

# Lab 06: Circuit Design PCB Layout & Zephyr RTOS

Medical Electrical Equipment (BME590L)

2023-03-27

## 1 Layout a PCB

Layout a PCB that will fit as a “shield” for your nRF52833DK of the circuit that you designed in Lab 05 that meets the following specifications:

- Female header connectors are used for each input signal ( $V_{in1}$  &  $V_{in2}$ ).
- +5 V from an external power supply is made available to the board via female header connectors.
- +5 V is supplied to the nRF52833DK via P20.
- Your circuit’s analog output is made available to P0.03.
- $V_{in1}$  and  $V_{in2}$  are input to P0.04 and P0.05, respectively.
- Since this is a low power circuit, you can use a single set of design rules for your traces and clearances:
  - **Trace Width**  $\geq 0.52$  mm
  - **Clearance**  $\geq 0.82$  mm
  - **Drill Holes**  $\geq 0.8$  mm diameter
- Include your first and last name in text on a copper layer of your board.
- The board can be “mounted” by the header pin connections, which can be made more secure by adding more “not connected” male header pins between your PCB and the DK.
- Use all good design practices in your PCB layout.

## 2 Nordic Dev Academy

Complete the following lessons on the Nordic Dev Academy: nRF Connect SDK Fundamentals course:<sup>1</sup>

1. Lesson 2: Reading Buttons and Controlling LEDs
2. Lesson 3: Elements of an nRF Connect SDK application

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<sup>1</sup>Be sure to login and record your progress and quizzes to earn a certificate at the end of the course.