IBM Quantum
Quantum Education and Open Science
1101 Kitchawan Rd
Yorktown Heights, NY 10598

IBM

September 3, 2020

To whom it may concern,

This letter is to certify that Mohammad Ghazivakili has successfully completed and achieved of passing grade at the 2020 Qiskit Global Summer School hosted July 20-31 by IBM Quantum – Quantum Education and Open Science. This letter is accompanied by Mohammad's final Certificate of Quantum Excellence.

Coursework overview is available below, in addition to reference links for the Qiskit Global Summer School and content review.

Course Name:	**Qiskit Global Summer School**
Course Completion Date:	**July 31st, 2020**
Course Instructor:	**Abraham Asfaw**
	(supplemental instructors listed in overview below)
Course Learning Time:	**36 hours** + Supplemental Student Work
Final Score:	**100%**
Certification Received:	**Certificate of Quantum Excellence**

COURSE OVERVIEW

Date	Coursework Topic	Instructor(s)	Duration
July 20, 2020	Qubits and Quantum States, Quantum Circuits, Measurements	Elisa Bäumer Abraham Asfaw	3-hour lecture 1-hour lab
July 21, 2020	Writing and Running Quantum Programs	Elisa Bäumer Abraham Asfaw	3-hour lecture 1-hour lab
July 22, 2020	Shor's Algorithm I: Quantum Fourier Transform, Quantum Phase Estimation	Abraham Asfaw	3-hour lecture 1-hour lab
July 23, 2020	Shor's Algorithm II: From Factoring to Period-Finding, Writing the Quantum Program	Abraham Asfaw	3-hour lecture 1-hour lab
July 24, 2020	Quantum Error Correction using Repetition Codes	James Wootton	3-hour lecture 1-hour lab
July 27, 2020	Superconducting Qubits I: Quantizing a Harmonic Oscillator, Josephson Junctions	Zlatko Minev Nick Bronn	3-hour lecture 1-hour lab
July 28, 2020	Superconducting Qubits II: Circuit Quantum Electrodynamics, Readout & Calibration Methods	Zlatko Minev Nick Bronn	3-hour lecture 1-hour lab
July 29, 2020	Quantum Chemistry I: Obtaining the Qubit Hamiltonian for H2 and LiH	Antonio Mezzacapo Abhinav Kandala	3-hour lecture 1-hour lab
July 30, 2020	Quantum Chemistry II: Finding the Ground States of H2 and LiH	Abhinav Kandala Antonio Mezzacapo	3-hour lecture 1-hour lab

With regards,

Abraham Asfaw

Abraham Asfaw
Quantum Education and Open Science – IBM Quantum