

CERTIFICATION

FOR INDIVIDUALS

Advance your knowledge and your career.

Whether you are just starting out, or you are a seasoned professional, certification can help you become a high-value commodity to your employer and be among the most sought-after individuals in your industry. Certifications not only help you attain knowledge, they prove it. Certifications are a recognized and respected industry credential.

Why Certification?

- Validates your knowledge against industry standards.
- Provides a portable, industry-recognized credential that travels with you throughout your career.
- Enhances your career opportunities – certification can provide a competitive advantage in the job market.
- Improves your marketability by demonstrating your commitment to continuous learning.

Programs

Certified Manufacturing Technologist (CMfgT)

This entry-level certification benefits both new manufacturing engineers and experienced manufacturing engineers without other credentials. Pursuing a CMfgT certification requires a minimum of four years combined manufacturing-related education and/or work experience. sme.org/CMfgT

“Certification has helped me become more aware of expectations relating to my profession, and has required me to stay involved and active. Through a relatively short time my certifications have brought me a “step up” from peers who are not involved in learning new technologies.”

Steve Piotrowski, CMfgT, CMfgE

Certified Manufacturing Engineer (CMfgE)

Explore earning your CMfgE certification if you have advanced manufacturing engineering experience. Pursue this certification if you are in a leadership position or have supported manufacturing practices and processes at your organization. Earning a CMfgE certification requires a minimum of eight years combined manufacturing-related education and work experience (a minimum of four years must be work experience). A CMfgT qualifies for this certification with a minimum of seven years combined manufacturing-related education and work experience. sme.org/CMfgE

Lean Certification

Individuals with Lean Certification are in great demand. Most organizations today recognize the value of lean and want practitioners who can help them begin or continue their lean journey. Lean Certification gives you a way to distinguish yourself from others and advance in your career. It is a journey that weaves innovative ways of thinking and doing business with real-world applications and proven results. Lean Certification not only helps you attain the knowledge, it validates it. Lean Certification is offered in Bronze, Silver, and Gold.



Candidates can apply for certification at the rank that is most appropriate to their current work, knowledge, and experience.

The industry-leading Lean Certification program is the result of a partnership among four leading non-profit organizations that collectively set the standard for operational excellence and an improved workforce. The Lean Certification Alliance – American Society for Quality (ASQ), Association for Manufacturing Excellence (AME), Shingo Institute, and SME – draws on their collective experience and the proven practices of thousands of individuals to provide continuous improvement practitioners in-depth access to the latest lean and continuous improvement thinking and best practices. sme.org/leancert

Electrical/Electronics Technology (EET) Certificate

The EET assessment is provided through a strategic partnership with two formative electronic and engineering associations, IEEE and ECETDHA. The exam is designed to provide an assessment of your electrical and electronics engineering technology knowledge. You can use it to identify areas for further training and development. sme.org/eet

Green Manufacturing Specialist Certificate

For those with specialized manufacturing skills, the Green Manufacturing Specialist Certificate allows you to add sustainability to your experience. SME, along with the Purdue University Technical Assistance Program (TAP), offers this assessment to obtain your Green Manufacturing Specialist Certificate. sme.org/green

Engineering Manager Professional Certifications

If you want to put yourself on a management career path, these certifications are especially advantageous. SME, through a partnership with the American Society for Engineering Management (ASEM), offers you the opportunity to attain your engineering manager professional certification at two levels. The Associate Engineering Manager (AEM) certification is designed for young technical professionals with a BS degree in engineering or a related field. The Professional Engineering Manager (PEM) is ideal for experienced technical managers with a BS in engineering or a related field and five years of professional experience.

sme.org/empc

Six Sigma Certification

Join the elite group of professionals devoted to process improvement. Through an agreement with the Ira A. Fulton School of Engineering at Arizona State University, three world-class Six Sigma certification programs are offered: Six Sigma Green Belt, Six Sigma Black Belt, and Six Sigma Master Black Belt.

sme.org/asusixsigma

Take control of your personal success and start your path toward a professional certification today. To get started, call us today at 800.733.4763 or email certification@sme.org.

CERTIFICATION

FOR COMPANIES

Keep your workforce advancing at the speed of business.

In a recent study, more than 82% of manufacturers reported a moderate to serious skills shortage.¹ Is it affecting your business? Will your organization continue to grow if your workforce does not have the knowledge that can build the skills to keep up?

Use the right tools to assess, develop, and certify your workforce.

