

# Role-Based Secure Development Training

Secure Development Training for everyone involved in the software development lifecycle is a cornerstone of any application security program and helps reduce the organization's exposure to application security risk.



Most organizations are aware that secure development training is a key security control that helps reduce application security risk. However, it is all too often only available on an ad-hoc basis.

An effective secure development training program should feature:

- Mandatory training for all development personnel before they participate in the application development process.
- Appropriate training based on individual needs—no more, no less. For example, a regular Java developer should receive specific training on how to develop secure Java code. A Java developer for an e-commerce application will need more advanced training.
- On-demand capability that enables easy scheduling and minimizes the impact on developers' productivity.
- Scalability that suits the needs of everyone involved in development, including third-parties if appropriate.
- Up-to-date content to ensure that new threats and technologies are understood and addressed.

This eLearning offering is specifically designed to address these requirements. It provides over 100 hours of application security training material, divided into 13 role-based curricula. It is managed through Fortify on Demand, our cloud-based application security platform.

### Curricula Overview

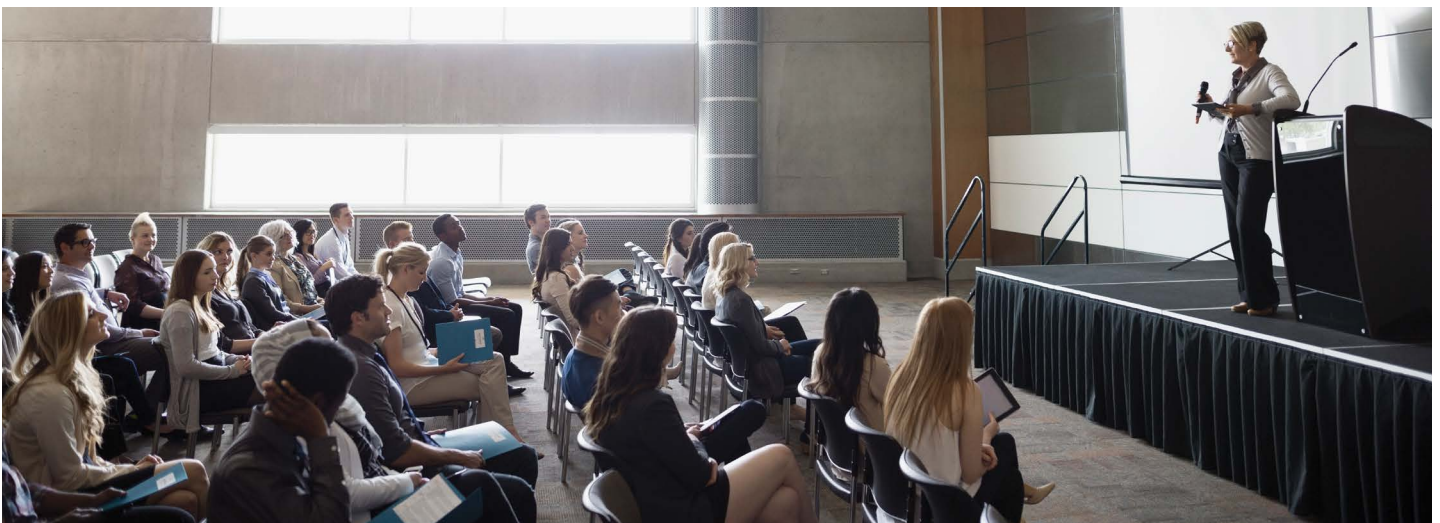
The Developer curriculum provides a thorough grounding in application security concepts. It includes programming language-specific constructs and implementation best practices. Upon completion of the course, developers will have a better appreciation of the importance of secure coding and the knowledge to develop secure applications in their chosen programming language and platform.

### Role-Based Training Delivered by Fortify on Demand

- Developer curricula for Java.NET, C/C++, and PHP
- Other curricula specific to Software Architect, Project Managers, and Test/QA personnel
- Two training levels for maximum flexibility
- Topics include mobile, attack surface analysis, PCI, OWASP Top10, and application risk reduction
- Technologies covered include .NET, Java, iOS, Android, C/C++, C#, PHP, and HTML5
- Fully integrated with Fortify on Demand
- On-demand training minimizes the impact on developer productivity
- Available for training third-party developers
- Course completion is tracked to ensure compliance

The Software Architect curriculum covers how to design secure applications and includes architectural risk analysis and threat modeling. Upon completion of the course, software architects will know how to address application security risk at the application design stage. Other curricula are provided for Project Managers and Test/QA personnel.

