# Intermediate Railway Signalling

**Course Code:** SC 19 - 015  
**1 Jun 2019 - 10 Aug 2019 (Saturday), 09:00a.m. – 12:00noon**  
Exam on 24 Aug 2019 (Saturday), 09:00a.m. – 10:30a.m.

**Co-organized with IRSE (Hong Kong Section)**

## Introduction
Signalling system is very important for safe operation of railway. This course introduces signalling principles and their applications, safety protection systems, headway calculation and control tables.

## Programme Objectives
The course is designed to provide participants with practical understanding of the railway signalling principles; headway calculation for a typical signalling layout and control tables’ input.

## Learning Outcomes
Upon completion of this course, participants are able to:  
1. Evaluate the signalling principles and apply them in practical systems;  
2. Evaluate headway calculation and signalling the layout; and  
3. Compile a control table for a given layout according to interlocking requirements.

## Who Should Attend
(i) Practitioners in railway industry who wish to refresh and upgrade their knowledge in the railway signalling areas; or  
(ii) Graduate Engineers who wish to develop a career in railway industry; or  
(iii) IRSE(HK) student members, affiliates and individuals aspiring for IRSE membership; or  
(iv) Engineering students who are interested in railway signalling.

## Language
Lectures will be conducted in Cantonese and supplemented by English. Course materials, including exam, are written in English.

## Venue
MTR Academy - Hung Hom Centre, Kowloon, Hong Kong

## Mode of Learning
Classroom lecture

## Programme Structure
The programme comprises 3 main parts:  
1. Signalling principles and their applications  
2. Headway calculation and signaling the layout  
3. Signalling safety design elements - Route Table, Signal Table and Point Table formation
**K. W. Pang** has over 40 years’ experience in the railway industry covering design, maintenance, management, development and multi-discipline large scale projects. His last post in the Mass Transit Railway Corporation of Hong Kong was the Infrastructure Development & Engineering Asset Manager, who acts as the Asset Owner to coordinate with all infrastructure related Project Teams (including Civil, Power, Track, Signal, Control & Communications) on design, implementation, testing of all new Lines, Extensions and major asset replacements to assure that they comply with the operation, maintenance, safety and recovery requirements at the lowest Life Cycle Cost and minimal impact to existing services.

After leaving MTR, he was the Executive Vice President for the Hong Kong Nicaragua Development Group planning for construction of the Nicaragua Canal. At present, he is the Chairman of the Institute of Railway Signal Engineers (Hong Kong Section), a Visiting Professor of the Beijing Jiatong University, Senior Consultant for China Railway Construction Corporation Hong Kong Limited, Project Director for contract 1142 of the Guangzhou-Shenzhen-Hong Kong High Speed Rail, Senior Consultant for the China Railway Signal & Communications Group focusing on Contract CP-203 in India, Chief Technical Officer for China Railway Signal & Communications Group (US Office) .... etc.

**Timothy Y.T. Tai (Tim)** is a professional signal engineer with over 37 years of experience in maintenance, implementation, design; test and commissioning of relay interlocking, Computer Based Interlocking, Automatic Train Control and Communications-based Train Control (CBTC) systems. He is currently employed as the Works Integration & Co-ordination Manager for the New ATC Replacement Project for the Seven Lines in HK. Before this post, he is the Signalling & Electronic Control Engineering Manager to in-charge of the section with responsibility of design, implementation, test & commissioning of modification for the Signalling & Electronic Control system in Operating Railway and the on-coming new line interfacing systems.

Tim was a Visiting Lecturer in the Hong Kong Polytechnic University, teaching Signalling and Train Control Systems in MSc course in year 2009, 2013 and 2019. He is also an active Executive Member of IRSE (HK Section) to provide tutorials for the examinees for the UK annual IRSE examination.
**Lecturers**

**K.H. Kwok** is a professional signal engineer with over 34 years of experience in maintenance, installation, design, test and commissioning of railway signalling system. He is currently employed as the Maintenance Engineer-Signal in Hong Kong MTR Corporation Ltd (MTRCL).

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**Charles C.P. Lung** is a retired professional signal consultant with over 32 years of experience in maintenance, project, design, T&C of railway signalling system.

Mr. Lung was a Visiting Lecturer of VTC, teaching Railway Signalling in the year of 2006, 2008, 2010 and 2014. He is a Committee Member of IRSE (HK Section).

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**Y.F. Sung** is a retired professional signal engineer with over 32 years of experience in maintenance, installation, design, T&C of railway signalling system. The last job was the Signal Maintenance Manager in KCRC.

