**Development of Virtual lab: Round 1 (R1) Pedagogy - Template (Worksheet)**

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* 1. **FOCUS AREA:**

CPU Scheduling:

Scheduling of processes/work is done to finish the work on time

There are many types of scheduling algorithms:

1. First Come First Serve(FCFS)
2. Shortest Job First(SJF)
3. Shortest Remaining Time First(SRTF)
4. **Round Robin Scheduling**
5. **Priority Based scheduling (Non-Pre-emptive)**
   1. **About the Experiment:**

Simplest scheduling algorithm that schedules according to arrival times of processes. First come first serve scheduling algorithm states that the process that requests the CPU first is allocated the CPU first. It is implemented by using the FIFO queue. When a process enters the ready queue, its PCB is linked onto the tail of the queue. When the CPU is free, it is allocated to the process at the head of the queue. The running process is then removed from the queue. FCFS is a non-pre-emptive scheduling algorithm.

**1.3 Learning Objectives:**

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| --- | --- | --- | --- |
| **S. No.** | **Learning Objective** | **Cognitive Level** | **Action Verb** |
| 1 | **Identify** the method of CPU scheduling from manual | Recall | Identify |
| 2. | **Describe** the process , arrival time and burst time and apply the operation through simulator | Understand | describe |
| 3. | **Predict** the response time and waiting time through Gantt chart. | Apply | predict |
| 4. | **Examine** average turnaround time and average waiting time | Analyze | examine |
| 5. | **Conclude** the completion time , turn-around time and waiting time | Evaluate | Conclude |

**2. Instructional Strategy**

**2.1 Instructional Strategy:**

**2.2 Description of sections:**

**Arrival Time:**Time at which the process arrives in the ready queue.

**Completion Time:** Time at which process completes its execution.

**Burst Time:**Time required by a process for CPU execution.

**Turn Around Time:**Time Difference between completion time and arrival time.Turn Around Time = Completion Time – Arrival Time

**Waiting Time (W.T):** Time Difference between turn-around time and burst time.Waiting Time = Turn Around Time – Burst Time

**2.3 Assessment Method:**

**Quiz will be taken for evaluation (Example given below)**

**Pre Test**

1. **What is the formula of turnaround time?**
   1. **TAT=WT-CT b. TAT=CT-AT c. TAT=WT-AT d. TAT=WT-BT**
2. **What is the formula of waiting time?**
   1. **WT=TAT-CT b. WT=CT-AT c. WT=AT-BT d. WT=BT-CT**
3. **Task & Assessment Questions**

Complete the following table with details of the various tasks and assessment questions you will give to the students.

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| **S. No.** | **Learning Objective to be met**  (choose anyone from you declared above) | **Tasks to be performed by the students** | **Assessment questions aligned to the task** |
| **1** | **Identify** the method of CPU scheduling from manual | stsssstakes different arrival and burst time again | Find out the completion, waiting, turnaround time for each process |
| **2** | **Examine** average turnaround time and average waiting time | O observe Gantt chart | Analyze the waiting and response time |

1. **Simulator Interactions**

**Complete the following table giving the details of the Simulator interactions.**

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| **What students will do?**  **Student will enter the arrival time**  **and burst time.** | **What simulator will do?**  **Fetch the data and display**  **Gantt chart.**  **And it will display the output**  **Table.** | **Purpose of the task**  **For understanding CPU**  **Scheduling and understand the first**  **Come first serve scheduling.** |
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