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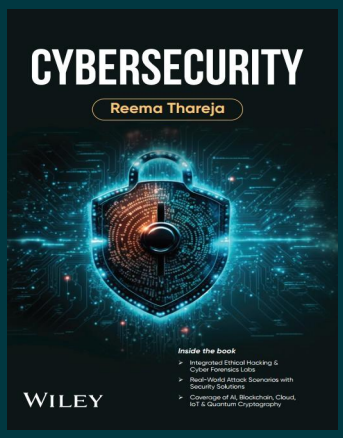

Cybersecurity

By Reema Thareja

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Description

Cybersecurity is a comprehensive, classroom-ready introduction to how digital systems are attacked and how they are defended. Banking, healthcare, education, governance, and commerce now run on digital infrastructure, and cybercrime has stopped being an IT department problem. This book is written for the students and professionals who will have to deal with that.

The text is organized into fifteen chapters that move from foundational concepts to advanced and emerging areas. The opening chapters establish what cyber security is, then work through the taxonomy of active, passive, and hardware attacks; malware in all its forms; social engineering; and two full chapters on web application vulnerabilities, from SQL injection and XSS through to clickjacking, session hijacking, and business logic flaws.

From there the book turns to defense. It covers cybercrime techniques and the dark web, the CIA triad and risk management frameworks, access control and authentication, network defense mechanisms from firewalls to onion routing, and threat intelligence through the cyber kill chain, incident response, and honeypots. Three chapters then develop cryptography properly, from classical ciphers to DES, AES, RSA, and Diffie-Hellman, and on to TLS, IPsec, PGP, and email authentication.

The final chapters address cyber threat intelligence, including SIEM, the role of AI and machine learning, and digital, network, and mobile forensics, before closing on security in emerging technologies: blockchain, IoT, cloud, DevSecOps, and quantum cryptography. A full set of laboratory exercises follows the fifteen chapters, giving students hands-on practice in controlled environments. Chapter-wise PowerPoint decks and a solutions manual are available to adopting faculty.

About the Author

Reema Thareja

Reema Thareja is Assistant Professor in the Department of Computer Science, School of Open Learning, University of Delhi, with more than 21 years of teaching experience across undergraduate and postgraduate programmes. She has published over 40 research papers in reputed international journals and filed six patents, with an h-index of 14 and an i10-index of 21. She built Jruma, a computer science learning and quizzing app for Android and iOS, to make learning a fun-based activity.

She serves on the Board of Studies in Computer Science for P.B. Siddhartha College of Arts & Science, Vijayawada and Sri Durga Malleswara Siddhartha Mahila Kalasala, and on the Technical Advisory Board of Refactor Academy. She has spoken at FDPs, conferences, workshops, and webinars in India, the UAE, and the USA, including the Global Virtual Summit in New York in 2021 and an international conference in France in 2023. She has mentored student projects for California-based startups and recorded MOOCs for the School of Open Learning, University of Delhi.

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