Mr. Sung was a Visiting Lecturer of VTC, teaching Railway Signalling in the year of 2006, 2008, 2010 and 2014. He is the General Secretary of IRSE (HK Section).
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<tr>
<th>Lesson</th>
<th>Topics</th>
<th>Lecturer</th>
<th>Time &amp; Date</th>
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<tr>
<td>1</td>
<td><strong>Signalling Principles</strong>&lt;br&gt;i. Signalling Standard Principles&lt;br&gt;ii. Guidelines for Interlocking Design</td>
<td>YF Sung</td>
<td>9:00 am – 12:00 nn&lt;br&gt;1 June 2019 (Saturday)</td>
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<td>2</td>
<td><strong>Safety Equipment</strong>&lt;br&gt;i. Train Detections&lt;br&gt;ii. Automatic Warning System (AWS) &amp; Train Protection &amp; Warning System (TPWS)&lt;br&gt;iii. Level-Crossing Equipment&lt;br&gt;- Half barrier LX&lt;br&gt;- Full Barrier LX</td>
<td>Charles Lung</td>
<td>9:00 am – 12:00 nn&lt;br&gt;8 June 2019 (Saturday)</td>
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<td>3 &amp; 4</td>
<td><strong>RAMS</strong>&lt;br&gt;i. Description of RAMS&lt;br&gt;   - Fail Safe Concept&lt;br&gt;   - Human Errors and SPAD&lt;br&gt;ii. Train Accidents</td>
<td>KW Pang</td>
<td>9:00 am – 12:00 nn&lt;br&gt;15 &amp; 22 June 2019 (Saturday)</td>
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<td>5, 6 &amp; 7</td>
<td><strong>Signalling the Layout</strong>&lt;br&gt;i. Interpretation and drafting of Layout Drawing&lt;br&gt;ii. Headway calculation&lt;br&gt;iii. Signalling the Layout exercise and practice&lt;br&gt;iv. Case study: past examination questions of Signalling the layout</td>
<td>KH Kwok</td>
<td>9:00 am – 12:00 nn&lt;br&gt;29 June, 6 &amp; 13 July 2019 (Saturday)</td>
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<td>8, 9 &amp; 10</td>
<td><strong>Control Table</strong>&lt;br&gt;i. Organizations and drafting Route Control Table, Point Control Table and Signal Control Table&lt;br&gt;ii. Control Table exercise and practice&lt;br&gt;iii. Case study: past examination questions of control table</td>
<td>Tai Yin Tung</td>
<td>9:00 am – 12:00 nn&lt;br&gt;27 July, 3 &amp; 10 August 2019 (Saturday)</td>
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<td>11</td>
<td><strong>Module Examination</strong></td>
<td>YF Sung &amp; Charles Lung</td>
<td>9:00 am – 10:30 am&lt;br&gt;24 August 2019 (Saturday)</td>
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Certificate of Accomplishment
Signed jointly by MTR Academy and the Hong Kong Section of Institution of Railway Signal Engineers, a Certificate of Accomplishment will be issued to each participant if he/she passes the final assessment AND satisfies a minimum attendance requirement of 70% in the course.

This training course is recognized for 200 CPD points by the Chartered Institute of Logistics and Transport in Hong Kong (CILTHK)

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<th>Programme Fee</th>
<th>Early Bird Fee</th>
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<td>$7,200</td>
<td>$6,480</td>
<td>15% off for</td>
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<td>(Paid registration on or before 18 May 2019)</td>
<td>– members of supporting professional bodies *</td>
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<td>– full time staff of MTRCL and its subsidiary companies (Ngong Ping 360, Octopus and TraxComm)</td>
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* Supporting professional bodies are: Hong Kong Institution of Engineers (HKIE), The Institution of Engineering and Technology (IET), Society of Operations Engineers (SOE), China Hong Kong Railway Institution (CHKRI), Hong Kong Quality Management Association (HKQMA), Six Sigma Institute (SSI), Knowledge Management Development Centre (KMDC), Hong Kong Institute of Environmentalists, Literati Academy of Greater China (Lagreach), The Hong Kong Institution of Engineering Surveyors (HKIES) and The Institution of Railway Signal Engineers (IRSE).

Application Methods

Online
Applicants can enrol and pay online  https://www.mtracademy.com

Enquiry in Person
Address: MTR Hung Hom Building, 1/F., 8 Cheong Wan Road, Hung Hom, Kowloon
Opening hours: Mon, Wed and Thu: 1:30pm – 2:30pm; 3:30pm – 7:30pm; Saturday: 9:30am – 12:30pm
Closed on Sunday and Public Holiday

Payment Method
By credit card (online payment)

Closing Date for Registration
Please note that due to limitations of venue capacity and relevant logistics, all registrations must be made at least 2 working days prior to the delivery date of individual modules. No walk-in registration will be entertained.