



Lecture Notes

Linear Algebra

Software Engineering Program,

Department of Computer Engineering,

School of Engineering, KMITL

67011352 Theepakorn Phayonrat[0.5cm]

Contents

| | |
|--|----------|
| 1 Lecture 1: Vector | 2 |
| 1.1 Vector & Linear Combinations | 2 |
| 1.1.1 Linear Combination | 2 |
| 1.1.2 Column Vector | 2 |
| 2 Lecture 2: Vector (cont.) | 3 |
| 2.1 Matrices | 3 |
| 3 Lecture 3: Elimination | 4 |

Chapter 1

Lecture 1: Vector

1.1 Vector & Linear Combinations

1.1.1 Linear Combination

$$cv + dw = c \begin{bmatrix} 1 \\ 1 \end{bmatrix} + d \begin{bmatrix} 2 \\ 3 \end{bmatrix} = \begin{bmatrix} c + 2d \\ c + 3d \end{bmatrix}$$

1.1.2 Column Vector

$$v = \begin{bmatrix} v_1 \\ v_2 \end{bmatrix}$$

Where v_1 is the first component of v .

Where v_2 is the second component of v .

Chapter 2

Lecture 2: Vector (cont.)

2.1 Matrices

Matrices are combinations of Vectors

$$u = \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}$$

$$v = \begin{bmatrix} 4 \\ 5 \\ 6 \end{bmatrix}$$

$$A = \begin{bmatrix} 1 & 4 \\ 2 & 5 \\ 3 & 6 \end{bmatrix}$$

A is a 3 by 2 **matrix**: $m = 3$ rows and $n = 2$ columns

Suppose A is a system which input x and output b

Chapter 3

Lecture 3: Elimination

$$\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$$

