



Jordan University of Science and Technology
Faculty of Computer & Information Technology
Cybersecurity Department

CY452 Web Security - JNQF Level: 7

Second Semester 2023-2024

Course Catalog

3 Credit Hours. This course delves into the foundational principles of web technology and web security. It offers a comprehensive exploration of the subject matter, encompassing web application development from its core to securing the developed applications. With a focus on configuration and software that thwarts unauthorized access, the course equips students with the knowledge to safeguard their creations. Key topics explored include: Evolution of Web Architectures: The course traces the historical trajectory of the web, examining the defining characteristics of Web 1.0 and Web 2.0. Markup Languages: Students will gain a thorough understanding of Hypertext Markup Language (HTML) and its latest iteration, HTML5, which provide the building blocks for web page structure and content. Digital Trust and Security Infrastructure: The role of Certificate Authorities (CAs) in establishing trust online will be examined, along with a critical analysis of distributed infrastructures and their inherent security requirements. Secure Coding Practices: The course emphasizes the implementation of secure coding standards during web development, fostering the creation of robust and resilient applications. Hands-on Learning Environment: To solidify theoretical knowledge, students will have the opportunity to apply learned concepts within a practical context using languages like PHP and potentially others. By successfully completing this course, students will be well-equipped to navigate the ever-evolving landscape of web development, possessing the necessary foundation to build secure and reliable web applications.

Teaching Method: On Campus

Text Book

Title	Web Application Security: Exploitation and Countermeasures for Modern Web Applications
Author(s)	Andrew Hoffman,
Edition	1st Edition
Short Name	Textbook1
Other Information	O'Reilly Media; 1st edition, ISBN-13 : 978-1492053118, 2020

Course References

Short name	Book name	Author(s)	Edition	Other Information
Textbook2	Fundamentals of Web Development	Randy Connolly and Ricardo Hoar	3rd Edition	Pearson; 2nd edition, ISBN-13: 978-0134481265, 2017.

REF#1	The Web Application Hacker's Handbook Discovering and Exploiting Security Flaws	Dafydd Stuttard, Marcus Pinto	2nd Edition	Wiley; 2nd edition (September 27, 2011).
REF#2	websecurity academy	https://portswigger.net/web-security/all-topics	3rd Edition	https://portswigger.net/web-security/all-topics

Instructor	
Name	Mr. Mustafa Radaideh
Office Location	A2 L3
Office Hours	Sun : 10:00 - 11:30 Tue : 10:00 - 11:30 Wed : 09:00 - 10:00 Thu : 09:30 - 11:30
Email	myradaideh@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Sun, Tue, Thu : 11:30 - 12:30 Room: PH2102

Prerequisites		
Line Number	Course Name	Prerequisite Type
1742010	Cls201 Introduction To Web Design	Prerequisite / Study
1742210	Cls221 Fundamentals Of Database Systems	Prerequisite / Study
1773430	CY343 Networks Security	Pre./Con.

Tentative List of Topics Covered		
Weeks	Topic	References
Week 1	Web Communication: Client-Server Architecture & HTTP Requests	From Textbook1
Week 2	Web Design Essentials: HTML & CSS Foundations	CH02, CH03 From Textbook1
Weeks 3, 4	Interactive Web Applications: JavaScript Fundamentals	CH06-CH09 From Textbook2
Weeks 5, 6	Dynamic Web Applications: PHP and Server-Side Development and Database interactions (MySQLi or PDO)	CH10-CH14 From Textbook2

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method

Apply computer security principles throughout the design and development phases of web applications, guaranteeing the creation of secure systems and the mitigation of security risks. [1SO6] [1L7S1]	25%	First Exam, Final Exam, Activities and Assignments
Assess the security facets of web-based systems using methods like penetration testing, vulnerability assessment, and security audits to ensure robustness against potential threats. [1SO2] [1L7S1]	25%	second Exam, Final Exam, Activities and Assignments
Develop a secure web system by employing techniques such as encryption, access control, input validation, and secure communication protocols to fulfill defined security objectives. [1SO6] [1L7S2]	25%	Final Exam, Activities and Assignments
Grasp the foundational concepts of web development and security, encompassing encryption, authentication, authorization, secure coding practices, and risk management. [1SO6] [1L7S2]	25%	Final Exam

