

DESCRIPTION ON THE INDIVIDUAL COURSE UNITS: Etm

course unit title

Microprocessor technology

course unit code

Etm

type of course unit (compulsory, optional)

Compulsory

level of course unit (e.g. first, second or third cycle)

First cycle engineering studies, Full-time

year of study

2

semester/trimester when the subject (course unit) is delivered

3

number of ECTS credits allocated

3

name of lecturer(s)

dr inż. Józef Małecki

learning outcomes of the course unit

explains the principle of operation of the microprocessor system,
distinguishes between basic types of microprocessor system architecture,
describes the basic types of memory and I/O devices of microprocessor system,
uses the tools to build and run software for microcontrollers from 8051

mode of delivery (face-to-face, distance learning)

Face-to-Face

prerequisites and co-requisites

Basic knowledge of digital technology

recommended optional programme components

No recommendations

course contents

LECTURE

Microprocessor - the idea and history. Microprocessor system, the basic components and architecture. Internal structure and operating principle of a typical microprocessor. Memory of microprocessor systems - types, characteristics, structure. Principles of cooperation between central processing unit, memory and I/O devices. Coupling of typical peripheral devices to the microprocessor. Characteristics of integrated peripheral components: ports, time-counters, interrupt controller, transmission system. Microcontrollers from 8051 family: internal structure, modes of operation, the list of instructions. Programming in assembler language.

LABORATORY

The aim of the laboratory is to acquire the practical skills of microcontroller programming and knowledge of tools used for this purpose. Laboratory classes consist of the preparation and testing of simple programs written in assembler. The programs are tested on evaluation boards with microcontrollers from 8051.

recommended or required reading

Basic literature

1. Starecki T.: Mikrokontrolery 8051 w praktyce, Wydawnictwo BTC, Warszawa 2002
2. Gałka P., Gałka P.: Podstawy programowania mikrokontrolera 8051, MIKOM, Warszawa 2002.

Supplementary literature

1. Microprocessor Reference Guide - <http://www.intel.com/>
2. R.S.Gaonkar : Microprocessor architecture programming & Application, Springer, 2004
3. Douglas V Hall, "Microprocessors & Interfacing" 2nd edition, Tata Mc GrawHill, 2002

planned learning activities and teaching methods

Lecture	Tutorials	Laboratory	Project	Seminar	Sum
12	0	18	0	0	30

assessment methods and criteria

Course passing criteria	Passing threshold	Percentage of the final grade
Written examination	60%	60%
Practical exercise	60%	40%

language of instruction

polish, english

work placement(s)

Not applicable