

1.	Name of Course	Network Management			
2.	Course Code	CNET3553			
3.	Name(s) of academic staff				
4.	Rationale for the inclusion of the course/module in the programme	<u>major</u> Keeping the business running depends on keeping the networking services running, as companies become increasingly reliant on networks. However, to successfully operate a network, an effective network management is critical factor. The Network Management course provides the learner with an accessible overview of network management covering management not just of networks themselves but also of services running over those networks.			
5.	Semester and Year offered	2/3			
6.	Total Student Learning Time (SLT)	Face to Face			Total Guided and Independent Learning
	L = Lecture T = Tutorial P = Practical O= Others	L	T	P	O
		28	14	/	84
7.	Credit Value				3
8.	Prerequisite (if any)				None
9.	Objectives: The module is to introduce the students to the business implications of network management by examining different management reference models, such as Fault, Configuration, Accounting, Performance, and Security (FCAPS). The module explains the nature and purposes of building blocks of network management. The implications and impact of management technologies are assessed and placed in perspective.				
10.	Learning outcomes: By the end of the subject, students should be able to: - Recognize the importance of the network management. - Demonstrate an understanding of the functions, tools, and activities that are associated with network management. - Make use of network management tools. - Demonstrate an understanding of network management reference models. - Recognize and appropriately use management protocols, and management communication patterns. - Demonstrate an understanding of management integration and service-level management.				
11.	Transferable Skills: - Technical writing and presentation skills - Oral/Written Communication skills - analyse building blocks of network management - problem solving and decision-making skills - Teamwork skills				

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12.	Teaching-learning and assessment strategy A variety of teaching and learning strategies are used throughout the course, including: • Classroom lessons. Lectures and Power Point presentations • Tutorials • brainstorming • Lecturer-led problem-solving sessions • Solving assigned problems in groups and individually • collaborative and co-operative learning; • Independent study. Assessment strategies include the following: • Performance Assessment (Project, class participation, Assigned exercises) • Lecturer Observation • Quizzes, tests, and examinations																																															
13.	Synopsis: The module begins with an overview of what network management is about and why it is relevant. Subsequently, the module examines network management from several different angles, concluding in a discussion of how these aspects are combined into management reference models. Management protocols, management organization, and management communication patterns are also covered. Furthermore management integration and service-level management are discussed.																																															
14.	Mode of Delivery: • Classroom lessons. Lectures and Presentations • Tutorial sessions: Practice exercises																																															
15.	Assessment Methods and Types: The assessment for this course will be based on the following: <table><tr><td></td><td>Coursework</td><td>40%</td></tr><tr><td>• Midterm test</td><td>20%</td><td></td></tr><tr><td>• Quizzes and Assignments</td><td>10%</td><td></td></tr><tr><td>• Project</td><td>10%</td><td></td></tr><tr><td></td><td>Final Examination</td><td><u>60%</u></td></tr><tr><td></td><td></td><td>100%</td></tr></table>													Coursework	40%	• Midterm test	20%		• Quizzes and Assignments	10%		• Project	10%			Final Examination	<u>60%</u>			100%																		
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16.	Mapping of the course/module to the Programme Aims <table><tr><td>A1</td><td>A2</td><td>A3</td><td>A4</td><td>A5</td><td>A6</td><td>A7</td><td>A8</td><td>A9</td></tr><tr><td>2</td><td>3</td><td>3</td><td>4</td><td>1</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table>												A1	A2	A3	A4	A5	A6	A7	A8	A9	2	3	3	4	1	3	2	1	0																		
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18.	Content outline of the course/module and the SLT per topic <table><tr><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td colspan="4">SLT</td></tr><tr><td>L</td><td>T</td><td>indep.</td><td>Total</td></tr><tr><td colspan="16">Details</td></tr></table>																								SLT				L	T	indep.	Total	Details															
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	Topic 1	Network Management: An Overview - Defining Network Management - The Importance of Network Management - Network Management Users - Network Management Providers - Network Management Complexities - Technical Challenges - Organization and Operations Challenges - Business Challenges	2	1	6	9
	Topic 2	Network Manager job description - Network Manager tasks - for a Global Service Provider - for a Medium-Size Business - for an Internet Data Center - Management Tools	2	1	6	9
	Topic 3	The Basic Ingredients of Network Management - The Management System - The Management Network - The Management Support Organization: NOC, NOC, Who's There?	2	1	6	9
	Topic 4	The Dimensions of Management - Charting the Course Along Network Management Dimensions - Management Interoperability - Management Subject - Management Life Cycle - Planning - Deployment - Operations - Decommissioning - Management Layer - Element Management - Network Management - Service Management - Business Management - Network Element - Management Function - Management Process and Organization	4	2	12	18
	Topic 5	Management Functions and Reference Models - Of Pyramids and Layered Cakes - The ABCs of Management (FCAPS) - OAM&P: The Other FCAPS - FAB and eTOM - Using the Network Management ABCs	4	2	12	18
	Topic 6	Management Information - Common Terminology Between Manager and Agent - MIBs - MIB Definitions - Anatomy of a MIB - Modeling Management Information	2	1	6	9

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	Topic 7	Management Communication Patterns - Layers of Management Interactions - Manager-Initiated Interactions—Request and Response - Agent-Initiated Interactions: Events and Event-Based Management	2	1	6	9
	Topic 8	Common Management Protocols: Languages of Management - SNMP: Classic and Perennial Favorite - CLI: Management Protocol of Broken Dreams - syslog: The CLI Notification Sidekick - Netconf: A Management Protocol for a New Generation - Netflow and IPFIX	4	2	12	18
	Topic 9	Management Organization: Dividing the Labor - Scaling Network Management -Management Complexity - Management Hierarchies - Management Styles - Management Mediation	2	1	6	9
	Topic 10	Management Integration - The Need for Management Integration - Management Integration Challenges - Approaches to Management Integration - Containing Complexity of the Managed Domain	2	1	6	9
	Topic 11	Service Level Management - The Motivation for Service Level Agreements - Identification of Service Level Parameters - Defining a Service Level Agreement - Managing for a Service Level	2	1	6	9
	Total SLT		28	14	84	126
19.	Main references supporting the course: Alexander Clemm, “Network Management Fundamentals”. Cisco Press, 2007					
	Additional references supporting the course: - Benoit Claise, Ralf Wolter. “Network Management: Accounting and Performance Strategies”, Cisco Press, 2007. J. Richard Burke. “Network Management: Concepts and Practice, A Hands-On Approach”. Prentice Hall, 2004. - Keith Lockyer, James Gordon. “Project Management and Project Network Techniques, 7/E”, Prentice Hall, 2005.					
20.	Other additional information All materials will be available to the students online.					