Two levels of courses are offered. The Standard level is appropriate for developers of low- to medium-risk applications and takes approximately 5 hours to complete. The Premium level is designed for developers of high-risk applications or security lead developers and takes approximately 10 hours to complete.



**Curricula**

The table below shows the courses included in the Standard and Premium curricula for each role:

| Code   | Course                                    | Java Developer |     | .NET Developer |     | C/C++ Developer |     | PHP Developer |  | Mobile Developer |     | Software Architect |     | Project Manager |     | Test/QA |  |
|--------|---|----------------|-----|----------------|-----|-----------------|-----|---------------|--|------------------|-----|--------------------|-----|-----------------|-----|---------|--|
|        |   | Std            | Pre | Std            | Pre | Std             | Pre | Std           |  | Std              | Pre | Std                | Pre | Std             | Pre | Std     |  |
| AWA101 | Fundamentals of Application Security      | ●              | ●   | ●              | ●   | ●               | ●   | ●             |  | ●                | ●   | ●                  | ●   | ●               |     | ●       |  |
| COD102 | The Role of Software Security             | ●              | ●   | ●              | ●   | ●               | ●   | ●             |  |                  |     |                    |     | ●               |     |         |  |
| COD103 | Creating Software Security Requirements   | ●              | ●   | ●              | ●   | ●               | ●   | ●             |  |                  |     |                    |     | ●               |     |         |  |
| COD104 | Designing Secure Software                 | ●              | ●   | ●              | ●   | ●               | ●   | ●             |  |                  |     |                    |     | ●               |     |         |  |
| COD105 | Secure Software Development               | ●              | ●   | ●              | ●   | ●               | ●   | ●             |  |                  |     |                    |     | ●               |     |         |  |
| COD106 | The Importance of Integration and Testing | ●              | ●   | ●              | ●   | ●               | ●   | ●             |  |                  |     |                    |     | ●               |     |         |  |
| COD107 | Secure Software Deployment                | ●              | ●   | ●              | ●   | ●               | ●   | ●             |  |                  |     |                    |     | ●               |     |         |  |
| COD108 | Software Operations and Maintenance       | ●              | ●   | ●              | ●   | ●               | ●   | ●             |  |                  |     |                    |     | ●               |     |         |  |
| COD110 | Fundamentals of Secure Mobile Development |                |     |                |     |                 |     |               |  | ●                | ●   |                    |     |                 |     |         |  |
| COD153 | Fundamentals of Secure AJAX Code          |                | ●   |                | ●   |                 | ●   | ●             |  |                  |     |                    |     |                 |     |         |  |
| COD281 | Java Security Model                       | ●              | ●   |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  |
| COD282 | Java Authentication and Authorization     | ●              | ●   |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  |
| COD283 | Java Cryptography                         | ●              | ●   |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  |
| COD284 | Secure Java Coding                        | ●              | ●   |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  |
| COD201 | Secure C Encrypted Network Communications |                |     |                |     | ●               | ●   |               |  |                  |     |                    |     |                 |     |         |  |
| COD202 | Secure C Run-Time Protection              |                |     |                |     | ●               | ●   |               |  |                  |     |                    |     |                 |     |         |  |
| COD206 | Creating Secure Creating Secure C++ Code  |                |     |                |     | ●               | ●   |               |  |                  |     |                    |     |                 |     |         |  |
| COD207 | Communication Security in C++             |                |     |                |     | ●               | ●   |               |  |                  |     |                    |     |                 |     |         |  |
| COD307 | Protecting Data in C++                    |                |     |                |     | ●               | ●   |               |  |                  |     |                    |     |                 |     |         |  |

