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SUMMARY OF INFORMATION ON EACH COURSE

1.	Name of Course	Network Security and Management
2.	Course Code	TNS 3131
3.	Status of Course [Applies to (cohort)]	Specialisation Core for B.IT (Hons) Data Communications and Networking
4.	MQF Level/Stage	Bachelor Degree – MQF Level 6
5.	Version (State the date of the Senate approval – history of previous and current approval date)	Date of previous version : June 2012 Date of current version : June 2014
6.	Pre-Requisite	TCN2141 Computer Networks
7.	Name(s) of academic/teaching staff	Hiew Bee Yan
8.	Semester and Year offered	Trimester 1, Year 3
9.	**Objective of the course in the programme** : This course focuses on the basic concepts of network security. It provides the students with an understanding of common problems faced and the mechanisms to protect information on the network	
10.	**Justification for including the course in the programme :** This course introduces student to techniques in Computer Network Security Management and also highlights some security problems which arises as well as potential solution.	

11.	Course Learning Outcomes :	Domain	Level
	LO1 Define the network management components, its motivation, constraints and issues	Cognitive	Level 1
	LO2 Explain the different issues affecting the security of networks and relate the solutions to these issues	Cognitive	Level 6

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	LO3 Identify the common areas and models currently in use to secure networks and networked applications	Cognitive	Level 4
	LO4 Compare and contrast the security algorithms used in the networked environment	Cognitive	Level 6

12. Mapping of Learning Outcomes to Programme Outcomes :

Learning Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
LO1							X		
LO2	X						X	X	X
LO3							X	X	
LO4							X	X	

13. Assessment Methods and Types :

Method and Type	Description/Details	Percentage
Final Exam	Written examination	60%
Test	Written test	20%
Assignment	Written report, implemented programs with teamwork	20%

14. Mapping of assessment components to learning outcomes (LOs)

Assessment Components	%	LO1	LO2	LO3	LO4
Test	20%	25	25	0	0
Assignment	20%		0	100	100
Final Exam	60%	75	75	0	0

15. Details of Course

Topics	Mode of Delivery	
	Lecture	Tutorial

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	1. Overview of Network Security Security attacks, security services, security mechanisms. Model for Network Security	2	1
	2. Conventional Encryption & Message Confidentiality Overview of Cryptography Conventional Encryption Principles Conventional Encryption Algorithms Cipher Block Modes of Operation Location of Encryption Devices ey Distribution	3	1.5
	3. Public-Key Cryptography & Message Authentication Approaches to Message Authentication Secure Hash Functions and HMAC Public-Key Cryptography Principles Public-Key Cryptography Algorithms Digital Signatures Key Management	4	2
	4. Authentication Applications Security Concerns Kerberos X.509 Authentication Service	2	1
	5. Electronic Mail Security Pretty Good Privacy (PGP) S/MIME	2	1

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	6. IP Security IP Security Overview IP Security Architecture Authentication Header (AH) Encapsulating Security Payload (ESP) Combinations of Security Associations (SAs) Combinations of Security	2	1
	7. Web Security Web Security Considerations Secure Socket Layer (SSL) Transport Layer Security (TLS) Secure Electronic Transaction (SET)	2	1
	8. Network Management Security Basic Concepts of SNMP SNMPv1 Community Facility SNMPv3	2	1
	9. Intruders and Viruses Intruders - Intrusion Techniques - Password Protection - Password Selection Strategies - Intrusion Detection Viruses and Related Threats - Malicious Programs - The Nature of Viruses - Antivirus Approaches - Advanced Antivirus Techniques	2	1

	10. Firewalls Firewall Design Principles Firewall Characteristics Types of Firewalls Firewall Configurations Trusted Systems - Data Access Control - The Concept of Trusted systems - Trojan Horse Defense	2	1
	11. Wireless Networks Security IEEE 802.11 - WLAN Vulnerabilities - WEP Vulnerabilities - WLAN Security Solutions Bluetooth - Security Architecture - Security Model - Authentication & Encryption - Risks & Limitations GSM Security UMTS Security	3	1.5
	12. Network Management Introduction to Network Management: motivation and major components Network management in the real world: External pressures and constraints, time issues, tools of the trade	2	1
	Total	**28**	**14**

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	Total Student Learning Time (SLT)	Face to Face / Guided Learning	Independent Learning
	Lecture	28	28
	Tutorials	14	14
	Laboratory/Practical	-	-
	Presentation	-	-
	Assignment	-	10
	Mid Term Test	1	5
	Final Exam	2	18
	Sub Total	45	75
	Total SLT	**120**	
16.	Credit Value	3	
17.	Reading Materials :		
	Textbooks		
	1. William Stallings, (2011), *Cryptography and Network Security: Principles and Practice: International Version*, , Prentice Hall, 5th Edition, [ISBN: 013705632X		
	Reference Material (including 'Statutes' for Law)		
	1. William Stallings,(2011), *Network Security Essentials: Applications and Standards*, Prentice Hall,4th Edition.		

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Appendix (to be compiled when submitting the complete syllabus for the programme) :

1. Mission and Vision of the University and Faculty
2. Programme Objectives or Programme Educational Objectives
3. Programme Outcomes (POs)
4. Mapping of POs to the 8 MQF domain
5. Summary of the Bloom's Taxonomy's Domain Coverage in all the Los in the format below :

Subject	Learning Outcomes (please state the learning 0utcomes)	Bloom's Taxonomy Domain		
		Affective	Cognitive	Psychomotor
ABC1234	Learning Outcome 1			
	Learning Outcome 2			
	Learning Outcome 3			
	Learning Outcome 4			
DEF5678	Learning Outcome 1			
	Learning Outcome 2			
	Learning Outcome 3			
	Learning Outcome 4			

6. Summary of LO to PO measurement
7. Measurement and Tabulation of result for LO achievement
8. Measurement Tabulation of result for PO achievement