

Best practices and lessons learnt (SMD)

MathMet MU training - Skills workshop

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What makes the course unique

- ▶ Context: for metrology division of FPS Economy
→ *internal* but various profiles : scientific metrology (e.g., newcomers), field inspectors, legal support
- ▶ Goal: introduction to the concept of MU (voc., little calculus)
"Keep questioning your results."
- ▶ Real examples:
 - ▶ dimensional metrology: diameters of a ring
real picture, discussion about factors of influence
 - ▶ fuel pump verification (users present in classroom): *Excel* spreadsheet
- ▶ Real examples relevant to the field of work of participants
- ▶ Consultancy based on a "pass-by the office" approach.

Lessons learnt

- ▶ Various profiles/experiences lead to various reactions
→ material for discussion
- ▶ In order to attract and keep attention :
provide a real example from the actual field of work of the pupils
→ contact participants prior to the lectures
- ▶ (not too long, less reactivity)
- ▶ Less interactivity with online sessions
- ▶ added topic : illustration of conformity assessment (=decision rules) and raising awareness about probability (=risk) of wrong decision.

Tips and tricks I

- ▶ Start with the question "What can influence a measurement?" → probe the level of knowledge of the audience
- ▶ NOT: don't start with mathematics (GUM) nor directly with fishbone diagram
- ▶ During lectures, ask questions to identified low knowledge participants: probe if they can follow
- ▶ Ask questions: intuition (experience) vs. mathematical education (calculus)
- ▶ Real example: not intricate but not simplified
- ▶ Give some external free tools + exemplify (derivatives with Wolfram Alpha)

Tips and tricks II

- ▶ Send example material (e.g., Excel spr.) after the lecture (but *internal* vs. *external* ...)
- ▶ Your contact details can be useful to pupils later on (months, years).

Idea or dream yet to fulfill

- ▶ Have a portfolio of 2-3 courses of different mathematical levels
- ▶ Lead pupils to autonomy
Balance between training and consultancy
- ▶ Move to *external* service
- ▶ Be able to organize it at least $1 \times$ /year
- ▶ Sending a pre-questionnaire (needs, expectations, field ...)
- ▶ (Constantly evolving material)