

**May 11, Thursday**

**7:30 – 9:30 AM**

**4030 SC**

**35 points and 2 hours**

**Multiple-choice questions: In a few cases, you  
have to write a solution**

# **Materials for Examination 2**

*Everything covered after Exam 1. This includes:*

## **A. Virtual memory and its implementation**

**Single and multiple level translation**

**The role of TLB**

## **B. Dynamic pipeline scheduling**

**Static vs. dynamic pipelines**

## **C. Dynamic branch prediction**

**1-bit, 2-bit predictions**

**Branch prediction buffer**

**Branch target buffer**

## **D. Instruction level parallelism**

**Speculative computation**

**Loop unrolling**

**Software pipelining**

**VLIW / EPIC**

## **E. Storage and I/O**

**Device addressing**

**CPU-device communication**

**RAID**

## **F. Classification of multiprocessors**

## **G. Cache coherence**

**Snooping cache protocol**

**Data consistency**

## **H. Multiprocessor synchronization**

**Various implementation of locking**