

Zumbach electronics

“Typical” SME offering in-line measurement systems for the cable, steel and plastics markets, 200 employees worldwide

Embedded systems are the core of most families of devices

Out of 21 FTE in R&D, 4 in dedicated embedded systems group



Claim:

Embedded systems are at the center of many industrial systems

Principle:

Curriculum must prepare future engineers to interact with specialists of various disciplines

Suggestion:

Fundamentals of disciplines close to embedded systems must be part of the curriculum
(communication, signal/image processing, control, digital electronics)

Claim:

Embedded systems have increasing computational power

Principle:

A curriculum must prepare the student to exploit the new numerical capabilities

Suggestions:

- On-line, real-time, embedded algorithms and their implementation must be explicitly addressed in the curriculum (fixed-point computations, architectures, numerical properties, ...)

Systems engineering approach

Claim:

Competitive advantage increasingly depends on software functions more than on hardware

Principle:

Education must provide the basics of a systems engineering approach

Suggestions:

- Teach modeling methods (e.g. SysML) and have students apply these to projects
- Present formal documentation (specs, design doc, test doc) and have students prepare these within projects

Claim:

Development tools are very powerful and can increase the effectiveness and efficacy of developments

Principle:

Students must understand the possibilities available to the embedded systems engineer

Suggestions:

- Present the main methods (Code generation, HIL, RCP, ...) and corresponding tool types and have students and have students use these in their projects