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**ZEISS Software Courses:
Training Catalogue**
Southeast Asia

Version: 2017-02



ZEISS Software Courses

Training Catalogue for Software Course

- CALYPSO Basic
- CALYPSO Workshop
- CALYPSO Advanced
- CALYPSO CURVE
- GEAR PRO
- ZEISS Certified GD&T: Theory
- ZEISS Certified GD&T: Application
- Prerequisites for CMM Metrology
- CMM Measurement Strategies
- Lunch & Learn
- CMM User Workshop
- Cookbook: Measuring Strategies



Training takes place in our competence centres and is tailored to your needs – your machine and your sensor configuration (e.g. contact, scanning, optical, laser, CT). Our global training concept ensures standardized content. Customized, on-site training is also available upon request. Contact us to discuss what type of training best fits your requirements. Trained application engineers with a wealth of experience give you a supervised opportunity to gain knowledge and practise what you have learned, using work pieces with a variety of measuring tasks.

All courses come with post-assessments, certifications and complimentary access to CALYPSO Forum for E-Learning.

For latest course dates, registration and more information, please visit www.zeiss.com.sg/imt

The courses below can be scheduled upon request. Please contact your nearest local ZEISS office for more details.

CALYPSO Options

- CURVE (for 2D & 3D curve profiles)
- PCM
- FlexReport
- GEAR PRO Involute
- GEAR PRO Bevel
- BLADE PRO
- Freeform
- Offline Programming (Planner+Simulation)
- QS-Stat
- Reverse Engineering

CALYPSO Training + Hardware:

- CALYPSO ViScan
- CALYPSO LineScan
- CALYPSO O-INSPECT
- CALYPSO Rotary Table
- CALYPSO Rotary Table + GEAR PRO Involute
- CALYPSO Rotary Table + GEAR PRO Bevel

HOLOS & CALIGO Training:

- HOLOS Light + Extended
- HOLOS Light + Extended + Digitizing
- HOLOS NT Light and GEO
- CALIGO 1 Basic
- CALIGO 2 Advanced



Course Descriptions

CALYPSO Basic

Course Outline

This hands-on course covers the fundamental basics of operating a ZEISS CMM with CALYPSO as a CAD-based measuring software including the aspects of Probe Qualification, Part Alignment, Measuring Strategies, CNC Concepts and CNC Runs, Basic Evaluations from the given part drawings, Report Generation, etc.

Course Content:

- Introduction to the CMM and Hardware
- CALYPSO Overview
- Stylus Qualification
- Base Alignment of Part
- Understanding Features and Characteristics
- Simple Measuring Strategies
- Using Scanning in Features
- Output and Report Generation
- Editing Characteristics and Features
- Executing CNC Runs

Courses Prerequisites:

- Understanding of engineering drawings
- General manufacturing inspection process
- Basic knowledge of metrology
- GD&T knowledge is an added advantage
- Operating in a Windows PC environment

Venue: ZEISS Industrial Metrology Competence Centre

Duration: 3 days (Varies per country)

Registration: www.zeiss.com.sg/imt or info.metrology.sg@zeiss.com

**On-site training available upon request*

Course Descriptions

CALYPSO Workshop

Course Outline

This course serves as a follow-up to the CALYPSO Basic course. In this training, specific user challenges are discussed and resolved.

Course Content:

- Refer to CALYPSO Basic Course Topics
- Troubleshoot Discussions on User Challenges

Courses Prerequisites:

- Refer to CALYPSO Basic Course Prerequisites

Venue: ZEISS Industrial Metrology Competence Centre

Duration: 1 day (Varies per country)

Registration: www.zeiss.com.sg/imt or info.metrology.sg@zeiss.com

**On-site training available upon request*

CALYPSO Advanced

Course Outline

This hands-on course covers additional CALYPSO functions for more comprehensive and effective part programming requirements.

