

# CSF2600505 Sistem Operasi CSGE602055 Operating Systems Minggu 00

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<http://rms46.vlsm.org/2/207.html>

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# Agenda

- 1 Start
- 2 Agenda
- 3 Operating Systems
- 4 TOP 10 OS
- 5 Puss In Boot
- 6 Goal
- 7 ETC
- 8 Assessment
- 9 Resources
- 10 Schedule part 1
- 11 Schedule part 2
- 12 Week 00: Introduction
- 13 Review
- 14 Managers Set
- 15 Potpourri
- 16 Lab
- 17 The End

- UI: sejak 1984.
- Pengguna GNU/Linux: sejak 1994.
- VauLSMorg (vlsm.org): sejak 1996.
- Blog: [rahmatm.samik-ibrahim.vlsm.org/](http://rahmatm.samik-ibrahim.vlsm.org/)
  - Blog: 2016/08/panggil-saya-rahmat.html
  - Blog: 2013/10/kumpulan-hal.html
  - Blog: 2011/08/ibu-ke-pasar-membeli-ayam.html
- Twitter: @rms46
- Facebook: [facebook.com/RMS46F/](https://facebook.com/RMS46F/)
- Kontak: via SCELE.

- 1 Nama saya **Rahmat**. Rahmat nama saya. Kalau bukan Rahmat, bukan nama saya!
- 2 Jangan datang lebih lambat dari pada Pengajar!
- 3 Jangan berisik/asyik sendiri dalam kelas!
- 4 Siap-siap untuk kuis.
- 5 Jangan menghubungi Pengajar untuk masalah Administratip!
- 6 Jangan menjadi "*Puss in Boot*"!
- 7 Jangan main "*games*" dan "*chat*"!
- 8 Jangan meminjam peralatan selama kuis dan ujian!
- 9 Jangan lupa mengerjakan tugas Lab!
- 10 Jangan curang!

# Jangan menjadi Puss In Boot

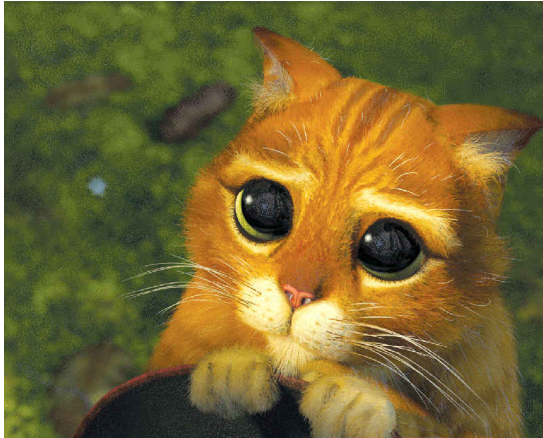


Figure: Ini Puss in Boot<sup>1</sup>.

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<sup>1</sup>This is a fair use of a DreamWorks/Paramount Picture character.

# Goal

## Coverage

This is an introduction to a modern operating systems course. It will cover general overview, computer architecture review, operating system overview, software licenses, GNU/Linux CLI, versioning, scripting, C language overview, protection, security, gnupg, processes and threads, addressing and pointers, memory management, virtual memory, synchronization, mutual exclusion, deadlock, CPU scheduling algorithms, file systems.

## Student-Centered

This course is student-centered where responsibility is in the hands of the students. Students are expected to be prepared for the class meeting.

## GNU/Linux

Students will have a thorough understanding of how GNU/Linux provides services by using a Command Line Interface.

- **4 SKS:** Alokasikan 12 jam per minggu
- **No Lab. Assistant, No Teaching Assistant: Graders only.**
- Harap menghubungi SEKRE (Gedung B lantai 2) untuk segala masalah administratif, terutama absen, sakit, surat sakit, ujian susulan, dst.
- Harap merampungkan masalah administrasi ujian susulan dalam 6 hari kerja.

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85 - ... = A	80 - 85 = A-	75 - 80 = B+	70 - 75 = B
65 - 70 = B-	60 - 65 = C+	55 - 60 = C	50 - 55 = D or C <sup>1</sup>

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- UTS: 6 set problem @ 6 point (=36%).
- UAS: 5 set problem @ 6 point (=30%).
- Tugas Lab Pra-UTS: 6 set @ 3 poin (=18%).
- Tugas Lab Pascs-UTS: 5 set @ 3 point (=15%).
- Extra untuk nilai C keatas: 1 poin<sup>1</sup>.
- C-2C untuk nilai C-: hingga 5 poin<sup>1</sup>.
- KUIS lelang 3 poin substitusi UTS/UAS<sup>1</sup>.
- Silakan membawa kertas A4 ke ruang ujian<sup>1</sup>.

