



Nagar Yuwak Shikshan Sanstha's

## Yeshwantrao Chavan College of Engineering

(An Autonomous Institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)

Hingna Road, Wanadongri, Nagpur - 441 110

NAAC A++

Ph.: 07104-237919, 234623, 329249, 329250 Fax: 07104-232376, Website: [www.ycce.edu](http://www.ycce.edu)



### Department of Computer Technology

#### Vision of the Department

To be a well-known centre for pursuing computer education through innovative pedagogy, value-based education and industry collaboration.

#### Mission of the Department

To establish learning ambience for ushering in computer engineering professionals in core and multidisciplinary area by developing Problem-solving skills through emerging technologies.

### Session 2025-2026

<b>Vision:</b> Dream of where you want.	<b>Mission:</b> Means to achieve Vision
---	---

**Program Educational Objectives of the program (PEO):** (broad statements that describe the professional and career accomplishments)

PEO1	<b>Preparation</b>	<b>P: Preparation</b>	<b>Pep-CL abbreviation pronounce as Pep-si-LL easy to recall</b>
PEO2	<b>Core Competence</b>	<b>E: Environment (Learning Environment)</b>	
PEO3	<b>Breadth</b>	<b>P: Professionalism</b>	
PEO4	<b>Professionalism</b>	<b>C: Core Competence</b>	
PEO5	<b>Learning Environment</b>	<b>L: Breadth (Learning in diverse areas)</b>	

### Program Outcomes (PO):

#### Keywords of POs:

Engineering knowledge, Problem analysis, Design/development of solutions, Conduct Investigations of Complex Problems, Engineering Tool Usage, The Engineer and The World, Ethics, Individual and Collaborative Team work, Communication, Project Management and Finance, Life-Long Learning

**PSO Keywords:** Cutting edge technologies, Research

"I am an engineer, and I know how to apply engineering knowledge to investigate, analyse and design solutions to complex problems using tools for entire world following all ethics in a collaborative way with proper management skills throughout my life." to contribute to the development of cutting-edge technologies and Research.

**Integrity:** I will adhere to the Laboratory Code of Conduct and ethics in its entirety.

#### Name and Signature of Student and Date

(Signature and Date in Handwritten)

Session	2025-26 (ODD)	Course Name	Operating System Lab
---------	---------------	-------------	----------------------

**Department of Computer Technology****Vision of the Department**

To be a well-known centre for pursuing computer education through innovative pedagogy, value-based education and industry collaboration.

**Mission of the Department**

To establish learning ambience for ushering in computer engineering professionals in core and multidisciplinary area by developing Problem-solving skills through emerging technologies.

<b>Semester</b>	<b>5</b>	<b>Course Code</b>	<b>23IOT1504</b>
<b>Roll No</b>	<b>53</b>	<b>Name of Student</b>	<b>Parth Dighade</b>

<b>Practical Number</b>	<b>MSPA</b>
<b>Course Outcome</b>	<ol style="list-style-type: none"><li>Understand Computer System Configuration and Simulate system resources efficiently using Linux Commands (CO1)</li><li>Analyse operating system functionalities utilizing system calls, thread programming and process scheduling algorithms (CO2)</li><li>Apply Synchronization primitives to implement a Deadlock-free solution(CO3)</li><li>Simulate Disk scheduling, Memory allocation, File allocation, page replacement algorithms (CO4)</li></ol>
<b>Aim:</b>	<ol style="list-style-type: none"><li>Train</li><li>Process creation using system calls</li><li>CPU Scheduling</li></ol>
<b>Program:</b>	Code: 2. <pre>#include &lt;stdio.h&gt; #include &lt;unistd.h&gt;  int main() {     int pid = fork();      if (pid == 0) {          printf("This is the child process. PID = %d\n", getpid());     } else {          printf("This is the parent process. PID = %d\n", getpid());     }      return 0; }</pre>



## Department of Computer Technology

### Vision of the Department

To be a well-known centre for pursuing computer education through innovative pedagogy, value-based education and industry collaboration.

### Mission of the Department

To establish learning ambience for ushering in computer engineering professionals in core and multidisciplinary area by developing Problem-solving skills through emerging technologies.

