



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

CY411 Reverse Software Engineering

First Semester 2023-2024

Course Catalog

2 Credit Hours. The object of Software Reverse Engineering is to provide students with the understanding and practice to perform analysis on malware, deduce their and determine how malware works, and aid the analysis via disassembly. Students can use tools (IDAPro, Ollydbg) to safely perform static and dynamic malware analysis, including encoded, packed, and obfuscated ones. In particular, the course will have extensive hands-on labs/assignments on each knowledge unit.

Text Book

Title	Practical Malware Analysis: The Hands-On Guide to Dissecting Malicious Software
Author(s)	Michael Sikorski and Andrew Honig
Edition	1st Edition
Short Name	Main Textbook
Other Information	ISBN-10: 1593272901

Course References

Short name	Book name	Author(s)	Edition	Other Information
Additional Reference	Malware Analysis and Detection Engineering: A Comprehensive Approach to Detect and Analyze Modern Malware	Abhijit Mohanta and Anoop Saldanha	1st Edition	ISBN: 1484261925

Instructor

Name	Dr. Qasem Abu Al-Haija
Office Location	-

Office Hours	Sun : 09:30 - 10:30 Sun : 11:30 - 12:30 Mon : 09:30 - 10:30 Mon : 10:30 - 11:30 Tue : 09:30 - 10:30 Thu : 09:30 - 10:30
Email	qsabuhaija@just.edu.jo

Class Schedule & Room	
Section 2: Lecture Time: Tue : 11:30 - 12:30 Room: P1102	

Prerequisites		
Line Number	Course Name	Prerequisite Type
1771010	CY101 Cybersecurity Fundamentals	Prerequisite / Study
1772110	CY211 Selected Visual Programming Language	Prerequisite / Study
1771110	CY111 Assembly Language Laboratory	Prerequisite / Study

Tentative List of Topics Covered		
Weeks	Topic	References
Week 1	Course Overview + Review of Cryptographic Principles	Supporting Materials From Main Textbook
Week 2	Overview of Reverse Engineering (RE)	Supporting Materials From Main Textbook
Week 3	Malware Analysis Primer	Ch. 00 From Main Textbook
Week 4	Malware Analysis in Virtual Machines	Ch. 02 From Main Textbook
Week 5	Basic Static Malware Analysis	Ch. 01 From Main Textbook
Week 6	Basic Dynamic Malware Analysis	Ch. 03 From Main Textbook
Weeks 7, 8	A Crash Course in X86 Disassembly (32-bit Microprocessors)	Ch. 04 From Main Textbook
Weeks 9, 10, 11	Advanced Static Malware Analysis	Ch. 05 + Ch. 06 + Ch. 07 From Main Textbook
Weeks 12, 13	Advanced Adynamic Malware Analysis	Ch. 08 + Ch. 09 From Main Textbook
Week 14	Malware Behavior	Ch. 11 From Main Textbook
Week 15	Malware Encoding	Ch. 13 From Main Textbook

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

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