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<sup>1</sup>Syarat dan Ketentuan Berlaku



# Resources

- Silakan memilih buku Sistem Operasi yang terbit dalam 10 tahun terakhir.
- OLD — (ARSIP)(017\_BAHAN-AJAR-LAMA) Previous Slides.
- SUP — (ARSIP)(041\_Suplemen) Supplement.
- OSCE2e — (ARSIP)(050\_OSC-Silberschatz) OSCE2e
- UCB — (ARSIP)(070\_KULIAH-INTERNASIONAL) UC Berkeley
- UDA — (ARSIP)(070\_KULIAH-INTERNASIONAL) UDACITY
- ETC — (ARSIP)(075\_ETC-Video) ETC
- DEMO — (GITHUB) <https://github.com/UI-FASILKOM-OS/demo>
- SLIDE — (SLIDE) <http://rms46.vlsm.org/2/207.html>
- SCELE: <https://scele.cs.ui.ac.id/course/view.php?id=124>
  - Enrollment key: "01110010"<sup>1</sup>
- ARCHIVE (Arsip bahan pengajaran):  
<https://scele.cs.ui.ac.id/course/view.php?id=126>
  - Enrollment key: "11010010"<sup>1</sup>.

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<sup>1</sup>Sewaktu-waktu akan diganti! Harap pantau "Announcement" secara teratur.

# Schedule part 1

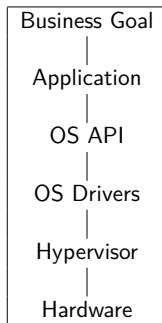
- Week00 – Intro (OSCE2e ch1/2)(UCB 01)(UDA P1L1/2) (OLD 00)
- Week01 – IPR & Scripting (ETC 000 001 002)(OLD 02-HKI 02-scripting) (Any Related Tutorial)
- Week02 – Protection, Security, & C-language (OSCE2e ch13-4) (ETC 050-1 C001-8) (OLD 01) (Any C Language Tutorial)
- Week03 – BIOS, Boot and Systemd (Any Related Tutorial) (ETC 300-324) (SUP WEEK03)
- Week04 – Addressing, Pointer & I/O Programing (OLD 08 10)
- Week05 – Memory (OSCE2e ch7/8) (UCB 11 12 13) (UDA P3L2) (OLD 06)
- UTS 00 01 02 03 04 05

## Schedule part 2

- Week06 – Processes & Threads (OSCE2e ch3/4) (UCB 02 03) (UDA P2L1/2/3) (OLD 03)
- Week07 – Synchronization (OSCE2e ch5) (UCB 7/8) (UDA P3L3/4) (OLD 04)
- Week08 – Scheduling & Sockets (OSCE2e ch6) (UCB 9/10) (UDA P3L1) (OLD 05)
- Week09 – File & Storage System (OSCE2e ch9/10/11) (UCB 17A/18/19) (UDA P4L2 P4L2) (OLD 07 08)
- Week10 – Cloud System & Virtualization (UCB 24)
- UAS 06 07 08 09 10

# Week 00: Introduction

- Reference: (OSCE2e ch1/2)(UCB 01)(UDA P1L1/2)(OLD 00)
- Operating System
  - Why take this OS class?
  - Definition: Resource Allocator & Control Program.
  - Managers: Process, Memory, Storage, ...
  - Layers
  - Interfaces



# Computer Organization Review

- You should understand:
  - von Neumann Model.
  - Buses, Bridges, Transfer Rate, Clock.
  - Memory: DDR, DDR-2, ...
  - Cache.
  - Direct Memory Access (DMA).
  - Port & Memory Mapped I/O.
  - CPU: privilege/kernel/supervisor mode and user mode.
  - Hardware Limitation.
  - Priority: Read vs Write.
  - Interrupts: Polling & Vectored.
  - Multiprocessors: Symmetric vs. Asymmetric.
  - Multicore & Multithreading.
  - Clustered Systems.
  - Numbers: base 2, base 8, base 10, base 16.
    - Base 2:  $110010101010_2$
    - Base 8:  $01234567_8 = 000\ 001\ 010\ 011\ 100\ 101\ 110\ 111_2$
    - Base 10:  $012\ 345\ 679$
    - Base 16:  $9AB\ CDEF_{16} = 1001\ 1010\ 1011\ 1100\ 1101\ 1110\ 1111_2$

# Managers Set

- Process:
  - Creating/Deleting; Suspending/Resuming; Synchronization; Communication;
- Memory:
  - Tracking; Move In/Move Out; Allocating/Deallocating.
- Storage/File System:
  - Create/Delete; Open/Close; Read/Write.
- Mass Storage:
  - Scheduling; Allocating; Free Space.
- I/O:
  - Buffering; Caching; Spooling.
  - Interfacing (driving).
- Protecting & Scheduling:
  - Protecting.
  - Scheduling.

- Mobile/Distributed/Client-Server/Peer-to-Peer Computing.
- Real-Time Computing: Hard Real-Time vs. Soft Real-Time.
- Operating System Comparison: Android, \*BSD, GNU/Linux, iOS, Mac OS, Windows.
- Operating System Services: UI (GUI, CLI); Program Executing; I/O Operations; File Systems Manipulation; Communication; Error Detection; Resource Allocation; Accounting; Protection & Security.
- System Calls: Process Control; File Management; Device Management; Information Maintenance; Communications; Protection.
- Application Programming Interface (API)
- Standard C Library.
- System Programs.
- Microkernel System Structure.
- Loadable Kernel Modules.

- Google Account
- Github Account
- SSO (LDAP) Account
- Scele Account
- Report/Wait
- Home check



# The End

- This is the end of the presentation.