

No	Module and Practical Workshop	Duration	Training outline
1	Best Measurement Practice	1 day	The training is for those who need to make dimensional measurements but are not necessarily trained metrologists. On completing this training, trainee should have gained a basic knowledge of fundamental good practice when making dimensional measurements. An introduction to length units and key issues such as traceability and uncertainty is followed by some examples of typical sources of error in length measurement. Checking to specification, accreditation and measurement techniques are also covered along with an introduction to some measurement techniques. At the end of training, a test shall be conducted to assess the understanding of trainee.
2	Dimensional Metrology	1 day	The training is for those who have basic knowledge in dimensional measurements, such as engineer, technician and others. On completing this training, trainee should have better understanding of the dimensional measurement process and should be in a better position to interpret the aims of the designer drawing. The training covers the basics of the interpretation of engineering drawings in relation to the measurement process, the use of callipers and micrometers for internal, external and depth measurements. This includes the effect of measurement force, both when a ratchet is present (e.g. micrometers) and when it is not, particularly when measuring soft materials; use and general care, support and handling of micrometers and callipers; guidance on choosing the most appropriate equipment type for the measurement; advice on calibration and verification methods and how to generate an uncertainty budget for a measurement; use of electronic instruments, fault awareness, temperature effects; awareness of errors introduced into internal knife edge jaws as external/internal jaws wear; and standard calibration methods and reporting of results. At the end of training, a test shall be conducted to assess the understanding of trainee.
3	Mass and Mass Related Metrology	1 day	The training is for those who have basic knowledge in measurement of mass and weight, such as engineer, technician and others. On completing this training, trainee should have better understanding of the mass measurement processes. The training covers the basics of the introduction of mass measurement, traceability, understanding, cleaning and handling of weight sets, OIML classification, weighing techniques, air density and buoyancy correction and balance measurement. At the end of training, a test shall be conducted to assess the understanding of trainee.
4	Introduction to ISO/IEC 17025	1 day	The training is for those who involve in quality management system of company, from top management to technical personnel. On completing this training, trainee should have basic understanding on concept of ISO/IEC 17025. The training covers the introduction of ISO/IEC 17025, national measurement standard, application and accreditation process, background, purpose and benefits of standards. The training will summarise the necessary clauses which required by the standard so that the trainee is aware and be prepare for the implementation of ISO/IEC 17025 into the company's quality management system. At the end of training, a test will be conducted to assess the understanding of trainee.
5	Documentation and Implementation of ISO/IEC 17025	2 days	The training is for those who involve in quality management system of company, from quality manager, section head, document controller to technical manager. On completing this training, trainee should be able to write an ISO/IEC 17025 quality manual, quality procedures, quality policy, document, form, document control and other technical documents. The training covers the detail explanation of ISO/IEC 17025 on management and technical clauses, translate the clauses to quality manual and quality procedures. Standardise of documentation format, revision and numbering. Implementation of quality system into the company system. Trainee is expected to form group discussion and presentation in developing quality manual and quality procedures. At the end of training, a test will be conducted to assess the understanding of trainee.
6	Internal Auditing ISO/IEC 17025	2 days	The training is for those who involve in quality management system of company, from quality manager, section head, document controller to technical manager. Preferdably for trainee who already attended the "Introduction to ISO/IEC 17025" training course. On completing this training, trainee should be able to perform an internal audit of ISO/IEC 17025. The training covers the whole process of internal auditing cycle, starts from formal notification, preparation, auditing process, method of questioning, classification of non-conformity and observation findings, review of corrective action and summary of assesment report. At the end of training, trainee is expected to perform auditing, discussion and presentation. Assessment will be based on trainee capability in performing the auditing process.

