

**SYLLABUS**  
**For**  
**Value Added Course**  
**Certificate Course in Web Security**

**Offered by**  
**Department of Computer Applications**

**TECNIA INSTITUTE OF ADVANCED STUDIES**  
**NAAC ACCREDITED GRADE 'A' INSTITUTE**  
**3 PSP, Institutional Area, Sector – 14, Rohini, Delhi - 110085**

# COURSE MODULE

Code No.: MCA-603

Duration: 30 Hrs  
Credits: 2

## Paper: Certificate Course in Web Security

### INSTRUCTIONS TO PAPER SETTERS:

1. A quiz will be conducted consisting of 20 questions, containing 5 questions from each unit, covering entire syllabus.
2. A practical must be conducted based on the topics covered in the entire syllabus to evaluate analytical/technical skills of candidate.

**OBJECTIVE:** *The purpose of this course is to prepare students with the technical knowledge and skills needed to protect and defend computer systems and networks. The course will help students to plan, implement, and monitor web security mechanisms to help ensure the protection of information technology assets. It will also train students to identify, analyze, and remediate computer security breaches.*

### PRE-REQUISITE:

None

## Unit 1

**Introduction to Web Security** - Fundamental concepts of web security, common vulnerabilities and threats specific to web applications.

**Web Application Architecture and Technologies** - Identify and mitigate security risks in web applications, cross-site scripting (XSS), SQL injection, cross-site request forgery (CSRF), insecure direct object references.

**Injection Attacks** - Implement secure coding practices to develop robust and secure web applications, including input validation, output encoding, and proper error handling. [7 Hrs]

## Unit 2

**Cross-Site Request Forgery (CSRF)** – Applying web application security testing methodologies and tools to identify vulnerabilities and assess the security posture of web applications.

**Cross-Origin Resource Sharing (CORS) and Same- Origin Policy** – Understanding the principles of secure authentication and authorization mechanisms, including session management, password hashing, and access control. [6 Hrs]

## Unit 3

**Authentication and Session Management** - Configure and secure web servers, including HTTP security headers, SSL/TLS encryption, and secure configurations for popular web servers like Apache or Nginx.

**Access Control** - Implement security measures for securing APIs and web services, including authentication, authorization, and input validation.

**Secure Coding Practices** – Understand the importance of secure data storage and transmission, including encryption, secure protocols, and secure handling of sensitive data.

**Secure Communication** - Conduct secure code reviews and vulnerability assessments to identify and remediate security weaknesses in web applications. [9 Hrs]

## Unit 4

**Web Application Firewalls** - Stay updated with the latest web security vulnerabilities, exploits, and best practices to proactively protect web applications.

**Security Testing and Vulnerability Assessment** - Understand the legal and ethical considerations in web security, including compliance with data protection laws, responsible disclosure, and ethical hacking guidelines.

**Best Practices and Security Frameworks** - Develop incident response skills to effectively respond to and handle security incidents related to web applications. [8 Hrs]

## Text Books

1. “Security Strategies in Web Applications and Social Networking (Information Systems Security & Assurance)”, Mike Harwood, 2010.
2. “Hacking Exposed Web 2.0: Web 2.0 Security Secrets and Solutions”, Rich Cannings, Himanshu Dwivedi, 2008.
3. “Innocent Code: A Security Wake-Up Call for Web Programmers”, Sverre H. Huseby, 2010.

## References

1. “The Web Application Hacker's Handbook: Finding and Exploiting Security Flaws”, Dafydd Stuttard and Marcus, 2011.
2. “Web Application Security”, Sullivan, B., & Liu, V. , 2012.
3. “Web Security Testing Cookbook: Systematic Techniques to Find Problems Fast”, Hope P., Walther B., O’Reilly Media, 2008.

## Evaluation Pattern

On the basis of Quiz and Practical conducted on the syllabus, followed by Viva.