

Marmara University  
Electrical and Electronics Engineering Department  
Fall 2020  
EE 3011 – Electronics I  
Simulation Project - Due January 22, 2021

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The main purpose of this simulation project is to use LTspice to verify (and improve) the function of a given electronic circuit. The circuit specifications and required tasks are as follows.

### Specifications

- Search the internet for reliable sites that give functional circuits (example below). Pick a circuit with minimum or no IC's (only popular ones such as the 555 timer and the 741 opamp; the rest should be discrete components).
- Make sure that the circuit can be handled using LTspice. Avoid complicated circuits with unusual components.
- Make sure that your circuit is unique (not used by other students in the class and not done in the lab experiments). There are plenty of choices for everyone.

### Instructions

- Use LTspice only, to verify the declared function of the circuit. The verification should cover different aspects of the circuit function, including finding the limitations, range of operation and best operating conditions of the circuit.
- Each student should submit an individual work.
- Submissions should be typed and in a formal report format, with
  - 1) introduction,
  - 2) circuit description including the declared function of the circuit and the reference,
  - 3) detailed simulation work including LTspice schematics,
  - 4) discussion of results including simulation values and plots,
  - 5) a separate section on your improvement ideas of the circuit and associated results,
  - 6) conclusions describing your opinion on the circuit based on your investigations.
- The parts that will carry most marks are your simulation studies that you perform on the circuit and the improvements that you introduce.
- Upload your project report (all in one file) on UZEM in pdf format with your full name as file name.
- In case of copied work (analysis, circuits, results, etc., even partially), all involved parties will get nulls.

Sample site: <https://www.electronicshub.org/electronics-projects-ideas/>

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Show all work and analysis  
Only pdf files are acceptable  
Late submissions are checked but not graded  
Copied submissions represent academic dishonesty and are disqualified