

Logic Circuits

Syllabus Number 3A203
Basic Major Subjects
Requisites 2 credit
FURUKAWA, Fumihito

1. Course Description

We learn the followings:

- (1) Logic algebra and logic function
- (2) Logic element
- (3) Combinational logic circuit
- (4) Sequential circuit
- (5) Arithmetic circuit

2. Course Objectives

This course aims to provide an understanding of basic theory and design method of logic circuits.

3. Grading Policy

The grade of students will be calculated according to the following process: quiz score 40%, intermediate examination score 30%, final examination score 30%. To pass, students must earn at least 60 points out of 100.

4. Textbook and Reference

Textbook

Hirotō Yasuura Logic circuits CORONA PUBLISHING, ISBN: 978-4-339-01820-2

5. Requirements(Assignments)

Learning materials for each class will be carried on LMS in advance. For preparation, students are expected to read the textbook and the materials. After classes, take a quiz in order to check your understanding of the class content. The preparation and after-class learning will take one hour each.

6. Note

This course is a required subject in the JABEE program, and corresponds to the items 4-3 in learning and achievement goals.

7. Schedule

- [1] Fundamentals of digital systems
- [2] Logic algebra and logic functions
- [3] Logic Element
- [4] Karnaugh map
- [5] Minimization of logical expressions using Karnaugh map
- [6] Combinational logic circuit
- [7] Intermediate examination
- [8] Flip-Flop
- [9] Finite state machine
- [10] Minimizing the number of states in finite state machines
- [11] Finite state machines using sequential circuit
- [12] Sequential circuit design (1)
- [13] Sequential circuit design (2)
- [14] Arithmetic circuit
- [15] Summary and final examination