7	Introduction to Uncertainty in Measurement	1 day	The training is for those who have basic knowledge in measurements, such as engineer, technician and others. On completing this training, trainee should have basic understanding in measurement uncertainty. The training covers the basics introduction to uncertainty of measurement for beginners, including laboratories preparing for ISO/IEC 17025 accreditation. This includes the concept and importance of measurement uncertainty, using examples from everyday life. Identify source of uncertainty components, statistical analysis and illustrates how to estimate uncertainty in real measurement situations, showing a detailed uncertainty calculation step by step. At the end of training, a test will be conducted to assess the understanding of trainee.
8	Workshop with Uncertainty in Measurement - Dimensional	1 day	The training is for those who have basic knowledge in uncertainty in measurements, such as engineer, technician and others. Preferdably for trainee who already attended the "Introduction to Uncertainty in Measurement" training course. On completing this training, trainee should be able to develop measurement uncertainty budget for measurement process in dimensional field. The training covers the methods in determine measurement uncertainty components, developing spreadsheet for calculation, integrating measurement data to uncertainty component, presentation of measurement uncertainty. Also includes the workshop discussion in measurement uncertainty computation of calibration of micrometer, caliper and gauge block. At the end of training, a test will be conducted to assess the understanding of trainee.
9	Workshop with Uncertainty in Measurement - Mass and mass related	1 day	The training is for those who have basic knowledge in uncertainty in measurments, such as engineer, technician and others. Preferdably for trainee who already attended the "Introduction to Uncertainty in Measurement" training course. On completing this training, trainee should be able to develop measurement uncertainty budget for measurement process in mass and mass related field. The training covers the methods in determine measurement uncertainty components, developing spreadsheet for calculation, integrating measurement data to uncertainty component, presentation of measurement uncertainty. Also includes the workshop discussion in measurement uncertainty computation of calibration of balance and standard weight. At the end of training, a test will be conducted to assess the understanding of trainee.
10	Workshop with Uncertainty in Measurement - Volumetric related	1 day	The training is for those who have basic knowledge in uncertainty in measurments, such as engineer, technician and others. Preferdably for trainee who already attended the "Introduction to Uncertainty in Measurement" training course. On completing this training, trainee should be able to develop measurement uncertainty budget for measurement process in volumetric field. The training covers the methods in determine measurement uncertainty components, developing spreadsheet for calculation, integrating measurement data to uncertainty component, presentation of measurement uncertainty. Also includes the workshop discussion in measurement uncertainty computation of calibration of POVA pipette. At the end of training, a test will be conducted to assess the understanding of trainee.
11	Workshop on calibration of dimensional tools: Caliper, micrometer and dial gauge	1 day	The training is for those who have basic knowledge in dimensional metrology, such as engineer, technician and others. Preferdably for trainee who already attended the "Dimensional Metrology" course. On completing this training, trainee should be able to perform calibration in caliper, micrometer and dial gauge; preparing calibration worksheet and deliver a standard calibration report. The training covers the practical and correct methods in performing calibration according to international standards (JIS, ISO or BS). This includes writing calibration procedure, analysing the standard requirement, specification and generating the calibration report. At the end of training, a test will be conducted to assess the understanding of trainee.
12	Workshop on calibration of dimensional tools: Height gauge and dial test indicator	1 day	The training is for those who have basic knowledge in dimensional metrology, such as engineer, technician and others. Preferdably for trainee who already attended the "Dimensional Metrology" course. On completing this training, trainee should be able to perform calibration in height gauge and dial test indicator; preparing calibration worksheet and deliver a standard calibration report. The training covers the practical and correct methods in performing calibration according to international standards (JIS, ISO or BS). This includes writing calibration procedure, analysing the standard requirement, specification and generating the calibration report. At the end of training, a test will be conducted to assess the understanding of trainee.
13	Workshop on calibration of dimensional tools: Profile projector	1 day	The training is for those who have basic knowledge in dimensional metrology, such as engineer, technician and others. Preferdably for trainee who already attended the "Dimensional Metrology" course. On completing this training, trainee should be able to perform calibration of profile projector; preparing calibration worksheet and deliver a standard calibration report. The training covers the practical and correct methods in performing calibration according to international standards (JIS). This includes writing calibration procedure, analysing the standard requirement, specification and generating the calibration report. At the end of training, a test will be conducted to assess the understanding of trainee.

14	Workshop on calibration of dimensional tools: Surface plate flatness	1 day	The training is for those who have basic knowledge in dimensional metrology, such as engineer, technician and others. Preferdably for trainee who already attended the "Dimensional Metrology" course. On completing this training, trainee should be able to perform calibration of surface plate flatness; preparing calibration worksheet and deliver a standard calibration report. The training covers the practical and correct methods in performing calibration according to international standards (BS/ISO/JIS). This includes writing calibration procedure, analysing the standard requirement, specification and generating the calibration report. At the end of training, a test will be conducted to assess the understanding of trainee.
15	Workshop on calibration of mass field: Balance and standard weight	1 day	The training is for those who have basic knowledge in mass measurement, such as engineer, technician and others. Preferdably for trainee who already attended the "Mass and Mass Related Metrology" course. On completing this training, trainee should be able to perform calibration of balance and standard weight; preparing calibration worksheet and deliver a standard calibration report. The training covers the practical and correct methods in performing calibration according to international standards (OIML). This includes writing calibration procedure, analysing the standard requirement, specification and generating the calibration report. At the end of training, a test will be conducted to assess the understanding of trainee.
16	Workshop on calibration of volumetric field: Pipette POVA	1 day	The training is for those who have basic knowledge in volumetric metrology, such as engineer, technician and others. On completing this training, trainee should be able to perform calibration of POVA pipette; preparing calibration worksheet and deliver a standard calibration report. The training covers the practical and correct methods in performing calibration according to international standards (ISO). This includes writing calibration procedure, analysing the standard requirement, specification and generating the calibration report. At the end of training, a test will be conducted to assess the understanding of trainee.

Training Venue

Trainee to provide training room facilities.
Trainee may needs to provide equipment.

Note:

Minimum **three persons** per training course.