

Numerical - - -

Pemodelan & Metode Numerik

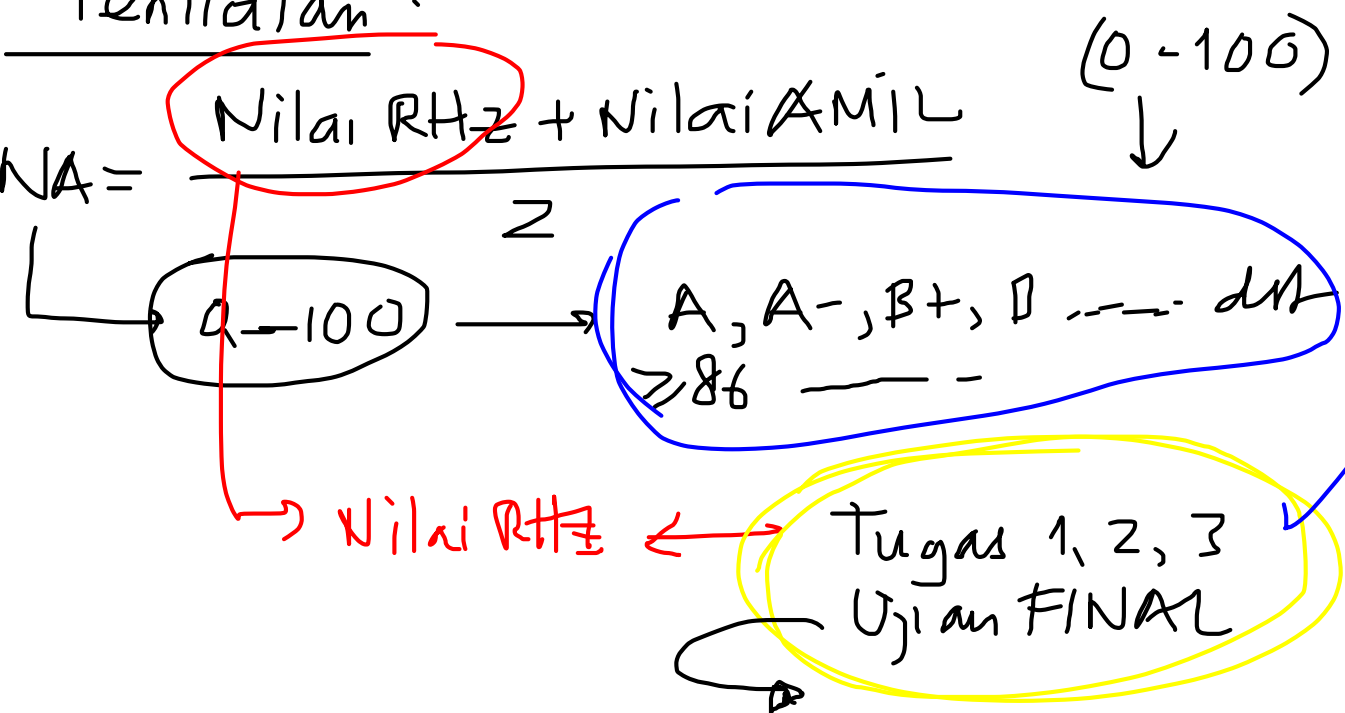
Pemodelan NUMERIK → Rhiza

Metode NUMERIK → Dr. Amil

website:

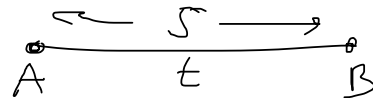
www.unhas.ac.id/rhiza/arsip/kuliah/

Penilaian:



Rhiza@unhas.ac.id } 24 jam
#628164312162

Time Continuum

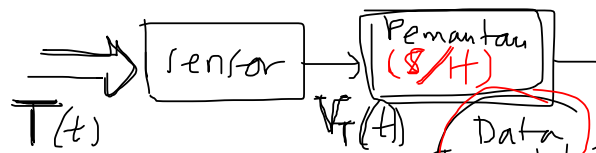


Kecepatan: $\frac{S}{t}$

$$v(t) = \frac{ds}{dt}$$

ANALOG

* Discrete-Time



$T(t)$: suhu ruangan

Report

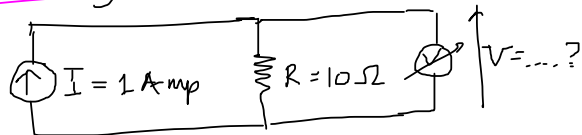
Waktu	Suhu
01.00	25
02.00	27
03.00	26

Discrete Time

DIGITAL

Contoh Sistem Deterministik & Stokhasitik

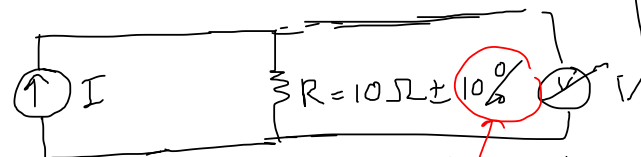
* Rangkaian Listrik



Hukum Ohm $V = I \cdot R$

$I = 1 \text{ Amp} \rightarrow V = 1 \times 10 = 10 \text{ Volt}$
 $I = 2 \text{ Amp} \rightarrow V = 2 \times 10 = 20 \text{ Volt}$

(DETERMINISTIK)



toleransi

$9 \Omega \leq R \leq 11 \Omega \rightarrow 10\%$
 $I = 1 \text{ Amp} \rightarrow 9 \text{ Volt} \leq V \leq 11 \text{ Volt}$
 $I = 2 \text{ Amp} \rightarrow 18 \text{ Volt} \leq V \leq 22 \text{ Volt}$

