Technology Leaders Program 2022-23
Plaksha University

Course Title

Introduction to Computing Infrastructure

Lecture-wise Agenda and Syllabus

Lecture Session (max. 90 mins)	Cumulative Duration	Theory Content	Practical/Lab Content (Optional)
1 (120 mins)	2 hrs	Introduction a. Levels in computer design b. The software development process.	MIPS Assembly Language Software Project including two Lab hours, each of 1 hour.

2 (120 mins)	4 hrs	Assembly Language
		   a. Assembly basics.
		   b. MIPS Instruction Set Architecture	

3 (120 mins)	6 hrs	Processor design: a. Overall organization of computers b. CPU design	
4 (120 mins)	8 hrs	Processor design continued: c. Pipelining in CPUs i. Data hazards ii. Control hazards	
5 (120 mins)	10 hrs	Processor design continued: d. Branch prediction e. Parallel Architectures.	
6 (120 mins)	12 hrs	Memory system design: a. Primary memory b. Cache memory c. Storage technologies	
7 (120 mins)	14 hrs	Instruction Set Architectures: a. Concepts b. Instruction formats c. Addressing modes	
8 (120 mins)	16 hrs	Input/Output: a. I/O instructions b. I/O methods	

9 (120 mins)	18 hrs	Stack memory:
		   a. Mechanisms.
		   b. Usage and conventions	

15 (90 mins)	Final Examination		

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