

On-site Training *(save money and time)*

The HDE Laser Welding Technology Class instruction is available at the client's facility or near it. The (Hands-on) Workshops are available on-site at the client's facilities.

Main benefits:

1. Economics. These Classes and Workshops offer an economical and efficient alternative to sending employees to the public classes offered by HDE. Only the instructor travels! Several employees may attend for a 'flat fee'.
2. Customization. The Classroom and the Workshop training classes may be customized to concentrate on your company's specific laser processing requirements and issues!
3. Special topics. Customized combinations of subjects may be arranged.
4. Intellectual property. Your company's IP and commercial interests are kept confidential!
5. Location. The on-site training classes are offered (most anywhere) in the USA and Canada.

Classroom instruction – background of the technology and its applications

Length: 5 (continuous) days – typical.

One half or one full day may be used to visit the laser processing equipment and operation.

Number of people (for flat fee): up to **12**. For additional people there is a (nominal) extra charge.

Pre-requisites are at least high school education and some laser processing experience.

Class Manual: Written and published by HDE. Each attendee receives one (1) copy.

Schedule: may be arranged for the requested date(s) subject to the availability of HDE. Please fill out the **Request for Quote** and send it to HDE – or call HDE for details. **Request for Quote** may be found on the Main Page of www.laserweldtraining.com – under **Registration Forms**.

- For details of the course material, please return to the opening page of www.laserweldtraining.com and CLICK on 'Course Descriptions'.

Workshop Training – practical execution of what was covered in the classroom

The material in the Workshop Training has been developed by working with a number of private and government supported manufacturing facilities as well as in several Community Colleges. A separate Workshop Manual is issued to all participants.

Length: 5 (continuous) days - typical.

Number of people (for flat fee): up to 6.

Pre-requisite: must have completed one of the HDE Laser Technology classroom course.

Class (Workshop) Manual: Written and published by HDE. Each attendee receives one (1) copy.

Schedule: may be arranged for the requested date(s) subject to the availability of HDE.

The main modules of the Workshop Training are listed below.

You may select one or more ‘modules’ to be covered in the Workshop. HDE will sum the estimated training times for the selected ‘modules’ and present the costing proposal based on that information.

Modules 1, 2, 3 plus 4 are the minimum and are included in all Workshop Training Classes.

Module 7 was not meant to do a complete DOE or laser welding process development work.

1. Laser Equipment Qualification - Calibration (EQ)
2. Daily Equipment Qualification (Daily EQ)
3. Alignment of the beam delivery systems, including finding focus and focus shift
4. Laser Beam Diagnostics and Application to Material processing
5. Laser Welding – CW and or Pulsed, production and R&D
6. Metallographic cross sectioning and interpretation of the results
7. Effect of the various process variables on the quality of the weld (R&D type of work)
8. Documentation control – AWS Laser Welding Standard and Guidelines
