



# Network Analysis and Design

■ Robiah Binti Yusof

Sem 1 2006/2007  
6/2/07

**ROBIAH BT. YUSOF**  
Pensyarah  
Fakulti Teknologi Maklumat dan Komunikasi  
Universiti Teknikal Malaysia Melaka

# Network Analysis and Design

① insert n/a  
② ruangan gambar terlalu besar  
③

Robiah Yusof

Editor  
Sharin Sahib

Penerbit Universiti  
Kolej Universiti Teknikal Kebangsaan Malaysia



tored in a  
:recording or

## TABLE OF CONTENTS

	PAGE
<b>PREFACE</b>	
1. A System Approach to Network Design	1
1.1 Exercise	2
2. The Basic of Microsoft Visio	9
2.1 Hands-On Exercises / Step by Step	10
2.1.1 To Start Visio	10
2.1.2 To Create Simple Block Diagram	14
2.2 Exercise	18
3. Creating a Network Diagram	21
3.1 Hands-On Exercises / Step by Step	22
3.1.1 To Create a Network Diagram	22
3.1.2 To Aligning Shapes	24
3.1.3 To Define New Custom Properties	26
3.1.4 To Create a Report	28
3.2 Exercise	30
4. Requirement Analysis	31
4.1 Exercise	32
5. Creating Layout Office Space	37
5.1 Hands-On Exercises / Step by Step	38
5.1.1 To Create an Office Layout	38
5.1.2 Adding Doors, Windows and Furniture	41
5.1.3 Organizing Shapes with Layers	44
5.2 Exercise	47
6. Converting Information into Network Diagram	49
6.1 To Read and Draw Switch Connection	50
6.2 Exercise	53
7. Flow Analysis	55
7.1 Exercises	56
8. Case Study on Technology Choices	67
8.1 Overview of Case Study	68
8.2 Exercises	69

9.	Logical Design	71
9.1	Exercise	72
10.	Resolution Guide For Securing Network in Your Network Design	81
10.1	Overview of Scenario	82
10.2	Exercise	83
11.	Designing A Server Room	85
11.1	Overview of Case Study	86
11.2	Exercise	87
12.	Security and Physical Design	89
12.1	Exercise	90
	Reference	107

	71
	72
n	81
	82
	83
	85
	86
	87
	89
	90
	107

## PREFACE

### Overview

Network Analysis and Design has been an established field for more than 35 years. Designing network for IT project in specific requires ideas and information that go beyond standard design. Effective network and analysis design ensures that the analysis and design process can significantly improved the resulting designs by considering security, management, performance and addressing and routing earlier in the process. This lab module is designed to equipped student with hands-on experience on implementing their network analysis and design knowledge and to make these techniques more obvious and expose to student.

### Approach

The objectives of this module is to enable the student to fully understand the topics covered in Network Analysis and Design (NAD) subject through extensive tutorial and introduce student to NAD's software using the top design software tool in the industry namely Microsoft Visio 2003. This software will help student in understanding and applying the network analysis and design areas and processes. We will also use other tools such as documentation software which is Microsoft Word, Internet Browsers and Paint Brush. Each lab offers student many opportunities to get hands-on and build new software skills.

Upon completion of this lab module the students should have:

- Knowledge about implementing reliable design by considering security management, performance and addressing and routing during early design.
- Substantial skills to use software for designing logical and physical network design in IT project in particular.
- Skill to build a secure and robust network design.

### Chapter Layout

Each chapter begins with a list of objectives. Overall chapter closely follow the text book used during lecture hours namely Practical Computer Network Analysis and Design. These include the important concepts to be mastered within the chapter.

Extensive tutorial are included for each chapter for the purpose of fully understanding the subject. They provide the student with a chance to build confidence with the lab exercises. This module contains 12 labs and tutorials where the labs concentrate more on Microsoft Visio 2003 software.



#### AUTHOR'S BIOGRAPHY

**Robiah bte Yusof** is currently holding Lecturer post in Department of Computer and Communication System, Faculty of Information and Communication Technology KUTKM. She obtained her Bachelor of Computer Studies (Hons) from Liverpool John Moores University, UK and MSc in Computer Science from Universiti Kebangsaan Malaysia. She had been working as a System Analyst and Network Engineer for few years in private and academic sector previously for nearly ten years before joining KUTKM in 2003. She is currently specializing in network administration, management and security area.



Penerbit Universiti,  
Kolej Universiti Teknikal Kebangsaan Malaysia

