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Measurement Uncertainty: Introducing New Training Material and a European Teachers' Community

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Measurement uncertainty is a key quality parameter to express the reliability of measurements. It is the basis for measurements that are trustworthy and traceable to the SI. In addition to scientific research, guidance documents and examples on how to evaluate the uncertainty for measurements, training is an important cornerstone to convey an understanding of uncertainty.

In Europe courses on measurement uncertainty are developed and provided by metrology institutes, and also by universities, research institutions, national accreditation bodies, authorities in legal metrology, service companies and many more. In 2021 a broad consortium was formed to jointly 1) develop new material for measurement uncertainty training and to 2) establish an active community for those involved in measurement uncertainty training. This project-like collaboration is called MU Training. It is an activity hosted by Mathmet, the European Metrology Network for Mathematics and Statistics, and aims to improve the quality, efficiency and dissemination of measurement uncertainty training.

This contribution will give an overview on how the activity MU Training advanced the teaching of measurement uncertainty in the past two years. We will describe how an active community was established that supports the teachers of measurement uncertainty. In addition, we will describe the freely available training material, that was developed for trainees and teachers, and that includes videos as well as overviews about courses, software and examples.

Finally, possibilities for future collaboration will be sketched to further increase the understanding of measurement uncertainty and thus to contributed to more reliable measurements in Europe.

Keywords: education, MU Training, EMN Mathmet

Classification: Mainly application

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Development of Two Multivariate Methods for the Classification of Tenders and Bids in Public Procurement (Auctions)

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This work compares two multivariate methods for the classification of tenders (auctions). Outcomes show that both are appropriate and yield good results when the variables are processed as (i) categorical data with Multiple Correspondence Analysis (MCA) or (ii) continuous variables by means of Principal Component Analysis (PCA). The Cronbach alpha coefficient determines a reasonable reliability of both methods, it allows to compare them in each one of the latent variables and to fix those who are the most relevant for dimensionality