Metallurgy and Welding of Stainless Steels

Fundamentals

2 day course – lectures and some laboratory examination

Basic stainless steel metallurgy, Phase diagrams, austenitic, ferritic, martensitic, duplex, precipitation-hardening grades, constitution diagrams, phase transformations, embrittlement phenomena, notch sensitivity, general and localized corrosion, microscopic examination

Welding Processes and Metallurgy

Common welding processes and weldability for the grades of stainless steel mentioned above, heating and cooling rates, preheat and post weld heat-treatment needed, resultant microstructures, filler metal selections and resulting weld microstructures, weld solidification cracking, weld metal liquation cracking, inter-granular corrosion, IGSCC, welding with dissimilar materials, weldability testing methods