Womanium Quantum Hackathon 2022
Quantum Hardware Education Challenge

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1 Introduction

This document will provide some information about our challenge for the **Womanium Quantum Hackathon 2022**. It contains the team's details, information regarding the challenge, an outline of our solution and the main features we chose to implement.

2 Team

The team name is **QGirls**. The team is composed of 5 members. The names and the contact details of the members are listed below.

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3 Challenge

The challenge we chose is the **Quantum Hardware Education Challenge** by **QWorld**. In particular, we decided to develop a solution on the topic of Photonics Quantum Computers and we will focus on the creation of a course named **Introduction to Photonics Quantum Computers**.
In the following pages, we will discuss our ideas and plans for this challenge.

4 Our challenge solution

Introduction to Photonics Quantum Computers

4.1 Course overview

Our course is aimed at students with high school knowledge of physics.
The course will employ different teaching methods to create an engaging learning experience for both in-person and online workshops. Such methods can include, but are not limited to: written material, video lectures, guided tutorials, notebook exercises and quizzes.

4.2 Modules

The course will include modules covering different topics. We decided to start with creating 4 core modules. This is a first draft those modules (it may be subject to changes):

1. Introduction and motivation
2. Theory (basic concepts)
3. Hands on (basic concepts)
4. Applications (overview)

We plan on adding more modules if the time allows us to. Some examples of modules that can be added are:

1. Theory (advanced concepts)
2. Hands on (advanced concepts)
3. Specific modules for specific applications
4. Industry insights

4.3 Exercises

Each module will be followed by a set of exercises to test the student's understanding. Theoretical modules will be accompained by a multiple-choices quiz, while hands-on modules will include notebook exercises for students to practice on.

4.4 Presentation