COURSE	Name	: Embedded Electronic System
	Code	: EE184542
	Credits	: 4
	Semester	: VI

Description of Course

This course studies the Embedded Electronics System (System that has a chip that is programmed only for certain purposes) which is implemented in microcontroller system, consisting of microprocessor development to microcontroller, microcontroller type, programming language, and its implementation. This course also learns about how to use various types of microcontroller include: MCS 51 Microcontroller, AVR Microcontroller, Arduino, 32bit ARM Microcontroller, and Raspberry Pi.

Learning Outcomes

Knowledge

(P04) Mastering the concepts, principles, and procedures which considers economical, social, and environment aspects in power systems, control systems, multimedia telecommunications, or electronics.

(P05) Mastering the factual knowledge about information and communication technology, and the latest technology and its applications in power systems, control systems, multimedia telecommunications, or electronics.

Specific Skill

(KK04) Able to implement alternative solutions of engineering problems in power systems, control systems, multimedia telecommunications, or electronics by concerning in factors of economy, public health and safety, culture, social, and environment.

(KK05) Able to utilize analytical and engineering design tools based on appropriate information and computation technology to perform engineering activities in power systems, control systems, multimedia telecommunications, or electronics.

General Skill

(KU12) Able to implement information and communication technology (ICT) in the context of implementation of his/her work.

(KU13) Able to apply entrepreneurship and understand technology-based entrepreneurship.

Attitude

(S09) Demonstrating attitude of responsibility on work in his/her field of expertise independently.

(S10) Internalizing spirit of independence, struggle and entrepreneurship.

(S11) Trying his/her best to achieve perfect results.

(S12) Working together to be able to make the most of his/her potential.

Course Learning Outcomes

Knowledge

Master the basic concepts of microcontroller MCS 51, AVR, ARM 32 bit, and Embedded System.

Specific Skill

Mastering the concept of microcontroller type MCS51, AVR, ARM 32 bit, and Embedded System

General Skill

Able to implement microcontroller type MCS51, AVR, ARM 32 bit, and Embedded system board.

Attitude

Able to internalize the spirit of independence, struggle, and entrepreneurship.

Main Subjects

1. Introduction of Embedded Systems
2. Microcontroller MCS 51
3. GPIO, Timer, Counter, Interupt, Serial Communication, I2C, CAN, Onewire
4. Assembly Language for MCS 51
5. Basic Compiler and C ++ for MCS 51
6. AVR microcontroller
7. ARM Microcontroller32bit
8. Raspberry Pi

Reference(s)

[1] Buku Ajar Embedded System, Ronny Mardiyanto, 2018
[2] Matt Richardson, Shawn Wallace, Getting Started with Raspberry Pi, O'Reilly Media, 2012
[3] ARM Cortex M0 Nuvoton NuMicro, dalam bentuk CD
[4] Manual Book STM32
[5] Robert Love, Linux Kernel Development, Addison-Wesley, 2010

Prerequisite(s)

EE184401 Digital and Microprocessor Systems