

## **Title: Microprocessor Systems in Telecommunications**

**Lecturer:** Asst. Prof. Dr. Arpad Búrmen

### **Aim of the course:**

To attain basic knowledge of microprocessor systems in telecommunication.

### **Required (pre)knowledge:**

Fundamentals of electrical engineering, digital structures, digital techniques, C, JavaScript, HTML.

### **Contents:**

History of computing. Basics of digital circuits and microprocessors. Coding of integer numbers. Operations with integers. Machine language and the execution of programs in machine language. Components of a microprocessor from programmer's point of view. Communication in microprocessor-based systems. Building blocks of microprocessor based-systems. Interrupts. Programming, compilation, and program execution. Uploading and debugging a program. Microcontrollers. Embedded systems. Digital signal processors. Floating point numbers. Network processors. Introduction to cryptography. Operating systems and multitasking. Real-time systems.

### **Selected references:**

LPC213x User Manual, Philips, 2005, PDF file.

A.Clements: The Principles of Computer Hardware, Oxford University Press, 1999.

D. Seal: ARM Architecture Reference Manual, Addison-Wesley, 2000.

A.P.Godse, D.A.Godse: Advanced Microprocessors, Technical Publication Pune, 2009.

P. Lekkas, Network Processors: Architectures, Protocols and Platforms, McGraw-Hill, 2003.

P. Lapsley, DSP Processor Fundamentals: Architectures and Features, Wiley, 1997.