



# CLS Certification Preparation Class



Specialist training...  
unlike any course you  
have ever taken!

## A&S International provides specialist training in lubrication qualifications delivering an exceptional learning experience for professionals within industry

A&S International Training delivers a range of specialist lubricant preparation classes, including for the STLE CLS and ICML MLE qualifications – delivering an exceptional learning experience for lubrication & maintenance personnel.

Members of our team have continuously invested significant time in gaining their industry qualifications throughout their careers. It has enabled them to utilise the knowledge & confidence gained in order to provide specialist support for our distributor network as well as our clients in many areas of industry.

We strongly believe in the power of knowledge, self-improvement & the importance of industrial organisations investing in the training of their personnel – allowing them to reduce the maintenance & operating costs of their operations due to the implementation of best practices.

As well as offering our own lubrication basics training, we are proud to also be working with a well respected instructor Michael Holloway to deliver exam preparation classes for ICML and STLE qualifications.

### Who is the course for?

Lubricant Engineers  
Lubricant Consultants  
Lubricant Manufacturers / Distribution Partners  
Lubricant Purchasing Staff  
Maintenance Managers/Engineers  
Industrial & Manufacturing Engineers  
Oil Condition Monitoring Staff  
Operations Managers  
Predictive Maintenance Technicians  
Reliability Engineers/Managers



### What is a Certified Lubrication Specialist (CLS)?

Certified Lubrication Specialist (CLS) verifies broad lubrication engineering knowledge. Certification recognizes those individuals who possess current knowledge of lubrication fundamentals and best practices in lubrication maintenance in industrial settings. Certified individuals must have at least three years of experience in the field of lubrication.

A Certified Lubrication Specialist is an individual who is designated as a “Lubrication Engineer” by his/her employer. However, it is not limited to this designation, as individuals from varied backgrounds, including sales and management, opt to become CLS certified to increase their credibility/standards.

### Core Responsibilities

A Certified Lubrication Specialist’s core responsibilities including evaluating and selecting lubricants to use and their purchases, conducts lube surveys, trains lubricators and assembles work lists, develops quality assurance and used lubricant analysis programmes, troubleshoots and problem solves lubrication issues, maintains records of all applications, as well as waste collection or disposal.

It should be noted that the requirements for taking the CLS Exam Qualification is a minimum of three years experience working in the field of lubrication



# A&S International, CLS Certification Preparation Class

This 4-day course provides expert content and instruction to prepare for the Society of Tribologists and Lubrication Engineers (STLE) Certified Lubrication Specialist (CLS) exam.

## Course Outline:

### Day 1 8am - 5pm

Baseline Exam

- 1 Introduction
  - 2 LUBRICANT MANUFACTURING
  - 3 BEARINGS
- Practice Questions

### Day 2 8am - 5pm

- 4 GEARS
  - 5 FLUID POWER
  - 6 FLUID CONDUCTORS
  - 7 PNEUMATICS
- Practice Questions

### Day 3 8am - 5pm

- 8 TRANSPORTATION LUBRICATION
  - 9 LUBRICANT CONSUMPTION
  - 10 FLUID ANALYSIS
- Practice Questions

### Day 4 8am - 5pm

- 11 STORAGE, HANDLING AND APPLICATION
  - 12 METALWORKING
  - 13 Solvents & Cleaners
  - 14 Lubricant Programmes
- Practice Questions & Review Practice Exam

### Day 5 8am - 11:30am

- 15 CLS Examination (optional)

## CLS Course Details & Fee

Expert 4-Day Instruction including training study material, refreshments and lunch. End of course Certification.

Held at [Sheraton Heathrow Hotel](#), London, UB7 0HJ

**Course Fee: £1,500.00 + VAT**

Group discounts available on request

Visit:

[aands.international/training/stle-cla-training/](http://aands.international/training/stle-cla-training/) for available course dates

## CLS Examination (optional)

Participants interested in taking the CLS exam need to register separately with STLE. Details can be found on the A&S website

## Becoming CLS Certified

CLS certification is obtained by scoring 70% or higher on the designated exam that standardizes the body of knowledge for a Certified Lubrication Specialist. Certification is valid for three years, after which you are required to recertify to maintain their CLS status.

## World leading Instructor

Michael D. Holloway, CRL, LLA (I, II), MLT (I, II), MLA (I, II, III), OMA, CLS, MLE has over 35 years' experience in the lubrication, analysis, and reliability industry. In 2014, Michael established 5th Order Industry that is now a world leader in competency development for certification preparation. He has written eight books, holds an MSc in Polymer Engineering, a BSc in Chemistry, and a BA in Philosophy.



