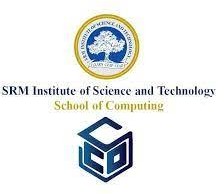
SRM INSTITUTE OF SCIENCE AND TECHNOLOGY FACULTY OF ENGINERING AND TECHNOLOGY SCHOOL OF COMPUTING



COURSE PLAN

21CSE438T WEB SECURITY

JULY-DECEMBER 2025

## Revision History:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Date | Version | Modification  done | Modified by | Reviewed by | Authorized by |
| 28-07-2025 | 1.0 | Initial Release | Dr. B. Prabhu kavin | Dr. R.K.Pongiannan |  |
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# 1.0 General Details

Course Code: 21CSC101T

Course Title: Web security

Semester: VII

Course Time: JULY – DEC 2025

Slot: C

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Day | Batch | | | |
| Batch 1 | | Batch 2 | |
| Hour | Timing | Hour | Timing |
| Day order 1 | - | - | - | - |
| Day order 2 | - | - | - | - |
| Day order 3 | 1,2 | 8:00am - 9:40am | - | - |
| Day order 4 | 10 | 04:00-04:50 | - | - |
| Day order 5 | 3 | 9:45-10:35 | - | - |

Location: University Building, Tech Park, TP1405

# 2.0 Reference Books

1. Izzat Alsmadi “The NICE Cyber Security Framework” Springer, ISBN: 978-3-030-02359-7, 2019
2. Richard Fox, Wei Hao, “Internet Infrastructure, Networking Web Services and Cloud Computing” CRC Press, ISBN-13: 978-1-1380-3991-9, 2017
3. John Paul Mueller, "Security for Web Developers" 1st Edition, O'REILLY, ISBN: 978-1-491-92864-6, 2015.
4. William Stallings “Cryptography and Network Security” 6th Edition, PEARSON, ISBN-13: 978-0-13-335469-0, 2013
5. Peter Morville, Louis Rosenfeld “Information Architecture” 3rd Edition, O’REILLY, ISBN-13: 978-0-596-52734-1, 2006
6. Simson Garfinkel, Gene Spafford "Web Security, Privacy and Commerce" 2nd Edition, O'REILLY,ISBN: 978-0-596-00045-5, 2002

# 3.0 Prerequisites

Nil

# 4.0 Instructional Objectives

1. Describe the fundamentals of web security including the architecture of the World Wide Web and the common security challenges involved.
2. Understand the principles of cryptography with emphasis on symmetric and public key algorithms used in securing web communications.
3. Learn the various privacy risks associated with web usage and explore technologies and techniques to enhance user privacy.
4. Explain the importance of physical and host security for web servers to protect hardware and data integrity.
5. Analyze web server security mechanisms including firewalls, SSL/TLS, and secure web application deployment.
6. Understand access control methods for web content, including client-side digital certificates and content protection techniques.
7. Apply knowledge of web security best practices and legal/privacy policies to real-world scenarios and case studies.

# 5.0 Overall Assessment Plan

|  |  |  |  |
| --- | --- | --- | --- |
| S.No | Component | Type | Marks |
| 1 | Formative Assessment I | Quiz | 5 |
| 2 | Formative Assessment II | Written Test | 15 |
| 3 | Formative Assessment III | Written Test | 15 |
| 4 | Formative Assessment IV | Assessment of Tutorials | 15 |
| 5 | Life Long Leaning I | Conference paper | 10 |
| Total Marks | | | 60 |

# 6.0 Tentative Test Schedule

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S.NO. | Tentative date | Test | Marks | Portion | Duration |
| 1 | 06.08.2025 | FT-I | 5 | Unit 1 (Partially) | 50 min |
| 2 | 29.08.2025 | FT-II | 15 | Unit 1(Partially), 2, 3 (partially) | 100 minutes |
| 3 | 29.9.2025 | FT-III | 15 | Unit 3(Partially), 4 | 100 minutes |

