

COURSE	Name	: Embedded Control Systems
	Code	: EE184929
	Credits	: 3
	Semester	: Elective

Description of Course

Embedded system course provides an introduction to control systems implemented on a microcontroller or system-on-chip. After explaining the concept and architecture of the embedded system, methods to model the embedded system are presented. Analytical methods based on the obtained model can then be designed on an embedded systems. Programming and practical applications become an integral part of this course.

Learning Outcomes

Knowledge

(P02) Mastering the concepts and principles of engineering, and implementing them in the form of procedures for analysis and design in power systems, control systems, multimedia telecommunications, or electronics.

Specific Skill

(KK02) Able to describe the completion of engineering problems in power systems, control systems, multimedia telecommunications, or electronics.

(KK03) Able to describe system design for problem solving in power systems, control systems, multimedia telecommunications, or electronics by concerning technical standards, performance aspect, reliability, ease of application, and assurance of sustainability.

General Skill

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

Attitude

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

Course Learning Outcomes

Knowledge

Master the concepts and theory of embedded systems for control system applications.

Specific Skill

Able to perform analysis and design of microcontroller based control system.

General Skill

Able to perform embedded system implementation for control system using microcontroller.

Attitude

Trying to the fullest to achieve perfect results.

Main Subjects

1. Introduction to embedded systems and real-time systems
2. Embedded system models
3. Embedded system design
4. C programming for embedded systems
5. Embedded system development approaches
6. Scheduler
7. RTOS (Real Time Operating System)
8. Introduction to 32-bit ARM processor

Reference(s)

- [1] David E. Simon, "An Embedded Software Primer", Addison-Wesley, 1999
- [2] Jean J. Labrosse, "MicroC/OS-II The Real-Time Kernel", R&D Books, Lawrence, 1999
- [3] Berger, Arnold, "Embedded Systems Design: An Introduction to Processes, Tools, and Techniques", CMP Books, Lawrence Kansas

Prerequisite(s)

EE184404 Introduction to Control Systems
