NEXT:
* Representasi SISTEM

A system can be viewd as any process that results in the transformation of signals. Thus a system has an input signal and an output signal which is related to the inout through the system transformation.

/SISTEM LINIER (Khusus TKKE)
Penilaian: MIDTEST (40%), UJIAN FINAL (60%)
Referensi: * "Signals and Systems" Oppenheim, Willsky and Young
* http://www.unhas.ac.id/rhiza/arsip/kuliah/
Google: * Sistem Linier, Linear Systems

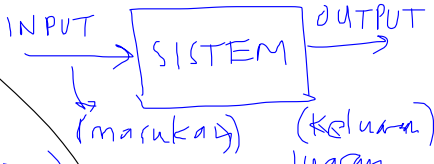
MATERI:
Bab I : Memperkenalkan SISTEM LINIER
Introduction to Linear Systems
* Pengertian SISTEM
* Representasi SISTEM → Bagan Kotak (Block Diagram)
* Macam-macam SISTEM
* Sistem LINIER dan TAK LINIER
* LINIERisasi (MIDTEST 40%)

Bab II Pemodelan SISTEM LINIER
Linear Systems Modelling
* Urgensi Pemodelan Sistem
* Pemodelan Watak Alih (Transfer Characteristics)
* Pemodelan Nisbah Alih (Transfer Function)
* Pemodelan Ruang Keadaan (State Space)
(seluruhnya) (UJIAN FINAL 60%)

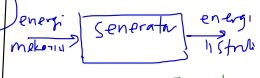
Bab I Intro to Linear Systems

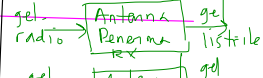
* Pengertian SISTEM
(Oppenheim, et.al.) :

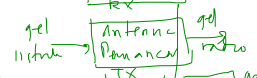
"A system can be viewed as any process that results in the transformation of signals. Thus a system has an input signals and an output signals which is related to the input through the system transformation." (hal. 35)

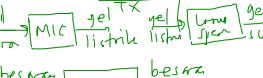


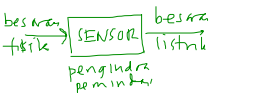
Contoh :

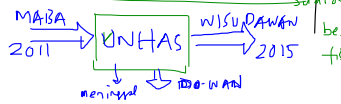












$V_i(jw)$: isyarat tegangan V_i ("voltage") masukan (input) yang berubah dengan jw

$j = \sqrt{-1}$

ω = omega

OMEGA

Ω

Ohm

= frekuensi sudut

$\omega = 2\pi f = \frac{2\pi}{T}$ [rad/sec]

f = frekuensi [Hertz] $= \frac{1}{T}$

T : periode [sec]

π : ---- ?

"pi"

* Representasi SISTEM

Dalam kuliah ini, SISTEM direpresentasikan dengan Alat Matematik BAGAN KOTAK (Blok Diagram)

* Representasi ISTARAT (signal)
* Representasi PROSES (sistem)

(sesuai dengan definisi SISTEM)

* Representasi ISTARAT (signals)

Dalam bagan kotak, isyarat direpresentasikan dengan ANAK PANAH :

→ : isyarat tunggal

⇒ : isyarat majemuk

Source (sumber) — destination (tujuan) arah propagasi isyarat

Notasi isyarat → isyarat..

Dalam bentuk :

* Kata - kata atau kalimat

→ gelombang radio

→ energi mekanik

⇒ MABA 2011

* Fungsi : → $x(t)$ ⇒ $Y(k)$ → $V(jw)$ → $X(s)$

$x(t)$: isyarat x yang berubah dengan (sebagai fungsi dari) t (t = time : waktu)

$x(0)$: keadaan awal (initial cond.)

$Y(k)$: isyarat Y yang berubah secara sekuensial, berarut

k = 0, 1, 2, 3, -- urutan

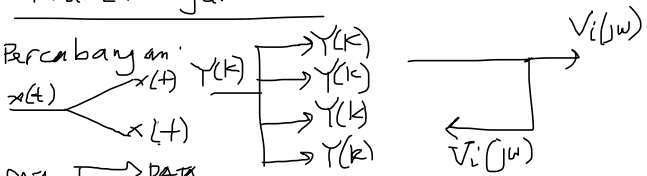
$Y(0)$: keadaan awal (initial condition)

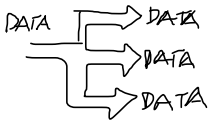
$Y(1)$: isyarat Y yang pertama

$Y(2)$: -- Y -- kedua

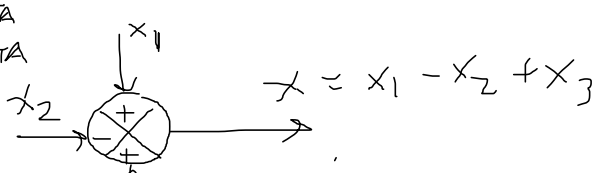
Percabangan dan Pertemuan ISYARAT
Branch & Junction

