



**UNIVERSITI KUALA LUMPUR**  
MALAYSIAN SPANISH INSTITUTE

(The contents and other related details in this form is used for publication purpose only. Training module will be given to participants upon registration)

<b>Course Title: APPLIED INDUSTRIAL METROLOGY</b>		<b>Course Code</b>	<b>MET 101</b>
<b><u>Course Background/Summary :</u></b>			
<p>In short, metrology is the science and practice of measurement. In the manufacturing industry, metrology applies to all types of measurements. Measurements are done in many places, for different purposes ranging from the clinical test in the medical laboratory, the electricity meter, the process control instrumentation in the food industry, frequency spectral analysis in telecommunications, pollution measurements in environmental protection to the micrometer in the mechanical workshop, just to mention but a few major areas. Applied Industrial Metrology concerns with the application of measurement science to manufacturing and other processes, their use in society, ensuring the suitability of measurement instruments, their calibration and quality control of measurements.</p>			
<b><u>Course Objectives:</u></b>			
<ul style="list-style-type: none"><li>• Describe the concept of applied or industrial metrology;</li><li>• Justify the needs of metrology in manufacturing industry;</li><li>• Classify major types of measurement methods and measuring instruments used for industrial metrology</li><li>• Perform measurements of various parameters through the use of metrological instruments.</li></ul>			
<b><u>Target Audience:</u></b>			
<ul style="list-style-type: none"><li>• Technicians, Supervisors, Quality Practitioners, Quality Inspectors, Metrologists, Technologists, Engineers, Instructors, Trainers and Lecturers.</li></ul>			
<b>Course Duration :</b>		<b>Min : 3 days, Max : 5 days</b>	
<b>Course Contents :</b>			
<b>No</b>	<b>TOPICS</b>		
1	Definition and Applications of Metrology		
2	Measurement Underlies Human Activities		
3	The Importance of Metrology in Manufacturing Industry		

UniKL MSI can also customize existing short courses and develop new courses to meet your personal training needs and requirements. The course duration serves as a guideline for your reference.

Please forward enquiries to Centre for Advancement & Continuing Education (ACE), University Kuala Lumpur (Malaysian Spanish Institute), Kulim Hi-Tech Park, 09000 Kulim, Kedah or via fax to:04-4032539 or email to [syazrah@unikl.edu.my](mailto:syazrah@unikl.edu.my) or call 04-4035199 / 200 (ext:112 / 185)



(The contents and other related details in this form is used for publication purpose only. Training module will be given to participants upon registration)

4	Standard System of Measurement
5	Geometric Dimensioning & Tolerancing (GD&T)
6	Classification of Measurement Methods and Measuring Instruments
7	Dimensional Metrology
8	Measurement with Scaled Instruments
9	Measurement with Gauging Devices
10	Optical Metrology
11	Surface Finish Measurement
12	Measurement through Coordinate Measuring Machine (CMM)
13	Measurement System Analysis (MSA) and Gauge Repeatability & Reproducibility (GR&R)
<b>No</b>	<b>TOPICS (Lab Works/Practical Exercises)</b>
1	Exercise 1: The Concept of Metrology
2	Exercise 2: Measurement Units and Standard System
3	Exercise 3: Accuracy vs. Precision
4	Group Practical Exercise 1: Metrological Activities at Workplace
5	Exercise 4: The Standard Symbols of GD&T System
6	Lab Work 1: Vernier Caliper Reading
7	Lab Work 2: Micrometer Reading
8	Lab Work 3: Bevel Protractor Reading
9	Lab Work 4: Linear Measurement with Vernier Caliper
10	Lab Work 5: Linear Measurement with Micrometer
11	Lab Work 6: Linear Measurement with Height Gauges

UniKL MSI can also customize existing short courses and develop new courses to meet your personal training needs and requirements. The course duration serves as a guideline for your reference.

Please forward enquiries to Centre for Advancement & Continuing Education (ACE), University Kuala Lumpur (Malaysian Spanish Institute), Kulim Hi-Tech Park, 09000 Kulim, Kedah or via fax to:04-4032539 or email to [syazrah@unikl.edu.my](mailto:syazrah@unikl.edu.my) or call 04-4035199 / 200 (ext:112 / 185)



**UNIVERSITI KUALA LUMPUR**  
MALAYSIAN SPANISH INSTITUTE

(The contents and other related details in this form is used for publication purpose only. Training module will be given to participants upon registration)

12	Lab Work 7: Angular Measurement with Universal Bevel Protractor
13	Lab Work 8: Angular Measurement through Sine Bar Method
14	Group Practical Exercise 2: Industry-specific Gauging Devices
15	Lab Work 9: Form Measurement through Profile Projector
16	Lab Work 10: Form Measurement through Contracer
17	Lab Work 11: Surface Finish Measurement 1
18	Lab Work 12: Surface Finish Measurement 2
19	Lab Work 13: Measurement through CMM 1
20	Lab Work 14: Measurement through CMM 2
21	Exercise 5: Selection of Measuring Instruments
22	Exercise 6: MSA through the use of GR&R
<b>COURSE STRUCTURE:</b>	
Practical :	60%
Theory :	40%

*UniKL MSI can also customize existing short courses and develop new courses to meet your personal training needs and requirements. The course duration serves as a guideline for your reference.*

*Please forward enquiries to Centre for Advancement & Continuing Education (ACE), University Kuala Lumpur (Malaysian Spanish Institute), Kulim Hi-Tech Park, 09000 Kulim, Kedah or via fax to:04-4032539 or email to [syazrah@unikl.edu.my](mailto:syazrah@unikl.edu.my) or call 04-4035199 / 200 (ext:112 / 185)*