Did you know that approximately 90% of companies using certification programs to develop their workforce see a positive return on investment?¹ Providing your employees with the opportunity to build their knowledge base allows you to tackle the skills shortage head on.

Enhance your workforce knowledge to meet your needs.

We will work with you to evaluate and uncover knowledge gaps in your organization and configure a customized development program for your workforce. Using our resources and tools, we will develop competencies so you can achieve better individual and organizational performance.

Why certify your workforce?

- Improve overall performance – as your workforce’s performance improves so does your organization.
- Reduce turnover – companies report as much as a 50% reduction in turnover from hiring certified employees.¹
- Provide objective evaluation against your company’s goals.
- Identify workforce knowledge gaps and create customized development plans.
- Identify and evaluate strengths and weaknesses within your operations.
- Provides employees with the opportunity for advancement, continuous improvement, and credibility.
- Investing in employees’ development shows you place a high value on their contribution – increasing their commitment and loyalty.
- Provides industry accepted and approved validation.
- Demonstrates employee proficiency through validation of skills.
- Invest in the future quality and growth of your operations.
- Strengthen relationships with partners, customers, and suppliers and be recognized for specific capabilities.

“As a hiring manager and an SME member, I know that a candidate possessing a CMfgE certification from SME has the knowledge and experience to walk-the-talk. There is no shortcut to obtaining the CMfgE credential – you have to earn it through experience. That’s why I respect the credential when I see it on a potential employee’s application.”

Troy Pierson, CMfgE
Manufacturing Program Manager
BAE Systems



Programs

Certified Manufacturing Technologist (CMfgT)

This certification offers you the assurance that your entry-level engineers have validated manufacturing knowledge. It also provides experienced employees without other credentials the opportunity to attain authentic validation of their knowledge against industry standards. It requires a minimum of four years of combined manufacturing-related education and/or work experience. sme.org/CMfgT

Certified Manufacturing Engineer (CMfgE)

Validate the knowledge of your workforce with advanced manufacturing experience and determine areas for improvement. Earning a CMfgE certification requires a minimum of eight years combined manufacturing-related education and work experience (a minimum of four years must be work experience). A CMfgT qualifies for this certification with a minimum of seven years combined manufacturing-related education and work experience. sme.org/CMfgE

Lean Certification

Lean has found its way into businesses across every industry – from manufacturing to medical – for good reason. It's a smarter way of doing business that saves time, money, and resources while reducing waste. Implementing lean processes requires a workforce that can apply these practices in a meaningful way. Lean Certification validates your employees' lean knowledge and utilizes skills that can advance your organization.

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To get started, call us at 866.706.8665 or email info@toolingu.com. We will work with you to develop a customized plan to meet your goals and objectives. sme.org/corporate

1 - The Manufacturing Institute. "Developing Skilled Workers: A Toolkit for Manufacturers on Recruiting and Training a Quality Workforce."

CERTIFICATION

FOR EDUCATORS

Rely on resources to enrich your curriculum.

As an educator, you are challenged to provide the education students need to begin successful careers in manufacturing and related fields. By incorporating certifications and assessments into your curriculum, you can determine if students achieve the intended learning outcome.

The benefits of certification and assessments.

You can utilize certifications and assessments to add value to your course and help align it to current industry needs.

- Provides objective measurement against program objectives for grants and funding approval.
- Supports ABET or other accreditation requirements for measuring learning outcomes.
- Improves understanding of knowledge transfer from you to your classroom.
- Identifies strengths and weaknesses within your curriculum program.
- Enables you to evaluate future curriculum content decisions.
- Establishes trends over time to identify how curriculum changes directly affect the exam's outcome.
- Gives students a credential from day one as they start new careers.
- Helps students build qualifications for future roles and prepare for careers in the industry.

Programs

Certified Manufacturing Technologist (CMfgT)

This is an effective outcome assessment tool for four-year manufacturing and engineering technology programs. Use this tool to ensure successful knowledge transfer and to provide your students with an entry-level career credential upon passing the exam. sme.org/CMfgT

"We have been using the CMfgT exam for years at Wentworth Institute of Technology. The exam is an excellent tool in our ABET accreditation efforts. Our students enjoy the challenge of preparing for a rigorous exam and it works wonders with the esprit de corps of our SME student section. We appreciate the hard work that goes into maintaining such an excellent exam process."

