

UNIT - I

		1-1 to 1-61	
> Chapter 1 : Information Security Overview			
1	Syllabus Topic: The Importance of Information Protection	1-4	
1.1	- C C - C - C - C - C - C - C - C - C -		
1.1.1	CI Compation Protection	***************************************	
1	The Evolution of Information Security		
1.1.2	To letter of Information Security		
1	The state of the s		
1.1.3		***************************************	
1			
1.1.4			
1	Syllabus Topic: How to Build a Security Program?	1-12	
1.1.5	How to Build a Security Program ?		
1	The state of the s		
1.1.6	The Impossible Job	1-17	
1	The Weekest Link		
1.1.7	The Weakest Link	1-18	
1	The Weakest Link Syllabus Topic: Strategy and Tactics	1-18	
1.1.8	Strategy and Tactics	1-20	
1	Syllabus Topic: Business Processes vs. Technical Controls	1-20	
1.1.9	Business Processes vs. Technical Controls	1-21	
1.2	Introduction to Risk	1-27	
1	Syllabus Topic: Threat Definition	1_22	
1.2.1	Threat Definition	1-22	
1.2.1.1	Threat Vectors	1 22	
1.2.1.2	Threat Sources and Targets	1 24	
1	Syllabus Topic: Types of Attacks	1 24	
1.2.2	Types of Attacks	1 25	
1.2.2.1	Types of Attacks Malicious Mobile Code	1 20	
1.2.2.2	Malicious HTML	1-29	
1.2.2.3	Advanced Persistent Threats (APTs)	1-30	
1.2.2.4	a de la la Namork I aver Attacks	1-31	
1.2.2.5	Targe Attacks	1-3.	
1.2.2.0	A STEEL A STEEL A Attraction	1-34	
Part of the last			

200		Table of Content
Sec Sec	curity in Computing (MU-B.Sc.IT-Sem-VI) 2	1.20
-	The state of the s	
1.2.2.7	Wireless Attacks Syllabus Topic: Risk Analysis	1-3
1.2.3		
1.3	The CIA Tried and Other Models	
	T. I - 1 Other Models	
1.3:1	C. W. L Tonia - Defence Models	
1.3.2	Defence Models	1-4
1.5.4	Syllabus Topic : Zones of Trust	1-4
1.3.3	Zones of Trust	1-4
1.5.5	Syllabus Topic: Best Practices for Network Defense	1-4
1.3.4	Best Practices for Network Defense	1-4
1.3.4.1	Secure the Physical Environment	1-4
1.3.4.2	Keeping Patches Updated	1-4
1.3.4.3	Using an Antivirus Scanner (with Real-Time Scanning)	
1.3.4.4	Use Firewall Software	
1.3.4.5	Secure Network Share Permissions.	
1.3.4.6	Use Encryption	
1.3.4.7	Securing Applications and their Configuration	
	Blocking Dangerous File Types	
	Secure P2P Services	
	Make Sure Programmers Program Securely	
	Back Up the System	
	Implement ARP Poisoning Defenses	
.4		
	Exam Pack (Review Questions)	1-
	• Chapter Ends	······································
- Char	oter 2 : Authentication	
-		2-1 10 2-
1	Syllabus Topic: Authentication	2
	redictide attoli	2
	") pos or radicincation Methods	
	vs. Machine Authentication	
.1.3	Additional Uses for Authentication	

5 Sec	urity in Computing (MU-B.Sc.IT-Sem-VI) 3	Table of Contents
2.1.3.2	IPSec	2-5
/	Syllabus Topic: Authorization	2-5
2.2	Authorization	2-5
/	Syllabus Topic : Encryption	2-6
2.3	Encryption	2-6
/	Syllabus Topic: A Brief History of Encryption	2-6
2.3.1	A Brief History of Encryption	2-6
2.3.2	Cryptography	2-7
2.3.2.1	Cryptography Techniques	2-7
/	Syllabus Topic: Symmetric-Key Cryptography	2-8
2.3.2.2	Symmetric-Key Encryption(Cryptography)	2-8
1	Syllabus Topic: Public Key Cryptography	2-9
2.3.2.3	Public Key Cryptography	2-9
/	Syllabus Topic: Public Key Infrastructure	2-10
2.3.2.4	Public Key Infrastructure	2-10
1	Syllabus Topic: Storage Security: Storage Security Evolution	2-11
2.4	Storage Security	2-11
2.4.1	Evolution of Storage Security	2-11
1	Syllabus Topic : Modern Storage Security	2-13
2.4.2	Modern Storage Security	2-13
1	Syllabus Topic : Risk Remediation	2-14
2.4.3	Risk Remediation	2-14
2.4.3.1	Confidentiality Risks	2-14
2.4.3.2	Integrity Risks	2-20
2.4.3.3	Availability Risks	2-21
1	Syllabus Topic: Best Practices	2-24
2.4.4	Best Practices	2-24
2.4.4.1	Zoning.	2-25
2.4.4.2	Апауя	
2.4.4.3	Servers	2-25
2.4.4.4	Staff	2-20
2.4.4.5	Offsite Data Storage	2-20
1	Sollabus Tonic : General Database Security Concepts.	
	Understanding Database Security Layers	2-20
2.5	Database Security Concepts	2-2
2.5.1	Database Security Layers	2-2

