

WEB AND DATABASE SECURITY

I Semester: CSE																							
Course Code	Category	Hours / Week			Credits	Maximum Marks																	
BCSC10	Elective	L	T	P	C	CIA	SEE	Total															
		3	0	0	3	30	70	100															
Contact Classes: 45		Total Tutorials: Nil		Total Practical Classes: Nil			Total Classes: 45																
<p>I. COURSE OVERVIEW: Web security is critical to business and to protecting data, users and companies from risk. Web sites are increasingly using web applications to access database systems for information retrieval, transactions and publication.</p> <p>II. COURSE OBJECTIVES: The students will try to learn: I. The Web architecture and applications. II. The client side and service side programming. III. How common mistakes can be bypassed and exploit the application. IV. The common application vulnerabilities.</p> <p>III. COURSE OUTCOMES: After successful completion of the course, students should be able to</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="width: 10%;">CO 1</td> <td style="width: 70%;">Explain basic cryptographic algorithms, message and web authentication in web security issues.</td> <td style="width: 20%;">Understand</td> </tr> <tr> <td>CO 2</td> <td>Identify information system requirements for client and server.</td> <td>Apply</td> </tr> <tr> <td>CO 3</td> <td>Identify security threats in web and database.</td> <td>Apply</td> </tr> <tr> <td>CO 4</td> <td>Utilize security in Data Warehouses and OLAP Systems.</td> <td>Apply</td> </tr> <tr> <td>CO 5</td> <td>Make use of web server security, physical security, host security for servers.</td> <td>Apply</td> </tr> </tbody> </table> <p>IV. COURSE SYLLABUS</p> <p>MODULE-I: WEB SECURITY (09) The Web Security Problem, Risk Analysis and Best Practices Cryptography and the Web: Cryptography and Web Security, Working Cryptographic Systems and Protocols, Legal Restrictions on Cryptography, Digital Identification.</p> <p>MODULE-II: WEB PRIVACY (09) The Web's War on Your Privacy, Privacy-Protecting Techniques, Backups and Antitheft, Web Server Security, Physical Security for Servers, Host Security for Servers, Securing Web Applications.</p> <p>MODULE-III: DATABASE SECURITY (09) Recent Advances in Access Control, Access Control Models for XML, Database Issues in Trust Management and Trust Negotiation, Security in Data Warehouses and OLAP Systems.</p> <p>MODULE-IV: SECURITY RE-ENGINEERING FOR DATABASES (09) Concepts and Techniques, Database Watermarking for Copyright Protection, Trustworthy Records Retention, Damage Quarantine and Recovery in Data Processing Systems, Hippocratic Databases: Current Capabilities.</p> <p>MODULE-V: FUTURE TRENDS PRIVACY IN DATABASE PUBLISHING (09)</p>									CO 1	Explain basic cryptographic algorithms, message and web authentication in web security issues.	Understand	CO 2	Identify information system requirements for client and server.	Apply	CO 3	Identify security threats in web and database.	Apply	CO 4	Utilize security in Data Warehouses and OLAP Systems.	Apply	CO 5	Make use of web server security, physical security, host security for servers.	Apply
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A Bayesian Perspective, Privacy-enhanced Location-based Access Control, Efficiently Enforcing the Security and Privacy Policies in a Mobile Environment.

V. TEXT BOOKS:

1. Simson G. Arfinkel, Gene Spafford, Web Security, Privacy and Commerce, O' Reilly.
2. Michael Gertz, Sushil Jajodia, "Handbook on Database Security Applications and Trends".

VI. REFERENCE BOOKS:

1. Andrew Hoffman, Web Application Security: Exploitation and Countermeasures for Modern Web Applications, Paperback, O' Reilly, 2020.
2. Michael Gertz, Sushil Jajodia, The Handbook of Database Security: Applications & Trends, Springer, 2nd Edition, 2010.

VII. WEB REFERENCES:

1. <https://www.esecurityplanet.com/networks/database-security-best-practices/>
2. <https://www.ibm.com/cloud/learn/database-security>

VIII. E-BOOKS:

1. <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.377.8279&rep=rep1&type=pdf>