Peter Rourke, CMfgE
Wentworth Institute of Technology

Lean Knowledge Certificate

Incorporate the Lean Bronze exam as an outcome assessment for your curriculum and provide students with the opportunity to establish their lean knowledge. Passing the exam provides your students with a Lean Knowledge Certificate (not a certification), which is a first step toward earning a Lean Bronze Certification. sme.org/educators



Electrical/Electronic Engineering Technology (EET)

This outcome assessment tool answers the need for a comprehensive, nationally normed exam that provides a valid assessment of the cumulative knowledge of students completing an EET program. The EET outcome assessment is endorsed and developed by SME, the Electrical/Electronics Department Heads Association (ECETHDA), and the Institute of Electrical and Electronics Engineers (IEEE) to document trends in student performance, evaluate program curriculum, and support accreditation requirements. sme.org/eet

"You shouldn't need to sell the CMfgT exam, people should be lining up to take it. Having this certification on my resume probably landed me more interviews than just listing my college degree. Companies seem to put less emphasis on graduating college. They want to know what you did in college. This is one of the most marketable things that I did."

Chad Crumley, CMfgT
Graduate, Wentworth Institute of Technology

Green Manufacturing Specialist Certificate

SME, along with the Purdue University Technical Assistance Program (TAP), offers this assessment for students to obtain a Green Manufacturing Specialist Certificate. Use it to add sustainability to your curriculum for students who want specialized manufacturing skills. sme.org/green

To get started, call us at 866.706.8665 or email info@toolingu.com. We will work with you to develop a customized plan and provide recommendations to complement your program. sme.org/educators

CERTIFICATION

LEAN CERTIFICATION

The lean journey is your path to success.

Individuals with Lean Certification are in great demand. Most organizations today recognize the value of lean and want practitioners who can help them begin or continue their lean journey. Lean Certification gives you a way to distinguish yourself from others and advance in your career. It is a journey that weaves innovative ways of thinking and doing business with real-world applications and proven results. Lean Certification not only helps you attain the knowledge, it validates it.

The industry-leading Lean Certification program is the result of a partnership among four leading non-profit organizations that collectively set the standard for operational excellence and an improved workforce. The Lean Certification Alliance – American Society for Quality (ASQ), Association for Manufacturing Excellence (AME), Shingo Institute, and SME – draws on their collective experience and the proven practices of thousands of individuals to provide continuous improvement practitioners in-depth access to the latest lean and continuous improvement thinking and best practices.

The ultimate journey to lean.

Lean Certification is an evolutionary journey, where your knowledge and experience work together to create a depth of expertise upon which you can keep building. Lean Bronze, Silver, and Gold Certifications are valid for three years.

"I earned my Lean Bronze Certification while working within the automotive industry. When my position was eliminated due to restructuring, I was able to leverage my certification to make a successful transition to the healthcare industry. The knowledge that I gained going through the lean journey is invaluable."

Tim Pettry, LBC
Senior Business Management Practices Specialist
Cleveland Clinic

Lean Bronze Certification

Learn the fundamentals of lean from a tactical perspective.

Your education and training focuses on how to apply lean principles, concepts, and methods **within a work cell, work group, or value stream**. Your first step is to pass the Lean Bronze Certification exam, for which you'll receive a Lean Knowledge Certificate. To become certified, you must demonstrate your lean training and development through a Lean Bronze Portfolio which contains three tactical projects and a reflection. These reveal your ability to implement lean principles that drive improvement and show measurable results.
sme.org/bronze

Lean Silver Certification

Integrate your lean knowledge with leadership experience.

Lean Silver Certification represents your career progression in knowledge and responsibility as you become a senior employee and team leader. It also acknowledges your continuing education and training. Once you pass the Lean Silver Certification exam, you will build an Accomplishment Record which demonstrates your



ability to apply basic principles and philosophies, systems, techniques, tools, and practices of a continuous process improvement **within a complete value stream transformation**. Mentoring is required and confirms your ability to lead and coach a team in the preparation, design, and execution of value stream transformations. sme.org/silver

Lean Gold Certification

Apply lean knowledge to a strategic transformation.

Lean Gold Certification recognizes your competencies in all aspects of lean transformation across an entire enterprise. It represents career progression to a point of influence and authority over assets, processes, and people. To certify at Lean Gold, your Accomplishment Record must demonstrate your ability to apply basic principles and philosophies, systems, techniques, tools, and practices of a continuous process improvement **within an entire organization**. An exam, mentoring, and an interview are also required. sme.org/gold

Take control of your personal success and start your lean journey today. sme.org/leancert

Preparing for Lean Certification

A number of resources and tools are available to prepare for the Lean Certification exams. For more information visit sme.org/leancert and sme.org/prepare.

