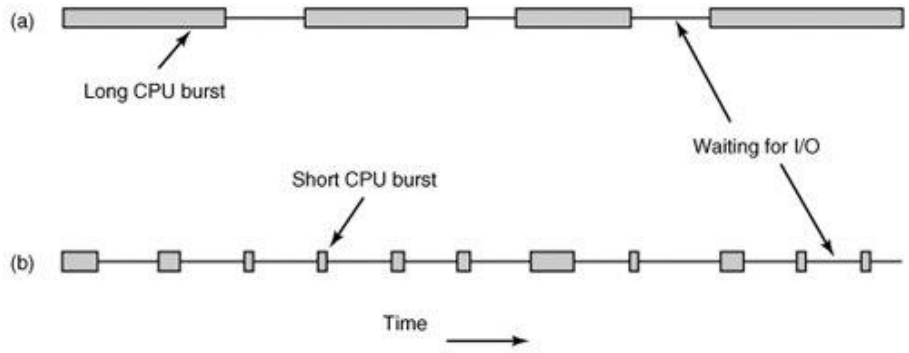
COMP3511 Operating Systems (Fall 2016) – Supplementary Note

Topic 3: Process-Concept

- **CPU-bound Process vs. I/O-bound Process**



(a) CPU-bound Process
(b) I/O-bound Process

- **Details of process states**
  - New: Processes that have been created but haven't yet been admitted to the pool of executable processes
  - Ready: Processes that are prepared to run if given an opportunity.
  - Running: The process that is currently being executed.
  - Waiting: A process that is waiting for I/O events.
  - Terminated: A process that has finished execution.

- **Comparison among schedulers**

	Long-Term Scheduler	Short-Term Scheduler	Medium-Term Scheduler
1	It is a job scheduler.	It is a CPU scheduler.	It is a process swapping scheduler.
2	Speed is lesser than short-term scheduler.	Speed is the fastest among the other two.	Speed is in between both short and long term scheduler.
3	It controls the degree of multiprogramming.	It provides lesser control over degree of multiprogramming.	It reduces the degree of multiprogramming.
4	It is almost absent or minimal in time sharing system.	It is also minimal in time sharing system.	It is a part of time sharing systems.
5	It selects processes from pool and loads them into the memory for execution.	It selects those process which are ready to execute.	It can re-introduce the process into memory and execution can be continued.

- **wait system call**
    - wait(<pid>)
        - Wait for the child with <pid> to terminate
    - wait(NULL)
        - Wait for ANY child to terminate

- **fork(), wait(), exit()**