# 7.0 Detailed Test Plan

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Test** | **Tentative**  **Date** | **Type** | **Marks** | **Mode** |
|  |  |  | 22 multiple choice questions and 3 fill in the blanks (25 marks to be converted to 5 marks) |  |
| FT-I | 6.8.2025 | Quiz | Physical Exam |
| FT-II | 29.8.2025 | Written Exam | MCQ-10 X 1=10 marks  Part A: 4 x 5 =20 marks  Part B: 2 x 10=20 marks | Physical mode |
| FT-III | 29.9.2025 | Written Exam | MCQ-10 X 1=10 marks  Part A: 4 x 5 =20 marks  Part B: 2 x 10=20 marks | Physical mode |
| FT-IV | Continuous Assessment | Demo & QA | Each week Assignment-5 marks  Average=15 marks | Physical mode |

# 8.0 Lifelong Learning

**8.1 Higher order thinking Skills through Co teaching**

|  |  |  |  |
| --- | --- | --- | --- |
| **Test** | **Tentative date of**  **Evaluation** | **Total Marks** | **Split-up** |
| Conference paper | - | 10 | Submission -5 marks  Acceptance and publication – 5 marks |

# 9.0 Detailed Session Plan

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Unit / Module No.** | Topic Name | **No. of Hours** | **Method of delivery (Multi-Select)** | **Assignment(s) / Activities** |
| **1** | The Web Security landscape: The Security Problem | 1 | Lecture | In-class discussion, Quiz |
| **1** | Securing the Web Server | 1 | Lecture | Case study review |
| **1** | Securing Information in Transit | 1 | Lecture | Activity: Risk assessment |
| **1** | Securing the User’s Computer | 1 | Lecture | Hands-on: Demo analysis |
| **1** | Risk Analysis and Best Practices | 1 | Lecture | Assignment: Write-up on best practices |
| 1 | The Architecture of the World Wide Web: History and Terminology | 1 | Lecture | Quiz |
| 1 | Building Terminology | 1 | Lecture | Short class activity |
| 1 | Weaving the Web | 1 | Lecture | Group discussion |
| 1 | The Domain Name Service | 1 | Lecture | Assignment: Report |
| 1 | Who owns the Internet: Your Local Internet Service Provider | 1 | Lecture | Case analysis |
| 1 | Network Access Points and Metropolitan Area Exchanges | 1 | Lecture | In-class exercise |
| 1 | The Root and Top-Level Nameservers | 1 | Lecture | Quiz |
| 1 | The Domain Registrars | 1 | Lecture | Assignment |
| 1 | Internet Number Registries | 1 | Lecture | Activity: Explore IANA website |
| 2 | Understanding Cryptography: Roots of Cryptography | 1 | Lecture | Assignment: Short notes |
| 2 | Symmetric Key Algorithms | 1 | Lecture | Assignment: Symmetric cipher demo |
| 2 | Public Key Algorithms | 1 | Lecture | Activity: RSA explanation |
| 2 | Public Key Algorithms | 1 |  | Assignment: Public key-based encryption task |
| 2 | Message Digest Functions | 1 | Lecture | Activity: Hashing demo |
| 2 | Cryptography and Web Security | 1 | Lecture | Assignment: Compare protocols |
| 2 | Understanding SSL and TLS | 1 | Lecture | Hands-on: SSL/TLS inspection, Report |
| 2 | Digital Identification I: Passwords, Biometrics, and Digital Signatures | 1 | Lecture | Assignment: Authentication method research |
| 2 | Digital Identification II: Digital Certificates | 1 | Lecture | Activity: Demo CA, Certificates |
| 2 | CAs, and PKI | 1 | Lecture | Assignment: PKI role play |
| 3 | The Web’s War on Your Privacy-Log Files | 1 | Lecture | Group discussion, Exercise |
| 3 | Understanding Cookies | 1 | Lecture | Hands-on: Cookie assessment |
| 3 | Web Bugs | 1 |  | Assignment: Web bug detection |
| 3 | Privacy-Protecting Technologies | 1 | Lecture | Research activity |
| 3 | Backups and Antitheft | 1 | Lecture | Assignment: Backup review |
| 3 | Mobile Code I: Plug-Ins, ActiveX, and Visual Basic | 1 | Lecture | Activity: Evaluate plug-in security |
| 3 | Mobile Code II: Java | 1 | Lecture | Assignment: Code analysis |
| 3 | JavaScript | 1 | Lecture | Hands-on: Security checklist |
| 3 | Flash-Shockwave | 1 | Lecture | Assignment: Write-up |
| 4 | Physical Security for Servers: Protecting your Computer Hardware, Protecting Your Data | 1 | Lecture | Lab activity |
| 4 | Case Study: A Failed Site Inspection | 1 |  | Assignment: Remote update security |
| 4 | Host Security for Servers: Securing the Host Computer, Operating Securely | 1 | Lecture | Practical firewall configuration |
| 4 | Secure Remote Access and Content Updating | 1 | Lecture | Assignment: Audit checklist |
| 4 | Firewalls and the Web | 1 | Lecture | Hands-on: Deployment demo |
| 4 | Securing Web Applications | 1 | Lecture | Assignment: Vulnerability scan report |
| 4 | Deploying SSL Server Certificates | 1 | Lecture | Case study analysis |
| 4 | Securing Your Web Service | 1 | Lecture | Assignment: Policy design |
| 4 | Computer Crime | 1 | Lecture | Lab: Install/review certificates |
| 5 | Controlling Access to Your Web Content | 1 | Lecture | Activity: Digital signature demo |
| 5 | Client-Side Digital Certificates | 1 | Lecture | Assignment: Policy research |
| 5 | Code Signing and Microsoft’s Authenticode | 1 | Lecture | Task: Evaluate policy compliance |
| 5 | Pornography, Filtering Software, and Censorship | 1 | Lecture | Assignment |
| 5 | Privacy Policies, Legislation, and P3P | 1 | Lecture | Assignment: Vulnerability scan & report |
| 5 | Case Study: Securing Web Applications, | 1 | Lecture | case study |
| 5 | Web Vulnerability Scanners: A Case Study | 1 | Lecture | Assignment |