Classroom Review Program for Lean Bronze Certification

This instructor-led, collaborative review program helps candidates gain an excellent foundation for completing the Lean Certification program. An interactive group review of tactical lean principles helps solidify your understanding of the Body of Knowledge and key lean concepts and prepares you for the Lean Bronze Certification exam. You'll also learn about the portfolio requirements. sme.org/lean-review

Lean Online Review Program (LORP)

This program allows you to stay up-to-date on the latest lean principles anytime, anywhere. These eight online courses review the key lean principles, concepts, and tools covered in the Lean Certification Body of Knowledge, on a tactical level (Bronze). You can purchase the program through our online store. Please keep in mind that this review program is NOT intended to be lean training. sme.org/lean-onlinereview

Lean Registry

The Lean Registry is a free online community to connect and network with other lean practitioners. The Lean Registry allows users to post their needs and expertise directly to their profile, create virtual groups, and connect in a secure environment. Registrants can easily search through shared profiles to and connect with others. sme.org/leanregistry



CERTIFICATION

PREPARING FOR CERTIFICATION

Preparing is the first step to success.

Earning a Certified Manufacturing Technologist (CMfgT) and/or a Certified Manufacturing Engineer (CMfgE) certification requires an investment of time and energy that will reap dividends throughout your career.

Start your preparation early by reviewing the Body of Knowledge, Competency Model, and recommended reading material. Place special focus on your areas of weakness. The Body of Knowledge outlines the exam testing topics.

- Body of Knowledge – sme.org/technicalbok
- Competency Model – sme.org/competencymodel
- Recommended Reading – sme.org/technicalreading
- Preparation Resources – sme.org/prepare

Recommended Reading

Fundamentals of Manufacturing, Third Edition, by Philip D. Rufe, CMfgE (sme.org/fom3), is the recommended review book for the CMfgT and CMfgE exams. The *Fundamentals of Manufacturing Workbook* is an optional study tool for the exams.

“Certification has been beneficial, personally and professionally. Not only has it expanded my knowledge and qualifications. It also shows others that I have initiative - by deciding to acquire certification on my own. And now I have bragging rights; that I was able to pass this comprehensive exam which is no small feat.”

Linda Wheeler, CMfgE

Additional review books include:

- Bakerjian, Ramon and Cubberly, William H. (1989). *Tool and Manufacturing Engineer’s Handbook*. Dearborn, MI: SME. ISBN: 978-0872633513
- Oberg, Erik (2012). *Machinery’s Handbook* (29th Ed.). Norwalk, CT: Industrial Press. ISBN: 978-0831129002 (available in a variety of formats including toolbox size, large print, and CD-ROM)
- Nee, John G. (2010). *Fundamentals of Tool Design* (6th Ed.). Dearborn, MI: SME. ISBN: 978-0872638679
- Schrader, George F. and Elshennawy, Ahmad K. (2014). *Manufacturing Processes and Materials* (5th Ed.). Dearborn, MI: SME. ISBN: 978-0872638716

With the exception of *Tool and Manufacturing Engineer’s Handbook* and *Machinery’s Handbook*, books are available in eBook format. You can bring the eBook format to the exam. For online exams, the eBook(s) must be on a different device than the device on which you are taking the exam.

Evaluate your Knowledge

These self-assessments and review programs can help assess your readiness for taking the exam and determining where you are now – your knowledge, strengths, and weaknesses.

Certified Manufacturing Technologist (CMfgT) Self-Assessment

This online self-assessment helps evaluate your manufacturing knowledge and prepare you for the exam. Through a series of approximately 195 questions, the assessment determines your strengths and weaknesses by knowledge area. You will receive access to five practice test attempts. Test results provide a score report based on your performance and correlate to the Body of Knowledge. sme.org/CMfgT-assessment

Certified Manufacturing Technologist (CMfgT) Online Review Program

This online review program is comprised of 62 classes mapped to the Body of Knowledge. Licensing is available to educators. sme.org/CMfgT-onlinereview

Features include:

- Vocabulary and definitions (printable)
- Downloadable PDF of each lesson
- Pre- and post-course tests
- Interactive exercises
- 24/7 online access
- One-year online access from date of purchase

