

## MRL TRAINING WORKSHOP

# Hardware Designing Workshop



**Time: 9.00 am - 5.00 pm (2 Days)**

**MRL Engineering Offis Melaka**

### Overview

The Hardware Design Workshop covers the necessary fundamental concepts involved with Hardware Design, reducing reflection and noise in an electronic system.

Upon successful completion of the course, the participants will have the understanding and skills required for embedded system hardware design. Hands-on sessions are included to reinforce and apply the knowledge and information.

Participants will have opportunities to learn the general knowledge on Hardware products developed by MRL Engineering.

The products range offered by MRL Engineering Sdn. Bhd. includes WaterTech SCADA System, Safety and Security Solutions, InfraTech SCADA Solutions and Renewable Energy Solutions.

### Learning Outcomes

- ✓ Gain in-depth knowledge of hardware designing
- ✓ Know how to minimise cross-coupling between circuits
- ✓ Understand performance limitations of physical components and packaging types
- ✓ Reduce development costs and time to market due to fewer PCB design iterations
- ✓ Relevant concepts/tools for tackling high-speed digital design issues
- ✓ Practical layout techniques for PCB to tackle electromagnetic interference (EMI) issues

### Who Should Attend?

- ✓ Engineer's and managers with responsibility for the thermal design of electronic hardware
- ✓ Student's who wants to get the concepts of Schematic and PCB designing
- ✓ Circuit designers who want to learn the architecture of the Hardware designing
- ✓ Student's Who want to enhance their knowledge in Hardware designing
- ✓ Technicians, production/test engineers requiring understanding of PCB design

### Administrative Detail

**Time** : 9.00 a.m – 5.00 p.m (2 Days)

**Venue** : MRL Engineering

Wisma PPK, Lot 2354, Jalan Sungai Putat,  
Batu Berendam, 75350 Melaka, Malaysia

**Tel No** : +606-3176828

**Fax No** : +606-3176854

**Fees** : RM700/-



# Couse Outline

## DAY 1

### Introduction to schematic design

- ✓ How to create a new project, importing reference schematics, collecting and sorting documents

### Components creation

- ✓ How to get components from library, designing of the new components, how to save new components

### Foot print creation

- ✓ How to create foot prints, model of your PCB, tools and techniques

### Proper component placement

- ✓ How to do layout, How to do placement, tips and tricks

### Routing

- ✓ Auto routing and manual routing, order of doing it, guidelines

## DAY 2

### Gerber files

- ✓ How to finish and check your PCB, Generation of Gerber file

### BOM (Bill of Material)

- ✓ How to add important information for manufacturers, how to generate professional documentation and assembly drawings

### Concepts of EMI/EMC

- ✓ Concept of EMI/EMC, how to reduce noise, recommendations

### Project Assignments

**\*Detailed course subcontent for above is available at <http://mrlengineering.com.my/training>**

Yes! Please register me/us for the MRL Training Workshop

## Hardware Designing Workshop

Name :

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IC No. :

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Age :

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Email :

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Phone no :

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Fax :

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Currently Working/Student :

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Company/University Name :

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Starting Date :

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Purpose of taking course :

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**Registration  
form**

**Trainers :**

- Dr. Amin Kayani
- Saiful Annuar
- Syed Mudasar ul Hassan
- Shoaib Saleem

## Cancellation and Postponement

If any participant is unable to attend course due to some problem, is given the flexibility to change starting date without extra cost, One have to inform with the new starting date at least 3 days in advance.

75% refund will be made for cancellations received in writing at least 14 days before event.

A 50% of full fee will be refund if cancellation is made 7 days prior to the event.

Organised  
By



**MRL Engineering Sdn Bhd** 626831-T  
*Creative Solutions, Addressing Your Needs*

Wisma PPK, Lot 2354, Jalan Sungai Putat,  
Batu Berendam, 75450 Melaka, Malaysia.

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