



ELEVO LABS

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Course Overview

Course Details

Course Name: System Design Fundamentals: From Concepts to Architecture

Instructor: David Chen

Created On: 16 June, 2025

Updated On: 16 June, 2025

Price: 9000 INR

Duration: 8 weeks

Modules: 5

Language: English, Hindi

Level: Intermediate, Expert

Certifications: Yes

Course Description

This course provides the foundational knowledge required to excel in system design. It is designed for engineers who want to transition from building features to designing entire systems. We cover the essential trade-offs and building blocks that form the basis of every large-scale application.

You will learn about core principles like scalability, availability, and consistency (CAP Theorem). We will do a deep dive into crucial components such as Load Balancers, Caching layers, Databases (SQL vs. NoSQL), and Message Queues. The course also covers different communication protocols and common architectural patterns like Sharding and Rate Limiting.

This is the theoretical bedrock you need before tackling complex design problems.

What You'll Learn:

- Core Principles: Scalability, Latency, Throughput, Availability, Consistency.
- Building Blocks: Load Balancers, Caching, CDNs, Databases, Message Queues.
- Architectural Patterns: Sharding, Replication, Rate Limiting, Circuit Breakers.
- Communication Protocols: REST, GraphQL, WebSockets.
- Understanding the CAP Theorem and its implications.

Who Is This Course For?

This course is for intermediate to senior software engineers, developers preparing for system design interviews, and anyone looking to understand how large-scale systems are built.

Course Curriculum Details

Module 1: Module 1: Introduction to System Design

2 Lessons

1. What is System Design? 20min

2. Gathering Requirements (Functional & Non-Functional) 25min

Module 2: Module 2: Core Concepts

3 Lessons

1. Scalability: Vertical vs. Horizontal 30min

2. Latency vs. Throughput 20min

3. Availability and Consistency (CAP Theorem) 35min

Module 3: Module 3: Essential Building Blocks

3 Lessons

1. Load Balancers **30min**
2. Caching Strategies and CDNs **35min**
3. Message Queues (e.g., RabbitMQ, Kafka) **30min**

Module 4: Module 4: Data Storage

2 Lessons

1. SQL vs. NoSQL Databases **30min**
2. Database Replication and Sharding **40min**

Module 5: Module 5: Common Architectural Patterns

2 Lessons

1. Rate Limiting **25min**
2. Circuit Breaker Pattern **25min**

This curriculum is subject to minor adjustments to ensure the most up-to-date and effective learning experience.