# 10.0 Overall Execution Plan

|  |  |  |
| --- | --- | --- |
| # | Activity | Execution |
| 1 | Attainment Level - Setting up of target | The target is 2.2 |
| 2 | Lecture handling – Theory | The lecture will be handled through PPT/ Chalk & Board. |
| 3 | Tutorial handling | Web tools |
| 4 | Question Paper Scrutiny | The FT questions are to be taken wrt Blooms Taxonomy based on Course Learning Assessment (CLA), Performance indicators (PIs), COs and Pos. The same will be validated and verified by audit professor. |
| 5 | Conduct of Test | FT-1 (5 marks)  FT-II (15 marks)  FT-III (15 marks)  FT-IV (15 marks)  LLT-1 (10 marks) |
| 6 | Mark Entry | The marks will be entered in academia after the FT components evaluation |
| 7 | Course File Preparation | The course file will be prepared simultaneously from the very first phase of commencement of course based on the SOC & Dept. checklist |
| 8 | COPO mapping | The COPO mapping will be done for every CLA Components and for the end semester result as well. |
| 9 | Co Teaching | Co Teaching has to be organized for students and the same will be tested based on Assignments and HOTS which will be considered for FT II Component. |
| 10 | Presentation on real world applications | Presentation on their conference paper will be conducted for course students to showcase their skills in subject |
| 11 | Conduct of meeting with Course Audit Professor | Before and after the commencement of every test meeting will be conducted with audit professor to discuss the progress of course |
| 12 | Feedback collection | The feedback will be collected from students (mid sem and end sem) |

Prepared by Verified by

[B.Prabhu kavin, Asst.Prof/ DSBS] [Dr. Pongiannan R K, Prof.]

Date: 28-07-2025