TCET/FRM/IP-02/09 Revision: A

Semester Plan
(Theory)

Semester: **I** Course: **M.E CMPN**

Subject: **Advance Operating System(CSC103)** Class: **M.E CMPN**

Faculty In-Charge**: Dr. Sheetal Rathi**

Note: **The Lectures are planned as per University Curriculum**

Pre-requisite / Bridge Course:

S. No	Pre-requisite / Bridge Course	Duration (Weeks/Hours)	Modes of Learning	Recommended Sources
1.	Basic Operating System	6 Hours	Self-Learning	1.Silberschatz A., Galvin P., Gagne G. "Operating Systems Principles", Willey Eight edition 2. Achyut S. Godbole , Atul Kahate "Operating Systems" McGraw Hill Third Edition 3. "Operating System Internal& Design Principles", William Stallings, Pearson

Class Room Teaching / Syllabus:

S. No	Module No	Lesson No	Topics Planned (Technology to be used)	Teaching Aids Required	Planned / Completion Date	Resource / Reference Book	Remarks
1	-	L0.1	Orientation Theory	LCD Projector	8-08-2017		
2	-	L0.2	Orientation Practical	LCD Projector	8-08-2017		
3	Module 1	L1.1	Types of Advanced Operating Systems.	LCD Projector/ Black Board	11-08-2017		
4	Module 1	L1.2	Architectures and design issues of Network operating system, DOS, Middleware, RTS, DBOS.	LCD Projector/ Black Board	18-08-2017		
5	Module 1	L1.3	Architectures and design issues of Network operating system, DOS, Middleware, RTS, DBOS.	LCD Projector/ Black Board	18-08-2017		
6	Module 1	L1.4	Introduction to process, Concurrent processes, Critical Section problems,	LCD Projector/ Black Board	22-08-2017		
7	Module 1	L1.5	Other synchronization problems.	LCD Projector/ Black Board	22-08-2017		
8	Module 1	L1.6	Scheduling: Issues in load distributing, Components of load distributing algorithms, Stability	LCD Projector/ Black Board	1-09-2017		
9	Module 2	L2.1	Load distributing algorithms,	LCD Projector/	1-09-2017		

			Performance Comparison, Selecting a suitable load sharing Algorithm.	Black Board			
10	Module 2	L2.2	Synchronization: Physical and logical clocks.	LCD Projector/ Black Board	5-09-2017		
11	Module 2	L2.3	Distributed Mutual Exclusion: Introduction,	LCD Projector/ Black Board	5-09-2017		
12	Module 2	L2.4	Classification of Mutual Exclusion algorithms,	LCD Projector/ Black Board	8-09-2017		
13	Module 2		Mutual Exclusion Algorithms	LCD Projector/ Black Board	8-09-2017		
14	Module 2	L2.5	Distributed Deadlock: Introduction, deadlock handling strategies,	LCD Projector/ Black Board	12-09-2017		
15	Module 2	L2.6	Deadlock detection: Issues and resolution, Control Organizations,	LCD Projector/ Black Board	12-09-2017		
16	Module 2	L3.1	Centralized algorithms	LCD Projector/ Black Board	15-09-2017		
17	Module 2		Distributed algorithms, Hierarchical algorithms.	LCD Projector/ Black Board	15-09-2017		
18	Module 3	L3.2	Agreement Protocol: System Model, Classification,	LCD Projector/ Black Board	19-09-2017		
19	Module 3		Solution to Byzantine Agreement Problem.		19-09-2017		
20	Module 3	L3.3	Fault Recovery: Concepts, Classification of failures, Backward error recovery	LCD Projector/ Black Board	22-09-2017		
21	Module 3	L3.4	Recovery in concurrent Systems, Consistent Check Points,	LCD Projector/ Black Board	22-09-2017		
22	Module 3		Synchronous and Asynchronous check pointing and recovery.	LCD Projector/ Black Board	26-09-2017		
23	Module 3	L3.5	Fault tolerance: Issues, Atomic actions and committing,	LCD Projector/ Black Board	26-09-2017		
24	Module 3	L3.6	Commit Protocols, Non-blocking Commit protocols,	LCD Projector/ Black Board	29-09-2017		
25	Module 3	L3.7	Voting protocols and Dynamic Voting Protocols.	LCD Projector/ Black Board	29-09-2017		
26	Module 4	L4.1	Types of Real time tasks, Timing Constraints, Modeling Timing Constraints.	LCD Projector/ Black Board	3-10-2017		

