

**ITT Technical Institute**  
**IS3340T**  
**Windows Security**  
**Onsite Course**

**SYLLABUS**

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**Credit hours:** 4.5

**Contact/Instructional hours:** 72 (36 Theory Hours, 36 Lab Hours)

**Prerequisite(s) and/or Corequisite(s):**

Prerequisite: NT2580T Introduction to Information Security or equivalent

**Course Description:**

This course examines security implementations for a variety of Windows platforms and applications. Areas of study include analysis of the security architecture of Windows systems. Students will identify and examine security risks and apply tools and methods to address security issues in the Windows environment.



# Course Summary

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## Course Description

This course examines security implementations for a variety of Windows platforms and applications. Areas of study include analysis of the security architecture of Windows systems. Students will identify and examine security risks and apply tools and methods to address security issues in the Windows environment.

## Major Instructional Areas

1. Windows security vulnerabilities
2. Microsoft Windows hardening strategies
3. Windows system monitoring techniques
4. Back up and restore operations
5. Security incident handling tactics

## Course Objectives

1. Explain security features of the Microsoft Windows operating systems.
2. Implement secure access controls when setting up Microsoft Windows in a given organization.
3. Set up encryption in a given organization to secure Windows environment.
4. Install controls to protect a given Windows system from malware.
5. Apply Group Policy controls and profile and audit tools to keep Windows systems secure.
6. Perform backup and restore operations on a given Windows system.
7. Design techniques to protect given Windows networks and systems from security vulnerabilities.
8. Design techniques to protect given Windows application software from security vulnerabilities.
9. Apply best practices for handling a given Microsoft Windows system and application incident.
10. Apply best practices while managing changes to Windows and its applications.

# Learning Materials and References

## Required Resources

Textbook Package	New to this Course	Carried over from Previous Course(s)	Required for Subsequent Course(s)
Solomon, Michael. <i>Security Strategies in Windows Platforms and Applications</i> . 1 <sup>st</sup> ed. Sudbury, MA: Jones & Bartlett, 2010.	■		
Printed IS3340 Student Lab Manual	■		
ISS Mock IT Infrastructure (2) – VM Server Farm (2 Microsoft Windows XP2003 Standard Servers and 2 Ubuntu Linux Servers) for classroom hands-on VM labs. (For both onsite and online)	■	■	■
ISS Mock IT Infrastructure (2) – VM Workstation (Microsoft Windows XP2003 Professional Workstation with Core ISS Apps and Tools) for classroom hands-on VM labs. (For both onsite and online)	■	■	■

- (1) The following lists the core ISS VM server farm and VM workstation OS, applications, and tools required for this course for both onsite and online course deliveries:

