40 years of expertise in laser safety and laser technologies, serving your most critical challenges.

Mastering Laser Welding

Ref: AL.2-1

This training course concerns automated applications only, not manual laser welding.

The use of laser welding for metallic materials effectively meets many joining needs (macro and micro). The exceptional performance of this technology requires complete mastery of all parameters. By alternating between theory and practice, you will learn to master the process and acquire a working methodology. A comprehensive training course that will give you many setting tips. It gives you access to the grade of Laser Welding Technologist (TSL).

This training course can be supplemented with options to achieve the title of SPECIALIST or EXPERT.

Practical information

DATES (REMOTE / INTER-COMPANY / IN-HOUSE)
- 22–30 September 2026
- 1–9 December 2026
- 9–17 March 2027
- 25 May – 2 June 2027

ORGANISATION
IREPA LASER - Strasbourg / Illkirch

DURATION
3 days (21 hours)

PRICES
2400€ excl. VAT

TECHNICAL/TEACHING LEAD:
Teaching: Franck RIGOLET | Technical: Frédérique MACHI

DO YOU HAVE A DISABILITY?
Contact our disability officer at referent.handicap@irepa-laser.com

Key information

PREREQUISITES
General technical knowledge.

ACCESSIBLE LASER CLASSES
/

CERTIFICATION
• A certificate of attendance is issued.
Note:
The grade of Laser Welding Technologist will be awarded at the end of the training course.
The grade of Laser Welding Specialist will be awarded after achieving the grade of Laser Welding Technologist and 1 specialisation offered in our catalogue.
The grade of Laser Welding Expert will be awarded after achieving the grade of Laser Welding Technologist and 2 specialisations offered in our catalogue.

TECHNICAL/TEACHING LEAD:
Teaching: Franck RIGOLET | Technical: Frédérique MACHI

Training objectives

- Know the different laser technologies suited to metal welding.
- Master the specific features of laser welding.
- Be able to set up a laser welding operation on an automated machine independently.
- Be able to choose the peripherals suited to your application (focusing head, monitoring, OCT…).
- Acquire a methodology for developing the welding process according to the assembly and requirements.
- Be able to implement appropriate inspections (destructive and non-destructive testing).
- Be able to identify a joining defect and respond accordingly.

Target audience

- Process, industrialisation and production engineers and technicians, setters.
- Operators of automated laser welding machines.

- Laser joining project managers.

Programme

Day 1 (by videoconference)

Lasers and Technology
- Principle of the laser
- Technologies suited to metal welding

Optical principles
- Beam delivery
- Laser beam shaping

Operating parameters
- Principle of laser welding
- Laser/material interaction
- Influence of parameters

Safety awareness

Days 2 and 3 (in person)

Theoretical aspects of laser welding
- Interactive game applying what was learnt on day 1
- Design of welded joints

Practical work on machines
- Influence of operating parameters
> Focal point position
> Gas shielding
> Beam quality
- Practical inspection exercises
> Visual, stereo microscope
> Metallography
- Laser metallurgy
> Metallurgy review
> Weldability of materials
- Quality Control
> Beam and process monitoring
> Standardisation

Teaching equipment:
- Pulsed YAG laser, 6 kW fibre laser, 6kW disk laser with Brightline Weld function, 750W single-mode fibre laser, combined with scanner heads and a robot or CNC system
- Metallographic preparation and examination laboratory
- Beam analysis equipment

The training course is divided into 2 parts: 1 day by videoconference covering most of the theory and, about 1 week later, 2 days in person for the many practical exercises on machines.