



Register online
today!

AUKOM Level 1 Certification Training by ZEISS

Global Training Standard for Production
Measurement Technology

27 - 31 August 2018, Mon - Fri
ZEISS Metrology Centre
Level 1, 50 Kaki Bukit Place
Singapore 415926
[> Click for map](#)



Content



AUKOM Level 1

Target group: Production metrologists

Prerequisites: None

Learning aims: The seminar lays and consolidates basic knowledge of production metrology for beginners and advanced metrologists. The didactic approach used in the seminar is based on the latest findings. The seminar covers the latest knowledge regarding dimensional tolerancing, programming basics, measurement process planning and the machine and sensor technology used. The enhanced understanding of measuring jobs and influencing parameters enables measuring technicians to reduce measuring uncertainties and thus to make measurement results more reliable and easier to compare. The minimization of costs and waste is supported.

Duration of course: 5 days, depending on previous level of knowledge

Completion: Exam, certificate



1-1 Units

SI Units, incl. Definition and History, Base Quantities, Derived Quantities, Prefixes of Units, Angles, Conversion Degrees \leftrightarrow Radian, Conventional Measuring and Test Equipment

1-2 Coordinate Systems

(Mathematical) Drawing Plane, Origin, Cartesian Coordinates, Right-Hand Rule, Translation and Rotation, Polar Coordinates, Cylindrical and Spherical Coordinate System

1-3 Coordinate Measuring Machines

History of CMMs, Cantilever/ Bridge/ Column/ Gantry Types, Differences in the Types, Axis Guide, Measuring Computer and Software, Work Holding Fixture, Accuracy of Coordinate Measuring Machines, CAA Correction, Form Measuring Machines

1-4 Sensors

Sensor Selection, Stylus System, Stylus, Optical Sensors, Image Processing, Laser Triangulation

1-5 Basic Definitions

Drawing Entries (Dimensions, Tolerance Symbols), Standard Reference, Differences Nominal Element - Real Element - Extracted Element - Associated Element, Free Form Surfaces

1-6 Dimensional Tolerance

Dimensional Tolerances, Taylor's Principle, Standards, Symbols and Drawing Entries, Length Dimensions, Angular Dimensions, Limiting Dimensions and Fits, ISO Fitting/Mating System, Common Tolerances

1-7 Geometric Elements

Standard Form Elements: Plane/ Cylinder/ Cone/ Sphere/ Line/ Circle/ Point/ Ellipse, Vector, Normal Vector, Minimum Number of Points, Projection

1-8 Geometric Constructions

Calculation of Characteristics Out of Two Geometrical Features (Distance, Angle), Calculation of Features Out of Two Geometrical Features (Intersection, Symmetry), Calculation of New Features Out of Some Geometrical Features (Construction)

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1-9 Preparing a Measurement on the CMM

Standardized Temperature, Part Cleaning, Temperature Control, Fixturing, (Avoiding Distortion), Fixturing Systems, CMM and Software Startup

1-10 Stylus Selection and Qualification

Stylus System Selection, Stylus Qualification, Reference Sphere, Reference Stylus, Stylus Sphere Radius Correction, Stylus Tip Bending Correction, Mechanical Filter Effect of the Stylus, Errors of Incorrect Qualification

1-11 Measuring Using Coordinate Measuring Machines

Determining Part Coordinate System, Difference to Control Coordinate System, Manual and Automatic Alignment, Probing, References, Consequences of Collisions, Number of Probing Points and Their Distribution, Influences on Measuring Result

1-12 Evaluation of Measurement and Statistics

Importance of Statistical Parameters, Outliers, Scattering, Histogram Representation, Compensation Methods, Influences on Measuring Result

1-13 Inspection Planning

Completely Defined Characteristic, Purpose of the Measurement, Production of Workpiece, Function of Workpiece, Feature Description, Manufacturing Methods and Accuracies, Shape Deviations, Uncertainty Effects, Awareness of Measuring Uncertainty, Inspection Planning, Identifying Measuring Features

1-14 Documentation and Quality Management

Measurement Reports, Quality Control Charts, Cooperation Between Design - Production - Testing, Reproducible and Clear Measurement Documentation, Measuring Strategy Documentation

Course Fees at Introductory Prices

Early Bird (Before 3 August 2018): SGD 1,370.00/pax

Normal Rate: SGD 1,520.00/ pax (Usual price: SGD 1,790.00)

Fees include course materials, lunch and coffee breaks across all days.

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AUKOM is the global training standard for production measurement technology.

Find out more about AUKOM at

www.aukom.info/en.html

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Why AUKOM training? What is it?