	with in Computing (MILB Sc.IT-Sem-VI) 4	Table of Contents
To se	scurity in Computing (MU-B.Sc.IT-Sem-VI) 4 Server-Level Security	2-27
2.5.1.1	Server-Level Security	2-27
2.5.1.2	Server-Level Security Network-Level Security	2-28
2.5.1.3	Network-Level Security	2-20
2.5.1.4		
2.5.1.5		
/		
2.5.2	T 1 Conneits:	
2.5.2.1	D. L. Administration Country	
2.5.2.2	Database Poles and Permissions	2-30
2.5.2.3	Object-Level Security	2-31
/	Syllabus Topic: Using Application Security	2-32
2.5.3	Using Application Security	2-32
2.5.3.1	Limitations of Application-Level Security	2-33
/	Syllabus Topic: Database Backup and Recovery	2-34
.5.4	Database Backup and Recovery	2-34
5.4.1	Determining Backup Constraints	2-34
5.4.2	Determining Recovery Requirements	
5.4.3	Types of Database Backups	
1.3	Syllabus Topic: Database Auditing and Monitoring	
5.5	Database Auditing and Monitoring	
5.5.1	Reviewing Audit Logs	
5.5.2	Database Monitoring	
6	Exam Pack (Review Questions)	
	Chapter Ends	
	UNIT - III	
Chap	oter 3 : Secure Network Design	3-1 to 3-68
	Syllabus Topic : Secure Network Design	3.1
	Secure Network Design	3-1
	Syllabus Topic: Introduction to Secure Network Design	
.1	Introduction to Secure Network Design	3-0
1.1	Acceptable Risk	3-2
	Acceptable Risk	
2 P	syllabus Topic : Performance	3-1
S	erformance	3-
, ,	pro- / transcounty	3-5

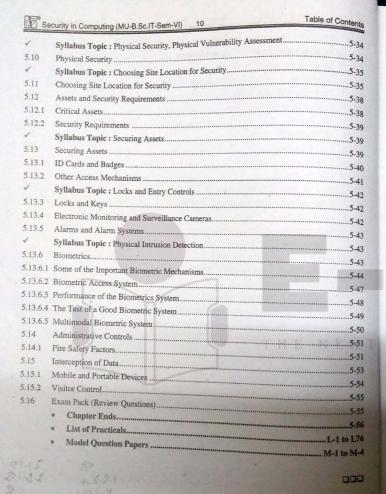
Se Se	curity in Computing (MU-B.Sc.IT-Sem-VI) 5	Table of Contents
1	Syllabus Topic : Security	3-9
3.1.4	Security	3-9
3.1.4.1	Wireless Impact on the Perimeter	3-10
3.1.4.2	Remote Access Considerations	3-11
3.1.4.3	Internal Security Practices	3-13
3.1.4.4	Intranets, Extranets and DMZs	3-14
3.1.4.5	Outhound Filtering	3-16
√ ·	Syllabus Topic: Network Device Security	3-16
3.2	Network Device Security	3-16
1	Syllabus Topic: Switch and Router Basics	3-16
3.2.1	Switch and Router Basics	3-16
3.2.1.2	TCP/IP	3-18
3.2.1.3	Hubs	3-23
3.2.1.4	Switches	3-24
3.2.1.5	Routers	3-25
1	Syllabus Topic : Network Hardening	
3.2.2	Network Hardening	3-27
3.2.2.1	Patching	3-28
3.2.2.2	Switch Security Practices	3-28
3.2.2.3	Access Control Lists	3-29
3.2.2.4	Disabling Unused Services	3-30
3.2.2.5	Administrative Practices	3-32
3.2.2.6	Internet Control Message Protocol (ICMP)	3-36
3.2.2.7	Anti-Spoofing and Source Routing	3-39
3.2.2.8	Logging	3-40
3.3	Firewalls	3-40
1	Syllabus Topic : Overview	3-40
3.3.1	Overview of Firewalls	3-4
1	Syllabus Topic : The Evolution of Firewalls	3-4
3.3.1.1		
3.3.1.2	Application Control	3-4
3.3.1.3		
1	Syllabus Topic : Core Firewall Functions.	3.4
3.3.2	Core Firewall Functions	3-4
3.3.2.	Network Address Translation (NAT)	3-4
3.3.2.	2 Auditing and Logging	

