E.G.S.PILLAY ENGINEERING COLLEGE - NAGAPATTINAM

DEPARTMENT OF INFORMATION TECHNOLOGY

COURSE CODE: IT 2042

COURSE TITLE: INFORMATION SECURITY

COURSE PLAN

SEMESTER: 08   **COURSE DURATION**: JANUARY-APRIL 2015

YEAR & CLASS: IV CSE B   **LOCATION: GGB 209**

FACULTY DETAILS:

S.No	Name	Designation	Dept.	Mail ID	Mobile No.
1.	R. Manivannan	Assistant Professor	CSE	maniramanatha@gmail.com	9789442994

REQUIRED TEXT BOOKS:

1. Michael E Whitman and Herbert J Mattord, "Principles of Information Security", Vikas Publishing House, New Delhi, 2003 Devices, Physical Security, Security and Personnel□

REFERENCE BOOKS:

1. Micki Krause, Harold F. Tipton, " Handbook of Information Security Management", Vol 1-3 CRC Press LLC, 2004.
2. Stuart Mc Clure, Joel Scrambray, George Kurtz, "Hacking Exposed", Tata McGraw-Hill, 2003
3. Matt Bishop, " Computer Security Art and Science", Pearson/PHI, 2002

RESOURCES:

1. www.securityhelp.ru/cissp/Overley_Updated.pdf
2. csetube.blogspot.com/2013/.../it2042-it706-information-security-is_13.html
3. http://www.edunotes.in/Home
4. people.ac.upc.edu/nin/papers/LNNS.pdf
5. ceng520.cankaya.edu.tr/course.php?page=Lecture%20Notes
6. *freecomputerbooks.com/compscspecialSecurityBooks.html*
7. iiscs.wssu.edu/drupal/node/2991

IT 2042 – Information Security

PREREQUISITE:

1. Data Communications and Computer Networks
2. Software Engineering and project Management

OBJECTIVES & OUTCOMES:

Instructional objectives	Instructional outcomes
Students undergoing this course are expected to 1. To understand the basics of information security 2. To know the legal, ethical and professional issues in information security 3. To know the aspects of risk management 4. To become aware of various standards in this area 5. To know the technological aspects of information security	Students undergoing this course are able to a) Discuss the basics of information security b) Illustrate the legal, ethical and professional issues in information security c) Demonstrate the aspects of risk management. d) Design of Security Architecture e) Design and implementation of Security Techniques.

IT2042 – FUNDAMENTALS OF COMPUTING AND PROGRAMMING											
Course designed by	Anna University, Chennai										
Student outcomes (Dept. PEO.)	a	b	c	d	E	f	g	h	i	j	k
				x				x	x		x
Category	Science			core				elective			
								X			
Course coordinator	Manivannan. R										

DETAILED LESSON PLAN:

UNIT I	INTRODUCTION

History, What is Information Security?, Critical Characteristics of Information, NSTISSC Security Model, Components of an Information System, Securing the Components, Balancing Security and Access, The SDLC, The Security SDLC

Session No.	Topics to be covered	Text book	Chapter No. and Page No	Instruction delivery		Testing method	Instructional Objective	Instructional outcome
				Method	Level			
1	History, What is Information Security?	Michael E Whitman and Herbert J Mattord, "Principles of Information Security", Vikas Publishing House, New Delhi, 2003 Devices, Physical Security, Security and Personnel	Chapter 1 Pg 15-21	Board and Chalk	Understanding	Discussion	1.To understand the basics of information security	a) Discuss the basics of information security
2	Critical Characteristics of Information		Chapter 1 Pg 22-24	Ppt	Knowledge	Assignment & Unit Test		

				Instruction delivary				
3,4	NSTISSC Security Model		Chapter 1 Pg 25	Board and Chalk	Knowledge	Assignment and Unit Test		
5	Components of an Information System		Chapter 1 Pg 26	Board and Chalk	Knowledge	Assignment and Unit Test		
6	Securing the Components		Chapter 1 Pg 28	Board and Chalk	Analyze	Unit Test		
7	Balancing Security and Access.		Chapter 1 Pg 29	Board and chalk	Knowledge	Unit Test		
8,9	The SDLC ,The Security SDLC		Chapter 1 Pg 30-36	Board and chalk	Knowledge	Unit Test		

UNIT II   SECURITY INVESTIGATION

Need for Security, Business Needs, Threats, Attacks, Legal, Ethical and Professional Issues

Session No.	Topics to be covered	Text book	Chapter No. and Page No	Instruction delivary		Testing method	Instructional Objective	Instructional outcome
				Method	Level			
10	Need for Security	Michael E Whitman and Herbert J Mattord, "Principles of	Chapter 2 Pg 43-44	Board and chalk	Understanding	Discussion	2.To know the legal, ethical and professional issues in information security	b.Illustrate the legal, ethical and professional issues in information security

