

# 2-Days Course on “PROFESSIONAL COMPETENCY EXAMINATION (PCE) - HYDRAULICS – PLUMBING AND SANITARY DESIGN CONSIDERATIONS”

Trainer: Ir. Gary Lim

Training Dates 2022:

Limited to 15  
paxs per  
class

- 25<sup>th</sup> – 26<sup>th</sup> July 2022
- 27<sup>th</sup> – 28<sup>th</sup> September 2022



## Introduction

The DESIGN of the Plumbing and Sanitary systems are an important consideration when a building is to be erected otherwise the built environment will face with perpetual problems of water leaking and having a smelly environment. From the design perspective it will provide the routes of the pipelines, the intermediate tanks location (applicable to highrise), the tank capacity, the pipe sizes at each floor and pressure reducing valve (PRV applicable to highrise) and many other design details.

Often the sanitary systems design have not been given sufficient consideration with the assumption that gravity will carry the soil and waste to the manhole on the ground floor. Under such circumstances if it has been poorly designed then remedial works will be expensive and will surely inconvenient the occupants.

## Objectives

To understand the design aspects in Plumbing and Sanitary systems in a built environment.

## Training Methodology

Classroom presentation and case studies and practical design illustrations

## Who should attend

Engineers in particular graduates, Maintenance Technicians

## Upon completion of this program, participants will:

1. Understand the basis to determine the cold water storage demand and size the transfer pump accordingly. This is in accordance to the SPAN Uniform Technical Guidelines.
2. Select the suitable type of pumping system to meet the water usage requirements direct or variable speed drive
3. Select the piping material amongst the many choices of plastic and metal.
4. Calculate the piping size for cold water in accordance to BS6700 standard methodology of Loading Units.
5. Know Rainwater Harvesting System (RWHS) GRAVITY feed concept to flush toilets to conserve treated water.
6. Take preventive measures to minimize the impact of water hammer to the pipe lines.
7. Determine the stack size of Soil, Waste, Vent (SWV) using Discharge Unit methodology and understand the constraints impose on branch discharge pipe in particular on the gradient to minimize blockage.
8. Understand the factors which contribute to smelly toilets and the solutions
9. Observe poorly installed plumbing and SWV systems which are preventable

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**Training Dates 2022:**

**Time: 9.00am – 5.00pm**

25<sup>th</sup> – 26<sup>th</sup> July 2022

**Venue: Wisma IEM**

27<sup>th</sup> – 28<sup>th</sup> September 2022



Approved Duration: 21/01/2022 - 24/01/2023

HRD Corp Serial No: 10001155792

## Course Outline

Day 1		Day 2	
<ul style="list-style-type: none"> <li>Professional Competency Exam Syllabus - Hydraulics</li> </ul>	<ul style="list-style-type: none"> <li>Joining method of different types plastic pipes.</li> </ul>	<ul style="list-style-type: none"> <li>SWV stack design MS1402, BS5572</li> </ul>	<ul style="list-style-type: none"> <li>Case Study on Landed Residential discharge of sewer to the front of house and minimize blockages</li> </ul>
<ul style="list-style-type: none"> <li>Fundamental of Fluid Dynamics – Apply to pipe and pump sizing</li> </ul>	<ul style="list-style-type: none"> <li>Water hammers and preventive measures</li> </ul>	<ul style="list-style-type: none"> <li>Fundamental of Open Flow in Open Channels</li> </ul>	<ul style="list-style-type: none"> <li>Testing and commissioning of Sanitary Systems</li> </ul>
<ul style="list-style-type: none"> <li>SPAN Uniform Technical Guidelines (UTG) – Cold Water and Storage</li> </ul>	<ul style="list-style-type: none"> <li>Reference to BS6700 to explain the methodology to determine pipe size to all storage tanks and individual fittings</li> </ul>	<ul style="list-style-type: none"> <li>Reference to BS5572 to explain the methodology to determine stack and branch discharge pipe sizes to manhole</li> </ul>	<ul style="list-style-type: none"> <li>Grease Trap consideration in particular in a shopping malls</li> </ul>
<ul style="list-style-type: none"> <li>Design of Plumbing system concept and application to multiple storage tanks. Use of direct or variable pump controls.</li> </ul>	<ul style="list-style-type: none"> <li>Case study of a high rise building on the complete system to apply the design techniques learned.</li> </ul>	<ul style="list-style-type: none"> <li>Smelly toilets – Design consideration to eliminate foul smell from toilets. Case Study to illustrate for high rise</li> </ul>	<ul style="list-style-type: none"> <li>Rainwater Harvesting System (RWHS) with GRAVITY feed design consideration for toilet flushing and landscape</li> </ul>

### About The Trainer

Ir. GARY LIM ENG HWA BE(Mech.) NZ, Mgt Dip. FIEM, P.Eng, Asean Eng, APEC Eng, Int PE(My), AT 31000 Risk Management He had over 20 years of manufacturing experience from various industries involved in these areas; Industrial Engineering (Work Study), Project Management, Maintenance, Production and Factory Management. His last 11 years of his working experience was with a multinational insurance company where he received further training in the area of Fire Engineering from an insurer perspective, started as the Risk Engineer and retired as the Risk Manager of the MNC insurer. He attended a course from HSB Industrial Risk Insurers at Hartford, United States of America on the Implementing The Concepts of Industrial Fire Control in August 1998. Gary had conducted numerous risk management surveys of various industries from wafer plant to power plants. Currently, a committee member of the Building Services Technical Division and member of the Fire Advisory Board of the Institution of Engineers, Malaysia. He has a degree in Mechanical Engineering from the University of Canterbury, New Zealand and a Management Diploma from New Zealand. He is a Professional Engineer Practicing Certificate registered with the Board of Engineers, Malaysia and a Fellow of the Institution of Engineers, Malaysia (IEM). He conducts courses regularly on the concepts and design in the area of Fire Engineering and Plumbing and Sanitary systems at all the major IEM branches in Malaysia.

IEMTA IS REGISTERED WITH:



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Tick (/)	Dates	Onsite Rate (IEM/AER Member)	Onsite Rate (Non-IEM/AER)
	25 <sup>th</sup> – 26 <sup>th</sup> July 2022	<input type="checkbox"/> RM1,060.00	<input type="checkbox"/> RM1,300.00
	27 <sup>th</sup> – 28 <sup>th</sup> September 2022	<input type="checkbox"/> RM1,060.00	<input type="checkbox"/> RM1,300.00

Group Rate of 5 person will be given 10%

Limit to maximum 15 person being a practical design course.

Bring along scientific calculator to calculate

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No	Name(s)	M'ship No.	Grade	Fee (RM)*
<b>TOTAL PAYABLE</b>				

You may make payment via **ONLINE TRANSFER** (Please forward soft copy of payment advice):-

Account Name: **IEM TRAINING ACADEMY SDN BHD**  
 Account Number: 514169143176  
 Bank Name: Malayan Banking Berhad  
 Bank Address: Jalan Sultan, 46200 Petaling Jaya, Selangor Darul Ehsan, Malaysia  
 Swift Code: MBBEMYKL

OR

Payment via **CREDIT CARD**

Please charge to my credit card number below the amount of RM

Card Type:  VISA  MASTERCARD

Card Number:

Cardholder's Name:

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