3.

```
#include <stdio.h>

int main() {
    int n;
    printf("Enter number of processes: ");
    scanf("%d", &n);

    int bt[20], at[20], rt[20];
    int wt[20], tat[20];
    int done[20];
    int time = 0, finished = 0;

    for (int i = 0; i < n; i++) {
        printf("Enter Arrival Time and Burst Time for Process %d: ", i + 1);
        scanf("%d %d", &at[i], &bt[i]);
        rt[i] = bt[i];
        done[i] = 0;
    }

    while (finished < n) {
        int shortest = -1;
        int min_rt = 9999;

        for (int i = 0; i < n; i++) {
            if (at[i] <= time && rt[i] > 0 && rt[i] < min_rt) {
                min_rt = rt[i];
                shortest = i;
            }
        }

        if (shortest == -1) {
            time++;
            continue;
        }

        rt[shortest]--;
        if (rt[shortest] == 0) {
```



## Department of Computer Technology

### Vision of the Department

To be a well-known centre for pursuing computer education through innovative pedagogy, value-based education and industry collaboration.

### Mission of the Department

To establish learning ambience for ushering in computer engineering professionals in core and multidisciplinary area by developing Problem-solving skills through emerging technologies.

```
finished++;
int completion = time + 1;
tat[shortest] = completion - at[shortest];
wt[shortest] = tat[shortest] - bt[shortest];
done[shortest] = 1;
}

time++;
}

printf("\nProcess\tAT\tBT\tWT\tTAT\n");
float total_wt = 0, total_tat = 0;
for (int i = 0; i < n; i++) {
    printf("P%d\t%d\t%d\t%d\t%d\n", i + 1, at[i], bt[i], wt[i], tat[i]);
    total_wt += wt[i];
    total_tat += tat[i];
}

printf("\nAverage Waiting Time = %.2f", total_wt / n);
printf("\nAverage Turnaround Time = %.2f\n", total_tat / n);

return 0;
}
```

### Output:

```
main.c
1 #include <stdio.h>
2 #include <unistd.h>
3
4 int main() {
5     int pid = fork();
6
7     if (pid == 0) {
8         printf("This is the child process. PID = %d\n", getpid());
9     } else {
10        printf("This is the parent process. PID = %d\n", getpid());
11    }
12
13    return 0;
14
15 }
```

```
his is the child process. PID = 9123
his is the parent process. PID = 9119

..Program finished with exit code 0
Press ENTER to exit console.[]
```



## Department of Computer Technology

### Vision of the Department

To be a well-known centre for pursuing computer education through innovative pedagogy, value-based education and industry collaboration.

### Mission of the Department

To establish learning ambience for ushering in computer engineering professionals in core and multidisciplinary area by developing Problem-solving skills through emerging technologies.

```
main.c (COM1)
1 #include <stdio.h>
2
3 int main() {
4     int n;
5     printf("Enter number of processes: ");
6     scanf("%d", &n);
7
8     int bt[20], at[20], rt[20];
9     int wt[20], tat[20];
10    int done[20];
11    int time = 0, finished = 0;
12
13    for (int i = 0; i < n; i++) {
14        printf("Enter Arrival Time and Burst Time for Process %d: ", i + 1);
15        scanf("%d %d", &at[i], &bt[i]);
16        rt[i] = at[i];
17        rt[i] += bt[i];
18        done[i] = 0;
19    }
20
21    while (finished < n) {
22        int shortest = -1;
23        int min_wt = 9999;
24
25        for (int i = 0; i < n; i++) {
26            if (done[i] == 0 && at[i] <= time) {
27                if (rt[i] < min_wt) {
28                    shortest = i;
29                    min_wt = rt[i];
30                }
31            }
32        }
33
34        if (shortest != -1) {
35            rt[shortest] -= 1;
36            time++;
37            if (rt[shortest] == 0) {
38                finished++;
39                done[shortest] = 1;
40            }
41        }
42    }
43
44    printf("Average Waiting Time = %.2f\n", (float)(sum_wt) / n);
45    printf("Average Turnaround Time = %.2f\n", (float)(sum_tat) / n);
46
47    ... Program finished with exit code 0
48    Press ENTER to exit console.
49
```

Process AT BT WT TAT  
P1 0 7 5 12  
P2 2 4 1 5  
P3 4 1 0 1

Average Waiting Time = 2.00  
Average Turnaround Time = 6.00

... Program finished with exit code 0  
Press ENTER to exit console.

Plag Report (Similarity index < 12%)	<p>7% Plagiarism Exact Match 0% Partial Match 7%</p> <p>93% Unique</p>
Date	29/09/2025