

# Advocate Guide: Qiskit v2.X Certification

# Overview

We are excited to share that a new Qiskit Certification is on the way and will be released soon!

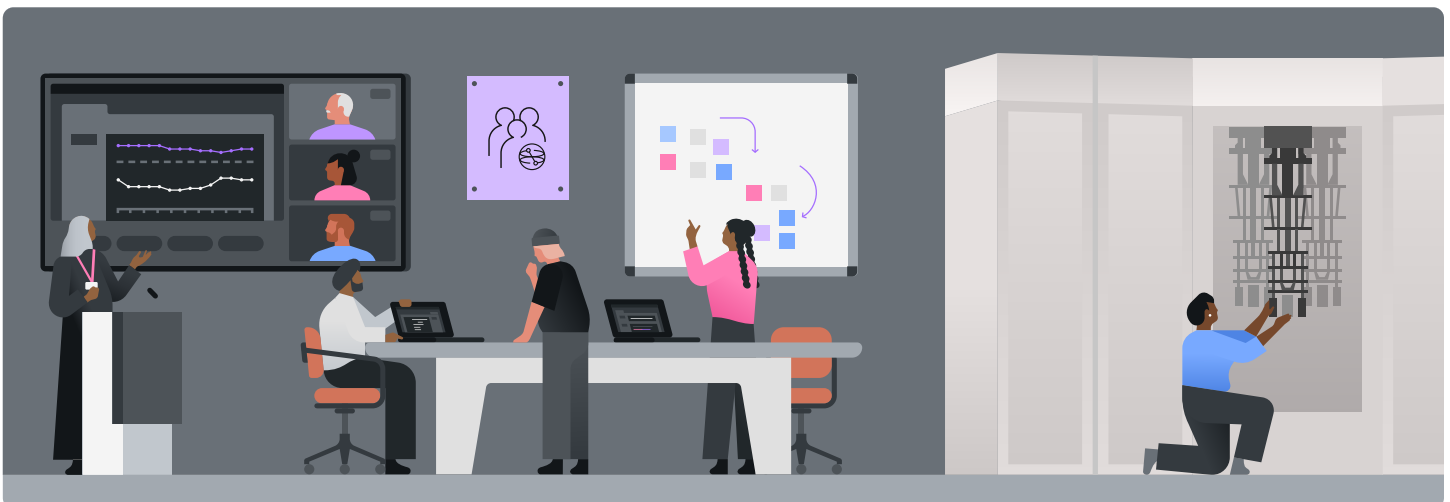
The Qiskit v2.X Certification is designed to validate your expertise in quantum computing using the latest in Qiskit, and by preparing for the associated examination, you will not only enhance your knowledge but also demonstrate your sustained proficiency in quantum programming.

As valued Qiskit Advocates, we want to provide you with a sneak peak of the Qiskit v2.X Certification exam, so that you can start preparing for this important certification.

On the following page you will find a syllabus and list of the topics covered in the Qiskit v2.X Certification exam. Alongside the topics, we have prepared a list of helpful resources you may use to prepare.

As you go through the topics and resources, please feel free to use the Qiskit advocate hub on Discord to discuss concepts with, ask questions to, and get help from your peers. You may use the [Qiskit forum](#) to do so.

We look forward to having you be among the first to obtain the new Qiskit v2.X Certification and appreciate your ongoing dedication and contributions to the Qiskit community.



Qiskit v2.X Certification Exam Topics	Resources
<b>Perform quantum operations</b> <ul style="list-style-type: none"> <li>Define Pauli Operators</li> <li>Apply quantum operations</li> </ul>	<ul style="list-style-type: none"> <li><a href="#">Documentation: Operators overview</a></li> <li><a href="#">Documentation: Operator class</a></li> </ul>
<b>Visualize quantum circuits, measurements, and states</b> <ul style="list-style-type: none"> <li>Visualize quantum circuits</li> <li>Visualize quantum measurements</li> <li>Visualize quantum states</li> </ul>	<ul style="list-style-type: none"> <li><a href="#">Documentation: Visualize circuits</a></li> <li><a href="#">Documentation: Visualize results</a></li> <li><a href="#">Documentation: Plot quantum states</a></li> </ul>
<b>Create quantum circuits</b> <ul style="list-style-type: none"> <li>Construct basic quantum circuits</li> <li>Construct dynamic circuits</li> <li>Construct parameterized circuits</li> <li>Transpile and optimize circuits</li> </ul>	<ul style="list-style-type: none"> <li><a href="#">Documentation: Construct circuits</a></li> <li><a href="#">Documentation: Circuit library</a></li> <li><a href="#">Documentation: Classical feedforward and control flow</a></li> <li><a href="#">Documentation: Parameterized circuits</a></li> <li><a href="#">Video: Introduction to transpilation</a></li> <li><a href="#">Documentation: Introduction to Transpilation</a></li> <li><a href="#">Documentation: Optimize for hardware</a></li> <li><a href="#">Documentation: Set transpiler optimization level</a></li> </ul>
<b>Run quantum circuits</b> <ul style="list-style-type: none"> <li>Differentiate execution modes to optimize job queuing</li> <li>Run quantum circuits with a real hardware in the IBM Runtime provider</li> </ul>	<ul style="list-style-type: none"> <li><a href="#">Documentation: Execution modes</a></li> <li><a href="#">Documentation: Execute on hardware</a></li> <li><a href="#">Documentation: Get started with primitives</a></li> </ul>
<b>Use the sampler primitive</b> <ul style="list-style-type: none"> <li>Set sampler primitive options such as resilience levels</li> <li>Bypass runtime error mitigations and implement your own</li> <li>Understand the theoretical background behind the sampler primitive</li> </ul>	<ul style="list-style-type: none"> <li><a href="#">Video: An Introduction to Qiskit Runtime Primitives V2</a></li> <li><a href="#">Documentation: Sampler options</a></li> </ul>
<b>Use the estimator primitive</b> <ul style="list-style-type: none"> <li>Set estimator primitive options such as resilience levels</li> <li>Understand the theoretical background behind the estimator primitive</li> </ul>	<ul style="list-style-type: none"> <li><a href="#">Video: An Introduction to Qiskit Runtime Primitives V2</a></li> <li><a href="#">Documentation: Estimator options</a></li> </ul>
<b>Retrieve and analyze the results of quantum circuits</b> <ul style="list-style-type: none"> <li>Retrieve previous experiment results (session/runtime)</li> <li>Monitor jobs</li> </ul>	<ul style="list-style-type: none"> <li><a href="#">Documentation: Save and retrieve jobs</a></li> <li><a href="#">Documentation: Monitor or cancel a job</a></li> </ul>
<b>Operate with OpenQASM</b> <ul style="list-style-type: none"> <li>Structure types in OpenQASM 3 programs</li> <li>Interpret OpenQASM semantics for versions 2 and 3</li> <li>Interoperate different versions of OpenQASM with Qiskit</li> <li>Interact with the Qiskit IBM Runtime REST API</li> </ul>	<ul style="list-style-type: none"> <li><a href="#">Documentation: Introduction to QASM</a></li> <li><a href="#">OpenQASM types and casting</a></li> <li><a href="#">OpenQASM syntax</a></li> <li><a href="#">Documentation: OpenQASM 3 and the Qiskit SDK</a></li> <li><a href="#">Documentation: OpenQASM 2 and the Qiskit SDK</a></li> <li><a href="#">Documentation: Qiskit Runtime REST API</a></li> </ul>