This module offers participants an overview of the fundamentals of brazing, brazing process parameters, brazing fillers, soldering processes, and filler materials. The course provides a general understanding of the equipment used, joint designs, surface preparation, advantages and limitations of the processes, process applications, process variables, and operational costs of brazing. This course aims to equip participants with the skills and knowledge required for the selection of materials and brazing processing parameters in order to obtain improved mechanical properties for a given design and apply them in order to save costs, increase profitability, and enhance customer satisfaction.

**Who Should Attend**

This course is targeted at operations managers, manufacturing managers/engineers, production planning engineers, materials engineers, mechanical engineers, production engineers, foremen and skilled operators, quality control managers/engineers, materials purchasing engineers, laboratory managers and engineers, as well as personnel from all manufacturing industries that use welding as a joining process - such as the precision engineering, aerospace, marine, oil and gas, automotive, and electronics sectors.

**When & Where**

Please visit our website at [KTO.SIMTech.a-star.edu.sg](http://KTO.SIMTech.a-star.edu.sg) for the updated course schedule.

Training Venue:
Singapore Institute of Manufacturing Technology
2 Fusionopolis Way, Innovis, Level 8, Singapore 138634
What You Will Learn

- Principles of brazing and their processing parameters
- Principles of brazement design and filler materials
- Brazing fluxes and atmospheres
- Furnace-based brazing processes and materials
- Principles of dip, resistance, infrared brazing and their processing parameters
- Principles of MIG, plasma brazing and their processing parameters
- Laser brazing process and materials
- Brazing of ferrous-based materials
- Brazing of non-ferrous-based materials, ceramics, and carbides
- Testing methods for brazed joints
- Principles of soldering and their processing parameters
- Characteristics of lead-free and lead-bearing solder materials

About the Course Leaders

Dr Sun Zheng obtained his PhD in Mechanical Engineering from the Lappeenranta University of Technology, Finland. He has more than thirty years of experience in the field of materials joining, having worked in the research institute, university, and industrial environments. Dr Sun, who specialises in welding processes and welding metallurgy, has published over a hundred and twenty papers in international journals and conference proceedings. He was the joint recipient of the 1995 National Technology Award for contributions to the marine repair processes using electron beam technology.

Mr Pan Dayou is a Senior Research Engineer at SIMTech. He has nearly thirty years of experience in welding fabrication and materials joining. His expertise covers welding fabrication of pressure vessels, piping and other structures; process development & optimisation; productivity improvement; QA & QC and welding qualifications; training for welding personnel. In addition to industrial projects, he also carries out in-house research projects focusing primarily on joining of materials ranging from ferrous to non-ferrous metals, and he has published thirty technical papers. He holds a BEng degree in Welding Technology, an MSc degree in Material Processing, and a diploma of IWE/IIW qualification.

Dr Bi Guijun is a senior scientist from Joining Technology Group, SIMTech. He received his PhD in laser material processing from the Fraunhofer Institute for Laser Technology and RWTH Aachen University, Germany in 2004. Then, he worked as a research fellow at Rolls-Royce Technology Center in School of Mechanical, Materials and Manufacturing Engineering, University of Nottingham, UK. In 2008, he joined SIMTech. His research concentrates on laser aided additive manufacturing for surface modification, repair and 3D additive manufacturing, process monitoring and control, as well as the applications in marine, aerospace, oil & gas, PE etc.

Course Fee and Funding

- The full course fee for this module is S$3,000 before course fee funding & GST.
- All Singaporeans and Permanent Residents aged 21 years and above can enjoy course fee funding of up to 70% of the course fee.
- Singaporean or Permanent Resident employees fully sponsored by SMEs can enjoy course fee funding support of up to 90% of the course fee under the Enhanced Training Support for Small & Medium Enterprises (SMEs) scheme, subject to eligibility criteria.
- Singaporeans aged 40 years and above can enjoy course fee funding of up to 90% of the course fee under the SkillsFuture Mid-career Enhanced Subsidy (MCES).
- Singaporeans aged 35 years and above with earnings not more than S$2,000 per month can enjoy course fee funding for 95% of the course fee under the Workfare Training Support (WTS) scheme.
- Singaporeans aged 25 years old and above are eligible for SkillsFuture Credit which can be used to offset course fees.

For more information about the course fee funding, please visit www.ssg.gov.sg

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