

REGISTRATION FORM

Name & NRIC no. : _____
Course/Exam Code* : _____
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Course/Exam Code* : _____
Company: _____
Contact Person : _____
Address: _____

Postal Code: _____
Email : _____
Telephone: _____
Fax: _____

Please fill in the registration form and fax to 6566 7718, or e-mail to wonglk@setSCO.com before 6 Feb 2012.

All cheques should be made payable to “**SETSCO Services Pte Ltd**” together with the completed registration form to: SETSCO Services Pte Ltd, 18 Teban Garden Crescent, Singapore 608925 (Attention: Ms Wong Li Kien)

* Refer to TRAINING COURSE & CERTIFICATION EXAMINATION FEE STRUCTURE

For more information, please contact

Dr Arvind at 6895 0633

e-mail: arvind@setSCO.com

Or

Ms Wong at 6895 0626

e-mail: wonglk@setSCO.com

ABOUT THE COURSE ORGANISER

SETSCO Services Pte Ltd is one of Singapore's largest testing & Inspection companies accredited by the Singapore Accreditation Council (SAC). It offers a comprehensive range of testing, calibration, inspection, consultancy & training services to a wide spectrum of industries. We are also able to customize similar course(s) / in-house training to fit your organisation needs.

WHO SHOULD ATTEND?

All personnel who are responsible for carrying out, supervising, or inspecting, and/or in some manner involved in making decisions and exercising judgment concerning protective coating in the following industries: Construction, Manufacturing, Oil and Gas and Petrochemical Industries, Power Generation and Power Stations, Shipbuilding, Ship Repair, Offshore Fabrication, Railways, Metal Fabrication, Service, Maintenance and etc.

VENUE LOCATION



SETSCO Training Centre

Bus Services: 189 from Bukit Batok Interchange

Nearest MRT Station: Bukit Batok

PERFORM PROTECTIVE COATING INSPECTION (SPECIALISED) LEVEL II (PE-MP-315E-0)/ CERTIFIED COATING INSPECTOR LEVEL I/II
13th – 29th Feb 2012
(Monday to Friday, 6:00 pm to 9:30 pm)
WDA Assessment
6th- 9th March 2012 (6:00pm to 9:30pm)

90% Training Course Fee Funded by WDA

SWS ICAS CERTIFICATION – LEVEL I/II

Date to be notified

(8:30am to 5:00pm)

Training course proudly organized by SETSCO Services Pte Ltd under the Precision Engineering Workforce Skills Qualification (PE WSQ) programme

with Certification by

THE SINGAPORE WELDING SOCIETY under the **INTERNATIONAL COATING APPROVAL SCHEME (SWS ICAS)**

SETSCO Training Centre
18 Teban Gardens Crescent
Singapore 608925

PROUDLY ORGANIZED BY



COURSE CONTENT

1. Introduction to WSQ scheme & SWS ICAS Certification

2. Fundamentals of corrosion of steel

Cost of corrosion of steel to industry; mechanism of aqueous corrosion of steel, electrochemical principles, galvanic series of metals/alloys, atmospheric corrosion, TOW; corrosion control methods, corrosion allowance, alloying, barrier coating, sacrificial metallic coating, sacrificial protection by anode, conditioning the environment, proper design; factors controlling the corrosion rates; forms of corrosion; general, crevice, pitting

3. Surface preparation

Fundamentals of surface preparation, millscale, rust grades, wire brushing grades, flame cleaning grades, blast cleaning grades (BS 7079, ISO 8501 & SS-05-59-00); various surface pre-cleaning methods; types of blast cleaning methods; types of abrasives and their characteristics, factors controlling the profile during blast cleaning, cleanliness of abrasives, masking during blast cleaning, quantitative methods to assess the profile of blast cleaned surface, surface profile gauge, testex gauge, frequency of measurement (ASTM D4417); qualitative methods to assess the profile of blast cleaned surface, reference comparator (BS 7079 & ISO 8503); tests to assess the surface contamination; surface preparation for non-ferrous substrates; sweep blast; safety aspects during blast cleaning; safety aspects while working in enclosed area