₽ Se	curity in Computing (MU-B.Sc.IT-Sem-VI) 6	Table of Contents
/	Syllabus Topic : Additional Firewall Capabilities	3-48
3.3.3	Additional Firewall Canabilities	3-48
3.3.3.1	Application and Website Malware Execution Blocking	3-48
3.3.3.2	Antivirus	3-49
3.3.3.3	Intrusion Detection and Intrusion Prevention	3-49
3.3.3.4	Web Content (URL) Filtering and Caching	3-40
3.3.3.5	E-Mail (Spam) Filtering	3-40
3.3.3.6	Enhance Network Performance	
√ .5.5.0	Syllabus Topic : Firewall Design	
3.3.4	Firewall Design	
3.3.4.1	Firewall Strengths and Weaknesses	
3.3.4.2		
3.3.4.3	Firewall Placement	
0.3.4.3	Firewall Configuration	
	Syllabus Topics : Radio Frequency Security Basics	
3.4	Radio Frequency Security	
1.5	Data-Link Layer	
	Syllabus Topics: Data- Link Layer Wireless Security Features	
.5.1	Data-Link Layer Features	
	Syllabus Topics: Data- Link Layer Wireless Security Flaws	
.5.2	Data-Link Layer Flaws	
	Syllabus Topics: Threats	3-55
.5.3	Network Security: Common Threats	3-55
	Syllabus Topics : Mitigation	
5.4	Mitigation Techniques	3-57
5,6	WLAN security	3-58
	Syllabus Topics: Wireless Vulnerabilities	3-59
5.7	Threats and Vulnerabilities	3-59
5.7.1	Steps to Securing Wireless Networks	3-60
3.1.2	1 aking Stock	3-60
	Synabus Topics: Wireless Network Hardening Practices and Recommendation	ione 3-61
	raducining	3-61
	synabus Topics: Wireless Intrusion Detection and Prevention	3.65
	vireless intrusion Detection and Prevention System	3.65
r vi	1D3 (Wheless indusion Detection System)	3.65
YY	11-3 (Witeless muusion Prevention System)	2.65
Ex	cam Pack (Review Questions)	3-67
	Chapter Ends	2.67

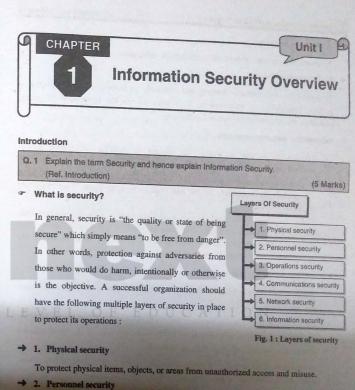
		ble of Contents
	UNIT - IV	
> Ch	apter 4: Intrusion Detection System	4-1 to 4-49
1	Syllabus Topic: Intrusion Detection System: Concepts,	
	Detection Models, IDS Features	4-1
4.1	Intrusion Detection Systems	
4.1.1	Intrusion Detection Tools	4-1
✓	Syllabus Topic: IDS Types	4-2
4.1.2	Types of IDS	4-2
4.2	Passive and Reactive Systems	
✓	Syllabus Topic: Intrusion Prevention Systems	
4.2.1	Intrusion Prevention Systems	
4.2.2	Detection Methods	
✓	Syllabus Topic: IDS Deployment Consideration	
+.2.3	IDS Deployment Consideration	
4.2.4	Comparing IPS versus IDS	
4.2.5	Gaining IDS Mindshare	
4.2.6	Gather Network Topology Diagrams	
4.2.7	Identify Physical Infrastructure	
4.2.8	Sensor Topology Discussion	
4.2.9	Pre- Installation Phase	
VE	Syllabus Topic: Security Information and Event Management (SIEM)	
4.3	Security Information and Event Management (SIEM)	
1	Syllabus Topic : Voice Over IP (VOIP) : Background	
4.4	VOIP	
1	Syllabus Topic : VoIP Components	
4.4.1	VoIP Components	
1	Syllabus Topic: VOIP Vulnerabilities and Countermeasures	
4.4.2	VOIP Vulnerabilities and Countermeasures	
1	Syllabus Topic : PBX Security	
4.5	Private Branch Exchange (PBX)	
1	Syllabus Topic : TEM : Telecom Expense Management	
4.6	Telecom Expense Management (TEM)	
4.0	Syllabus Topic: Operating System Security Models: Classic Security Models.	
	Security Models	
4.7.1	Introduction	

