

# INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPT./CENTRE: **Electronics and Computer Engineering**

1. Subject Code: **EC – 551N** Course Title: **Advanced Operating Systems**

2. Contact Hours: **L: 3 T: 0 P: 0**

3. Examination Duration (Hrs.): **Theory**

0	3
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**Practical**

0	0
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4. Relative Weight: **CWS**

15
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**PRS**

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**MTE**

35
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**ETE**

50
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**PRE**

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5. Credits: 

0	3
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 6. Semester 

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**Autumn Spring Both**

7. Pre-requisite: **EC - 353**

8. Subject Area: **DEC**

9. Objective: To provide knowledge of concepts and implementation of advanced and state of the art operating systems

10. Details of the Course:

Sl. No.	Contents	Contact Hours
1.	Theory and implementation aspects of distributed operating systems, concept of object model for to operating system design.	6
2.	Process synchronization in multiprocessing and multiprogramming systems, analysis of multiprogramming system performance, multiprocessor synchronization, multiprocessor scheduling.	6
3.	Inter-process communication, remote procedure call, name services; Co-ordination in large distributed systems: Time, coordination and agreement.	6
4.	Distributed resource management, distributed file systems, virtual memory and networking, applications.	5
5.	Fundamentals of real time operating systems, real time multitasking, embedded application, preemptive task scheduling, inter-task communication and synchronization.	7
6.	Information management in distributed systems, security, integrity and concurrency problems.	6
7.	Fault tolerance issues and solutions in operating systems, hot plugging, hot swap, hot spare disk.	6
<b>Total</b>		<b>42</b>

11. Suggested Books:

<b>Sl. No.</b>	<b>Name of Books/Authors</b>	<b>Year of Publication</b>
1.	Tanenbaum, A. S., "Distributed Operating Systems", Prentice-Hall.	2001
2.	Nutt, G., "Operating Systems", Addison-Wesley.	2004
3.	Penumuchu, C.V., "Simple Real-Time Operating System: A Kernel Inside View", Trafford Publishing.	2007
4.	Singhal, M and Shivaratri, N.G., "Advanced Concepts in Operating Systems", McGraw-Hill.	1994