

## Corrosion in Automotive Systems

### Registration Form

Photocopies of this form may be used for registrations.  
You can also register online at [www.corrosionclinic.com](http://www.corrosionclinic.com)

Please register the following person(s) for the above course (please TYPE or PRINT clearly):

1. Dr/Mr/Ms \_\_\_\_\_  
Designation \_\_\_\_\_
2. Dr/Mr/Ms \_\_\_\_\_  
Designation \_\_\_\_\_
3. Dr/Mr/Ms \_\_\_\_\_  
Designation \_\_\_\_\_

\*delete where inappropriate

Enclosed is a cheque / bank draft No. \_\_\_\_\_  
for S\$ \_\_\_\_\_ (payable to "WebCorr Corrosion  
Consulting Services") being Registration Fee for the  
above person(s).

Organization \_\_\_\_\_  
Contact Person \_\_\_\_\_  
Contact Dept \_\_\_\_\_  
Telephone \_\_\_\_\_ Fax \_\_\_\_\_  
Email \_\_\_\_\_

Crossed cheques should be made payable to  
"WebCorr Corrosion Consulting Services" and  
mailed together with the registration form to:

### WebCorr Corrosion Consulting Services

Toa Payoh Central, PO Box 225,  
Singapore 913108  
Tel: (65) 64916456 Mobile: (65) 97110759  
Fax: (65) 64916456  
Email: [webcorr@corrosionclinic.com](mailto:webcorr@corrosionclinic.com)  
<http://www.corrosionclinic.com>

## Course Details

**Date:** TBA  
**Time:** 9:00 am to 5:00 pm  
**Venue:** TBA  
**Course Fee:** S\$1495 (GST not applicable)  
**Closing Date:** 2 weeks before course date  
**Discount:**  
**Group:** (3 or more people): 10%  
**Early-bird:** N% **if paid** "N" months  
before the course  
commencing date

### Withdrawal/Refund Policy:

Withdrawal or replacement should be conveyed to the organizer in writing (email or fax). An administration charge of 50% of the course fee will be levied if the withdrawal notice is received less than 7 working days before the course commencing date. No refund will be made for withdrawal notice received 3 working days and less.

### Certificates:

Certificate of attendance will be given to participants with at least 75% attendance of the course.

### Cancellation:

WebCorr reserves the right to cancel the course and fully refund the participants should unforeseen circumstances necessitate it.

## Corrosion in Automotive Systems

*Conducted by*

**Dr. Qiu Jianhai** *BEng PhD CEng MIM FICorr*  
*NACE Certified Corrosion Specialist*

*Date*  
**TBA**

*Venue*  
**TBA**

*Organized by:*



## Course Overview:

This course systematically and thoroughly covers specific corrosion issues, materials and paint systems encountered in the automotive systems.

This corrosion short course can be taken as in-house training course, online course and distance learning course worldwide. It can also be customized to meet the specific needs of your organization.

## Course Contents

1. Corrosion Basics
2. Forms of Corrosion Encountered in Automotive Systems
  - 2.1 Uniform Corrosion
  - 2.2 Crevice Corrosion
  - 2.3 Galvanic Corrosion
  - 2.4 Pitting Corrosion
3. Pre-coated Steels for Use in Automotive Systems
  - 3.1 Zinc-Coated Steel
    - 3.1.1 Hot-dip galvanized Steels
    - 3.1.2 Electrogalvanized Steels
    - 3.1.3 Zincrometal
    - 3.1.4 Zinc-alloy Coated Steels
  - 3.2 Other Coated Steels
    - 3.2.1 Aluminum-coated
    - 3.2.2 Long terme coated
    - 3.2.3 Organic composite coated

### 4. Paint Systems for Automotive Systems

- 4.1 Surface Preparation
  - 4.1.1 Metal cleaning
  - 4.1.2 Phosphate conversion coating
- 4.2 Primers
  - 4.2.1 Spray applications
  - 4.2.2 In-dip coating
  - 4.2.3 In-flow coating
  - 4.2.4 Electrocoating

### 4.3 Topcoats for Automotive Systems

### 5. Corrosion in Other Automotive Systems

- 5.1 Fuel systems
- 5.2 Cooling systems
- 5.3 Electrical systems
- 5.4 Automotive exhaust systems
- 5.5 Other automotive systems

### 6. Design Considerations in Automotive Systems

### 7. Corrosion Testing in Automotive Systems

## Who Should Attend

This course has been structured in such a way that it is particularly suited for the technologists and engineers who wish to gain an overall knowledge of corrosion and its prevention in automotive systems.

## Course Lecturer

**Dr. Qiu Jianhai** *BEng PhD CEng MIM FICorr*  
Dr Qiu obtained his BEng and PhD degrees both in the field of corrosion. He has 27 years of industry, university teaching, research and consulting experience in areas of corrosion and its prevention. He has been working closely with both local and overseas companies and has been an active consultant to governmental agencies, multinational companies and private organizations on corrosion and materials related issues such as corrosion design review, materials selection and life prediction, corrosion inspection and condition assessment, plant process optimization, corrosion training, corrosion testing and monitoring, troubleshooting and corrosion failure analysis. Dr Qiu has recently completed the design of a cathodic protection system for the upcoming Marina Coastal Expressway (MCE) Tunnels. Dr. Qiu is also experienced in providing expert witness and assistance in litigation and arbitration matters related to corrosion and materials. He has authored over 120 technical papers and reports. Dr. Qiu was an invited contributing author to the latest edition of the world renowned ASM Handbook Vol.13C Corrosion: Environments and Industries. His biographical profile was included in the 7th edition of Marquis Who's Who in Science and Engineering.  
Dr. Qiu is a NACE certified Corrosion Specialist (USA), the only person in Singapore certified to the highest professional level by NACE (National Association of Corrosion Engineers, USA). He is a Chartered Engineer registered with the Engineering Council (UK), a Fellow of the Institute of Corrosion (UK) and a professional member of the Institute of Materials, Minerals and Mining (UK). Dr. Qiu is the Singapore representative in the International Corrosion Council (ICC).