4. Constituents of protective coatings

Characteristics of protective coatings; types of protective coatings; constituents of protective coatings; concept of solution, suspension and dispersion; pigments and their characteristics, hiding power of coating, fineness of pigment; types of polymers and their characteristics; types of binders and their characteristics; solvents & their characteristic, solvents and compatible binders, bleeding and solvent stripping;

properties of solvents affecting WSH, hazard warning symbol; monitoring toxicity of solvents; SDS; additives and their characteristics

5. Weather condition during surface preparation and coating application

Typical weather limits; dew point, relative humidity; monitoring of weather parameters; substrate moisture condition

6. Primer and types of primers

Functions of primers, wettability, PVC, CPVC, relationship between PVC and primer type, organic zinc rich primers, IZS, primers for non-ferrous substrates

7. Mixing, curing, pot life, shelf life and drying of protective coatings

Mixing of coatings, density and SG of coating; curing mechanisms; VOC; WFT measurement by comb gauge and eccentric wheel; DFT measurement by destructive and non-destructive methods, banana and digital gauge (ASTM D7091, Type 1 and 2), frequency of DFT measurement (ASTM D7091), DFT measurement for ballast tank (PSPC, IMO), tolerance for DFT measurement; pot life; shelf life; drying time, types of drying conditions, overcoating time; tests for drying time, Beck Koller Stylus test, Ballotini test

8. High performance protective coatings

Glass flake epoxy / polyester; polyurea; PVDF; under water epoxy; polysiloxane coatings

9. Water-borne coatings

Advantages and disadvantages; types of waterborne coatings, water soluble coatings, emulsions

10. Oil based paints

Types of drying oils and oil paints

11. Methods of coating application

Coating application by brush, roller, air spray, airless spray and electrostatic spray and their characteristics; coating application for powder coatings; other methods of coating applications; theoretical spread rate calculation; safety issues during airless spray

12. Coating faults

Types of coating faults and their characteristics; holidays, pinholes and their detection

13. Paint colours

Paint colours for building purpose (BS 4800); methods of colour identification, BS 4800, RAL colour system

14. Maintenance coating

Maintenance coating strategy, assessment of damaged coating prior to repair, repair procedure

15. Coatings for special applications

Coatings for high temperature substrates; damp surfaces; non-ferrous substrates

16. Protective coatings for structural steels

Various problems related to coating of structural steels

17. Protective coating characterisation

Tests for various properties of coating; viscosity, purpose of viscosity measurement, equipment for viscosity measurement, newtonian and non-newtonian fluids; viscosity by Ford cup number 4, viscosity conversion charts; adhesion tests, cross cut test, cross hatch test (ASTM D3359), dolly test (ASTM 4541); types of coating failures; accelerated tests; impact resistance test; abrasion resistance test; flexibility test; hardness test

18. Quality control and quality assurance

Quality control (QC) Vs quality assurance (QA), QC report; duties of Level II coating inspector; pre-job meeting; inspection procedure plan; contractor malpractices

WDA ASSESSMENT

LGA1 : Home Assignment on ENV & WSH regulations & Requirements Test

LGA2 : Coating Inspection I MCQ Theory Test (2 hrs)

LGA3 : Coating Inspection II Narrative Theory Test (3 hrs)

LGA4 : FA Practical Test + Report (1½ hrs) + FA Oral Questioning (½ hr) + FA Revisit/Review (½ hr)

Total Assessment Time : 7½ hrs

TRAINER'S PROFILE

Dr Arvind Suryavanshi holds a PhD Degree from the Corrosion and Protection Centre, Manchester University (formerly UMIST), England. He also holds a Masters Degree in Corrosion Science and Engineering from the Department of Metallurgical Engineering, Indian Institute of Technology (IIT), Mumbai, India. Dr Arvind is also a SWS ICAS Certified Level III Coating Inspector.

Dr Arvind has published numerous papers related to Corrosion Engineering in the International Journals. Dr Arvind is currently with Setsco Services Pte Ltd as Assistant Manager and formerly he was with Nanyang Technological University (NTU), Singapore.

