FOUNDATIONS TO COMPUTER SYSTEMS DESIGN

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IIT Madras

TYPE OF COURSE : Rerun | Core | UG/PG
COURSE DURATION : 12 weeks (18 Jan' 21 - 09 Apr' 21)
EXAM DATE : 24 Apr 2021

INTENDED AUDIENCE : Undergraduate/Post Graduate students

INDUSTRIES APPLICABLE TO : All core computer science and engineering and computer hardware company – Intel, AMD, NVidia, Redhat, etc

COURSE OUTLINE :
The Computer Architecture and Organization, Operating Systems, and Compilers are three fundamental pillar courses for both Computer Science and Engineering; and, Electrical and Electronics engineering students. The current course presents a cross-layer view of the three pillars, which help the student appreciate the contributions, interactions and challenges related to each of these pillars from the view of the total systems engineering.

ABOUT INSTRUCTOR :
V. Kamakoti is a Professor at Department of Computer Science and Engineering, IIT Madras. He specializes in the area of Computer Architecture and embedded systems, VLSI design and Information Security.

COURSE PLAN :

Week 1**:** Introduction to Boolean Logic
Week 2**:** Introduction to Boolean Algebra
Week 3**:** Introduction to Sequential Logic
Week 4**:** Machine Language Specification
Week 5**:** HACK – A Simple Computer Microarchitecture
Week 6**:** Assembly Language Fundamentals
Week 7**:** Introduction to Stack Based Virtual Machine
Week 8**:** Language and Interpreter for Virtual Machines
Week 9**:** Introduction to JACK – High Level Language
Week 10**:** Front-end JACK Compiler
Week 11**:** Back-end JACK Compiler
Week 12**:** Introduction to Operating Systems