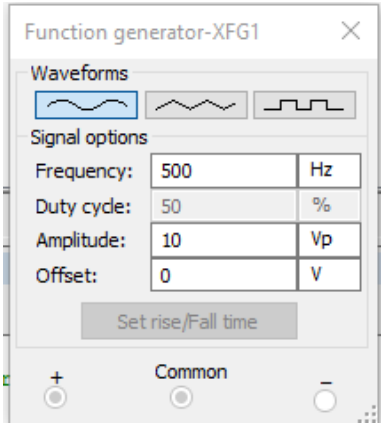
Procedures:

Part A. Multisim

1. Open Multisim
2. Create the schematic diagram shown below
   (Function Generator, Resistor, Diode)



3. Change the Function generator Settings



4. Place an Oscilloscope and Probe channel A to Output of the Function Generator and Channel B to the Output A (Across R1) (*You may change the color to identify each waveform and adjust the y-position of each waveform)*
   a. Screenshot the Output waveform

      _____

   b. Explain the output waveform by comparing the input and output

      _____

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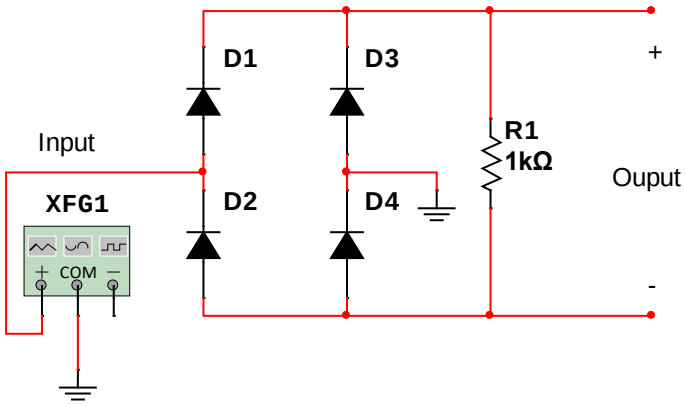
5. Probe channel A to Output of the Function Generator and Channel B to the Output A (Across R2)
   a. Screenshot the Output waveform (*You may change the color to identify each waveform)*

      _____

   b. Explain the output waveform by comparing the input and output

      _____

6. Create the schematic diagram shown below with same function generator settings from Part A.



7. Place an oscilloscope and Probe Channel A to the Input (Output of the Function Generator), negative probe terminal must be connected to Ground, then probe Channel B to the Output (+) and the negative terminal to the (-) of the Output. *(Change the Colors and Position of waveforms)*
   a. Screenshot the Output waveform

      _____

   b. Explain the output waveform by comparing the input and output

      _____

8. Explain how Half-wave Rectifier works (Use Diagram /Figures)

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   _____

9. Explain how Full-wave Rectifier works (Use Diagram /Figures)

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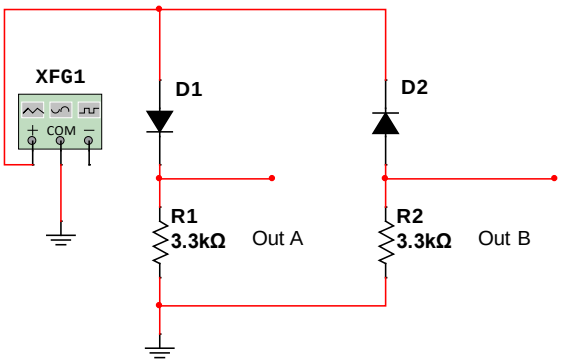
Part B. TinkerCAD

1. Create the similar circuit using TinkerCAD
    a. Screenshot your Breadboard



2. Place Two Oscilloscope (Connected to Output A and Connected to Output B)
    a. Screenshot the Output waveform of Oscilloscope at Output A

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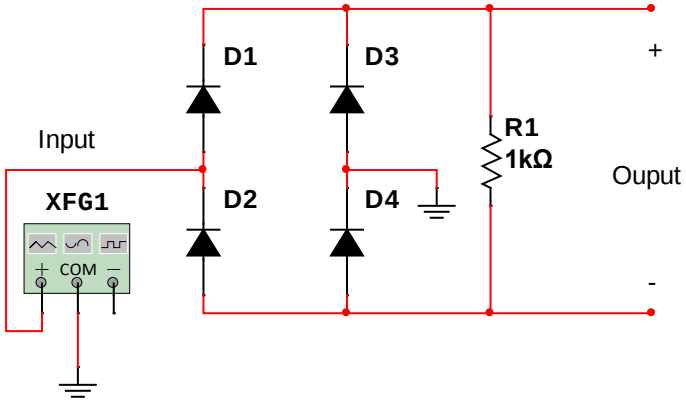
    b. Screenshot the Output waveform of Oscilloscope at Output B

    _____

3. Create the similar circuit using TinkerCAD
    a. Screenshot your Breadboard



4. Place Oscilloscope
    a. Screenshot the Output waveform of Oscilloscope at Output

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Discussions:

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