University of Central Punjab

(Incorporated by Ordinance No. XXIV of 2002 promulgated by Government of the Punjab)
FACULTY OF INFORMATION TECHNOLOGY

Operating Systems

Graded Lab 6

CLO	CLO STATEMENT	Bloom's Taxonomy Level	PLO
1	Solve real-world problems skillfully with precision using programming constructs learned in theory with the course toolkit	P3	5

Problem Description:

In a small office, multiple employees share a single network printer. Each employee can send print jobs to the printer from their computers. The printer can handle only one job at a time, and if multiple employees send their print requests simultaneously, the printer may face conflicts, leading to problems like:

1. Print jobs getting mixed up.
2. Some jobs being delayed indefinitely (starvation).
3. Overloading the printer's memory buffer, causing system crashes.

Synchronization Challenge:

- Ensuring that the printer handles only one job at a time in a fair and orderly manner.
- Preventing any single user's print job from monopolizing the printer.
- Avoiding race conditions where two print jobs might try to start printing simultaneously.