Practical Printed Circuit Board (PCB) Design with KiCAD

Training Programme
by
Faculty of Engineering
Multimedia University

Overview

KiCAD EDA (https://kicad-pcb.org) is a powerful full-feature electronic design automation (EDA) tool for creating a PCB design, from schematic capture, artwork and routing, CAM (computer aided manufacturing) data export. It also contains many modern features similar to other commercial packages such as 3D visualization of the PCB design, push-and-shove router, electrical rule check, length tuning for high-speed PCB design and also comes with useful synthesis tools for transmission line design. KiCAD is free and open source, and the user is encouraged to donate to the project so that on-going development effort to improve the software can continue.

This is a basic course for beginners not familiar with the PCB design process. In this 2-days class, we will briefly look at PCB manufacturing process, design data needed by PCB manufacturers, followed by the usage of the KiCAD EDA to create a manufacturable design. We will use a simple project to illustrate the flow. Useful rule-of-thumbs to create reliable PCB design (e.g. design-for-manufacture) will also be introduced.

Objectives

Upon completion of this course, the attendees are able to:

- Understand the shape and dimensions of standard electronics component packaging, including through-hole and surface mounted devices.
- Produce a design artwork for a printed circuit board from a given electrical schematic using KiCAD EDA software.
- Generates the necessary files for CAM (computer aided manufacturing) in Gerber format.
- Incorporate basic design rules for a robust printed circuit board design.

Target Audience

The course is suitable for electronic engineering students, working engineers and also amateur or electronic hobbyists.

Prerequisite

It is assumed the participants have basic knowledge of electronics, for instance: what is a resistor, capacitor, transistor and integrated circuits, and can read an electronic schematic.

Training Methodology

Virtual Classroom.

Course Duration

2 days.

Content/Outline

DAY 1

- Review of PCB structures.
- Review of PCB manufacturing flow.
- Data needed to fabricate a PCB.
- Introduction to KiCAD.
- Navigating the kiCAD user interface.
- Using KiCAD Schematic Capture.

DAY 2

- Using KiCAD PCB Design.
- PCB design rules.
- PCB 3D viewer.
- Generating manufacturing data.
- More advanced topics – Creating custom symbols and footprint.
- Using 3rd party component symbols and footprint manager.
- Other alternatives to KiCAD EDA.

Course Instructor

Dr. Fabian Kung Wai Lee

Fabian Kung Wai Lee received his B.Eng (Hons) and M.EngSc in Electrical Engineering from University Malaya, Malaysia in 1994 and 1998 respectively. He later obtained his PhD in Electrical Engineering from Multimedia University (MMU) in 2003. He worked as PCB design engineer with Intel Microelectronics Sdn Bhd (Penang) from 1994-1996, and subsequently as embedded system design engineer with GMS Technologies Sdn Bhd (Selangor) from 1997 to 1999. He joined MMU as a faculty member in 1999 and currently holds the position of Professor. His area of interests are analog electronics, applied electromagnetics, RF/Microwave circuit design, embedded systems and robotics. He has many years of experience in hardware and software development.

Administrative Details

Programme Logistics

Duration: 2 days

Dates, registration deadline and registration form:
Please refer to: https://www.mmu.edu.my/foe/short-courses/

Your Investment

Condition		Price per Pax
Regular Fee	Students / MMU Alumni	RM500
	Public	RM800
	Public (Group >5 pax)	RM600
	IEM/IEEE Members	RM700
Early Bird Fee	Students / MMU Alumni	RM300
	Public	RM600
	Public (Group >5 pax)	N/A
	IEM/IEEE Members	RM500

Method of Payment

Please refer to the next page.

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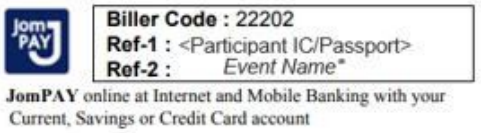
<tr><th>Type of Payment</th><th>Method</th><th>Details</th></tr>
<tr><td rowspan="2">Local Transaction / Payment within Malaysia</td><td>Online Payment with JomPay</td><td>

To get started, login to any preferred internet banking.
Look for JomPay to begin the payment process.
Enter Ref 1 & Ref 2.



* Ref. 2: FOEPCB
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To get started, go to MMU website (https://www.mmu.edu.my/) > Admission > Financial Info > Payment Channel > Non Student ;

or scan the QR code below to begin the process:


Choose Category: Public Training
Workshop Name
Choose Your Participant Type:

✓ STUDEN (MMU, IEEE, IEM, Other Higher Learning Institution)
✓ PUBLIC
✓ GROUP (Group > 5 Pax)
✓ IEEE/M (IEEE/IEM Members)

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Type of Payment	Method	Details
International Payment / Payment outside Malaysia	Online payment with Flywire	• To get started, go to mmulanding.flywire.com; or scan the QR code to begin the payment process: SCAN ME • Choose Conference for Non-students related

Note:

Please submit the proof of payment to organizer for clearance updating purposes within 2 working days.

Refund and Cancellation

Any refunds will be processed in 60 days. Should there be any cancellation, it may be due to the organizer not getting the minimum participants or the participant failing to attend the workshop due to unavoidable reason.

Disclaimer

Faculty of Engineering, Multimedia University reserves the right to change the instructors, date and to vary/cancel the programme should unavoidable circumstances arise. All effort will be taken to inform participants of the changes. Upon submission of the registration form, you are deemed to have read and accepted the terms.

Enquiries

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