

# Essentials of Monitoring Critical Systems

## Key information

Course code	Essentials of Monitoring Critical Systems
Course version	1.0
Course title	Essentials of Monitoring Critical Systems
Description	<p>This course provides an overview of Google Cloud Monitoring. Participants will learn to monitor across multiple projects, build insightful dashboards, and create uptime checks for resource availability. They will explore querying with Prometheus Query Language (PromQL) for advanced analysis and learn how to enhance observability using the AI-powered capabilities of Google Cloud Gemini.</p>
What you'll learn	<ul style="list-style-type: none"><li>Describe the purpose and key components of Google Cloud Monitoring.</li><li>Use Cloud Monitoring to view metrics for multiple cloud projects.</li><li>Explain the different types of dashboards and charts that can be built in Cloud Monitoring.</li><li>Explain the purpose of using Prometheus Query Language (PromQL) for monitoring.</li><li>Create uptime checks to monitor resource availability.</li><li>Explain how Google Cloud Gemini can be used to enhance application observability and assist with monitoring tasks.</li></ul>
Duration	3 hours
Level	Intermediate
Format	Instructor-led

## Content overview

Who this course is for	Cloud Engineers, Site Reliability Engineers, System Administrators, anyone responsible for monitoring Google Cloud environments
Total modules	7
Total videos	0
Total Labs	0
Total classroom activities	3
Prerequisites	<ul style="list-style-type: none"> <li>• GCP fundamentals</li> <li>• General Cloud and IT concepts</li> </ul> <p><i>Helpful to be familiar with:</i></p> <ul style="list-style-type: none"> <li>• Monitoring Tools familiarity</li> <li>• App/Dev background</li> <li>• DevOps and SRE principles</li> </ul>
Products	Google Cloud Monitoring Prometheus
Not covered	—

## Content breakdown

Module 1 title	Monitoring overview
Module 1 topics	<ol style="list-style-type: none"> <li>1. Introduction to Cloud Monitoring</li> <li>2. Cloud Monitoring architecture patterns (platform monitoring, application monitoring for GKE and Compute Engine, hybrid monitoring)</li> </ol>
Module 1 objectives	<ul style="list-style-type: none"> <li>• Describe the purpose and key components of Google Cloud Monitoring.</li> </ul>
Module 1 activities	none
Module 2 title	Monitoring multiple projects

<b>Module 2 topics</b>	<ol style="list-style-type: none"> <li>1. Understanding metrics scopes</li> <li>2. Monitoring project configurations</li> </ol>
<b>Module 2 objectives</b>	<ul style="list-style-type: none"> <li>• Use Cloud Monitoring to view metrics for multiple cloud projects.</li> </ul>
<b>Module 2 activities</b>	none
<b>Module 3 title</b>	Data model and dashboards
<b>Module 3 topics</b>	<ol style="list-style-type: none"> <li>1. Cloud Monitoring data model (time series data, metrics, resources, etc.)</li> <li>2. Predefined and custom dashboards</li> <li>3. Dashboard builder</li> <li>4. Metrics Explorer</li> <li>5. Chart display options and configurations</li> </ol>
<b>Module 3 objectives</b>	<ul style="list-style-type: none"> <li>• Explain the different types of dashboards and charts that can be built in Cloud Monitoring.</li> </ul>
<b>Module 3 activities</b>	none
<b>Module 4 title</b>	Query metrics
<b>Module 4 topics</b>	<ol style="list-style-type: none"> <li>1. Querying metrics using PromQL</li> <li>2. Google Cloud Managed Service for Prometheus</li> </ol>
<b>Module 4 objectives</b>	<ul style="list-style-type: none"> <li>• Explain the purpose of using Prometheus Query Language (PromQL) for monitoring.</li> </ul>
<b>Module 4 activities</b>	<ol style="list-style-type: none"> <li>1. Demo: Ops Agent on Compute Engine instance</li> <li>2. Demo: Custom metrics using Managed Service for Prometheus with GKE</li> <li>3. Demo: Custom metrics using Managed Service for Prometheus with Cloud Run</li> </ol>
<b>Module 5 title</b>	Uptime checks
<b>Module 5 topics</b>	<ol style="list-style-type: none"> <li>1. Purpose and creation of uptime checks</li> <li>2. Uptime check configurations and options</li> <li>3. Relating uptime checks to alerting policies</li> </ol>
<b>Module 5 objectives</b>	<ul style="list-style-type: none"> <li>• Create uptime checks to monitor resource availability.</li> </ul>
<b>Module 5 activities</b>	none
<b>Module 6 title</b>	Enhancing application observability with Google Cloud Gemini
<b>Module 6 topics</b>	<ol style="list-style-type: none"> <li>1. Using Gemini Cloud Assist chat from the Google Cloud console to periodically test your service's availability, performance, and</li> </ol>

	consistency through simulated requests.
<b>Module 6 objectives</b>	<ul style="list-style-type: none"><li>• Explain how Google Cloud Gemini can be used to enhance application observability and assist with monitoring tasks.</li></ul>
<b>Module 6 activities</b>	none
<b>Module 7 title</b>	Essentials of Monitoring Critical Systems: Quiz
<b>Module 7 topics</b>	1. Knowledge check on monitoring critical systems
<b>Module 7 objectives</b>	N/A
<b>Module 7 activities</b>	none