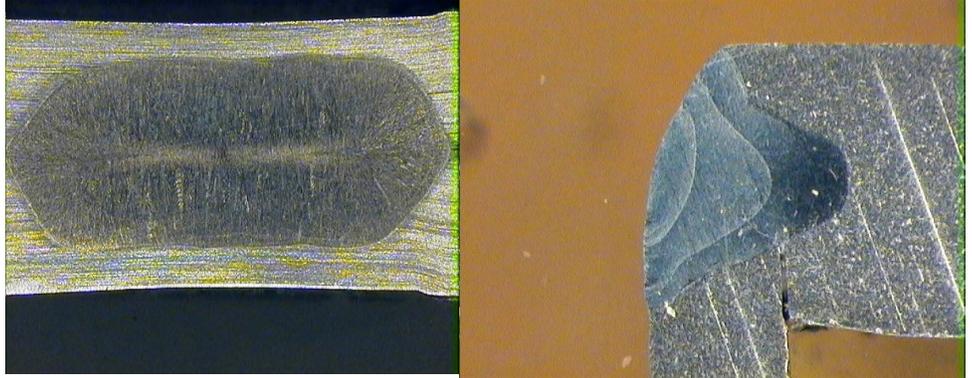


## One-day Course

# Welding Technology

### Course Contents

1. Introduction
2. **Welding Configuration:** Lap, butt, fillet, edge, corner, and related variations
3. **Welding metallurgy:** Soldering/Brazing, Solid-State Bond, and Fusion Welding. Alloy systems discussed include Al, Ti, Steels, and Stainless Steels,
4. **Welding Processes:** Resistance Welding, Laser Welding, Arc Welding with introduction to other processes such as friction, ultrasonic, diffusion, and explosion welding
5. Case Studies



This course is designed for technical personnel who routinely deal with welding issues including design, R&D, manufacturing, and quality assurance. The course combines weld geometry, weld metallurgy, and commonly used welding processes. Combination of those three aspects will give attendees a good understanding of the issues that they have to deal with in developing a new weld design or improving quality of an existing weld. The first section on weld geometry compares and contrasts the basic weld configurations discussing their strengths and weaknesses. The second section on weld metallurgy discusses the various types of bonds including soldering, brazing, solid-state welding, and fusion welding. The last section reviews commonly used welding processes including resistance welding, laser welding, and arc welding with details on innovations in technology, process control, process robustness, and type of bond. Other processes such as friction, ultrasonic, diffusion, and friction are also briefly introduced. The key to developing a robust process is to have a good understanding of all three aspects and chose the right combination of part design, material, and process such that the process has a much greater chance of being robust. Real-life case studies are presented for the attendees to have a perspective on welding.

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