Course Content:

- CALYPSO Basic Recap and Practical Usage
- Extended Programming Functions
- Measuring Methods
 - Gauss
 - Minimum
 - Tangential Elements
 - Filter and Outliers
 - Different Scanning Procedures
 - Scanning with Unknown Contour
 - Scanning with 2 Styli
 - Point Masking in Open Scanning Paths
 - Self-centre Probing
 - Park Position
 - Missing Bore
- Automation Interface
- Coordinate Systems

Courses Prerequisites:

- Understanding of engineering drawings
- General manufacturing inspection process
- Basic knowledge of metrology
- GD&T knowledge is an added advantage
- Operating in a Windows PC environment
- Attended CALYPSO Basic Training
- 250 hours of extensive CALYPSO usage within 2 months after attending the Basic Training

Venue: ZEISS Industrial Metrology Competence Centre

Duration: 3 days (Varies per country)

Registration: www.zeiss.com.sg/imt or info.metrology.sg@zeiss.com

**On-site training available upon request*

CALYPSO CURVE

Course Outline

This course provides additional CALYPSO functions and the knowledge to define and measure free-form profiles based on CAD models, bulleted lists or formulae.

Course Content:

- Normal Direction
- Definition and Representation
- Producing Nominal Values
- Importing Nominal
- Digitizing
- Edit Nominal Points
- Reading in ASCII Data
- Transferring ASCII Data Into the CNC
- Exporting Data
- Saving CNC Curve Data Into the File
- Curve and Line Form Characteristics
- Maximum/Minimum Curve Point in Axel Direction
- Symmetry Curve
- Curve Length and Surface Area of a Curve

Courses Prerequisites:

- Understanding of engineering drawings
- General manufacturing inspection process
- Basic knowledge of metrology
- GD&T knowledge is an added advantage
- Operating in a Windows PC environment
- Attended CALYPSO Basic Training
- 250 hours of extensive CALYPSO usage within 2 months after attending the Basic Training
- Ability to read the training manual (English version)

Venue: ZEISS Industrial Metrology Competence Centre

Duration: 2 days (Varies per country)

Registration: www.zeiss.com.sg/imt or info.metrology.sg@zeiss.com

**On-site training available upon request*

Course Descriptions

GEAR PRO Involute

Course Outline

This course provides the knowledge about measuring strategies for inspecting involute gears using coordinate measuring machines. This training is designed for personnel whose work requires them to either communicate, interpret for inspection.

Course Content:

- Introduction to Gear Measurement
- Types of Gear
- Gear Terminology
- Tooth Proportions
- Preparing a Measurement
- Generating Nominal Data
- Defining Measuring Run
- Setting Up of Tolerance
- Determining the Presentation
- Evaluation Methods

Courses Prerequisites:

- Understanding of engineering drawings
- General manufacturing inspection process
- Basic knowledge of metrology
- GD&T knowledge is an added advantage
- Operating in a Windows PC environment
- Attended CALYPSO Basic Training
- 250 hours of extensive CALYPSO usage within 2 months after attending the Basic Training
- Ability to read the training manual (English version)

Venue: ZEISS Industrial Metrology Competence Centre

Duration: 2 days (Varies per country)

Registration: www.zeiss.com.sg/imt or info.metrology.sg@zeiss.com

**On-site training available upon request*

ZEISS Certified GD&T: Theory

Course Outline

This theoretical course covers the basic theory on GD&T principles and fundamentals of reading a drawing based on GD&T principles.

Course Content:

- Dimensioning Rules
- Properties of the Surfaces
- Geometric Deviations
- Type of Dimension
- Principles for Tolerancing
- Envelope Principle
- GD&T Symbols
- Interpretation of GD&T
- Datum Reference
- Orientation Tolerances
- Location Tolerances
- Run-out
- Profile

Courses Prerequisites:

- Understanding of engineering drawings
- General manufacturing inspection process
- Experience working in manufacturing industry

Venue: ZEISS Industrial Metrology Competence Centre

Duration: 2 or 3 days (Varies per country)

Registration: www.zeiss.com.sg/imt or info.metrology.sg@zeiss.com

**On-site training available upon request*

ZEISS Certified GD&T: Application

Course Outline

This application course training covers topic like how to apply ZEISS CALYPSO software to measuring the GD&T symbols.