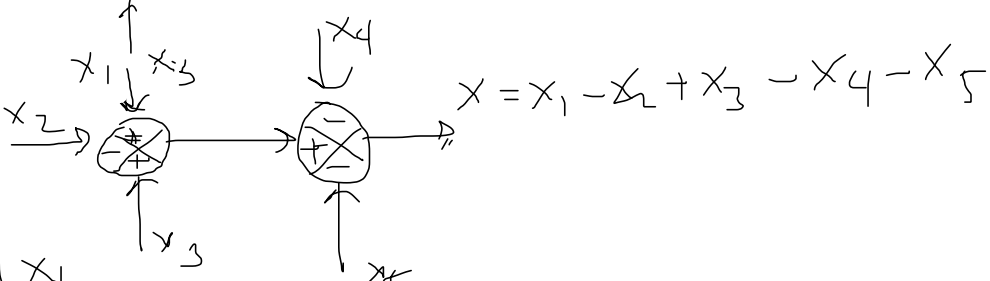
- Percabangan:

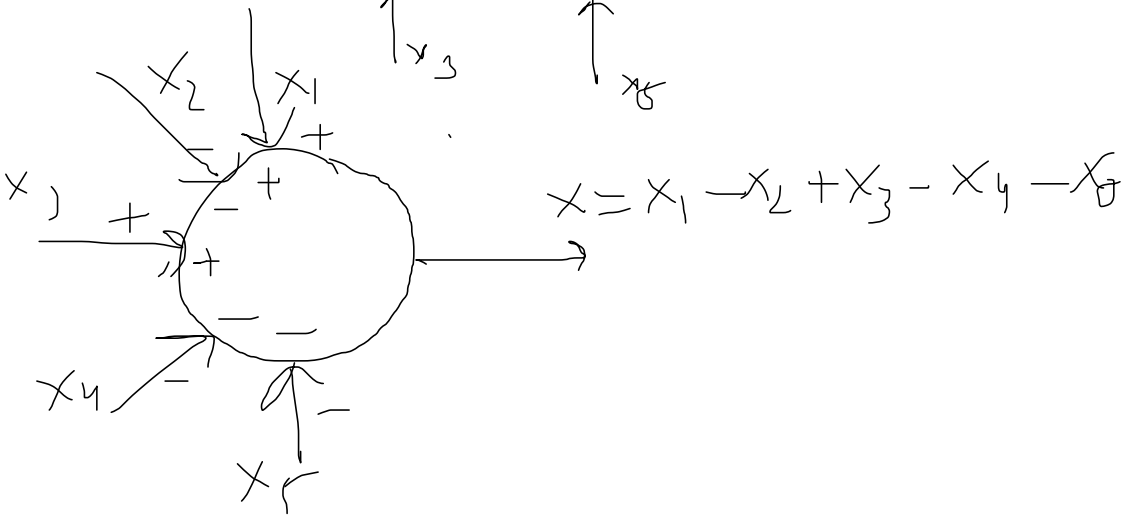




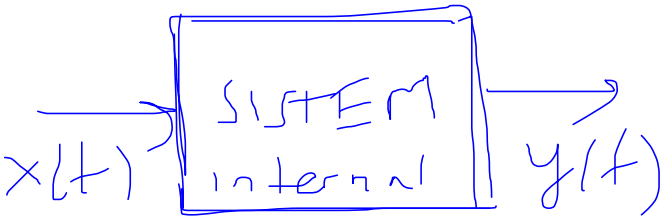
- Pertemuan

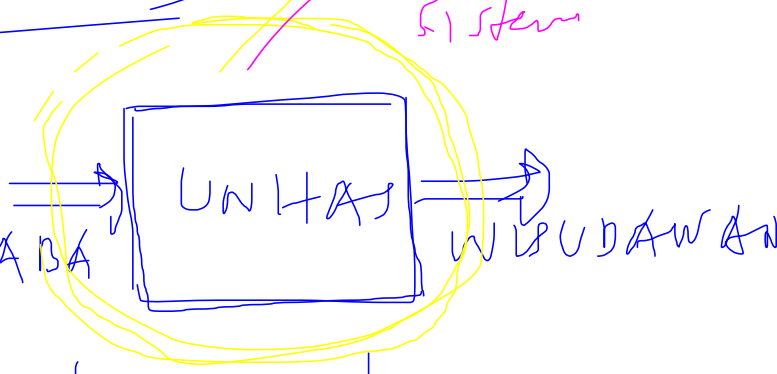




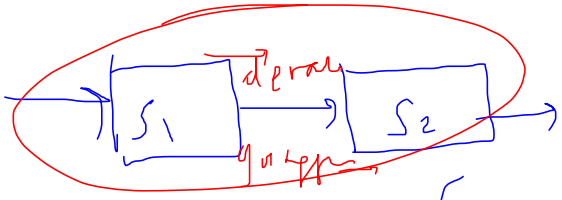


Representasi SISTEM (PROSES)





input = masukan
output = keluaran
gangguan (disturbance)
derau (noise)



derau dari S_1
menjadi gangguan utk S_2