

# ENEL 400 Prototype Guidelines

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## Introduction

The prototype grade will be out of 30 marks. The grade will be holistically determined based on a combination of parameters listed below. The prototype does not need to exhibit Exceeding in all of the parameters, to obtain a high grade.

## Parameters

### PCB

Fails	Not completed, prototype is incomplete
Below	PCB has been created but its functionality is not well-integrated with the system or PCB is extremely trivial and opportunity to extend its scope has not been taken.
Meets	PCB has been created and is fit for the purpose.
Exceeds	Complete system is on PCB (e.g. Arduino board is not used, the relevant Arduino components are on the PCB(s)). PCB has been designed for test and manufacturability. Silk-screen is effectively used to identify components and document features on the PCB, such as test points, signals, indicator LEDs, etc.

### Enclosure

Fails	Not completed, prototype is incomplete
Below	Enclosure exists but is not well-suited for the application, provided as an afterthought simply to complete this parameter.
Meets	Enclosure is suitable for the application but there are minor weaknesses in functionality, aesthetics, or usability.
Exceeds	Enclosure is suitable for the application in terms of aesthetics and functionality. Appropriate and user-friendly labelling and interface. Appropriate access for power (batteries, power plug, etc). Can be 3D printed or off the shelf.

### Functionality

Fails	No functionality, prototype is incomplete
Below	Functionality is trivial and does not represent significant achievement.
Meets	Prototype has satisfactory functionality, representing significant design effort and competence. The prototype would require some modifications or enhancements to make it fully fit for purpose.
Exceeds	The functionality of the prototype is comprehensive and would be a good 4 <sup>th</sup> year capstone project. The prototype represents a design that is fit for its purpose.

## **Integration**

Fails	No integration is represented, prototype is incomplete
Below	Some major components are integrated to some degree, but prototype is not functional as a system. Individual major components can be demonstrated to have appropriate functionality.
Meets	Prototype is integrated but some minor features may not fully integrated and not fully functional.
Exceeds	Prototype is fully integrated, leading to complete functionality of the system.