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| Code   | Course  | Java Developer |     | .NET Developer |     | C/C++ Developer |     | PHP Developer |  | Mobile Developer |     | Software Architect |     | Project Manager |     | Test/QA |  |
|--------|---|----------------|-----|----------------|-----|-----------------|-----|---------------|--|------------------|-----|--------------------|-----|-----------------|-----|---------|--|
|        |   | Std            | Pre | Std            | Pre | Std             | Pre | Std           |  | Std              | Pre | Std                | Pre | Std             | Pre | Std     |  |
| COD216 | Leveraging .NET Framework Code Access Security (CAS)                      |                |     | •              | •   |                 |     |               |  |                  |     |                    |     |                 |     |         |  |
| COD217 | Mitigating .NET Security Threats  |                |     | •              | •   |                 |     |               |  |                  |     |                    |     |                 |     |         |  |
| COD246 | PCI DSS 3: Protecting Stored Cardholder Data                              |                | •   |                | •   |                 |     |               |  |                  |     |                    |     |                 |     |         |  |
| COD247 | PCI DSS 34: Encrypting Transmission of Cardholder Data                    |                | •   |                | •   |                 |     |               |  |                  |     |                    |     |                 |     |         |  |
| COD248 | PCI DSS 6: Develop & Maintain Secure Systems and Applications             |                | •   |                | •   |                 |     |               |  |                  |     |                    |     |                 |     |         |  |
| COD249 | PCI DSS 11: Regularly Test Security Systems and Processes                 |                | •   |                | •   |                 |     |               |  |                  |     |                    |     |                 |     |         |  |
| COD251 | Creating Secure AJAX Code—ASP.NET Foundations                             |                |     |                | •   |                 |     |               |  |                  |     |                    |     |                 |     |         |  |
| COD252 | Creating Secure AJAX Code—Java Foundations                                | •              | •   |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  |
| COD255 | Creating Secure Code—Web API Foundations                                  |                |     |                | •   |                 |     |               |  |                  |     |                    |     |                 |     |         |  |
| COD311 | Creating Secure Code ASP.NET MVC Applications                             |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  |
| COD301 | Secure C Buffer Overflow Mitigations                                      |                |     |                |     |                 |     | •             |  |                  |     |                    |     |                 |     |         |  |
| COD302 | Secure C Memory Management  |                |     |                |     |                 |     | •             |  |                  |     |                    |     |                 |     |         |  |
| COD303 | Common C Vulnerabilities and Attacks                                      |                |     |                |     |                 |     | •             |  |                  |     |                    |     |                 |     |         |  |
| COD380 | Protecting Java Code: SQLi and Integer Overflows                          |                | •   |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  |
| COD381 | Protecting Java Code: Canonicalization, Information Disclosure and TOCTOU |                | •   |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  |
| COD382 | Protecting Data in Java   |                | •   |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  |

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|--------|--|----------------|-----|----------------|-----|-----------------|-----|---------------|---|------------------|-----|--------------------|-----|-----------------|-----|---------|---|
|        |  | Std            | Pre | Std            | Pre | Std             | Pre | Std           |   | Std              | Pre | Std                | Pre | Std             | Pre | Std     |   |
| COD321 | Protecting C# from Integer Overflows and Canonicalization Issues   |                |     |                | ●   |                 |     |               |   |                  |     |                    |     |                 |     |         |   |
| COD322 | Protecting C# from SQL and XML Injection   |                |     |                | ●   |                 |     |               |   |                  |     |                    |     |                 |     |         |   |
| COD323 | Protecting Data in C#  |                |     |                | ●   |                 |     |               |   |                  |     |                    |     |                 |     |         |   |
| COD315 | Creating Secure PHP Code   |                |     |                |     |                 |     | ●             |   |                  |     |                    |     |                 |     |         |   |
| COD316 | Creating Secure iOS Code in Objective C  |                |     |                |     |                 |     |               |   | ●                | ●   |                    |     |                 |     |         |   |
| COD317 | Creating Secure iOS Code   |                |     |                |     |                 |     |               |   | ●                | ●   |                    |     |                 |     |         |   |
| COD318 | Creating Secure Android Code in Java   |                |     |                |     |                 |     |               |   | ●                | ●   |                    |     |                 |     |         |   |
| COD361 | HTML5 Secure Threats   |                |     |                |     |                 |     |               |   |                  | ●   |                    |     |                 |     |         |   |
| COD362 | HTML5 Built-In Security Features   |                |     |                |     |                 |     |               |   |                  | ●   |                    |     |                 |     |         |   |
| COD363 | Securing HTML5 Data  |                |     |                |     |                 |     |               |   |                  | ●   |                    |     |                 |     |         |   |
| COD364 | Security HTML5 Connectivity  |                |     |                |     |                 |     |               |   |                  | ●   |                    |     |                 |     |         |   |
| COD352 | Creating Secure jQuery Code  |                | ●   |                |     |                 |     |               |   |                  |     |                    |     |                 |     |         |   |
| COD411 | Content can be found in Creating Secure C Code series, Creating Secure C++ Code Series, Protecting C Code Series |                |     |                |     |                 |     |               |   |                  |     |                    |     |                 |     |         |   |
| COD412 |  |                |     |                |     |                 |     |               |   |                  |     |                    |     |                 |     |         |   |
| DES101 | Fundamentals of Security Architecture  |                |     |                |     |                 |     |               |   |                  |     | ●                  | ●   | ●               |     |         |   |
| DES212 | Architecture and Risk Analysis   |                |     |                |     |                 |     |               |   |                  |     | ●                  | ●   |                 |     |         |   |
| DES214 | Securing Infrastructure Architecture   |                |     |                |     |                 |     |               |   |                  |     | ●                  | ●   |                 |     |         |   |
| DES215 | Defending Infrastructure   |                |     |                |     |                 |     |               |   |                  |     | ●                  | ●   |                 |     |         |   |
| DES216 | Securing Cloud Instances   |                |     |                |     |                 |     |               |   |                  |     | ●                  | ●   |                 |     |         |   |
| DES222 | Applying OWASP 2017: Mitigating Injection  | ●              | ●   | ●              | ●   | ●               | ●   | ●             | ● | ●                | ●   | ●                  | ●   | ●               |     |         | ● |
| DES223 | Applying OWASP 2017: Mitigating Broken Authentication  | ●              | ●   | ●              | ●   | ●               | ●   | ●             | ● | ●                | ●   | ●                  | ●   | ●               |     |         | ● |
| DES224 | Applying OWASP 2017: Mitigating Sensitive Data Exposure  | ●              | ●   | ●              | ●   | ●               | ●   | ●             | ● | ●                | ●   | ●                  | ●   | ●               |     |         | ● |