27	Module 4	L4.2	Task Scheduling: Types of tasks and their characteristics, Task Scheduling, Clock driven Scheduling	LCD Projector/ Black Board	3-10-2017		
28	Module 4	L4.3	Hybrid Schedulers, Event driven Scheduling,	LCD Projector/ Black Board	6-10-2017		
29	Module 4	L5.1	EDF Scheduling, Rate Monotonic Algorithm	LCD Projector/ Black Board	6-10-2017		
30	Module 4	L5.2	Resource Handling: Resource Sharing, Priority Inversion, PIP,PCP,HLP.	LCD Projector/ Black Board	10-10-2017		
31	Module 4	L5.3	Scheduling real time tasks in distributed systems	LCD Projector/ Black Board	10-10-2017		
32	Module 5	L6.1	Concurrency control : Database systems,	LCD Projector/ Black Board	13-10-2017		
33	Module 5	L6.2	Concurrency control model of database systems,	LCD Projector/ Black Board	13-10-2017		
34	Module 5	L6.3	Problem of Concurrency Control, serializability theory, Distributed Database Systems	LCD Projector/ Black Board	17-10-2017		
35	Module 5	L6.4	Concurrency Control Algorithms : Basic synchronization Algorithms	LCD Projector/ Black Board	17-10-2017		
36	Module 5	L6.5	Lock based algorithms	LCD Projector/ Black Board	17-10-2017		
37	Module 5	L6.6	Timestamp based and Optimistic Algorithms	LCD Projector/ Black Board	24-10-2017		
38	Module 5	L6.7	Concurrency Control Algorithms : Data Replication	LCD Projector/ Black Board	24-10-2017		
39	Module 6	L6.8	Case Study: DOS: Mach	LCD Projector/ Black Board	27-10-2017		
40	Module 6	L6.9	Case Study: DOS: Amoeba	LCD Projector/ Black Board	27-10-2017		
41	Module 6	L6.10	Case Study: RTOS : UNIX as RTOS	LCD Projector/ Black Board	31-10-2017		
42	Module 6	L6.11	Case Study: RTOS : Windows as RTOS.	LCD Projector/ Black Board	31-10-2017		
43	Module 6	L6.12	Case Study: Mobile OS(Android)	LCD Projector/ Black Board	3-11-2017		
44	Module 6	L6.13	Case Study: Mobile OS(IoS)	LCD Projector/ Black Board	3-11-2017		

45	Module 6	L6.14	Case Study: Cloud OS	LCD Projector/ Black Board	7-11-2017		
46		L6.15	Revision / Tutorial / Practice Session for Advance operating systems	LCD Projector/ Black Board	7-11-2017		
47		L6.16	Revision / Tutorial / Practice Session for Advance operating systems	LCD Projector/ Black Board	7-11-2017		
48			Revision / Tutorial / Practice Session for Advance operating systems	LCD Projector/ Black Board	10-11-2017		
49			Revision / Tutorial / Practice Session for Advance operating systems	LCD Projector / Black Board	10-11-2017		
50			University Paper Discussion	LCD Projector / Black Board	14-11-2017		
51			University Paper Discussion	LCD Projector / Black Board	14-11-2017		

Remedial Assignments & Compliance (for Defaulter Students)**:**

Note:

1. The Remedial Assignments & Compliance for defaulter students is to be conducted **every Friday**
2. The **faculty** should **conduct, evaluate and notify the students** regarding the Remedial Assignments **within 15 days.**

Criteria / S. No	Less than 50 % Attendance	More than 50 % and Less than 65% Attendance	More than 65 % and Less than 75% Attendance
1.	**3** Remedial Assignments from **Module 1** and **Module 2**	**2** Remedial Assignments from **Module 1** and **Module 2**	**1** Remedial Assignments from **Module 1** and **Module 2**
2.	**3** Remedial Assignments from **Module 3** and **Module 4**	**2** Remedial Assignments from **Module 3** and **Module 4**	**1** Remedial Assignments from **Module 3** and **Module 4**
3.	**3** Remedial Assignments from **Module 5** and **Module 6**	**2** Remedial Assignments from **Module 5** and **Module 6**	**1** Remedial Assignments from **Module 5** and **Module 6**

Remarks:

Course:	**Syllabus Coverage:**	**Practice Session:**	**Beyond Syllabus:**

No. of (lectures planned) / (lectures taken): 48 /

Advanced Course:

S. No	Advanced Course	Duration (Weeks/Hours)	Modes of Learning	Recommended Sources
1.	High Performance Computing.	20 Hours	Online course with Self-Learning	1. Georg Hager, Gerhard Wellein, "Introduction to High Performance Computing for Scientists and Engineers",Chapman & Hall / CRC Computational Science series. 2. www. gpgpu.org

Text Books:

1. Mukesh Singhal, Niranjan G.Shivaratri, "Advanced concepts in operating systems: Distributed, Database and multiprocessor operating systems" .MC Graw Hill education.
2. Rajib Mall, “Real-Time Systems: Theory and Practice”, Pearson education.

Reference Books:

1. Andrew S.Tanenbaum, "Modern Systems Principles and Paradigms". PHI.
2. Pradeep K.Sinha, "Distributed Operating System-Concepts and design", PHI.
3. Andrew S.Tanenbaum, "Distributed Operating System", Pearson Education.
4. Jane W. S. Liu, “Real Time Systems”, Pearson education.

Digital References:

1. https://onlinecourses.nptel.ac.in/noc17_cs42

Note:

1. Plan date and completion date should be in compliance
2. Courses are required to be taught with emphasis on resource book, course file, text books, reference books, digital references etc.
3. Planning is to be done for 15 weeks where 1st week will be AOP, 2nd -13th for effective teaching and 14th -15th week for effective university examination oriented teaching, mock practice session and semester consolidation.
4. According to university syllabus where lecture of 4 hrs/per week is mentioned minimum 55 hrs and in case of 3 lectures per week minimum 45 lectures are to be engaged are required to be engaged during the semester and therefore accordingly semester planning for delivery of theory lectures shall be planned.
5. In order to improve score in NBA, faculty members are also required to focus course teaching beyond university prescribed syllabus and measuring the outcomes w.r.t learning course and programme objectives.
6. Text books and reference books are available in syllabus. Here only additional references w.r.t. non –digital/ digital sources can be written (if applicable)
7. Technology to be used in class room during lecture shall be written below the topic planned within the bracket.

Name & Signature of Faculty	Signature of HOD	Signature of Principal / Dean Academic
Date:	Date:	Date: