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| **SN** | **Course Code** | **TITLE** | **L** | **T** | **P** | **C** | **CH** | **Course Type\*** |
|  | **WEB AND MOBILE SECURITY (Professional Elective-I)** | 2 | 0 | 0 | 2 | 2 | DE |
| **20CST-333** | |  | | | | **20CST-333** | | |
| **PRE-REQUISITE** | |  | | | |  | | |
| **CO-REQUISITE** | |  | | | |  | | |
| **ANTI-REQUISITE** | |  | | | |  | | |

**Course Objectives**

This Subject is useful for Making own Web page and how to make website secure on internet. Along with that Students will also learn about the security techniques and protocols involve in internet technology.

**Course Outcomes**

|  |  |
| --- | --- |
| CO1 | Understanding the modern concept and foundation of web and Mobile security |
| CO2 | Familiarize with the issues and technologies involved in designing a wireless and mobile system that is robust against various attacks. |
| CO3 | Identify network vulnerability, emphasis on ethics, social engineering vulnerabilities and training. |
| CO4 | Understand principles of web security and to guarantee a secure network by monitoring and analyzing the nature of attacks through cyber/computer forensics software/tools. |
| CO5 | To gain knowledge of the tools, techniques and ethical issues likely to face the domain of ethical hacking and ethical responsibilities. |

**Syllabus**

|  |  |  |
| --- | --- | --- |
| **Unit-1** | **Web Architecture and Mobile Security Fundamentals** | **Contact Hours: 15** |
| Ch-1.1 | Web Fundamentals – HTML, HTTP, Client-side scripting, Server-side scripting. | |
| Ch-1.2 | Web server architecture - Windows & Linux, IIS and LAMP servers, Network topologies and DMZ. | |
| Ch-1.3 | Mobile Security Fundamentals- Introduction to Mobile Security, Building Blocks – Basic security and cryptographic techniques. | |
| **Unit-2** | **Security Models, Attacks and Countermeasures** | **Contact Hours: 15** |
| Ch-2.1 | Web applications: Introduction to web applications, Web application hacking, Overview of browsers, extensions, and platforms.  Mobile applications and Models: Mobile Malware and App Security, Android Security Model , IOS Security Model , Security Model of the Windows Phone | |
| Ch-2.2 | Web Security-Attacks, detection evasion techniques, and countermeasures for the most popular web platforms, including IIS, Apache, PHP, and ASP.NET  Attacks and countermeasures for common web authentication mechanisms, including password-based, multifactor (e.g., CAPTCHA), and online authentication services like Windows Live ID. | |
| Ch-2.3 | Mobile Security-Security of GSM Networks, Security of UMTS Networks, LTE Security, Wi-Fi and Bluetooth Security, SIM/UICC Security. | |
| **Unit-3** | **Advanced Security and Ethical Hacking Concepts** | **Contact Hours: 15** |
| Ch-3.1 | Advanced session analysis, hijacking, and fixation techniques, cross-site scripting, SQL injection, classic categories of malicious input, Overlong input (like buffer overflows), canonicalization attacks (like the infamous dot-dot-slash), and meta characters (including angle brackets, quotes, single quote, double dashes, percent, asterisk, underscore, newline, ampersand, pipe, and semicolon), beginner-to-advanced SQL injection tools and techniques, stealth-encoding techniques and input validation/ output-encoding countermeasures. | |
| Ch-3.2 | Emerging Trends in Mobile Security-Mobile Geo-location and Mobile Web Security, Security of Mobile VoIP Communications. | |
| Ch-3.3 | Web services vulnerabilities discovery and XSS Attack, input injection, external entity injection, and XPath injection. Web application management attacks against remote server management, web content management/authoring, admin misconfigurations, and developer-driven mistakes. Web browser exploits. | |

**Textbooks Books**

* Hacking Exposed Web Applications, 3rd edition, Joel Scambray, Vincent Liu, Caleb Sima
* Hacking Exposed Mobile: Security Secrets & Solutions 1st Edition, Kindle Edition, by Neil Bergman, Mike Stanfield, Jason Rouse, and Joel Scambray

**Reference Books**

* The Web Application Hacker's Handbook Discovering and Exploiting Security Flaws By Dafydd Stuttard, Marcus Pinto, Published by Wiley Publishing, Inc.
* Web Application Security, Exploitation and Countermeasures for Modern Web Applications by Andrew Hoffman, Publisher(s): O'Reilly Media, Inc.
* Pallapa Venkataram, Satish Babu: “Wireless and Mobile Network Security”, 1st Edition, Tata McGraw Hill,2010.
* Open Web Application Security Project. A Guide to Building Secure Web Applications and Web Services. http://www.owasp.org/index.php/Category:OWASP\_Guide\_Project

**Mode of Evaluation: The performance of students is evaluated as follows:**

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| --- | --- | --- |
|  | **Theory** | |
| **Components** | **Continuous Internal Assessment (CAE)** | **Semester End Examination (SEE)** |
| **Marks** | 40 | 60 |
| **Total Marks** | 100 | |

**CO-PO Mapping**

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| **Course Outcome** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PSO1** | **PSO2** |
| CO1 | 3 |  |  |  | - | - | - | - | - | - | - | - | - | - |
| CO2 | 3 | 3 | 3 |  | - | - | - | - | - | - | - | - | 3 | 2 |
| CO3 |  | 3 | 3 |  | - | - | - | - | - | - | - | - | 3 | 2 |
| CO4 |  |  | 3 | 3 | 3 | - | - | - | - | - | - | - | - | - |
| CO5 |  | 3 | 3 | 2 | 3 | - | - | - | - | - | - | - | 3 | 2 |

|  |  |
| --- | --- |
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|  |  | **Engineering Knowledge** | **Problem analysis** | **Design/development of solutions** | **Conduct investigations of complex** | **Modern tool usage** | **The engineer and society** | **Environment and sustainability** | **Ethics** | **Individual or team work** | **Communication** | **Project management and finance** | **Life-long Learning** |
| Course Code | Course Name | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
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