SISTEM KENDALI DIGITAL

2 SKS — 16x pertemuan (termasuk MID & FIN)
1 SKS — * Praktikum INDIVIDU
* Praktikum KELOMPOK → LSKI

Course website: http://www.unharas.ac.id/rhiza/amp/kuliah/
⇒ Sistem Kendali Digital

Referensi: "Computer-controlled Systems" [1984]
Astrom & Wittenmark

Penilaian: ⇒ [MID, FIN, Praktikum Kelompok, Praktikum Individu]

Materi:
* PENDAHULUAN: Intro to Digital Control Systems
* PEMODELAN: Digital Control Systems Modelling
  * Transfer Function
  * State Space
* ANALISIS & DESAIN: Digital Control Systems Analysis & Design

Bab I PENDAHULUAN
Introduction to the Digital Control Systems
Sistem Kendali Digital

Nama lain English	Bab Indonesia
(1) Discrete-time Control Systems	Sistem Kendali Waktu Diskrit
(2) Sampled-Data Control Systems	Sistem Kendali Data Tercuplik
(3) Computer-controlled Systems	Sistem (di-) Kendali (-kan oleh) Komputer

Apa itu SKD ???

* Sejarah SISTEM KENDALI DIGITAL
⇒ PD II (1939-1945)

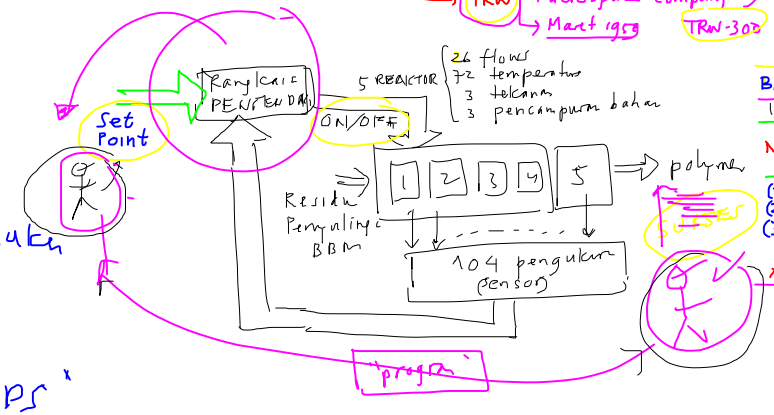
* POLYMERISASI
TEXACO Refinery → penyulingan minyak
Port Arthur, TX
Maret 1956 → otomatisasi unit polyetilena
Temp, Level, Pressure
TRW → aerospace company
Maret 1958
TRW-300

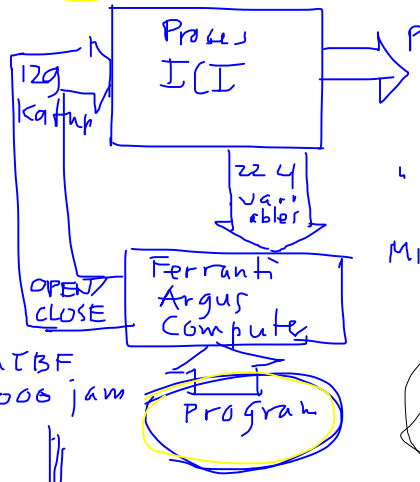
(empat) periode sejarah perkembangan SISTEM KENDALI DIGITAL menurut Astrom & Wittenmark [1984]

* Jaman PERINTIS ~ 1955 → Texaco + TRW
* Jaman DDC ~ 1962 → ICI + Ferranti Argus
* Jaman MINIKOMPUTER ~ 1967
* Jaman MICROCOMPUTER ~ 1972 (PC)

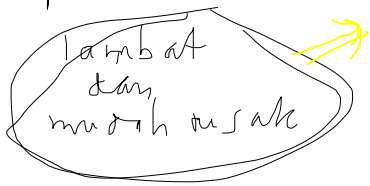
s/d 1984
dari 1984 s/d sekarang:
* Jaman MICROCONTROLLER
* Jaman PLC → DCS → APC [~1980]
→ selanjutnya: * NANO TECHNOLOGY ~ 'Biologi'

ENIAC



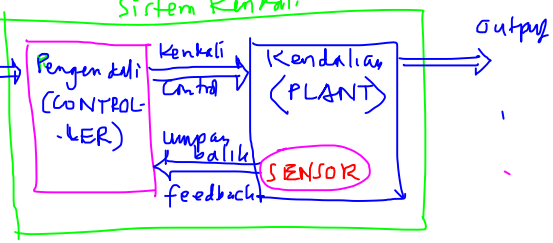


"MIPS"
Millions Instruction per Second

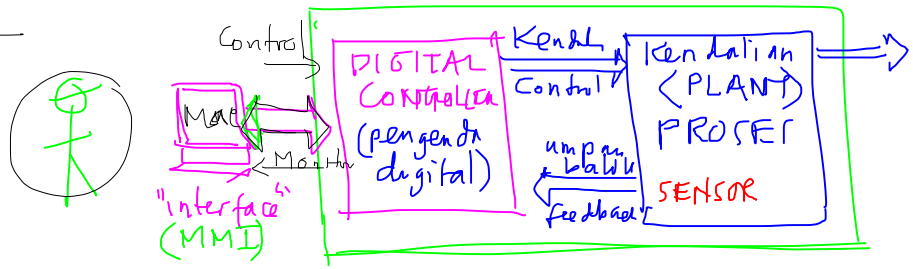


MTBF: Mean Time Between Failure
50-100 hours

"PROGRAM"



SISTEM KENDALI DIGITAL:



PLC = Programmable Logic Controller
⇓
DCS = Distributed Control Systems ← LAN
⇓
APC = Advanced Process Control
← AI
"Smart Tech..."

* Pengetahuan untuk mempelajari (SKD):
→ (1) Pengetahuan ttg. PROSES
→ (2) Pengetahuan ttg. Teknologi (Komputer) DIGITAL
→ (3) Pengetahuan ttg. INSTRUMENTASI
(4) Teori KENDALI