

# CSGE602055 Operating Systems

## CSF2600505 Sistem Operasi

### Minggu 06: Processes & Threads

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

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# Agenda

- 1 Start
- 2 Agenda
- 3 Week 06
- 4 The End

# Week 06: Processes & Threads

- Reference: (OSCE2e ch3/4) (UCB 02 03) (UDA P2L1/2/3) (OLD 03)
- Process Concept
  - Program (passive)  $\leftrightarrow$  Process (active)
  - Process in Memory: | *Stack*  $\cdots$  *Head* | *Data* | *Text* |
  - Process State: | *running* | *waiting* | *ready* |
  - `fork()` and `exec1p()`
- The Multi-process Synchronization Problem
  - Producer-Consumer (Bounded Buffer)
  - Readers-Writers
  - Dining Philosopher
- Communication
  - Pipes
  - Sockets
  - RPC

# Thread

- Multicore Programming
- Multithreading Models
- Threading Issues
- Benefits
  - Responsiveness
  - Resource Sharing
  - Economy
  - Scalability
- Concurrency vs. Parallelism
- Multithreading Models
  - Many to One
  - One to One
  - Many to Many
  - Multilevel Models
- Pthreads
- Lab
  - `fork()`

# The End

- This is the end of the presentation.