

# Indian Institute of Technology Tirupati

CS4100: Computer System Design

Credit: L-T-P-C : 3-0-0-3

Syllabus of Test 1 (Quiz 1)

Time of Test 1: 9 to 10 am, 6<sup>th</sup> Sept, 2019

Venue of Test 1: Class Room #2 (Temporary Campus)

## 1 Syllabus

The syllabus consists of all the lectures from Lecture 1 to Lecture 8.

- Lecture 1 and 2: Components of Computer System Design, Computer System Design Flow, Hardware Design Flow: From design specification to fabrication and test.
- Lecture 3 and 4: Basic gates, Boolean algebra, Combinational Logic: Multiplexor, De-multiplexor, Decoder, Encoder and Multi-way Multi-bit Logic, Number system (1's and 2's complement), BHDL (Basic Hardware Description Language), Test Scripting Language (TSL) and Simulation Methodology.
- Lecture 5: ALU Design: Half and Full adder, n-bit ripple-carry adder, Adder/Subtractor, and Multiplier (n-bit input and n-bit output) and Control Signals: Control signals for the operations which have been discussed in the Lecture.
- Lecture 6 and 7: Sequential Elements: Latches, Flip-flop, Clock and Timing Diagram, 1-bit Register, n-bit Registers, and Program Counter: Design and functionality.
- Lecture 8: Address decoder, and Memory design, Read and Write operation,

## 2 Information

Instructor: Jaynarayan T Tudu [jtt@iittp.ac.in]

Teaching Asst: Kirtiman Mishra

Reading Materials:

- Chapter 1 to 3 of The Elements of Computing System
- Additional references prescribed in the course syllabus

Examination Rules: As per the guidelines of Academic Section.