

# SEI Training

## Software Architecture Professional Certificate

**SOFTWARE ARCHITECTURE IS THE PRIMARY CARRIER OF SYSTEM QUALITIES**, such as performance, modifiability, and security, none of which can be achieved without a unifying architectural vision. Architecture is an artifact of early analysis that helps ensure that the design approach will yield an acceptable system and holds the key to system maintenance and sustainment. In short, architecture is the conceptual glue that holds every phase of the project together for its many stakeholders.

To realize all of these benefits, you need to be able to architect software effectively. The SEI offers the Software Architecture Professional Certificate to equip you, as a software professional, with state-of-the-art practices that enable you to design, analyze, document, and implement software architectures.

This certificate program comprises three courses that supply you with best practices you can use to efficiently design software-reliant systems that meet your business and quality goals. The courses are supported by three widely acclaimed books in the SEI Addison-Wesley Series.

Successful completion of an exam is also required to qualify for the certificate.

This three-course sequence covers software architecture concepts and practices broadly and deeply. You will begin with an introduction to software architecture fundamentals and then gain experience in effective architecture design, analysis, and documentation techniques.

To earn this certificate, you are required to begin with the Software Architecture: Principles and Practices course, which is available as instructor-led classroom training and eLearning. The other two courses build on the concepts presented in this course and may be taken in any sequence.

There are fees associated with the courses and the examination, but there is no additional fee for the certificate. Once you earn it, the certificate does not expire.

Organizations considering this training for a group can take advantage of eLearning group discounts or schedule private, instructor-led, on-site training. For details, email [course-info@sei.cmu.edu](mailto:course-info@sei.cmu.edu) or call +1.412.268.1817.

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### Requirements

To earn the SEI Software Architecture Professional Certificate, you must successfully complete the following within two years of completing the first course:



**Software Architecture: Principles and Practices**  
Classroom or eLearning



**Documenting Software Architecture**  
Classroom or eLearning



**Software Architecture: Design and Analysis**  
Classroom Only



**Software Architecture: Principles and Practices**  
Exam



### Software Architecture: Principles and Practices

In this course, you will learn the essential concepts of software architecture and the importance of the business (or mission) context for system design. The course introduces software architectures in a real-world setting and uses “industrial-strength” case studies to cover key technical and organizational issues. Topics covered include what a software architecture is, why it is important, how it is used in practice, the value it provides, architectural patterns and tactics and their relationship to system qualities, and more. This course is based on the book *Software Architecture in Practice, Fourth Edition* and is available as instructor-led classroom training (two full days) or eLearning (four half days).



### Software Architecture Design and Analysis

In this course, you will learn concepts for effectively designing and analyzing a software architecture. You will apply the SEI Attribute-Driven Design (ADD) software architecture design method and

will be introduced to the SEI Quality Attribute Workshop (QAW), the SEI Architecture Tradeoff Analysis Method® (ATAM®), and several lightweight evaluation techniques. Topics covered include the essential considerations in any architectural design process, using the QAW for eliciting critical quality attributes, using the ADD method for designing an architecture, the role of architecture evaluation, and how to use these methods in a software development lifecycle. This course is based on the book *Designing Software Architectures: A Practical Approach* and is available only as instructor-led classroom training (two full days).

®Architecture Tradeoff Analysis Method (ATAM) is registered in the U.S. Patent and Trademark Office by Carnegie Mellon University.



### Documenting Software Architectures

This course offers in-depth coverage of effective software architecture documentation practices that meet the needs of the entire architecture stakeholder community. You will learn effective documentation practices for providing the right information to the right stakeholders using practices that suit your development methods. The course presents documentation in the context of prevailing prescriptive models, including the IEEE 1471-2000 standard and the Unified Modeling Language (UML). This course is based on the book *Documenting Software Architectures: Views and Beyond, Second Edition* and is available as instructor-led classroom training (two full days) or eLearning (four half days).

### Software Architecture: Principles and Practices Exam

This exam objectively validates your knowledge and understanding of software architecture. To qualify for earning the Software Architecture Professional Certificate, you must achieve a passing score of 75% on this exam. You can start the online exam at any time and will have eight hours to complete it.

This exam requirement is consistent with industry standards for professional certificates, which require that candidates pass an exam based on a set of uniform standards after taking a required sequence of professional development courses.

#### For more information

To learn more and to register for courses, visit: [insights.sei.cmu.edu/credentials/sei-software-architecture-professional-certificate/](https://insights.sei.cmu.edu/credentials/sei-software-architecture-professional-certificate/)

Training courses provided by the SEI are not academic courses for academic credit toward a degree. Any certificates provided are evidence of the completion of the courses and are not official academic credentials.

### About the SEI

Always focused on the future, the Software Engineering Institute (SEI) advances software as a strategic advantage for national security. We lead research and direct transition of software engineering, cybersecurity, and artificial intelligence technologies at the intersection of academia, industry, and government. We serve the nation as a federally funded research and development center (FFRDC) sponsored by the U.S. Department of Defense (DoD) and are based at Carnegie Mellon University, a global research university annually rated among the best for its programs in computer science and engineering.

### Contact Us

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