CONTENTS

PREFACE viii CHAPTER ONE ARRAY AND SPREADSHEET BASICS 1

Learning Objectives 1
Overview of Arrays 2
Array Formula 3
Entering and Editing Array Formula 4
Array Constants 7
Horizontal Array Constant 8
Vertical Array Constant 9
Two-Dimensional Array Constant 10
Array Range 11
Calculating Array Results 13
Advantages of Array formulas 19
Disadvantages of Array Formula 21
The Name Manager 22
Types of Names 23
How to Name a Cell or Range 24

CHAPTER TWO MATRIX IN SPREADSHEET

Learning Objectives 28
Matrix Addition 28
Matrix Product 32
Definition 35
Determinants 41
Invertible Matrix 45

CHAPTER THREE **SYSTEM OF LINEAR EQUATIONS**

Learning Objectives 50 General Form of a System of Linear Equations 51 Solving a System of Linear Equations 56 Algorithm of a Linear System 57 Invertible Method 57 Cramer's Rule 63

CHAPTER FOUR APPLICATION OF LINEAR SYSTEMS

Learning Objectives 69

Solution of Real-world Linear Systems 70

Exercise 1: General 70 Exercise 2: Finance 74 Exercise 3: General 79

Traffic Network Analysis 84

Exercise 4: Traffic Network 86 Exercise 5: Traffic Network 88 Exercise 6: Traffic Network 93

Electrical Network 97

Exercise 7: Flectrical Network 97 Exercise 8: Electrical Network 101

Exercise 9: Electronics 103 Exercise 10: Chemistry 106

CHAPTER FIVE SUPPLEMENTARY EXERCISES

Exercise 1: Furniture 110

Exercise 2: Mining 112

Exercise 3: Pharmaceuticals 113

Exercise 4: Construction 113

Exercise 5: Medicine 114

Exercise 6: Fast Food 115

Exercise 7: Dietetic 116

Exercise 8: Tours 116

Exercise 9: Pharmaceutical 117

Exercise 10: Construction

BIBLIOGRAPHY 119 INDEX 122