COURSE DETAIL

TRANSISTOR-LEVEL DIGITAL CIRCUITS
Country Singapore
Host Institution National University of Singapore
Program(s) National University of Singapore
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Engineering Electrical Engineering
UCEAP Course Number 111
UCEAP Course Suffix
UCEAP Official Title TRANSISTOR-LEVEL DIGITAL CIRCUITS
UCEAP Transcript Title TRANSISTOR-LVL CIRC
UCEAP Quarter Units 3.00
UCEAP Semester Units 2.00

Course Description

This course introduces the fundamental concept of carriers, operating principles of PN diodes and MOSFETs. Topics include IV characteristics in different operating regions and their impact on the performance of logic gate, the foundational concepts of inverters and analyze their performance in terms of power and delay trade-off. The course introduces logic synthesis and the fundamental timing analysis of logic gates. Besides the static CMOS logic, students examine pass logics or transmission gates logics.

Language(s) of Instruction
English

Host Institution Course Number
CG2027

Host Institution Course Title
TRANSISTOR-LEVEL DIGITAL CIRCUITS

Host Institution Course Details
https://nusmods.com/courses/CG2027/transistor-level-digital-circuits

Host Institution Campus

Host Institution Faculty

Host Institution Degree

Host Institution Department
Computing and Engineering Programme

Course Last Reviewed
2025-2026

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