

Advanced Theory of Electronic Circuits

2 units (selection)

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Target The purpose of this lecture is to understand advanced theory and the state-of-the-art technology for the IC implementation.

Outline Electronic circuits have been implemented as VLSIs. This lecture introduces advanced theories and the state-of-the-art technologies for the VLSI implementation. The following are the topics: 1. Analysis and synthesis of logic circuits, 2. Design of integrated digital circuits, 3. Testing of VLSI 4. Design for testability, 5. Low power digital circuits

Style Lecture and exercise

Keyword *electronic circuits, IC implementation, integrated circuits, circuit design*

Fundamental Lecture “**Electronic Circuits**”(1.0), “**Computer Circuits**”(1.0)

Relational Lecture “**Advanced Lecture of Intelligent Information Processing**”(0.5), “**Advanced Theory of Integrated Circuits**”(0.3)

Requirement Familiarity with electric circuit and IC technology

Goal To understand advanced theories and the state-of-the-art technologies for IC implementation of electronic circuits.

Schedule

1. Introduction of related topics
2. estimation of power consumption
3. low power design
4. testing of logic circuit
5. testing of SoC
6. design for testability for logic circuit
7. design for testability for SoC
8. Advanced topics of system LSI
9. design exercise (5wks)
10. Examination
11. The exposition about the examination

Evaluation Criteria Attendance and presentation:30%; Final examination:70%

Textbook

- ◇ STARC SoC design training courses text
- ◇ Exercises are introduced in the class

Reference introduced in the class

Contents <http://cms.db.tokushima-u.ac.jp/cgi-bin/toURL?EID=216783>

Student Able to be taken by only specified class(es)

Contact

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- ⇒ Shimamoto (E 棟 3 階南 D-5, +81-88-656-7483, simamoto@ee.tokushima-u.ac.jp) **MAIL** (Office Hour: 年度毎に学科の掲示, あるいは居室前の掲示を参照すること)
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Note This lecture will be given in English.