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|--------|---|----------------|-----|----------------|-----|-----------------|-----|---------------|---|------------------|-----|--------------------|-----|-----------------|-----|---------|--|
|        |   | Std            | Pre | Std            | Pre | Std             | Pre | Std           |   | Std              | Pre | Std                | Pre | Std             | Pre | Std     |  |
| DES225 | Applying OWASP 2017: Mitigating XML External Entities                             | ●              | ●   | ●              | ●   | ●               | ●   | ●             | ● | ●                | ●   | ●                  | ●   | ●               |     | ●       |  |
| DES226 | Applying OWASP 2017: Mitigating Broken Access Control                             | ●              | ●   | ●              | ●   | ●               | ●   | ●             | ● | ●                | ●   | ●                  | ●   | ●               |     | ●       |  |
| DES227 | Applying OWASP 2017: Mitigating Security Misconfiguration                         | ●              | ●   | ●              | ●   | ●               | ●   | ●             | ● | ●                | ●   | ●                  | ●   | ●               |     | ●       |  |
| DES228 | Applying OWASP 2017: Mitigating Cross Site Scripting                              | ●              | ●   | ●              | ●   | ●               | ●   | ●             | ● | ●                | ●   | ●                  | ●   | ●               |     | ●       |  |
| DES229 | Applying OWASP 2017: Mitigating Insecure Deserialization                          | ●              | ●   | ●              | ●   | ●               | ●   | ●             | ● | ●                | ●   | ●                  | ●   | ●               |     | ●       |  |
| DES230 | Applying OWASP 2017: Mitigating Use of Components with Known Vulnerabilities      | ●              | ●   | ●              | ●   | ●               | ●   | ●             | ● | ●                | ●   | ●                  | ●   | ●               |     | ●       |  |
| DES231 | Applying OWASP 2017: Mitigating Insufficient Logging & Monitoring Vulnerabilities | ●              | ●   | ●              | ●   | ●               | ●   | ●             | ● | ●                | ●   | ●                  | ●   | ●               |     | ●       |  |
| DES311 | Creating Secure Application Architecture  |                |     |                |     |                 |     |               |   |                  |     |                    | ●   |                 |     |         |  |
| ENG211 | How to Create Application Security Design Requirements                            |                |     |                |     |                 |     |               |   |                  |     |                    | ●   |                 |     |         |  |
| ENG311 | Attack Surface Analysis & Reduction   |                |     |                |     |                 |     |               |   |                  |     |                    | ●   |                 |     |         |  |
| TST101 | Fundamentals of Security Testing  |                |     |                |     |                 |     |               |   |                  |     |                    |     | ●               |     | ●       |  |
| TST251 | Testing for SQL Injection   |                |     |                |     |                 |     |               |   |                  |     |                    |     |                 |     | ●       |  |
| TST252 | Testing for OS Command Injection  |                |     |                |     |                 |     |               |   |                  |     |                    |     |                 |     | ●       |  |
| TST253 | Testing for Classic Buffer Overflow   |                |     |                |     |                 |     |               |   |                  |     |                    |     |                 |     | ●       |  |
| TST254 | Testing for Cross-site Scripting  |                |     |                |     |                 |     |               |   |                  |     |                    |     |                 |     | ●       |  |
| TST255 | Testing for Missing Authentication for Critical Function                          |                |     |                |     |                 |     |               |   |                  |     |                    |     |                 |     | ●       |  |
| TST256 | Testing for Missing Authorization   |                |     |                |     |                 |     |               |   |                  |     |                    |     |                 |     | ●       |  |

