

# WHY BECOME A CERTIFIED RELIABILITY ENGINEER?

**As a Certified Reliability Engineer (CRE)** you will understand how to use the principles of performance evaluation and prediction to improve product/system safety, reliability, and maintainability. CREs use engineering, probability, statistics, and other tools to ensure that their products and systems are more efficient and reliable.

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## What Are the Core Competencies of a CRE?

- A broad overview of reliability fundamentals including predictive modeling, root cause analysis, mean time to failure (MTTF), corrective and preventive action (CAPA), and more.
- Identification, analysis, and mitigation of risk using techniques such as fault tree analysis (FTA), failure mode and effect analysis (FMEA), hazard analysis, and need for design change.
- Analysis, management of data, and insights using probability statistics for reliability.
- Application of reliability planning, testing (accelerated life, stress screening, etc.), and modeling (reliability block diagrams, failure models, etc.) to inform design choices.
- A focus on life-cycle reliability through design techniques such as stress-strength analysis, design of experiments (DOE), design for reliability (DfR), and maintainability strategies.

## What Is the Value to Your Company?

Optimal reliability engineering can:

- Increase the useful lifetime of products, reduce the time to market, and improve service.
- Reduce equipment downtime, life-cycle cost, and the costs of failure and warranty.
- Determine and correct the causes of failures before failures occur.
- Increase customer satisfaction through fewer unit failures.
- Improve safety through risk reduction.
- Maintain reliability during the rapid evolution of new material, methods, and complex systems.

## What Is the Value to You?

- An improved skill set qualifies you for more positions within the modern business environment.
- CREs make \$7,423 more on average than those who do not have a certification.\*

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*\*Salary data can be found in the Quality Progress Salary Survey, December 2016, pp. 14-42.*

[asq.org/quality-progress/2016/12/salary-survey/2016-the-complete-report.html](http://asq.org/quality-progress/2016/12/salary-survey/2016-the-complete-report.html)



## Qualifications and Requirements for CRE Certification

Candidates must have eight years of on-the-job experience in one or more of the areas of the Certified Reliability Engineer Body of Knowledge.

### Education

Candidates who have completed a degree from a college, university, or technical school can waive some part of the eight-year experience requirement as follows (only one of these waivers may be claimed):

- Diploma from a technical or trade school—one year waived
- Associate's degree—two years waived
- Bachelor's degree—four years waived
- Master's or doctorate degree—five years waived

## Reliability Engineer Professional Learning Resources and Certification Preparation

- CRE Certification Preparation Training (online learning)
- *The Certified Reliability Engineer Handbook*
- Reliability Engineer Division—an ASQ professional network

### Recertification Required?

Yes, every three years.

### How to Enroll for Certification

Visit [asq.org/cert](http://asq.org/cert)

# MARKETPLACE INFORMATION

### COMMON JOB FUNCTIONS

Commodity Risk Assessment Engineer
Principal Scientist
Product Development Engineer
Quality Engineer
Reliability Engineer
Risk and Reliability Analyst
Safety Engineer
Statistician
Systems Engineer
Test Engineer
Validation Engineer

### COMMON INDUSTRIES

Aerospace
Automotive
Biomedical
Electronics
Government
Manufacturing
Medical Devices
Oil/Gas/Energy
Service
Telecommunications
Transportation

### Key Market Trends

- There is a demand for Certified Reliability Engineers due to the increase of warranted products across markets.
- More industries are requiring compliance to reliability and safety standards.