Coordinate measuring technology is an integral part of industrial quality assurance. Your application requires knowledge of the machines and measuring technology, as well as a basic understanding of math and physics. This is where the AUKOM training concept comes into play. It conveys extensive knowledge about the machines and analysing the results, physical and mathematical calculations, and basic information on key standards.

All seminars are facilitated by qualified, vetted trainers. All trainers update their knowledge on a regular basis and are at the cutting edge of technology. Only AUKOM-approved educational institutions and organisations, like ZEISS, offer the training program in strict accordance with the AUKOM standard.

How does it benefit me?

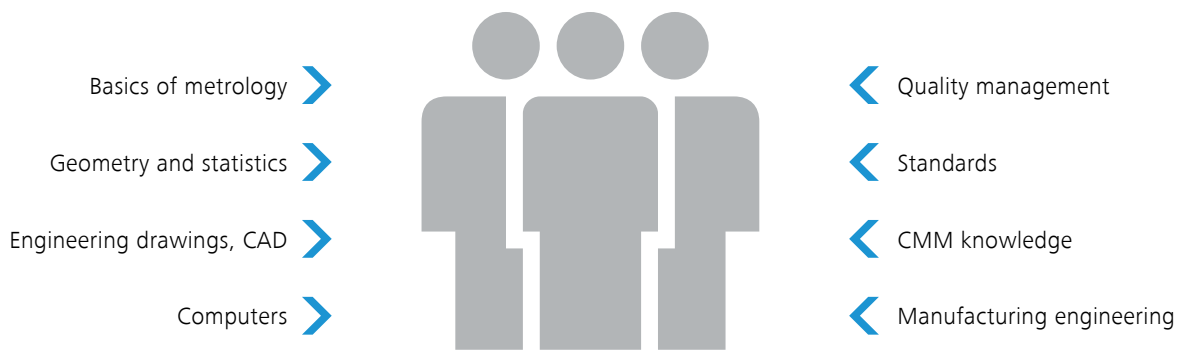
AUKOM training gives you the opportunity to increase your knowledge and to improve your measuring skills. You learn standardized methods of entire measuring runs and receive in-depth training in all aspects of coordinate measuring technology. The multi-level, modular design of the courses enables you to obtain standardized knowledge and to enhance trust in your own measuring results.

Who is AUKOM for? What will I receive at the end of the training?

AUKOM training can benefit Production Metrologists, QA Managers, Design Engineers and CMM Operators. At the end of the training, all participants will undergo an examination based on the topics learnt. Participants who pass the examination will receive an official and accepted certificate from ZEISS Germany for successful completion of the AUKOM training.

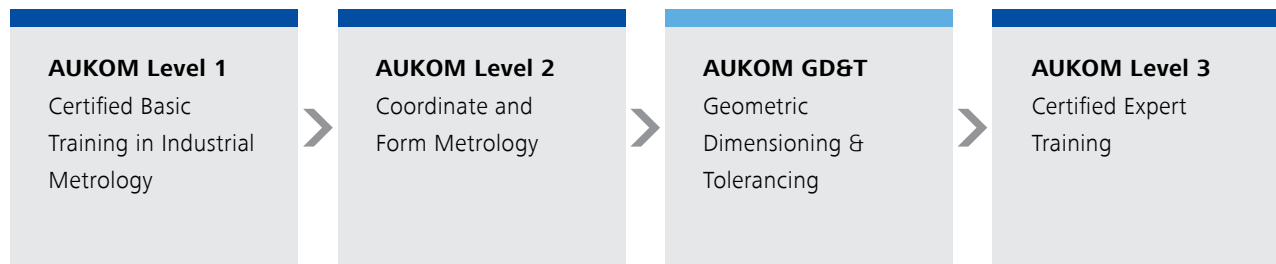


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AUKOM Structure

The entire AUKOM training is divided into 3 standard levels, with 2 other AUKOM specialties available upon request. Following successful completion, all seminars offered include a certificate for each participant.



1. AUKOM Level 1

Target group: Production metrologists

Completion: Exam, certificate

2. AUKOM Level 2

Target group: Production metrologists

Prerequisite: Completion of Level 1 Basic

Completion: Exam, certificate

3. AUKOM GD&T

Target group: Precision engineers, manufacturing engineers, developers, designers, QA manager

Prerequisite: For production metrologists: AUKOM 2 certificate recommended; For other target groups: None

Completion: Certificate

4. AUKOM Level 3

Target group: Production metrologists

Prerequisite: Completion of Level 2 CMT, AUKOM GD&T

Completion: Exam, Certificate

Optional supplement: AUKOM MW

Target group: Managers

Completion: Certificate