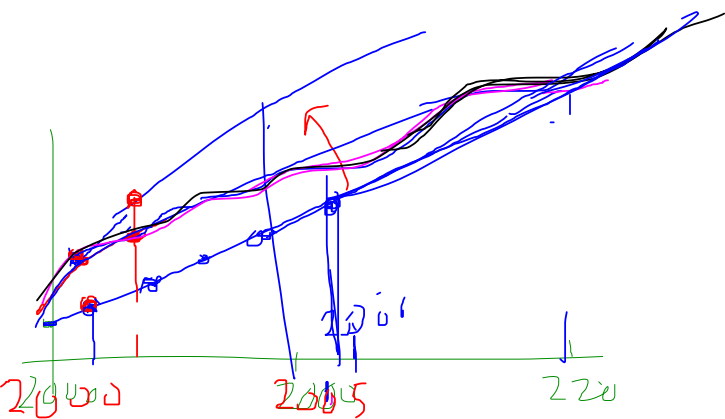
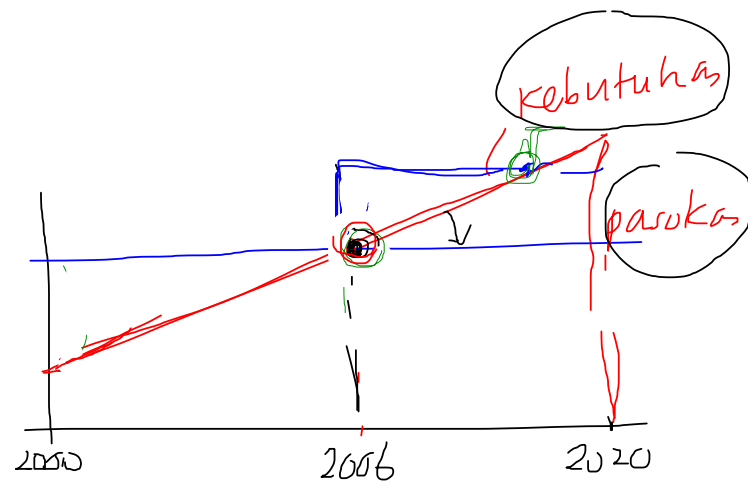
(STOKHASTIK)

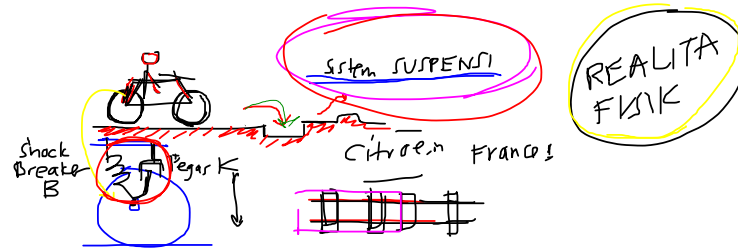
RU'YAT
HISAB

Imkannur. Ru'yat

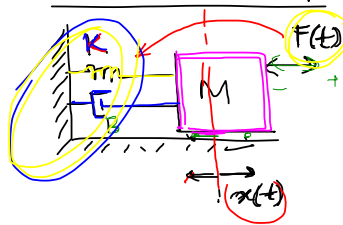
VISIBILITAS
"stokhasitik"

"deterministik"
POSISI





Model Fisik Dinamik
SPRING-MASS-DAMPER



Model Matematis
Dinamik

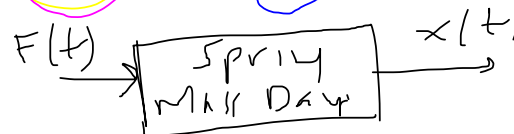
Hukum Newton:

$$F(t) = M \frac{d^2 x(t)}{dt^2} + B \frac{dx(t)}{dt} + K x(t)$$

percepatan seragam kecepatan seragam posisi seragam

Pers. Differential

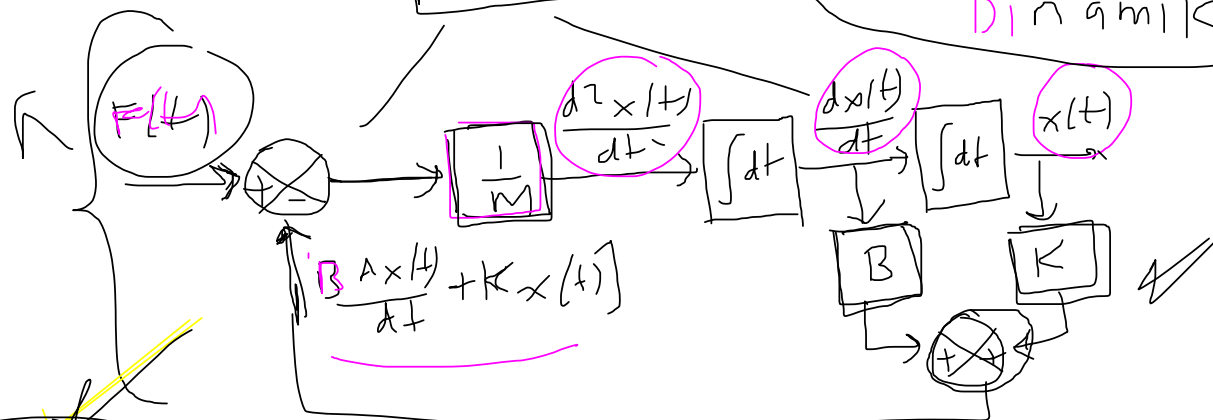
$$\frac{d^2 x(t)}{dt^2} = \frac{1}{M} [F(t) - (B \frac{dx(t)}{dt} + K x(t))]$$



Model Matematis
Dinamik

Model Fisik
Dinamik

Rangkaian
Elektronika



Progn
SIMULASI

Metode
Numerik