

CERTIFIED INTERCONNECT DESIGNERS, C.I.D

Who Should Attend?

This program assesses a designer's knowledge of how to transform a schematic into a reliable rigid design, which can be easily manufactured, assembled and tested. The IPC Designers Council recognizes that the most effective designers must have a solid foundation in PCB fabrication and assembly. The certification test is based on several critical IPC documents that link design principles to the end product use of the printed circuit.

Why Certify?

In a business climate where work projects grow in complexity and responsibilities are constantly expanding, certification stands as a clear testimony to your qualifications, your knowledge, and your skills. Printed circuit board designers deserve the benefits and recognition of certification. Industry trends - such as outsourcing and concurrent engineering - are elevating the importance of the designer. IPC Designer and Advanced Designer Certifications are powerful tools in promoting your role to everyone involved in the production of printed circuit boards and assemblies.

Registration & Workshop/ Exam Information

The Workshop Package fee includes all study materials, the four-day Preparation Workshop and an exam voucher which will be sent to you as soon as IPC receives your registration form and payment.

The four-day workshop portion of the course will begin at 9.00am and conclude at 5.00pm each day, with preregistration starting at 8.30am on the first day. The exam will be administered in the morning on the final day, with a review of the test following lunch and concluding by 3.00pm.

Advance registration is necessary for all Designer work-shops.

Individuals should register at least 1 month in advance of the course date in order to receive the materials prior to the workshop and to ensure that the workshop is scheduled to be held.

What to Study and How to Study?

The workshop training provides an in-depth overview of the principles contained in the examination and is strongly recommended for anyone interested in obtaining the certification.

Sample exam questions for both Designer certification programs can be viewed at <http://dc.ipc.org/>.

Study in advance is **strongly recommended**. Designer certification testing is done on-site at a workshop location the day after a course concludes. Individuals who do not feel prepared to take the test immediately after the preparation workshop may choose to keep their exam voucher and take the test in a later date.

Both of the two-hour examinations are in multiple choice format. Answer choices are all plausible; therefore, you must indicate the **most correct answer**. Occasionally, you must indicate multiple correct answers or identify certain characteristics from a diagram.

The examination is graded and a review is conducted on-site. IPC issues the certifications after an exam.



**Course Date:
Every Quarter
of the Year**

Organised by:



Official Partner:



CERTIFIED INTERCONNECT DESIGNERS, C.I.D

Basis of the Course

Based on the leading IPC standards for PCB Designer Certification reinforces the knowledge gained by professionals over their many years of experience and good working practices. By taking the Designer Certification you will become fully aware of the following documents:-

1. IPC-T-50 Terms and Definitions for Interconnecting and Packing Electronics Circuits,
2. IPC 2222, Sectional Design Standard for Rigid Organic Printed Boards
3. IPC 2221, Generic Standard on Printed Board Design
4. IPC-D-325 A, Documentation Requirements for Printed Boards, Assemblies and Support Drawings

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The Cost

The cost of the program, which includes all training materials, the 4-day workshop, the exam and light refreshments is SGD1,490 exclusive of GST. Closing date for registration will be 1 month before the course commence.

Course Format

The Designer Certification Kit include self-study materials and enrolment in a four-day IPC Designer Certification Preparation workshop. All Designer Certification testing is done at the workshop location shortly after it concludes. The workshop training provides an in-depth view of the principles contained in the examination and is compulsory for anyone interested in obtaining the certification.

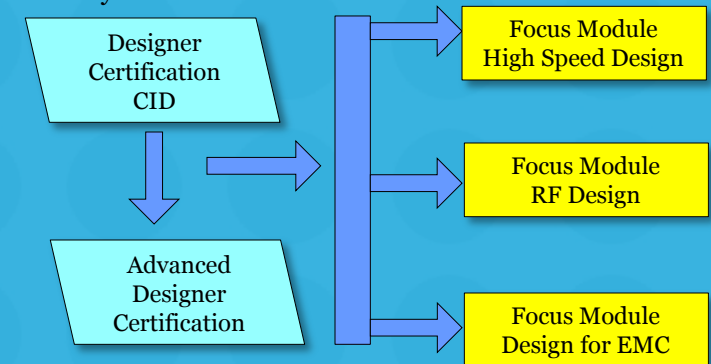
Where is the Course Held?

The majority of the study is done on your own either at work or at home. The workshops and exam are at 16 Jalan Kilang (Off Jalan Bukit Merah) #03-05 Hoi Hup Building Singapore 159416.

We are also able to host IPC Certification workshops/exam on your site for 10 participants and above.

What to Study and How to Study?

Designer Certification is the entry point into a structured training program, which offers a professional development path unrivalled in the industry.



Designer Certification (CID) - Course Objectives

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| Layout <ul style="list-style-type: none"> • Characteristics of Grid Systems • Purpose of Tooling Holes • Feature Formed in Copper • Through-Hole Land & Tolerance Requirements • Design Differences for SMT vs. Through-Hole • Interrelated Considerations for Design • Printed Boards & Printed Board Assemblies Viewing Principles Electrical considerations <ul style="list-style-type: none"> • Schematics/Logic Transformation • for Component Arrangement • Schematic and Logic Symbols • Functional Electrical Characteristics Materials <ul style="list-style-type: none"> • Copper Clad Laminates | Component requirements <ul style="list-style-type: none"> • DIP & SIP Components • Clinched & Unclinched Leads • Point-to-Point Wires • Axial & Radial Lead Mounting Differences • DIP & Chip Carrier Sockets • Edge-Board Connectors • Characteristics of a bus bar • Jumper Wires • Purpose of Stiffeners • Purpose of eyelets • Differences between Automatic & Manual Placement • Non-standar Parts Information Assembly requirements <ul style="list-style-type: none"> • Differences Between Manual & Pick-and-Place SMT Placement <ul style="list-style-type: none"> • Considerations for Component Mounting • Legend & Polarity Markings | Board fabrication <ul style="list-style-type: none"> • Board & Assembly Panelization • Hole Types & their tolerances • Coating & Markings Used on Printed Boards Physical board characteristics <ul style="list-style-type: none"> • Thermal Management for Assemblies • Thermal Management for Boards Documentation <ul style="list-style-type: none"> • Tolerancing Methods • Datum Features & Location Principles • True Positioning Dimension Techniques • Conductive Pattern Location to Datum References • Plated-Through-Hole Dimensions & Grid Location • Tooling Hole Location Documentation | Documentation (cont'd) <ul style="list-style-type: none"> • Datum Symbols and Hole Description • Documenting Fastening Hardware • Minimum Drawing Requirements • Master Drawing Hole & Conductor Description • Minimum Requirements for Master Drawing • Artwork Acceptance Criteria Inspection and test <ul style="list-style-type: none"> • Testing & Techniques & Procedures • Reliability • Reliability Terms & Design • Issues |
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