<table>
<thead>
<tr>
<th>Dept Number</th>
<th>CS 514</th>
<th>Course Title</th>
<th>Advanced Operating Systems</th>
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<tr>
<td>Semester Hours</td>
<td>3</td>
<td>Course Coordinator</td>
<td>Bidyut Gupta</td>
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**Textbooks**


**References**

**Course Learning Outcomes**

- Performance analysis of different algorithms used to design various components of operating systems
- To introduce more advanced concepts like distributed and network OS
- To prepare the student for further specialized study in any specific area of operating systems

**Assessment of the Contribution to Program Outcomes**

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<th>Outcome</th>
<th>1</th>
<th>2</th>
<th>3</th>
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**Prerequisites by Topic**

CS 335 with a grade of C or better.

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**Major Topics Covered in the Course**
1. Concurrent processes
   Mutual exclusion, synchronization
2. Processor scheduling
   Multiprocessor systems, tree-structured precedence graphs, list scheduling, preemptive and non-pre-emptive scheduling
3. Storage allocation in paging systems
   Optimal paging, working set, stack algorithms, extension problems
4. Distributed operating systems
   Mutual exclusion, deadlock
5. Case study Fault tolerance in distributed computing environment (including mobile computing environment)
6. Parallel compilers
7. Future directions of parallel and distributed computing systems