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|--------|---|----------------|-----|----------------|-----|-----------------|-----|---------------|--|------------------|-----|--------------------|-----|-----------------|-----|---------|--|---|
|        |   | Std            | Pre | Std            | Pre | Std             | Pre | Std           |  | Std              | Pre | Std                | Pre | Std             | Pre | Std     |  |   |
| TST257 | Testing for Use of Hard-Coded Credentials                             |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | ● |
| TST258 | Testing for Missing Encryption of Sensitive Data                      |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | ● |
| TST259 | Testing for Unrestricted Upload of File with Dangerous Type           |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | ● |
| TST260 | Testing for Reliance on Untrusted Inputs in a Security Decision       |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | ● |
| TST261 | Testing for Execution with Unnecessary Privileges                     |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | ● |
| TST262 | Testing for Cross Site Request Forgery                                |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | ● |
| TST263 | Testing for Path Traversal  |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | ● |
| TST264 | Testing for Download of Code without integrity Check                  |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | ● |
| TST265 | Testing for Incorrect Authorization                                   |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | ● |
| TST266 | Testing for Inclusion of Functionality from Untrusted Control Sphere  |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | ● |
| TST267 | Testing for Incorrect Permission Assignment for Critical Resource     |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | ● |
| TST268 | Testing for Use of a Potentially Dangerous Function                   |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | ● |
| TST269 | Testing for Use of a Broken or Risky Cryptographic Algorithm          |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | ● |
| TST270 | Testing for Incorrect Calculation of Buffer Size                      |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | ● |
| TST271 | Testing for Improper Restriction of Excessive Authentication Attempts |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | ● |
| TST272 | Testing for Open Redirect   |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | ● |
| TST273 | Testing for Uncontrolled Format String                                |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | ● |
| TST274 | Testing for Integer Overflow or Wraparound                            |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | ● |
| TST275 | Testing for Use of a One-Way Hash without a Salt                      |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | ● |

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|--------|--|----------------|-----|----------------|-----|-----------------|-----|---------------|--|------------------|-----|--------------------|-----|-----------------|-----|---------|--|---|
|        |  | Std            | Pre | Std            | Pre | Std             | Pre | Std           |  | Std              | Pre | Std                | Pre | Std             | Pre | Std     |  |   |
| TST222 | Testing for OWASP 2017: Injection                                    |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | • |
| TST223 | Testing for OWASP 2017: Broken Authentication                        |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | • |
| TST224 | Testing for OWASP 2017: Sensitive Data Exposure                      |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | • |
| TST225 | Testing for OWASP 2017: XML External Entities                        |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | • |
| TST226 | Testing for OWASP 2017: Broken Access Control                        |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | • |
| TST227 | Testing for OWASP 2017: Security Misconfiguration                    |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | • |
| TST228 | Testing for OWASP 2017: Cross Site Scripting                         |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | • |
| TST229 | Testing for OWASP 2017: Insecure Deserialization                     |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | • |
| TST230 | Testing for OWASP 2017: Use of Components with Known Vulnerabilities |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | • |
| TST231 | Testing for OWASP 2017: Insufficient Logging and Monitoring          |                |     |                |     |                 |     |               |  |                  |     |                    |     |                 |     |         |  | • |

Curricula are pursued per named user per year. Volume discounts apply. For more information, email us at [fodsales@microfocus.com](mailto:fodsales@microfocus.com).

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