

*Free Guide*

# CRE: Certified Reliability Engineer



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# What is a Certified Reliability Engineer?

A CRE is an engineering professional who understands how to assess and predict the performance of (often industrial) products, processes and systems such as machinery, electronics, and manufacturing lines. They focus on enhancing reliability and safety.

A CRE certification encompasses the following areas, as outlined by the ASQ:

- Design review and control
- Prediction, estimation, and apportionment methodology
- Failure mode effects and analysis
- Reliability testing (planning, operation and analysis)
- Design and performance improvement
- The human factors of reliability
- Reliability information systems for failure analysis
- Reliability program management for the product life cycle

## Who needs a CRE certification?

A CRE certification is beneficial for organizations in industries such as manufacturing, healthcare, and technology, which want to demonstrate their employees' expertise in industrial safety, reliability, and maintainability.

The certification is not typically mandatory by law or regulation for most professions or industries. However, some employers may require or prefer employees to have this certification, and employees will often find the certification beneficial when job-seeking.

# How to become a Certified Reliability Engineer

Candidates for CRE certification will need eight years of experience in an area of [the CRE “Body of Knowledge” outlined by the ASQ](#), which include design review and control, apportionment methodology, and failure mode and effects analysis. Three of those years must be in a leadership position. Those that possess degrees from accredited educational institutions are eligible to have part of this required waived, depending on the level of diploma or degree.

Should they possess the required experience, candidates can then apply and register with the ASQ for the CRE exam. The CRE exam consists of 165 multiple choice questions (150 questions for the pen and paper exam). Candidates have up to four hours and 18 minutes to complete the exam. Exam costs are USD \$533. Retakes cost USD \$333.

## Renewal requirements for Certified Reliability Engineers

CRE certifications are valid for three years. During this time, certification holders must earn 18 “recertification units” through the ASQ by attending courses, conferences, or other forms of professional development. Alternatively, they can also opt to retake the CRE exam.

## The benefits of CRE certification

CRE-certified employees offer several benefits to organizations. Some key advantages include the following.



### **Precision maintenance planning**

Individuals with CRE certifications are able to develop precision maintenance plans to reduce unplanned downtime, as well as ensure optimal equipment or machinery performance.



### **Reliability-centered design**

CREs can apply reliability-centered design principles to optimize product design to minimize potential failures. This can result in increased product durability and improved product quality.



### **Root cause analyses**

CRE-certified individuals can often conduct root cause analyses. This method of identifying and addressing the underlying causes of failures enhances equipment reliability, mitigates risks, and contributes to prolonged asset life, especially in critical infrastructure systems.

# Challenges in CRE certification

CRE certifications may pose several challenges to individuals and organizations. They include the following.



## Resource constraints

The resources – in terms of both time and budget – can pose a challenge to those seeking CRE certification, as they must often balance work with certification preparation.



## Exam complexity

CRE-certified individuals possess a thorough understanding of complex reliability models and statistical analyses. This requires them to have made a substantial investment in learning and preparing for the exam.



## Industry-specific knowledge

CRE candidates often face challenges in using general reliability principles within industry-specific contexts, especially if they are not experts in specific industries. This means organizations may have difficult times externally hiring a CRE, and may be better off upskilling an existing employee.

## Tips and strategies for preparing for a CRE certification

Here are a few tips for preparing for CRE certification:

- Read the [Reliability Engineer Certification Brochure](#)
- Familiarize yourself with the [Reliability Engineer Certification Fact Sheet](#)
- Understand the [Certified Reliability Engineer Body of Knowledge](#)
- Prepare for the exam with the [CRE Question Bank](#)

## Resources for CRE certification

For more information and guidance on CRE certification, refer to the following source.

**American Society for Quality.** The [ASQ is the official certification body for CRE certification](#). Its website offers a wealth of resources, including exam information and the [CRE “Body of Knowledge.”](#)

**Engineering skills matrices.** AG5 offers several [free skills matrices](#) dedicated to engineering. You can use it to identify, track, and manage skills related to CRE certifications in your organization.

## Skills management for Certified Reliability Engineers

AG5 stores all certifications in the cloud, providing all authorized personnel with access to the right version of approved certifications. This helps you easily keep track of all data and documentation related to CRE certification across your organization.

Using AG5’s skills management software, you can monitor the status of any type of certification that is relevant to your workforce, leveraging intuitive dashboards that provide you with a clear understanding of exactly what is needed to keep your employees skilled and safe.

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# **FAQs about CRE certification**

## **What is the scope of a CRE certification?**

A CRE certification signifies expertise in assessing and predicting the performance of industrial products, processes and systems.

## **Is a CRE certification mandatory?**

CQE certification is not mandatory, but may be required by certain organizations or for certain roles.

## **How long does it take to obtain CRE certification?**

Preparation times will vary, depending on the candidate. However, all candidates are given four hours and 18 minutes to complete the exam.

## **What are the cost considerations for CRE certification?**

The cost considerations for Certified Reliability Engineer (CQE) certification include exam fees (USD \$533) study materials, training courses, potential retake fees (USD \$333), and expenses related to maintaining certification through recertification requirements.

## **What is the validity period of a CRE certification?**

CRE certifications are valid for three years. They can be renewed through ASQ-approved methods of professional development, or by retaking the CRE exam.

## **Can CRE be integrated with other management systems?**

Yes, CRE principles and methodologies can be integrated with management systems such as [ISO 9001 \(Quality Management\)](#) or [ISO 14001 \(Environmental Management\)](#).

## **How can you learn more about CRE certification?**

Visit the [American Society for Quality's website](#).

## **Sources**

- [American Society for Quality](#)
- [CRE Body of Knowledge](#)
- [CRE Question Bank](#)

## **Author**



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## Revisions

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