# Cybersecurity Specialization: Threat Modeling Training

Duration: **2 Day**

BILGINC IT Academy
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**Exclusive - Understand and apply threat modeling techniques to enhance cybersecurity.**

**Cybersecurity Specialization: Threat Modeling** dives into the critical practice of threat modeling, a key component in modern cybersecurity strategies. Participants will learn to identify, analyze, and mitigate potential security threats in complex systems. The course covers various threat modeling frameworks such as STRIDE, PASTA, and VAST, and their application in different contexts, including microservices, containerized architectures, and IoT systems. By integrating threat intelligence and advanced risk assessment techniques, students will gain the skills to develop robust threat models that enhance security operations and DevSecOps pipelines.

Throughout the course, attendees will engage in hands-on exercises using tools like OWASP Threat Dragon and Microsoft Threat Modeling Tool to create and evaluate threat models. They will also explore the role of threat intelligence in dynamic environments and learn to automate threat modeling processes within CI/CD pipelines. By the end of the course, participants will be equipped to design and implement effective threat models for various scenarios, ensuring comprehensive security coverage for their organizations.

This course is ideal for professionals looking to deepen their understanding of threat modeling and its practical applications in real-world environments. Join us to enhance your cybersecurity skills and stay ahead of emerging threats.

**Who Should Attend?**

The ideal learner will have at least 1 year of experience in their job role and understand Cybersecurity Principles. Security Engineers, IT Architects, System Administrators, Software Developers, Cloud Engineers, DevOps Engineers etc.

## Prerequisites

- Basic Knowledge of IT Infrastructure and Systems
- Experience with Risk Management or Vulnerability Assessments (Optional but beneficial)
- Familiarity with Security Tools (Optional)

- Cybersecurity Foundations
- CompTIA Security+

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## What You Will Learn

- Describe the concepts of Security as Code and DevSecOps.
- Explain the characteristics of advanced persistent threats, social engineering, supply chain attacks, and insider threats.
- Compare and contrast different threat modeling frameworks like STRIDE, PASTA, and VAST, and their applicability in complex contexts.
- Analyze and evaluate different threat modeling techniques and tools for modeling microservices and containerized architectures, hybrid, multi-cloud, and edge computing environments, and IoT systems.
- Summarize and interpret the role of threat intelligence in dynamic environments and the ways to integrate it into threat models and security operations.
- Create attack trees and threat models for distributed systems using open-source tools like OWASP Threat Dragon and Microsoft Threat Modeling Tool.
- Adapt multiple frameworks to a sample complex system and develop a threat model for a multi-cloud architecture or IoT ecosystem.
- Implement advanced risk assessment techniques for a complex system, map threat models to security controls, and develop a threat model for a microservices-based app.
- Evaluate the effectiveness of different threat modeling tools and techniques to enhance static and dynamic code analysis and tool compatibility and limitations.
- Analyze and compare the characteristics of different attack chains, such as APTs and ransomware, and develop threat models for specific attack vectors.
- Assess the strengths and weaknesses of group-based threat modeling activities and provide constructive feedback to peers.
- Design a threat model for Zero Trust policies, integrate it with SOAR tools, and automate threat modeling in a DevSecOps pipeline.
- Develop adaptable and reusable threat models in Agile using modular approaches and reusable templates for microservices.
- Build and align a threat model with a sample application SDLC and create an iterative feedback loop for security improvement.
- Critique and analyze the success stories and lessons learned from case studies of CI/CD integrations in large organizations.
- Evaluate the appropriateness of different threat modeling frameworks, techniques, and tools in different complex contexts, and propose solutions to mitigate identified security threats.

## Training Outline

Introduction to Advanced Threat Modeling
Review of STRIDE, PASTA, and VAST in complex contexts
Integrating threat modeling with attack trees, attack vectors, and data flow analysis
Threat modeling for large-scale distributed systems
Combining multiple frameworks for a holistic approach

Threat modeling for hybrid, multi-cloud, and edge computing environments
Advanced techniques for modeling microservices and containerized architectures (e.g., Kubernetes, Docker)
Modeling for IoT systems: securing device communication and protocols

The role of threat intelligence in dynamic environments

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Using Open-Source and Commercial Threat Intelligence Feeds
Integration of threat intelligence into threat models and security operations
Automating threat intelligence collection for continuous threat modeling updates

Quantitative vs. Qualitative Risk Assessment
Advanced risk prioritization: Bayesian networks, Monte Carlo simulations, and decision trees
Using threat modeling results to drive prioritization of security controls
Real-time risk assessment tools and technologies

Key principles and strategies of Zero Trust
Threat modeling for Zero Trust: securing identity, authentication, and access controls
Integrating threat modeling with Security Automation and Orchestration (SOAR)
Automating threat modeling in a DevSecOps pipeline

Security as Code: Embedding Threat Modeling into Automated Workflows
Integrating Threat Modeling Tools with DevSecOps Pipelines (e.g., Jenkins, GitLab)
Continuous Threat Detection and Monitoring Using Automated Threat Models
Case Studies of CI/CD Integrations in Large Organizations
Lessons learned and best practices

Threat Modeling in Agile and Scrum Teams
Modeling Security Risks in Rapidly Changing Architectures and Microservices
Techniques for Creating Adaptable and Reusable Threat Models in Agile
Collaboration Between Developers, Security, and Operations Teams

Best Practices for Embedding Threat Modeling at Each Phase of the SDLC
Threat Modeling Tools and Techniques to Enhance Static and Dynamic Code Analysis
Continuous Feedback Loops: Incorporating Findings into Subsequent Development Phases

Advanced Persistent Threats (APTs): Threat Modeling for Long-term, Sophisticated Attacks
Social Engineering, Supply Chain Attacks, and Insider Threats Modeling
Modeling for Advanced Malware and Ransomware Threats
Simulating Complex Attack Chains with Attack Trees and Kill Chains

Group-based Threat Modeling: Collaborative Analysis of a Multi-layered Enterprise System
Presentations and Peer Reviews of Group Models