Course Content:

- Evaluation Setting of CMMs for GD&T
- Measuring Form Deviations
- Measuring Orientation Deviations
- Normal Alignments vs. Datum Reference
- Frame Measuring
- Location Deviations
- Measuring Profile Deviations
- Measuring Run-out Exercises

Courses Prerequisites:

- Attended CALYPSO Advanced Training
- Experienced CALYPSO software user

Venue: ZEISS Industrial Metrology Competence Centre

Duration: 2 or 3 days (Varies per country)

Registration: www.zeiss.com.sg/imt or info.metrology.sg@zeiss.com

**On-site training available upon request*

Course Descriptions

Prerequisites for CMM Metrology

Course Outline

This course provides the concepts of metrology basics, units, traceability, including the basic of how to read engineering drawings.

Course Content:

- Engineering Metrology
- Terms and Definition
- Units, Length and Angle
- Coordinate Systems
- Geometric Features (Overview)
- Engineering Drawing
- Pictorial Communication
- Presentation of Engineering Drawing
- Projections Angle
- Line Types
- Fundamental Rules
- Full Understanding of Drawing

Venue: ZEISS Industrial Metrology Competence Centre

Duration: 2 days (Varies per country)

Registration: www.zeiss.com.sg/imt or info.metrology.sg@zeiss.com

**On-site training available upon request*

CMM Measurement Strategies

Course Outline

This course provides the knowledge about measuring strategies and the measuring evaluation for inspecting complex parts using coordinate measuring machines. This is designed for those whose work requires them to either communicate, interpret for inspection.

Course Content:

- CMM Configuration
- Reliability of Measurements
- Principle of Coordinate Metrology
- Interpretation of the Measurement Results
- Geometric Deviations
- Principles for Tolerancing
- Prerequisites for Good Metrology
- CMM Measurement Strategies
- Selection of the Features to Be Measured
- Probing Strategies
- Evaluation Methods
- Workpiece Coordinate System / Theory & Interpretation
- Stylus System Selection
- Interpretation of the Stylus Qualification Results
- Sources of Uncertainty
- Reduction of Measuring Uncertainty

Courses Prerequisites:

- Understanding of engineering drawings
- General manufacturing inspection process
- Basic knowledge of metrology
- GD&T knowledge is an added advantage
- Operating in a Windows PC environment
- Attended CALYPSO Basic Training
- 250 hours of extensive CALYPSO usage within 2 months after attending the Basic Training
- Ability to read the training manual (English version)

Venue: ZEISS Industrial Metrology Competence Centre

Duration: 2 days (Varies per country)

Registration: www.zeiss.com.sg/imt or info.metrology.sg@zeiss.com

**On-site training available upon request*

Lunch & Learn

Course Outline

This half-day course aims to quickly but thoroughly share knowledge on various techniques, theory; and later on apply them during immersive hands-on workshops.

Course Content:

- Scanning Techniques: Plane, Circle, Line, Cylinder
- Filters and Outliers: Filter Method, Types of Filter
- Recommended Settings
- Application on CALYPSO Using VAST XTR
- Hands-On Exercise
- Demo on GEAR PRO
- Lunch
- Demo on LineScan

Venue: ZEISS Industrial Metrology Competence Centre

Duration: Half day (Varies per country)

Registration: www.zeiss.com.sg/imt or info.metrology.sg@zeiss.com

**On-site training available upon request*

Course Descriptions

CMM User Workshop

Course Outline

After this workshop, participants would be able to produce clear and professional reports of measurement results.

Course Content:

- Overview of the Measured Value Display Options
- Default Printout and Custom Printout
- User Defined Printout
- Protocol Header Editor
- Characteristic Editor
- PiWeb Introduction
- Create and Use General Templates
- Design and Manage Templates for Specific Measuring Plans
- Integration in CALYPSO
- Create Diagrams for Follow-up
- Create Images for Further Analysis
- Connect CAD Models and Images to Reports
- Database Management

Venue: ZEISS Industrial Metrology Competence Centre

Duration: 1 day (Varies per country)

Registration: www.zeiss.com.sg/imt or info.metrology.sg@zeiss.com

**On-site training available upon request*

Cookbook: Measurement Strategies

Course Outline

This course covers some of the most common measuring tasks (as evaluated in a study by the ZEISS Global Application Knowledge Group). The strategies are based on ISO and ASME standards. The training is focused on building a solid foundation, called “recipes” with the aim of accurate, comparable and efficient measurement strategies on touch probe CMMs.

