

Operasi Matematika

$$x(t) \rightarrow \int dt \rightarrow y(t) = \int x(t) dt$$

integrator

$$x(t) \rightarrow \frac{d}{dt} \rightarrow y(t) = \frac{dx(t)}{dt}$$

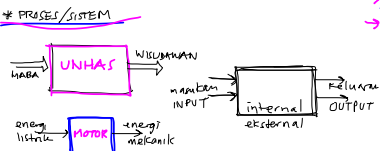
differentiator

$$x \rightarrow \sqrt{\quad} \rightarrow y = \sqrt{x}$$

pengakar

$$x \rightarrow \log_{amp} \rightarrow y = K \log|x|$$

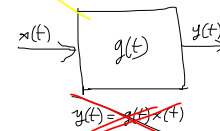
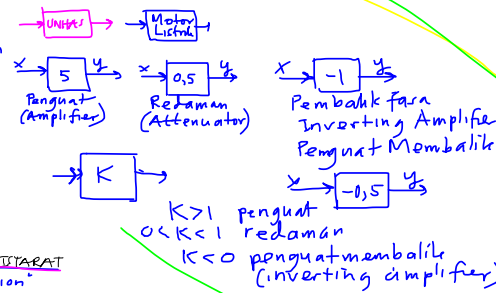
$x \neq 0$



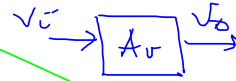
* Notasi "SISTEM"

→ Kata atau Kalimat

→ Huruf atau Angka



$$y(t) = Kx(t)$$

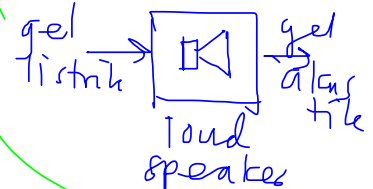


penguat tegangan

→ simbol-simbol khusus



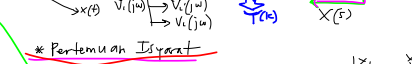
penyearaf Rectifier



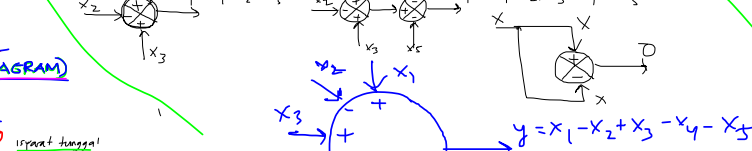
* Perancangan dan Pertemuan ITARAT

→ branching → junction

* Perancangan Isyarat



* Pertemuan Isyarat

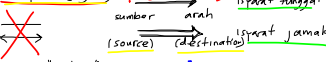


* Representasi SISTEM

Bagian Kotak (BLOCK DIAGRAM)

* Isyarat (signal)

* Proses (process)



* Kata

→ gelombang radio → MABA 2013 → energi mekanik

* Fungsi perubahan

→ $x(t)$ isyarat x yang berubah sebagai fungsi t (time) (tegangan) masukan (input) yang berubah dengan $j\omega$, $j = \sqrt{-1}$

ω omega

$\omega = 2\pi f$

$\omega = \text{frekuensi sudut [rad/sec]}$

$\omega = 2\pi f$, $f = \text{frekuensi [Hertz]}$

π = perbandingan keliling/diameter lingkaran

$Y(k)$: isyarat y yang berubah dengan sekuen, urutan $k = 0, 1, 2, 3, \dots$ sequence

$G(s)$: isyarat G fungsi s (peubah Laplace)

SISTEM LINIER (C → TE)

03/12/2015

* Administrasi Perkuliahan

Course Website

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

Penilaian MID (40%) + FIN (60%)

Referensi "Signals & Systems" → Oppenheim, dkk

Materi Kuliah

BAB I Introduction to Linear Systems

* Pengertian SISTEM

* Representasi SISTEM → Bagian Kotak (Block Diagram) + ALJABAR

* Macam-macam SISTEM

* Sistem LINIER dan TAK LINIER

* LINIERisasi

→ MIDTEST (Bab I)

BAB II Linear Systems Modeling

* Urgensi/pentingnya Pemodelan

* Pemodelan WAKAF ALIH (Transfer Characteristics)

* Pemodelan NILBAH ALIH (Transfer Function)

* Pemodelan RUANG KEADAAN (State Space)

BAB I Pengenalan SISTEM LINIER

→ FINAL (Bab I + II)

* Pengertian SISTEM

Oppenheim, et al, hal 35

"A system can be viewed as ANY PROCESS that results in the TRANSFORMATION of SIGNALS."

isyarat bentuk

Thus, a system has an INPUT signal and an OUTPUT signal which is related to the input through the system transformation."

INPUT masuk → PROSES → OUTPUT keluar

Contoh: * MABA 2013 → UNHAS 2017 → DO-WAN

masukan yang tidak diinginkan → gangguan (disturbance) keluaran yang tidak diinginkan → derau (noise)

* energi listrik → MOTOR → energi mekanik

* DC → Penye-arah

* gelombang radio → ANTENA → gelombang listrik

→ next:

* gelombang listrik → Loud speaker → gelombang akustik

* Representasi SISTEM