10-Day Placement Prep Roadmap: DBMS & OS

This roadmap is designed to guide you through the complete video syllabus for Database Management Systems (DBMS) and Operating Systems (OS) from Knowledge Gate in 10 days, with remarks focused on placement preparation.

Part 1: Database Management Systems (DBMS) - 5 Days

Day 1: DBMS - Foundations & Data Modeling

📘 Topic	🎥 Timestamp	⏳ Recommended Study Time	✅ Covered in Video?	⭐ Placement Importance	💬 Importance w.r.t Placements
Chapter 1: Basics	02:20	1 Hour	Yes	★★★☆☆	Essential foundation. Interviewers test your core understanding with questions on File System vs DBMS and Data Independence.
Chapter 2: ER Diagram	21:56	2.5 Hours	Yes	★★★★☆	Crucial for database design rounds. You'll be asked to design schemas for systems like Zomato or BookMyShow. Converting ER to tables is a must-know.

Day 2: DBMS - Relational Model & Normalization Theory

📘 Topic	🎥 Timestamp	⏳ Recommended Study Time	✅ Covered in Video?	⭐ Placement Importance	💬 Importance w.r.t Placements
Chapter 3: RDBMS & FD	50:08	3.5 Hours	Yes	★★★★★	The absolute heart of RDBMS. Expect direct questions on finding candidate keys from a set of FDs. This is a very common online assessment question.

Day 3: DBMS - Normalization in Practice

📘 Topic	🎥 Timestamp	⏳ Recommended Study Time	✅ Covered in Video?	⭐ Placement Importance	💬 Importance w.r.t Placements
Chapter 4: Normalization	1:38:28	3.5 Hours	Yes	★★★★★	The single most important and frequently tested topic in DBMS interviews. You must be able to normalize a table to BCNF and explain why.

Day 4: DBMS - Querying & Indexing

📘 Topic	🎥 Timestamp	⏳ Recommended Study Time	✅ Covered in Video?	⭐ Placement Importance	💬 Importance w.r.t Placements
Chapter 5: Indexing	2:19:32	1.5 Hours	Yes	★★★★☆	Vital for any performance or optimization discussion. 'How do you speed up a slow query?' The answer almost always involves indexing. B+ trees are key.
Chapter 6: Relational Algebra	2:49:08	1 Hour	Yes	★★★☆☆	Provides the theoretical base for SQL. Helps in understanding how complex queries are processed internally. Less direct questions, but builds strong concepts.
Chapter 7: SQL (Part 1)	3:14:00	1.5 Hours	Yes	★★★★★	Mandatory for every single software engineering

					role. You will be asked to write queries in every interview. Master all types of JOINs (INNER, LEFT, RIGHT, FULL).

Day 5: DBMS - Advanced SQL & Transactions

📘 Topic	🎥 Timestamp	⏳ Recommended Study Time	✅ Covered in Video?	⭐ Placement Importance	💬 Importance w.r.t Placements
Chapter 7: SQL (Part 2)	3:14:00	1 Hour	Yes	★★★★★	Advanced SQL (GROUP BY, HAVING, subqueries) is what differentiates candidates. Expect complex query-writing problems to test your problem-solving.
Chapter 8: Relational Calculus	4:07:54	0.5 Hours	Yes	★★☆☆☆	Low placement importance. Can be skipped if short on time, but gives a complete theoretical picture.

Chapter 9: Transaction	4:22:28	2 Hours	Yes	★★★★☆	Extremely important for system design and backend roles. ACID properties are a guaranteed question. Be ready to explain them with real-world examples.
Chapter 10: Recovery & Concurrency	5:01:02	1.5 Hours	Yes	★★★☆☆	Important for understanding database reliability. Locking protocols, especially 2PL, are frequently discussed in the context of handling multiple simultaneous transactions.

Part 2: Operating Systems (OS) - 5 Days

Day 6: OS - Introduction & Core Concepts

📘 Topic	🎥 Timestamp	⏳ Recommended Study Time	✅ Covered in Video?	⭐ Placement Importance	💬 Importance w.r.t Placements
Chapter 1: Introduction	02:42	1.5 Hours	Yes	★★★☆☆	Builds the context. Questions on the

					difference between multiprogramming, multitasking, and multiprocessing are very common to check fundamental clarity.
Chapter 2: OS Structure	34:20	1 Hour	Yes	★★★☆☆	Important for understanding the user-kernel interaction. Monolithic vs. Microkernel is a classic interview debate question.
Chapter 3: Process Basics	52:20	1 Hour	Yes	★★★★☆	Core OS concepts. Interviewers will definitely ask about the Process Control Block (PCB) and the process state transition diagram. Context switching is a hot topic.

Day 7: OS - CPU Scheduling

📘 Topic	🎥 Timestamp	⏳ Recommended Study Time	✅ Covered in Video?	⭐ Placement Importance	💬 Importance w.r.t Placements
Chapter 4: CPU Scheduling	1:09:58	4 Hours	Yes	★★★★★	Guaranteed placement topic. Expect numerical problems in online tests and interviews to calculate Turnaround Time and Waiting Time for various algorithms.

Day 8: OS - Synchronization & Concurrency

📘 Topic	🎥 Timestamp	⏳ Recommended Study Time	✅ Covered in Video?	⭐ Placement Importance	💬 Importance w.r.t Placements
Chapter 5: Synchronization	1:53:41	1.5 Hours	Yes	★★★★★	A critical topic for any role involving multithreading or backend systems. You must be able to explain race conditions, critical sections, and mutual exclusion.
Chapter 6: Semaphores	2:21:00	2.5 Hours	Yes	★★★★★	The most common tool for

					synchronization questions. Be prepared to write pseudocode for the Producer-Consumer problem using semaphores. This is a standard, high-frequency question.

Day 9: OS - Deadlocks & Memory Management

📘 Topic	🎥 Timestamp	⏳ Recommended Study Time	✅ Covered in Video?	⭐ Placement Importance	💬 Importance w.r.t Placements
Chapter 7: Deadlock	3:04:37	2 Hours	Yes	★★★★☆	A very important OS topic. You must know the four necessary conditions for a deadlock. Banker's algorithm is a common subject for numerical problems.
Chapter 8: Threads	3:49:39	0.5 Hours	Yes	★★★★☆	Process vs. Thread and User-level vs.

					Kernel-level threads are among the most frequently asked OS questions. Essential knowledge.
Chapter 9: Memory Management	4:01:18	2 Hours	Yes	★★★★☆	Paging and Segmentation are fundamental. Expect questions on internal vs. external fragmentation. The concept of a page table is crucial.

Day 10: OS - Virtual Memory & File Systems

📘 Topic	🎥 Timestamp	⏳ Recommended Study Time	✅ Covered in Video?	⭐ Placement Importance	💬 Importance w.r.t Placements
Chapter 10: Virtual Memory	5:06:23	1.5 Hours	Yes	★★★★☆	A core concept for modern OS. Demand Paging and Page Replacement Algorithms (LRU, FIFO) are very important. Expect numericals on page

					faults.
Chapter 11: Disk Management	5:28:22	1 Hour	Yes	★★☆☆☆	Lower placement importance compared to other topics. Disk scheduling algorithms might be asked in written tests, but are less common in interviews.
Chapter 12: File System	6:01:15	1.5 Hours	Yes	★★★☆☆	Important for data storage concepts. File allocation methods (Contiguous, Linked, Indexed) and their trade-offs are good to know for system design discussions.
Inodes	-	-	No	★★★☆☆	Not in the video but highly relevant for placements, especially for Linux/Unix based questions. Understand what an inode is and

					what it stores.