ABOUT THE INTERNATIONAL COATING APPROVAL SCHEME (ICAS)

The ICAS, jointly developed in 2008 with Waugh Technical Services (UK), is a certification scheme of the Singapore Welding Society (SWS). The scheme is governed by the rules presented in the ICAS Requirements Document and advised by the ICAS Coatings Technical & Training Committee (CTTC) comprising internationally recognised coatings and corrosion experts. The Requirements Document and the CTTC Constitution & Terms of Reference can be viewed at the SWS web site, www.sws.org.sg

The objectives of the ICAS are:

- To qualify coating inspectors and coating operatives in the industrial and marine industries to a standard recognized and accepted by national and international oil, gas and civil engineering companies worldwide.

To train and test by examination candidates who can (i) carry out inspection procedures competently, (ii) keep records in accordance with clients' requirements, and (iii) demonstrate a sound theoretical knowledge of the subject at the various levels of the ICAS.

To establish a worldwide network of Authorised Training Organisations (ATO) for ICAS training courses and examinations.

The ICAS will provide the following certification programmes from time to time as they are made available:

Coating Inspector Modules

- SWS ICAS Coating Inspector Level 1
- SWS ICAS Coating Inspector Level 2
- SWS ICAS Coating Inspector Level 3

Additional Modules (for those who are at least Coating Inspector Level 1)

- SWS ICAS Pipeline Coating Inspector
- SWS ICAS Corrosion/Coating Surveyor
- SWS ICAS Critical Coating Inspector
- SWS ICAS Fireproofing Coating Inspector
- SWS ICAS Insulation Inspector

Operatives Modules (no entry restriction)

- SWS ICAS Blaster/Preparation Operative
- SWS ICAS Painter/Sprayer Operative
- SWS ICAS Coating Supervisor

With maturity over time, the ICAS will be able to offer advantages such as worldwide network of ATO at strategic locations and affordable certification fees set by the ATO of different cities or countries with different operating costs and varying levels of industrial, economic and human resource development.

Note:

An increasing number of persons are certified at different levels (See SWS website).

SWS ICAS CERTIFICATION DETAILS

Level 1 Inspector

Theory Examination:

2 hrs – Theory exam (40 Multiple Choice Questions) (2.5 marks each, 100 marks)

Practical Examination:

Practical exam based on calibration and use of equipment (100 marks)

Level 2 Inspector

Theory Examination 1:

1 hr – Theory exam (20 Multiple Choice Questions) (1 mark each, 20 marks)

Theory Examination 2:

3 hrs – Theory exam (16 Narrative Questions) (5 marks each, 80 marks)

Oral Examination:

25 verbal questions (100 marks)

TRAINING COURSE & CERTIFICATION EXAMINATION FEE STRUCTURE

Course Description	Course /Exam Code	Fee (\$S)
Course fee for foreigners	L 1/2	\$2,500.00 + 7% GST
Course fee for Singaporean/PR	L 1/2	\$250.00 + 7% GST
Level 1 SWS ICAS Certification Exam	L 1C	\$800.00 + 7% GST
Level 2 SWS ICAS Certification Exam	L 2C	\$600.00 + 7% GST

Note:

All trainees attending Level 1 / 2 course are eligible for Level 1 / 2 Certification Examination
Certification Examination is taken in sequence, that is, Level 2 Certification Examination will be taken after passing Level 1 Certification Examination.
Examinees may register for both Level 1 and Level 2 examinations. However, in case the examinee fails in Level 1 Certification Examination, the fees will be refunded or adjusted for Retest Examination.

Transition examination to ICAS Level 1 or 2 for those holding BGAS, NACE, ICorr, CSWIP or Frosio qualifications	T Initial	\$350.00 + 7% GST
<u>Retest Level 1</u> Theory Exam (Code : RT L1 – T) Practical Exam (Code : RT L1 – P)	<u>Retest Level 2</u> Theory Exam (Code : RT L2 – T) Practical Exam (Code : RT L2 – P)	\$430.00 + 7% GST \$430.00 + 7% GST

Note:

Retest is not permitted for failure in both Theory and Practical examinations.

The fee structure is subjected to review