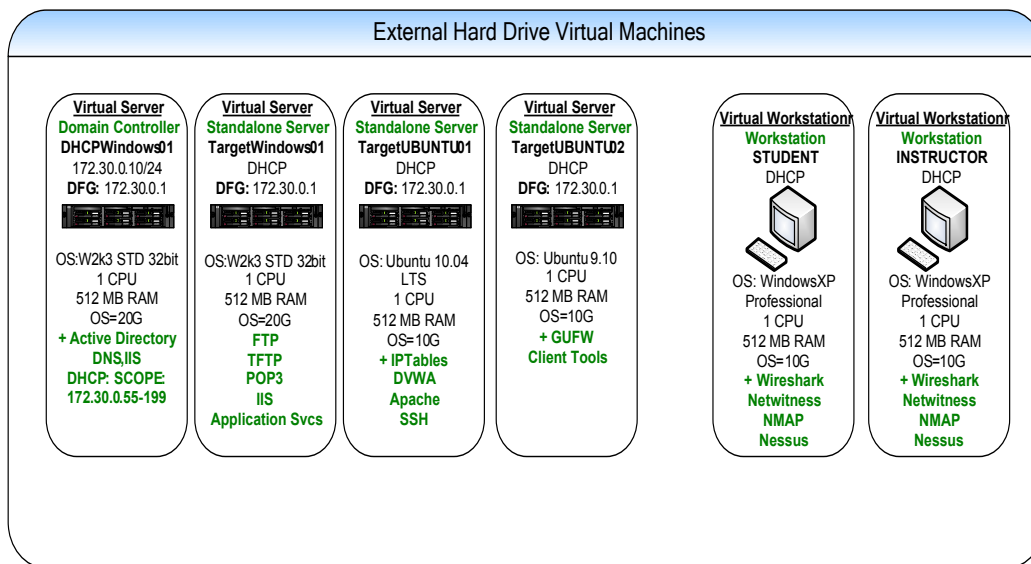


Figure 1 – ISS Core VM Server Farm & VM Workstations

- (2) The following lists the new VMs, applications, and tools required to perform the hands-on labs for this course for both onsite and online deliveries:
- a) New VM for server farm: "WindowsVulnerable01". This VM is a vulnerable Microsoft Windows XP 2003 Standard Edition server used for performing attacks.
  - b) Tools Directory: A directory called "tools" which contains the binary installation files for each tool covered in the course, including:
    - i. Infected with EICAR
    - ii. ClamAV Installed
    - iii. Rootkit Hunter: [http://www.rootkit.nl/projects/rootkit\\_hunter.html](http://www.rootkit.nl/projects/rootkit_hunter.html)
    - iv. Chrootkit: <http://www.chkrootkit.org/>
    - v. Appropriate rootkit tools can be found at:  
<http://www.packetstormsecurity.org/UNIX/penetration/rootkits/indexdate.html>
    - vi. Wireshark
    - vii. NetWitness Investigator
    - viii. FileZilla FTP client/Server
    - ix. Putty SSH client
    - x. Nessus
    - xi. Zenmap
    - xii. MD5sum
    - xiii. SHA1sum
    - xiv. GnuPG (Gnu Privacy Guard)
    - xv. OpenSSL
    - xvi. VMware Player

## Recommended Resources

### Books, Professional Journals

Please use the following author's names, book/article titles and/or keywords to search in the ITT Tech Virtual Library for supplementary information to augment your learning in this subject:

#### Books

#### Periodicals

#### EbscoHost

#### Books24X7

- Brian Komar

*Windows Server 2008 PKI and Certificate Security.*

- Erik Larkin

"Advanced Antivirus". *PC World*, Jan2010, Vol. 28 Issue 1, (Pages 80-86), (AN 47157049)

- Harold F. Tipton, et al

*Information Security Management Handbook*, 6<sup>th</sup> ed.

- ISACA

*Cybercrime: Incident Response and Digital Forensics.*

- Jeremy Moskowitz

*Group Policy: Fundamentals, Security, and Troubleshooting.*

- Jesper M. Johansson, et al

*Windows Server 2008 Security Resource Kit.*

- Mitch Tulloch, et al

*Windows 7 Resource Kit.*

- Steve Seguis

*Microsoft Windows Server 2008 Administration.*

**Keywords:**

Access Control

Access Science

Back Up

Encryption

Group Policy Control

Malware

Microsoft Windows Security

Restore

Security Incidents

Vulnerabilities

## Course Plan

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### Instructional Methods

This course is designed to promote learner-centered activities and support the development of cognitive strategies and competencies necessary for effective task performance and critical problem solving. The course utilizes individual and group learning activities, performance-driven assignments, problem-based cases, projects, and discussions. These methods focus on building engaging learning experiences conducive to development of critical knowledge and skills that can be effectively applied in professional contexts.

### Suggested Learning Approach

In this course, you will be studying individually and within a group of your peers. As you work on the course deliverables, you are encouraged to share ideas with your peers and instructor, work collaboratively on projects and team assignments, raise critical questions, and provide constructive feedback.

Use the following advice to receive maximum learning benefits from your participation in this course:

DO	DON'T
<ul style="list-style-type: none"> <li>▪ Do take a proactive learning approach</li> <li>▪ Do share your thoughts on critical issues and potential problem solutions</li> <li>▪ Do plan your course work in advance</li> <li>▪ Do explore a variety of learning resources in addition to the textbook</li> <li>▪ Do offer relevant examples from your experience</li> <li>▪ Do make an effort to understand different points of view</li> <li>▪ Do connect concepts explored in this course to real-life professional situations and your own experiences</li> </ul>	<ul style="list-style-type: none"> <li>▪ Don't assume there is only one correct answer to a question</li> <li>▪ Don't be afraid to share your perspective on the issues analyzed in the course</li> <li>▪ Don't be negative towards the points of view that are different from yours</li> <li>▪ Don't underestimate the impact of collaboration on your learning</li> <li>▪ Don't limit your course experience to reading the textbook</li> <li>▪ Don't postpone your work on the course deliverables – work on small assignment components every day</li> </ul>

