

Embedded System

Syllabus Number

3E323

Special Subjects

Elective 2 credit

OGAWA, Mitsuhiro

1. Course Description

Students will attend a total of 15 weeks of classes in this subject.

The topics are about embedded system.

Outline and detailed elements will be taught. Practical study is done in the 11th to 15th course.

This course relates to DP4E.

2. Course Objectives

The aim of this course is to study Embedded systems. An embedded system is an application specific electronic system including both hardware and software designs. In this course, we learn the design of embedded systems on both sides of hardware and software. The learners will attain knowledge about the designing methodology in the field of embedded systems.

3. Grading Policy

1. Presentation in 9th class (20%).

2. Result of practical study and system design (40%).

3. Final Exam (40%).

The results will be informed and reviewed mainly via LMS.

4. Textbook and Reference

Textbook

Text will be provided.

Reference

References are as follows;

a Japanese book; ISBN: 9784061565692 (by Aoki)

URLs of Youtube videos and Slideshare slides will be provided for learning.

5. Requirements(Assignments)

LMS will be used in this course.

It is recommended to prepare USB flash drive to backup your design in 11th to 15th class.

6. Note

For preparation, 30 min are required for each class in standard. You should read web site instructed in classes.

For review, 60 min are required for each class in standard. Practice questions for review will be distributed in class.

7. Schedule

- [1] Introduction
- [2] Total design concept of embedded system
- [3] Integrated logical devices; CPU, FPGA, CPLD and DSP
- [4] Source (Power source) circuit
- [5] Input from real world
- [6] Output to real world
- [7] Communication system
- [8] Development environment
- [9] Survey and presentation by learners
- [10] Printed circuit board design and production
- [11] Design exercise of embedded system (1)
- [12] Design exercise of embedded system (2)
- [13] Design exercise of embedded system (3)
- [14] Design exercise of embedded system (4)
- [15] Design exercise of embedded system (5)