Course: CENG2400  Course ID: 001782  Eff Date: 2022-07-01  Crse Status: Active  Apprv. Status: Approved

Embedded System Design

This course introduces the techniques for building embedded systems such as the use of microprocessors, interfacing memory systems and timing control of digital signals. It also discusses peripheral input/output interfacing methods such as: timer, serial and parallel interfaces, analog-to-digital conversion, polling, interrupt and device driver developments. Assembly language programming will also be introduced: concepts of addressing modes, data manipulation, control flow instructions, programme linkage and relation to high level languages.

Grade Descriptor:

A
EXCELLENT – exceptionally good performance and far exceeding expectation in all or most of the course learning outcomes; demonstration of superior understanding of the subject matter, the ability to analyze problems and apply extensive knowledge, and skillful use of concepts and materials to derive proper solutions.

B
GOOD – good performance in all course learning outcomes and exceeding expectation in some of them; demonstration of good understanding of the subject matter and the ability to use proper concepts and materials to solve most of the problems encountered.

C
FAIR – adequate performance and meeting expectation in all course learning outcomes; demonstration of adequate understanding of the subject matter and the ability to solve simple problems.
MARGINAL – performance barely meets the expectation in the essential course learning outcomes; demonstration of partial understanding of the subject matter and the ability to solve simple problems.

有关等級說明的資料，請參閱英文版本。

F

FAILURE – performance does not meet the expectation in the essential course learning outcomes; demonstration of serious deficiencies and the need to retake the course.

有關等級說明的資料，請參閱英文版本。

Equivalent Offering:
Units: 3 (Min) / 3 (Max) / 3 (Acad Progress)
Grading Basis: Graded
Repeat for Credit: N
Multiple Enroll: N

Course Attributes:

Topics:

COURSE OUTCOMES

Learning Outcomes:

Student will be able to
1. design, implement, program and debug microprocessor-based embedded systems to solve real life problems;
2. write assembly language programs;
3. interface an embedded system with other devices such as integrated circuit devices and displays.

Course Syllabus:

This course introduces the techniques for building embedded systems such as the use of microprocessors, interfacing memory systems and timing control of digital signals. It also discusses peripheral input/output interfacing methods such as: timer, serial and parallel interfaces, analog-to-digital conversion, polling, interrupt and device driver developments. Assembly language programming will also be introduced that includes: concepts of addressing modes, data manipulation, control flow instructions, programme linkage and relation to high level languages.

Assessment Type:

Essay test or exam : 50%
Lab reports : 20%
Presentation : 5%
Short answer test or exam : 25%

Feedback for Evaluation:
1. Midterm evaluation;
2. Questions in Labs/tutorials;

Required Readings:

Recommended Readings:
1. Furber, ARM System-on-Chip Architecture, 2000;
2. Web-based data sheets and teaching materials;

OFFERINGS
1. CENG2400  Acad Organization=CSD; Acad Career=UG

COMPONENTS
LAB : Size=30; Final Exam=N; Contact=1
LEC : Size=30; Final Exam=Y; Contact=2
TUT : Size=30; Final Exam=N; Contact=1

ENROLMENT REQUIREMENTS
1. CENG2400
   Enrollment Requirement Group:
   Prerequisite: ENGG2020 or ENGG2120 or ESTR2104.
   Not for students who have taken ESTR2100.
   New Enrollment Requirement(s):
   Pre-requisite = no change
   Exclusion = no change

CAF
- eLearning hrs for blended cls  : 0
- No. of micro-modules : 0
- Research components (UG) : 0%