Electronics Devices

Syllabus Number 3E328
Special Subjects
Elective 2 credit

MURO KOICHI

1. Course Description

The aim of this course is to help students acquire an understanding of the fundamental mechanisms of discrete devices (such as MOS-FET, LED, etc.) and embedded systems. It also enhances the development of student's skill in making oral presentation and self-regulated learning. Specifically, we will acquire necessary skills and knowledge on DP4E.

2. Course Objectives

The goals of this course are to:
・ be able to understand and explain LEDs.
・ be able to understand and explain MOS-FETs.
・be able to understand and explain A/D and D/A converter.
・be able to understand and explain common sensor modules.

3. Grading Policy

Your overall grade in the class will be decided based on the following:
- Oral presentation (chapter 7, chapter 15): 40%
- Proceedings of the presentation (chapter 7, chapter 15): 40%
- Ten quizzes about the lectures: 20%

4. Textbook and Reference

Textbook
The handout of each chapter will be posted on the course website.

5. Requirements(Assignments)

・This course will be taught in Japanese.
・This course will require the fundamental knowledge on electric circuits. In case of difficulties, it is recommended to ask without reserve any questions to instructor.

6. Note

7. Schedule

[1] Guidance
[2] An Introduction of Embedded Systems
[3] A/D Converter and D/A Converter
[4] Light Emitting Diodes (LEDs)
[5] 7 Segment LEDs
[6] Feedback on Embedded Systems
[7] Presentation "An Electronics Experiment I Planed"
[8] Mechanism of Metal-Oxide-FETs(MOS-FETs)
[9] How to Drive Power LEDs Using MOS-FET
[10] How to Control DC-Motors Using Full Bridge Circuit
[11] O/E Converter (Photo Transistor, CdS)
[12] Mechanism of a Supersonic-Range Detection Module
[13] Mechanism of an Acceleration Sensor Module
[14] Feedback on MOS-FETs and Sensor-Modules
[15] Presentation "A Teaching material I Planed"