Relationship to Program Student Outcomes (Out of 100%)					
SO1	SO2	SO3	SO4	SO5	SO6
	25				75

Relationship to NQF Outcomes (Out of 100%)	
L7S1	L7S2
50	50

Evaluation	
Assessment Tool	Weight
First Exam	20%
second Exam	20%
Final Exam	40%
Activities and Assignments	20%

Policy	
Home works	<p>Home works are due at the beginning of class.</p> <p>Late homework will not be accepted.</p> <p>All work has to be done independently.</p> <p>Submit a hard copy and soft copy of your homework with your name, Section#, Sequence #, SID, and Homework # on it.</p> <p>E-mail submission is not allowed.</p> <p>All homework assignments are to be done individually.</p> <p>Students handing in similar work will both receive a 0 and face possible disciplinary actions</p>

Exams	<p>The format for the exams is generally (but NOT always) as follows: general definitions, Multiple-choice, design, short essay questions and writing codes.</p> <p>To make sure you pass the exams, you should do the assignments by yourself.</p> <p>Grades will not be given out via e-mail</p> <p>The exams might be online</p>
Makeup Exams	<p>Makeup exam should not be given unless there is a valid excuse.</p> <p>Arrangements to take an exam at a time different than the one scheduled MUST be made prior to the scheduled exam time.</p>
Drop Date	<p>Last day to drop the course is before the twelve (12th) week of the current semester.</p>
Cheating	<p>Cheating or copying from neighbor on exam, quiz, or homework is an illegal and unethical activity. Standard JUST policy will be applied.</p> <p>All graded assignments must be your own work (your own words).</p> <p>Some of the assignments (programming or homework) may be graded orally.</p>
Attendance	<p>Excellent attendance is expected.</p> <p>JUST policy requires the faculty member to assign ZERO grade (35) if a student misses 20% of the classes that are not excused.</p> <p>Sign-in sheets will be circulated.</p> <p>If you miss class, it is your responsibility to find out about any announcements or assignments you may have missed.</p>
Workload	<p>Average work-load student should expect to spend is 8 hours/week</p>
Participation	<p>appreciate people asking questions during my lectures - it lets me know which concepts you are having difficulty with. Any question student asks is an important question regardless how he/she or others feels about it. Ask any question you think of directly or not directly pertinent to the lecture, I would be happy to entertain them during or/and at the end of the class.</p> <p>Ask me to repeat explaining things as many times as it takes to get it. When a student asks me to repeat the material just explained, the last thing I think off, if ever jumps to my mind, that the student is not smart enough to catch it. Most likely it is my mistake. It is either I was fast, slipped a point or I did not do it well. Whenever, a student asks me to repeat myself, I always learn new way to present the material.</p> <p>Sometimes I don't know the answer, but I'm happy to dig around and report back at the beginning of the next class.</p> <p>Ask and never think that you are wasting the class time or bothering me. I have the courage to tell you, in the best you that will not hurt your feelings, to stop, delay, or to see me after the class.</p> <p>Making any kind of disruption and (side talks) in the class will affect you negatively.</p>
Plagiarism and Academic Integrity:	<p>Plagiarism, including copying code from online sources without proper attribution or using the work of others as your own, is strictly prohibited.</p> <p>All work submitted must be original, and any references or external sources used must be appropriately cited</p>
Finally	<p>Make backups of all of your work.</p> <p>This includes any assignment and project materials you and your group produce.</p> <p>Copy files onto 2 or 3 different memories and photocopy diagrams and other materials to share with your group</p>