

A faded, light-colored background image of a person wearing a full-body white protective suit, including a hood and goggles, standing in a laboratory or industrial setting.

# A few Thoughts on Teaching WCET Analysis

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# Teaching WCET Analysis at TU Vienna

**Content:** WCET analysis principles and solutions, temporal predictability (lectures 15hrs, lab 10+hrs)

**Goal:** show that WCET analysis is not trivial; misconceptions; achieving predictability

**Prereq:** RTS course (TTA focus – H. Kopetz)

**Lab part** on xt/scheduling simulator

WCET analysis, WCET & scheduling (RT vs. nRT), writing time-predictable, WCET-oriented code

**Facts:** ~ 8 students/year, year 4+, optional

## Observations

- Fascination for “unknown”, multi-faceted field (program analysis, programming, programming languages, compilers, computer architectures, ...)
- “Thinking predictability” is very difficult
- Except for scheduling experiments, working with simulator is unsatisfactory
- Experience: WCET-oriented programming can really reduce worst-case performance

## Message

- WCET problem is widely unknown
- Complexity of WCET analysis and timing analysis in general is under-estimated, e.g.:  
Why do so few people care about interferences?  
⇒ In WCET course trainees learn about
  - complex influences on timing
  - timing interferences (global!)
  - predictability: obstacles; how to achieve it

**WCET training should be mandatory for ES students**