Nine Dot Connects PCB-Centric Training Courses & Schedule

What's stopping you from designing hardware?

More than a cursory knowledge of the PCB process and circuit theory is required in the PCB design world. There are dozens of processes, hundreds of tasks, and thousands of decisions to get a PCB from conception to physical reality. At Nine Dot Connects, we "get it" and get where you are coming from. That's why we developed these PCB centric classes so you can be more engrossed in developing your ideas into hardware rather than being held back by a process that can be messy and extremely frustrating.

The classes we developed come from accumulative decades of PCB experience as designers, managers, technical writers, application engineers, and course instructors. We have seen what is out there and, quite frankly, we believe that there is room for improvement in the general understanding of PCB design. We have embarked on an effort to provide what we at Nine Dot Connects believe are the missing pieces to a well-rounded education on PCB design.

We are proud to offer the classes below. Many more to come...

Additional training information such as cost, registration, student, review, etc., is available at https://ninedotconnects.com/training, and the embedded pictures are linked to a specific training course overview webpage.

Foundations – PCB Design (3 days)

This training is a complete overview of the PCB process, from conception to manufacturing. It was created to provide all the necessary details a PCB designer would need for a smooth, efficient design process. In addition to looking at the schematics and PCB from a process point of view, the lesser understood but vitally essential topics of fabrication, assembly, DFM, DFT, and specification writing are also presented.

- Day 1 – PCB Manufacturing Flow
- Day 2 – Library Etiquette and Schematic Capture Flow
- Day 3 – PCB Design Flow and Documentation

This training will be hands-on in addition to lectures. No prior tool knowledge is necessary; a basic understanding of circuit design is recommended. Though this training is designed to educate designers on the entire process, those in managerial positions seeking to improve their group's design flow will find this training valuable.

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Full Spectrum - Altium Designer (4 days)

The Full Spectrum Course is a four-day training that combines the core areas of our three-day Boot Camp course with the principle subjects of our three-day Spec Ops course.

This training is intended for Altium Designer users with early to moderate experience or those with high proficiency in other EDA tools who wish to evaluate Altium Designer's abilities through instruction and hands-on exercises. This course is an effective alternative to spending a total of six days over two weeks attending the Boot Camp and Spec Ops courses. With Full Spectrum, it's done in as few as four days in the same week while still covering a considerable amount of information at a somewhat faster pace.

The Nine Dot Connects Boot Camp course helps both new and more experienced users ramp up on Altium Designer's fundamentals. The Full Spectrum course builds on this by quickly covering each subject's fundamentals, then moving into more advanced techniques and features that would typically be taught in our Spec Ops course. Due to time constraints, the areas not covered from the Spec Ops course are the more specialized features of the tool.

Like our Boot Camp course, this is a project-based training covering many functions and features of the software and how to use them most effectively in a standard project flow. Emphasis is on setup, navigation, and critical features to become efficient and comfortable with the tool. Advanced routing, layout techniques, and high-speed design constructs, like differential pair routing, length matching, and tuning, will be discussed and demonstrated as well. After each module's instruction, efficient exercises reinforce the understanding of the content.

Areas covered by this training:

- Altium Designer Overview for newer users to the tool
- Advanced tool settings, navigation, and use of panels
- Project creation and design file management
- Creating components using the Schematic and PCB Footprint library editors
- Schematic capture utilizing component libraries and the extensive feature set of its editor
- Advanced PCB setup (stack up, all via type definitions, back drill, rigid/flex, board outline)
- Extensive coverage and setup of Design Rules in both the schematic and PCB editors
- Efficient component placement using special techniques and features
- Basic Interactive routing as well as advanced routing features used for high-speed designs
- Planes and Polygon use
- Generating drawings and Outjob manufacturing file sets

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Onsite/Online – Customized Training – 2 or More Days

Though we offer coaching and consulting services, the focus is on a tool or project's specific needs. Therefore, we realize that some clients may have some specific training needs that just aren't going to get adequately addressed even with our various course offerings. This is especially true when it comes to tool flow, cabling, libraries, and process flow.

This is precisely why we offer a customized onsite training that can be customized to meet your organization's needs. We offering customization based on the following scenarios:

- Mix and Match
- Topics that Aren't Covered in Courses
- Best Practice and Maximizing Reuse Concept

Our onsite training offerings are customizable to fit your needs:

- **Schedule** – Can't do weekdays? If you are using your Saturdays to 'catch up,' we can be there, too! You pick the start date!
- **Time** - Can't do 9 to 5? Training does not have to be all day. You can set the number of hours and the start time.
- **Location** – Can't leave the facility due to the travel downtime? We can come to you and save you the travel hassle and all expenses.
- **Cost** - Don't want to bear the travel cost of your employees? The cost is much more effective due to the volume discount and no travel cost.
- **Content** – Worried that you will waste time on unnecessary content? We can customize the training to meet your needs.
- **Equipment** – Don't have laptops that can be spared for training? We have equipment that can be shipped to any location.
- **Quality** – Worried about the level of excellence in the instruction or instructors? Our instructors have worked extensively as engineers before becoming instructors. Combined, they have delivered over 500+ classes and thousands of hours of highly regarded training. Take a look at some reviews here.
- **On-Demand** – Need someone to guide you every so often? We provide a block of consulting hours to be used to allow you to continue to do your work with the assurance that there is someone available to assist when the going gets tough.

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Spec Ops Training – 2 or More Days

Not all classes can be offered as a standard course that addresses many, and we recognized some training topics are just as important as the ones provided as a traditional course.

To accommodate your needs when it comes to topics of this nature, we offer the Spec Ops training series. These training courses are customized to your needs and agenda. The training can be done onsite or online, depending on the best way to interact with you and your colleagues.

Listed below are training courses that we have done in the past for our customers. If you have a need that is not listed, please contact us to see what we may do for you.
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- Altium 365 / Vault
- Library Methodology and Data Management
- Configuration Management
- Cabling in Altium Designer
- High Speed Signal Layout