The Kalkitech DLMS / COSEM training program is instructor-led and includes demonstrations and hands-on labs for students. The class is designed for individuals with a technical background in the power metering domain, and it provides a strong foundation for those deploying projects or developing applications using the DLMS protocol.

**ABOUT DLMS / COSEM**

Device Language Message Specification (DLMS) and its companion specification, Companion Specification for Energy Metering (COSEM), is a suite of standards developed for advanced metering communications. With interoperability and reliability becoming key metrics in metering communications, the importance of DLMS / COSEM has grown and it has become the most popular open standard in metering. This standard is used in more than 50 countries across the world. IEC 62056 DLMS / COSEM is the only truly global, multi-energy and multi-media standard, with continued development and maintenance of the standards by the DLMS User Associations and its co-option as part of the IEC 62056 protocol standard.

**KALKITECH & DLMS TRAINING**

- Kalkitech, a leader in DLMS / COSEM solutions, has designed these courses to address the DLMS/COSEM learning needs of professionals at utilities as well as meter, communication and software suppliers in the advanced metering space.
- Kalkitech has been actively participating in global standardization efforts and is a technical consultant to various country specific companion standard definition projects. We have successfully completed over 50 trainings/workshops for utilities, test laboratories and meter manufacturers in about 25 countries on DLMS protocol, integration of DLMS in products.
- Starting with the fundamentals, the training covers intermediate and advanced topics as well OBIS specifications, COSEM HDLC layers, conformance testing and companion specifications relevant to geography.
- The training program includes demonstrations and hands-on labs with various DLMS / COSEM engineering tools like ASE DLMS Meter Explorer and other testing tools / simulators. It covers application of the protocol in AMR / AMI architectures and in meter data management.

- Training provided to OEMs, utilities and educational institutes for more than 10 years across the world including countries including
  - Australia
  - Austria
  - China
  - India
  - Italy
  - Malaysia
  - Russia
  - Singapore
  - South Korea
  - United Kingdom
  - United States
  - Russia
  - Singapore
  - South Korea
  - United Kingdom
  - United States

**WHO SHOULD ATTEND**

This training is designed to assist individuals involved in development and implementation of DLMS / COSEM in AMR / AMI projects and in metering products. It is intended for, but not limited to, engineers and technical staff involved in design, configuration, installation and maintenance of metering products and systems, using IEC 62056 DLMS / COSEM.

- Utility Engineers
- System Integrators
- Meter Manufacturers
- AMR / AMI equipment manufacturers
- Consultants
- Maintenance Staff
- System Designers

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FUNDAMENTALS OF DLMS / COSEM

This 2-day training class is a combination of theory and practical topics to ensure students get a chance to experience and experiment what they learn. Software-based simulation of meters and meter reading applications will be used to setup the hands-on test bed. This course covers all the key concepts of DLMS.

- Introduction to DLMS protocol and the DLMS User Association
- Object modeling concepts employed in DLMS – Interface classes and objects
  - Interface classes for parameters and measurement data
  - Interface class for access control, management and security
  - Interface class for time and event bound control
  - Clock, Script table, Activity calendar, special days table, tariffication modeling example, single action schedule, billing modeling example, firmware scheduled activation
  - Register monitor, Limiter, Disconnect control, Push setup (scheduled data push, event/alarm notification), Communication channel setup interface class
- OBIS specification, relationship with IC
  - Standard, Country and manufacturer codes
- Messaging and transporting layer for COSEM Objects
  - COSEM application layer
  - HDLC data link layer
  - Wrapper for IP networks
- Security suites used in DLMS
- Country specific companions and certification procedures
- Introduction to ASE DLMS Meter Explorer – simulator and test tool for testing your meters
- Introduction to DLMS Meter Explorer simulator – a windows tool that simulates the communication interface of a DLMS meter.
- Interpreting and analyzing a DLMS packets and frames.

ADVANCED DLMS / COSEM TRAINING

Kalkitech offers two classes for students who have completed the Fundamentals of DLMS / COSEM class; both of these are one-day offerings.

Implementing DLMS

This optional class is intended for OEMs and developers planning to implement the DLMS protocol in their devices and applications and is offered to students who have completed the Fundamentals of DLMS / COSEM training class.

This course provides an overview of the DLMS protocol stack and implementation guidelines. This is a more interactive class where our experts work directly with developers to explain and discuss various practical issues of implementations and industrial best practices. Also, this session provides a detailed introduction to the Kalkitech DLMS protocol stack and implementation procedures.

DLMS Conformance Certification

This add-on class is primarily intended for test houses setting up DLMS compliance for country-specific companion standards. The program includes

- Case studies of companion standard and scope of test houses in testing companion standard
- Typical test cases to be considered for a companion standards
- General concerns on testing the standard.
- Custom tool requirement for automating the tests
- Verification of results

REASONS TO JOIN US!

Real-world training with introductory and advanced techniques delivered by our DLMS / COSEM experts

Introduction to Kalkitech’s ASE DLMS Meter Explorer and Meter Simulator covering its use as a simulation and test tool suite

Demonstration of DLMS server and client interface and exchange of information

Introduction to DLMS specification and country-specific companion standards

Concepts of Security and Encryption techniques explained from a practical and implementation perspective

Increases inhouse knowledge and expertise to help deploy/build new services and products

Tailormade class content and add-on options to meet a wide range of training requirements

GLOBAL KALKITECH AND ASE LOCATIONS

Kalkitech offers training at its offices or at customer locations. The two advanced courses can be customized to address specific topics, country requirements, etc. To request more information and a quote, please send email to sales@kalkitech.com and indicate the training course(s) you are interested in, requested venue and dates for the class and number of participants expected.