		Information Security", Vikas Publishing House, New Delhi, 2003 Devices, Physical Security, Security and Personnel						
11	Business Needs		Chapter 2 Pg 44	Board and chalk	Understanding	Discussion		
12,13	Threats		Chapter 2 Pg 45-61	Board and chalk	Knowledge	Assignment and Discussion		
13,14	Attacks		Chapter 2 Pg 62	Ppt	Knowledge	Discussion		
15,16	Legal		Chapter 3 Pg.80	Ppt	Knowledge	Assignment		
17,18	Ethical and Professional Issues		Chapter 3 Pg.94	Board and Chalk	Knowledge	Unit test		

UNIT III   SECURITY ANALYSIS

Risk Management: Identifying and Assessing Risk, Assessing and Controlling Risk

Sessio n No.	Topics to be covered	Text book	Chapter No. and Page No	Instruction delivery		Testing method	Instructional Objective	Instructional outcome
				Method	**level**			
19,20, 21	Risk Management: Identifying	Michael E Whitman and Herbert J Mattord, "Principle s of Informatio n Security", Vikas Publishing House, New Delhi, 2003 Devices, Physical Security, Security and	Chapter 4 Pg 100-103	Board and Chalk	Understa nding	Discussion	3. To know the aspects of risk management	c).Demonstrate the aspects of risk management.

Session No.	Topics to be covered	Text book	Chapter No. and Page No	Instruction delivery		Testing method	Instructional Objective	Instructional outcome
				Personnel				
22,23, 24	Assessing Risk		Chapter 4 Pg 118-126	Ppt	Knowledge	Unit test		
25,26, 27	Assessing and Controlling Risk			Board and Chalk	Understanding and Knowledge	Unit test		

UNIT IV   LOGICAL DESIGN
Blueprint for Security, Information Security Poicy, Standards and Practices, ISO 17799/BS 7799, NIST Models, VISA International Security Model, Design of Security Architecture, Planning for Continuity

Session No.	Topics to be covered	Text book	Chapter No. and Page No	Instruction delivery		Testing method	Instructional Objective	Instructional outcome
				method	**Level**			
28	Blueprint for Security	Michael E Whitman and Herbert J Mattord, "Principles of Information Security", Vikas Publishing House, New Delhi, 2003 Devices,	Chapter 5 pg.155-172	Board and Chalk	Understanding	Discussion	4. To become aware of various standards in this area	d)Design of Security Architecture .

		Physical Security, Security and Personnel						
29	Information Security Poicy		Chapter 5 pg.144-154	Ppt	Understa nding	Discussion		
30	Standards and Practices		Chapter 5 pg.144-154	Board and Chalk	Knowled ge	Assignment and Unit Test		
31,32	ISO 17799/BS 7799		Chapter 10 pg.362-396	Board and Chalk	Knowled ge	Assignment and Unit Test		
33	NIST Models,		Chapter 5 pg.146-148	Ppt	Knowled ge	Unit Test		
34	VISA International Security Model		Chapter 12 pg.396	Board and Chalk	Understa nding	Assignment		
35	Design of Security Architecture,		Chapter 5 pg.163-166	Ppt	Knowled ge	Assignment		
36	Planning for Continuity		Chapter 5 Pg 175	Board and Chalk	Knowled ge	Discussion		

UNIT V   PHYSICAL DESIGN

Security Technology, IDS, Scanning and Analysis Tools, Cryptography, Access Control

Session No.	Topics to be covered	Text book	Chapter No. and Page No	Instruction delivery		Testing method	Instructional Objective	Instructional outcome
				Method	**Level**			
37,38	Security Technology	Michael E Whitman and Herbert J Mattord, "Principles of Information Security", Vikas Publishing House, New Delhi, 2003 Devices, Physical Security, Security and Personnel	Chapter 7 Pg 232-279	Board and Chalk	Understanding	Discussion	5.To know the technological aspects of information security	e)Design and implementation of Security Techniques

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39,40	IDS			Ppt	Understanding	Assignment and Unit Test		
41,42	Scanning and Analysis Tools			Board and Chalk	Understanding	Assignment and Unit Test		
43,44	Cryptography		Chapter 8 pg.281-314	Ppt	Understanding	Assignment and Unit Test		
45	Access Control		Chapter 7-pg.275-280	Board and Chalk	Understanding	Unit Test		

Outcome Mapping:

PEO/ Instructional Outcome	a).Discuss the basics of information security	b).Illustrate the legal, ethical and professional issues in information security	c).Demonstrate the aspects of risk management	d).Design of Security Architecture	e).Design and implementation of Security Techniques
a. Ability to apply knowledge of computing, mathematics including discrete mathematics, probability and statistics, science, and engineering.					
b. Ability to design, implement and evaluate a software system or process to meet desired needs within realistic constraints such as memory and runtime efficiency					
c. Ability to function on multi-disciplinary teams.					

