

# UNIVERSITY OF MADRAS

## B.Sc. DEGREE PROGRAMME IN COMPUTER SCIENCE

SYLLABUS WITH EFFECT FROM 2023-2024

**Year: III**

**Semester: V**

|   |                                 |               |
|---|---------------------------------|---------------|
| <b>Operating System Practical</b>   |                                 | <b>325C51</b> |
| <b>Credits: 5</b>   | <b>Lecture Hours:5 per week</b> |               |
| Learning Objectives: (for teachers: what they have to do in the class/lab/field) <ul style="list-style-type: none"><li>• To learn Process management and scheduling.</li><li>• To understand the concepts and implementation of memory management policies.</li><li>• To understand the various issues in Inter Process Communication</li></ul> |                                 |               |
| Course Outcomes: (for students: To know what they are going to learn) <ol style="list-style-type: none"><li>1. Understand the process management policies and scheduling process by CPU.</li><li>2. Analyse the memory management and its allocation policies.</li><li>3. To evaluate the requirement for process synchronization.</li></ol>    |                                 |               |

### List of Programs

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| 1. Basic I/O programming.<br>To implement CPU Scheduling Algorithms: <ol style="list-style-type: none"><li>2. Shortest Job First Algorithm.</li><li>3. First Come First Served Algorithm.</li><li>4. Round Robin and Priority Scheduling Algorithms.</li><li>5. To implement reader/writer problem using semaphore.</li><li>6. To implement Banker's algorithm for Deadlock avoidance.</li></ol> Program for page replacement algorithms: <ol style="list-style-type: none"><li>7. First In First Out Algorithm.</li><li>8. Least Recently Used Algorithm.</li><li>9. To implement first fit, best fit and worst fit algorithm for memory management.</li><li>10. Program for Inter-process Communication.</li></ol> |
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### TEXT BOOK:

1. Abraham Silberschatz, Peter B Galvin, Greg Gagne, "Operating System Concepts", Wiley India Pvt. Ltd 2018, 9th Edition,.

### REFERENCES:

1. William Stallings, "Operating Systems Internals and Design Principles", Pearson, 2018, 9th Edition.
2. Andrew S. Tanenbaum, Herbert Bos, "Modern Operating Systems", Pearson 2014, 4th Edition.

### WEB REFERENCES:

NPTTEL & MOOC courses titled Operating Systems – <https://nptel.ac.in/courses/106106144/>