F=-10	17 Q	Table of Conten
F S	Security in Computing (MU-B.Sc.IT-Sem-VI) 8	1
4.7.2	Computer Security Classifications	4-2
1		
4.7.3		
1	Gua mar D. Comments	,
4.7.4	D.C Marian	
1	Sallabus Tonis - Trustworthy Computing	4-
4.7.5	Trustworthy Computing	4-
4.8	Common Attack Vectors	4-;
4.9	Hosting, Hardware, Firmware and Other Invisible Threats	4-3
4.9.1	Security Personas	4-3
4.9.2	Benefits of Personas	4-3
4.10	Threat Models	4-;
4.10.1	Privacy Management Reference Model	4-:
4.10.2	NIST Security Framework	4-
4.10.3	Jericho Security Model	
4.11	Security Architecture Landscape	4-
4.12	Software Assurance Maturity Model (SAMM)	
4.13	Security within the SDLC process	4-
4.14	IoT Threat Model	4
4.15	NIST Cloud Computing Security Model	4-
4.16	Mobile Threat Model	4-
4.17	DDoS Model	4-
1	Syllabus Topic: International Standards for Operating System Security	
4.18	International Standards for Operating System Security	E N L
4.19	Exam Pack (Review Questions)	A_
	Chapter Ends	A.
	UNIT - V	
> Cha	pter 5: Virtual Machines and Cloud Computing	5-1 to 5-
/	Syllabus Topic : Virtual Machines	
1.1	Virtual Machines	THE REAL PROPERTY.
	Synabus Topic: Cloud Computing	
.2	Cloud Computing	
2.1	Software as a Service (SaaS)	
2.2	Platform as a Service (PaaS)	
2.3	Infrastructure as a Service (IaaS)	5

Se Se	curity in Computing (MU-B.Sc.IT-Sem-VI) 9	Table of Contents
5.2.4	Comparison between IaaS, PaaS and SaaS	5-4
1	Syllabus Topic : Secure Development Lifecycle	5-5
5.3	Secure Development Lifecycle	5-5
5.3.1	Defining the Secure Development Lifecycle	
5.3.2	The Problems the SDL Solves	5-6
5.3.3	People, Process and Technology	5-7
5.3.4	SDL Phases	5-7
5.3.4.1	The Requirements Phase	5-8
5.3.4.2	The Design Phase	5-8
5.3.4.3	Implementation or Coding	5-9
5.3.4.4	The Test Phase	5-9
5.3.4.5	The Final Phase : Release/Response	5-10
1	Syllabus Topic: Application Security Practices	5-10
5.4	Application Security Practices	5-10
5.4.1	Recommendations for App-Focused Security	5-11
1	Syllabus Topic: Web Application Security	5-14
5.5	Web Application Security Best Practices	5-14
1	Syllabus Topic: Client Application Security	5-21
5.6	Client Application Security	5-21
5.6.1	Thick Client Vs Thin Client Applications	5-21
5.6.2	Security Assessment of Thick Client Applications	5-22
5.6.3	List of Tools that can used Intercepting Thick Client Applications	5-23
5.6.4	Critical Vulnerabilities Faced by Thick Client Application	5-26
5.6.4.1	Sensitive Data Storage on Files and Registries	5-26
5.6.4.2	Process Monitor	5-26
5.6.4.3	Registry Monitoring	5-26
5.6.4.4	File Monitoring	5-27
1	Syllabus Topic : Remote Administration Security	
5.7	Securing Remote Desktop (RDP) for System Administrators	5-27
5.7.1	Basic Security Tips for Remote Desktop	5-27
5.7.2	Limit Users Who Can Log in Using Remote Desktop	
5.7.3	Set an Account Lockout Policy	
5.8	Best Practices for Additional Security	
1	Syllabus Topic : Classification of Assets.	
	Classification of Assets	
5.9	CHESTITUTE OF ASSEC	



63.32



To protect the individual or group of individuals who are authorized to access the organization and its operations.

To protect the details of a particular operation or series of activities.

→ 4. Communications security

To protect communications media, technology and content.