## Specialist training methods

Michael established the 5th Order Industry Competency Development Model®, a learning system like no other in the industry. It is a cooperative argumentative dialogue between individuals and instructors of continuous asking and answering questions from the instructors as well as other students that stimulate critical thinking to draw out underlying presumptions in the world of lubrication, oil analysis, and overall reliability. Advances in neuroscience and learning pathways are utilized as participants prepare for the final exam as well as assignments that they will accomplish in and out of the course.





## CLS Certification Preparation Class

### Day 1 (Baseline Exam)

#### 1. INTRODUCTION

- Lubricant Functions
- Lubrication Regimes
- Lubricant Physical Properties
- Types of lubricants and their applications
- Friction Control
- Five Rights of Lubrication
- Oil Recommendations
- Moving parts of machines

#### 2. LUBRICANT MANUFACTURING

- Definitions
- Base Stock Refining
- Additives
- Grease Manufacturing

#### 3. BEARINGS

- Definitions
- Bearing Types
- Plain Bearing Lubrication
- Plain Bearing Failures
- Rolling Contact Bearing Lubrication
- Care and Handling of Bearings

CLS Exam Practice Questions on lubricant fundamentals, manufacturing, bearings

### Day 2

#### 4. GEARS

- Types of Gears
- Lubrication Methods
- Gear Failure Modes

#### 5. FLUID POWER

- Hydraulic Systems
- Pumps and Components
- Hydraulic Fluids
- Contamination Control

#### 6. FLUID CONDUCTORS

- Tubing
- Pipe
- Hose
- Fluid Flow

#### 7. PNEUMATICS

- Compressors
- Lubricants

CLS Exam Practice Questions on lubricant fundamentals, bearings, gears, and pneumatics

### Day 3

#### 8. TRANSPORTATION LUBRICATION

- Engine Oil Properties
  - Additives
  - Service Classifications
  - Synthetic Engine Oil
  - Maintenance and Components
  - Wear
  - Turbo-charged and Supercharged Engines
- Transmissions
- Marine, Railroad and Natural Gas Engines
- Grease, Gear Oil and Fuels

#### 9. LUBRICANT CONSUMPTION

- Five Rights of Lubrication
- Lubricant Surveys
- Failure Analysis
- Department Responsibilities
- How to avoid the 12 Most Common Lubrication Errors
- Monitoring and Reducing Consumption of Lubricants
- Reducing lubricant usage
- Recovering lubricant that may be wasted
- Reuse or recycle lubricants

#### 10. FLUID ANALYSIS

- Test Descriptions
- Oil Analysis Tests
- Wear Mechanisms
- Filtration
  - Parts of a Filter Element
  - Typical Dynamic Clearances
  - Component Clearance
  - Recommended Beta Ratio
- Seals
- Seal Types
  - Gaskets
  - O-Rings
  - Packing
- Shaft Size Recommended
- Seal Materials

CLS Exam Practice Questions on Transportation Lubricants, Consumption, Fluid Analysis

### Day 4

#### 11. STORAGE, HANDLING AND APPLICATION

- Storage
- Handling
- Application

#### 12. METALWORKING

- Metalworking Processes and Fluids
- Metalworking Fluid Composition
- Metalworking Operations
- Metal Machinability
- Machine Lubrication

#### 13. SOLVENTS & CLEANERS

- Properties
- Solvency
- Volatility
- Toxicity

#### 14. LUBRICANT PROGRAMMES

- Storage, Handling, & Application
- Problem Solving

CLS Practice Questions on storage, metalworking fluid, solvents and cleaners, lubricant programmes

- Review Practice Exam
- How to evaluate and select lubricants to use and purchase
- How to conduct lube surveys
- Training lubricators
- How to assemble a work list.
- How to develop quality assurance methods
- How to use lubricant analysis programmes
- How to troubleshoot and problem solve lubrication issues
- Maintain records of all applications
- Final CLS Exam Review – mock exam and review
- Test Taking Strategy

### Day 5

#### 15. CLS EXAMINATION (optional)



# Certified Lubrication Specialist (CLS) Course - REGISTRATION

NAME:

JOB TITLE:

COMPANY:

ADDRESS:

E-MAIL:

PHONE:

## TO REGISTER:

Call on 0118 930 4321

Online [aands.international/training/cls](http://aands.international/training/cls)

Complete form above and send to:

A&S International, 2 Brewery Court, High Street, Theale, RG7 5AH



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2 Brewery Court, High Street  
Theale, RG7 5AH  
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