## Course Outline

Unit #	Unit Title	Assigned Readings	Graded Activities			
			Grading Category	#	Activity Title	Grade Allocation (% of all graded work)
1	Microsoft Windows Security Features	<i>Security Strategies in Windows Platforms and Applications:</i> ▪ Chapter 1 ▪ Chapter 2	Assignment	1.1	Adding Active Directory	2
			Lab	1.2	Configure Active Directory and Implement Department and User Access Controls	2
			Assignment	1.3	Executive Summary Report	3
2	Setting up Windows Systems with Secure Access Controls	<i>Security Strategies in Windows Platforms and Applications:</i> ▪ Chapter 3	Assignment	2.1	Recommendations for Access Controls	2
			Lab	2.2	Implement Access Control Lists to Secure Folders and Read/Write/Access to Files	2
			Assignment	2.3	Procedure Guide on Access Controls	3
3	Setting up Windows Systems Using Encryption and Application Rules	<i>Security Strategies in Windows Platforms and Applications:</i> ▪ Chapter 4	Assignment	3.1	Encryption and BitLocker Activity	2
			Lab	3.2	Enable Encryption on a Microsoft Workstation to Ensure Confidentiality	2
			Assignment	3.3	Communication Policy Procedure Guide	3
4	Setting up Controls to Protect Windows Systems from Malware	<i>Security Strategies in Windows Platforms and Applications:</i> ▪ Chapter 5	Assignment	4.1	Identifying Types of Malware Infection	2
			Lab	4.2	Identify and Remove Malware and Malicious Software on a Microsoft Workstation	2
			Assignment	4.3	Malware Policy Procedure Guide	3



Unit #	Unit Title	Assigned Readings	Graded Activities			
			Grading Category	#	Activity Title	Grade Allocation
						(% of all graded work)
5	Maintaining Windows System Security with Group Policy Controls	<i>Security Strategies in Windows Platforms and Applications:</i> ▪ Chapter 6 ▪ Chapter 7	Assignment	5.1	Auditing Tools for Windows System	2
			Lab	5.2	Configure Access to Folders & Files Using Microsoft GPO Manager & Use MBSA to Identify the Current Security Baseline Definition	2
			Assignment	5.3	Security Audit Procedure Guide	3
6	Performing Backup and Restore Operations on Windows Systems	<i>Security Strategies in Windows Platforms and Applications:</i> ▪ Chapter 8	Discussion	6.1	Minimizing Recovery Time Strategies	5
			Lab	6.2	Perform a Microsoft Windows Server & Workstation Backup and Restoration	2
			Assignment	6.3	Procedure Guide on Restoring a System	3
7	Analyzing Windows Networks and Systems for Security Vulnerabilities	<i>Security Strategies in Windows Platforms and Applications:</i> ▪ Chapter 9 ▪ Chapter 10 ▪ Chapter 11	Assignment	7.1	Security Administration Requirements Policy	2
			Lab	7.2	Harden a Microsoft Workstation Using Security Configuration Wizard & Manual Configurations	2
			Assignment	7.3	Hardening Windows Authentication, Networking, and Data Access	4
8	Analyzing Windows Application Software for Security Vulnerabilities	<i>Security Strategies in Windows Platforms and Applications:</i> ▪ Chapter 12	Assignment	8.1	Policy for Securing Windows Environment	2
			Lab	8.2	Apply Security Hardening on Windows Microsoft Server & Microsoft Client Applications	2

Unit #	Unit Title	Assigned Readings	Graded Activities			
			Grading Category	#	Activity Title	Grade Allocation
						(% of all graded work)
			Assignment	8.3	Best Procedures to Secure Windows Applications	4
9	Handling and Managing Security Incidents of Windows Systems	<i>Security Strategies in Windows Platforms and Applications:</i> ▪ Chapter 13	Assignment	9.1	Evidence Collection Policy	2
			Lab	9.2	Perform Digital Evidence Collection & Documentation as per the Chain of Custody	2
			Assignment	9.3	Windows Incident Handling Tools	4
10	Applying Best Practices in Managing Changes to Windows Systems and Applications	<i>Security Strategies in Windows Platforms and Applications:</i> ▪ Chapter 14 ▪ Chapter 15	Discussion	10.1	Best practices in Managing Changes to Windows Systems and Applications	5
			Lab	10.2	Perform a Security Baseline Definition using MBSA to Harden a Microsoft Server†	2
			Assignment	10.3	Software Development Management Policies	4
11	Course Review and Final Examination	N/A	Exam	11.1	Final Exam	20

† Candidate for ePortfolio

## Evaluation and Grading

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### Evaluation Criteria

The graded assignments will be evaluated using the following weighted categories:

Category	Weight
Discussion	10
Assignment	50
Lab	20
Exam	20
<b>TOTAL</b>	<b>100%</b>

### Grade Conversion

The final grades will be calculated from the percentages earned in the course, as follows:

Grade	Percentage	Credit
A	90–100%	4.0
B+	85–89%	3.5
B	80–84%	3.0
C+	75–79%	2.5
C	70–74%	2.0
D+	65–69%	1.5
D	60–64%	1.0
F	<60%	0.0

## **Academic Integrity**

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All students must comply with the policies that regulate all forms of academic dishonesty, or academic misconduct, including plagiarism, self-plagiarism, fabrication, deception, cheating, and sabotage. For more information on the academic honesty policies, refer to the Student Handbook.

(End of Syllabus)