

CE14005 – Hardware Software Codesign

Required or Elective Course: Required

Catalog Description The objective of this course is to present techniques for co-design of embedded that consist of hardware and software components. The course covers the following subjects: models for describing hardware and software components, hardware software partitioning and scheduling, concurrent design, connecting hardware and software components, prototyping and emulation and power energy optimization. We also teach SystemC language for modeling hardware-software co-design in this course. It is a new modeling language based on C that allows engineers to program software and hardware modules of the same project easily.

The course has some exercises that are distributed in the lecture and a final project that is a design and implementation of an embedded system example using System C language.

Prerequisites by topic: Computer Architecture

Textbooks and other required material:

[1] P. R. Schaumont, A Practical Introduction to Hardware/Software Codesign. Springer, 2010.

[2] K. Karuri and R. Leupers, Application Analysis Tools For ASIP Design. Springer, 2011.