



UTT

UNIVERSIDAD TECNOLÓGICA DE TIJUANA

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TEMA:

Secure Coding Principles Specification

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15/01/2025

Secure Coding Principles

Secure coding principles are essential guidelines for building software that resists cyber threats and minimizes vulnerabilities. One fundamental principle is input validation, ensuring all user-provided data is sanitized to prevent injection attacks, such as SQL injection. Additionally, secure authentication and authorization mechanisms, such as multi-factor authentication and token-based systems like OAuth 2.0, play a critical role in verifying user identities and managing access control. Secure error handling further safeguards applications by concealing sensitive details in user-facing error messages while maintaining detailed logs for developers, all while avoiding the storage of sensitive data in these logs.

Data security is another cornerstone of secure coding. Encryption techniques like AES-256 protect data at rest, while protocols such as HTTPS and TLS 1.2+ secure data in transit. Proper security configurations, such as disabling default credentials and limiting unnecessary access, help prevent potential exploits. Developers should also validate third-party components for vulnerabilities and regularly update dependencies to ensure the software remains resilient against emerging threats.

Adopting secure design patterns and fostering a culture of security within development teams solidify these principles. Practices like defense in depth, regular code reviews, and the use of automated tools for vulnerability scanning help maintain a robust security posture. Ultimately, implementing these secure coding principles as a core part of the development lifecycle ensures the creation

of reliable and resilient software, protecting both users and systems from harm.

Bibliographical Sources

OWASP Foundation. (2025). *OWASP Secure Coding Practices*. Retrieved from <https://owasp.org>