Certified Manufacturing Engineer (CMfgE) Self-Assessment

This online self-assessment evaluates your manufacturing knowledge as you prepare for the CMfgE exam. Through a series of approximately 125 questions, the assessment determines your strengths and weaknesses by knowledge area. You will receive access to five practice tests to get the feel for taking the actual exam. Test results provide a score report based on your performance and correlate to the Body of Knowledge. sme.org/CMfgE-assessment

Classroom Review Program

One of the best ways to begin your technical certification journey is to attend a collaborative review program. The program helps solidify your understanding of the Body of Knowledge and key manufacturing concepts. This is an invaluable opportunity to prepare you for the exam and provide you with a foundation for completing the certification program. sme.org/technical-review



Taking the Exam

The CMfgT and CMfgE exams are offered in both a proctored online and paper/pencil format. You have one year to take the exam from your application date. sme.org/CMfgT-exam | sme.org/CMfgE-exam

Exam Topics

- Mathematics, Applied and Engineering Science, and Materials
- Product/Process Design and Development
- Manufacturing Process Applications and Operation
- Production System and Equipment Design and Development
- Automated Systems and Control
- Quality and Continuous Improvement
- Manufacturing Management
- Personal Effectiveness

Schedule and Take the Exam

You must submit a Proctor Form and Agreement to SME at least two weeks prior to your scheduled exam date. Both the CMfgT and CMfgE exam is open book and open notes.

- The CMfgT exam is a three hour timed exam and consists of 130 multiple-choice questions.
- The CMfgE exam is a four hour timed exam and consists of 180 multiple-choice questions.
- The online exam can be taken using any Windows-based or Apple computer with internet access. This format provides you with the ability to mark questions that you can return to answer or double-check before you finish the exam.
- The paper/pencil exam is mailed directly to your exam proctor who will provide you with it on the day and time you are scheduled to take the exam.

Online exam results are available immediately after finishing the exam. Paper/pencil exams are scored within 10 days from receiving the test from your proctor. Official results are mailed within 30 days.

Interpret your results.

To pass the CMfgT and CMfgE exams, you need to score 60% or higher. Your exam analysis report breaks down your results by knowledge area.

Plan your next steps

If you passed your exam, your certification is valid for three years. During this period, you must earn 36 training and development credits to recertify. If you did not pass the exam, you can apply to retake the exam 30 days after you receive your exam results. Use the exam analysis report to focus on weaker knowledge areas to help prepare you for retaking the exam. A reduced exam fee is offered to retake the exam.



CERTIFICATION

RECERTIFICATION

Maintain Your Credentials

Keeping the credentials you worked hard for is just as important as earning them. To ensure you stay on top of the latest advances and maintain a strong competitive edge, you must recertify every three years to maintain your CMfgT and/or CMfgE standing. sme.org/technicalrecert

A complete list of recertification activities available for credit is available at sme.org/recert-credits.

Earning Credits

Recertification requires that you participate in ongoing training and development activities. You will need to document 36 recertification credits during the three-year period from receiving your certification or last recertification. If you hold multiple technical certifications, the same credits can be used toward recertification as long as the activity falls within the three-year certification cycle.

Your continuing education, training, and development must be focused on the Body of Knowledge. sme.org/technicalbok

Attendance

Earning recertification credits can be as easy as attending a tradeshow, conference, society meeting, seminar, or plant tour.

Resources:

sme.org/upcomingevents

sme.org/sme-chapters

Authorship

Earn recertification credits for writing a book, book review, or technical paper. You can also earn credits for presenting a technical paper. Visit sme.org/authors for more information on becoming an author for SME.

Education

Earn credits for taking college courses or continuing education classes, employer-arranged training, virtual training, watching webinars, watching a video, and reading a book.

Resources:

sme.org/catalog

sme.org/store

sme.org/webinars

toolingu.com/vilt



Involvement and Leadership

Activities such as becoming a Certification Oversight & Appeals Committee member performing ad-hoc or subcommittee responsibilities, preparing speaking materials, giving a speech, teaching an exam preparation course, or applying for a patent all earn credits toward your recertification.

Becoming a Certification Oversight & Appeals Committee-elected chair or member leader in an appointed position can also earn you credits. sme.org/coacommittee

Project Work

Any significant project work can earn 15 credits per project. Projects qualify if they go beyond your normal job responsibilities and include curriculum development or presentations to management. Project work may cover new product development, productivity improvements, cost savings, etc.