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d. Ability to identify, formulate and solve engineering problems.			X	X	X
e. Understanding of professional, ethical, legal and social issues and responsibilities.					
f. Capability to communicate effectively					
g. Recognition of the need for engaging in life-long learning and continuing professional development	X				
h. Ability to use the techniques and modern engineering tools necessary to practice as a CSE professional.					
i. Knowledge of defining the computing requirements appropriate to the given problem.			X		
j. Ability to model and design the computer based systems by applying relevant algorithmic principles.			X		
k. Ability to design and conduct experiments, as well as analyze and interpret data.			X	X	X

Subject Handler   Head of the department

E.G.S.PILLAY ENGINEERING COLLEGE – NAGAPATTINAM,

DEPT. OF COMPUTER SCIENCE AND ENGINEERING,

Assignment-I

Subject Code:IT2042   **Year/ Sem:** IV /08

Subject Name: INFORMATION SECURITY   **Class : CSE B**

Question No	Title	Mark	Level of Delivery	Instructional Outcome
1	Explain the characteristic of information	16		a. Discuss the basics of information security
2	Explain SDLC in details	16		

3	Explain types of Attacks in details	16		
4	What are the multiple layers of Security?	2		

Evaluation Procedure

Question No	Content	Benchmark	Marks	Total
1	Explain the characteristics of information	Explanation about Availability	2	16
		Explanation about Accuracy	2	
		Explanation about authenticity	2	
		Explanation about integrity	6	
		Explanation about utility	4	
2	Explain SDLC in detail	Methodology,phases,,investigation	5	16
		Explanation about	11	

		Physical design , logical design, implementation maintainance & change		
3	Discuss in detail about number system	Explanation about malicious code, hoaxes	5	16
		Explanation about back door, password crack	5	
		Explanation about brutforce & dictionary	3	
		Explanation about hexadecimal number system	3	
4	What are the multiple layers of Security?	Explanation about layer topics?	2	2
		Total		50

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Assignment-II

Subject Code:IT 2042   **Year/ Sem:** IV /08

Subject Name: INFORMATION SECURITY   **Class : CSE B**

Question No	Title	Mark	Level of Delivery	Instructional Outcome

1	What are the characteristics of CIA triangle?	2		b).Illustrate the legal, ethical and professional issues in information security
2	Explain SecSDLC in detail	16		
3	Explain the functions of an Information security organization	16		c).Demonstrate the aspects of risk management
4	Explain the categories of Threat in detail.	16		

Evaluation Procedure

Question No	Content	Benchmark	Marks	Total

1	What are the characteristics of CIA triangle?	Types of Characteristics	2	2
2	Explain SecSDLC in detail	Explanation about analysis and logical ,physical design?	8	16
		Explanation about implementation and maintenance?	8	
3	Explain the functions of an Information security organization	Explanation about safe and production.?	8	16
		Explanation about safeguarding technology?	8	
4	Explain the categories of Threat in detail.	Explanation about Quos?	8	16
		Explanation about espionage or trespass?	8	
		Total		50

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Assignment-III

Subject Code: IT2042   **Year/ Sem:** IV /08

Subject Name: INFORMATION SECURITY   **Class : CSE B**

Question No	Title	Mark	Level of Delivery	Instructional Outcome
1	Explain Staffing the security in detail.	16		d).Design of Security Architecture
2	Explain the Cryptographic algorithms in detail.	8		e).Design and implementation of Security Techniques
3	Explain Scanning and Analysis Tools in detail	8		
4	Explain about secret key encryption algorithm	10		
5	Explain IDS in detail	8		

Evaluation Procedure

Question No	Content	Benchmark	Marks	Total
1	Explain Staffing the security in detail.	Explanation about Qualifications and Requirements	8	16

		Explanation about Information Security Positions	8	
2	Explain the Cryptographic algorithms in detail.	Explanation about Data Encryption Standards(DES) and Public Key Infrastructure(PKI)	4	8
		Explanation about Digital Signatures	2	
		Explanation about Pretty Good Privacy(PGP)	2	
3	Explain Scanning and Analysis Tools in detail	Explanation about Foot printing and Fingerprinting?	4	8
		Explanation about various Scanner types?	4	
4	Explain about secret key encryption algorithm	Explanation about Data Encryption Standard?	2	10
		Explanation about Algorithm?	6	
		Explanation about Sub key generation?	2	
5	Explain IDS in detail	Explanation about types of IDS	8	8
		Total		50