Course Content:

- Basic Measuring Strategies
- Stylus System Selection
- Scanning Strategies
- Evaluation Selection
- Functional Check & Process Control Strategies
- Base Alignment Strategies
- Basic Dimensional and GD&T Strategies (ISO/ASME)
- Reporting and Plots

Courses Prerequisites:

- Understanding of engineering drawings
- General manufacturing inspection process
- Basic knowledge of metrology
- GD&T knowledge is an added advantage
- Operating in a Windows PC environment
- 120 hours of extensive CALYPSO usage

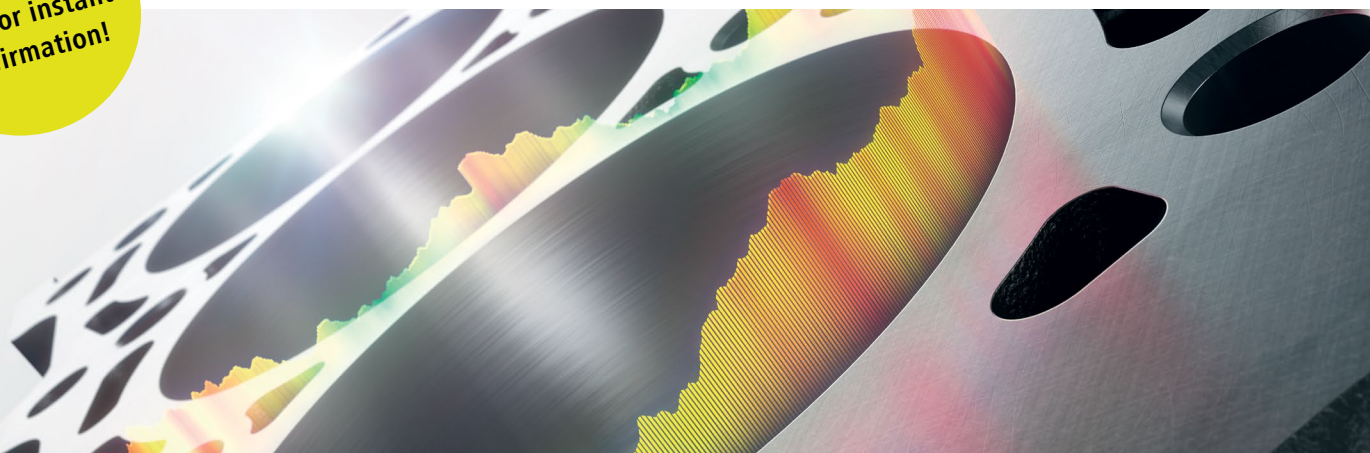
Venue: ZEISS Industrial Metrology Competence Centre

Duration: 1 (Varies per country)

Registration: www.zeiss.com.sg/imt or info.metrology.sg@zeiss.com

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ZEISS Competence Centres Around Southeast Asia

ZEISS Competence Centres are state-of-the-art and comprehensive technical centres, with facilities and systems that can be made available to the public. Dedicated to the sharing of technological innovation, they are equipped with the latest systems and technologies from ZEISS Industrial Metrology and Microscopy to support our customers in their work and ambitions.

There are currently four ZEISS Competence Centres spread across Southeast Asia - Singapore, Malaysia, Indonesia and Thailand.

The Competence Centres offer services that include, but are not limited to:

- The use of Coordinate Measuring Machines, Optical Measuring Machines, Latest Sensor Technology, Fixture Systems, Particle Analyzer Systems, Non-contact Roughness Measurement, Metallurgical Microscopes and more
- Training courses that combine both theoretical knowledge and hands-on practice; conducted by application engineers from ZEISS
- Metrology and microscopy seminars



Chonburi, Thailand

[> Map](#)



Kaki Bukit, Singapore

[> Map](#)



German-Malaysian Institute, Kajang, Malaysia

[> Map](#)



Bekasi, West Java, Indonesia

[> Map](#)



ZEISS Industrial Metrology

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