High Speed Machining (HSM) techniques have been widely used in the manufacturing industries, such as aerospace, automotive, marine, medtech, moulds and dies as well as in offshore drilling. This course will provide participants with comprehensive training on HSM techniques, introducing several HSM methods that can be used to carry out machining of 3D complex parts with good surface quality, high geometrical accuracy and high efficiency. It covers machining mechanics, machine tool dynamics, work materials, cutting tool materials, cutting tool selection, HSM strategy, NC code generation and measurements. Applications include 3D complex components and difficult-to-machine materials used in different industrial sectors such as precision engineering, aerospace, semiconductors, automotive, marine, electronics, biomedical, life science and consumer products.

**Why This Course**

- Highly practical and intensive
- Latest knowledge and up-to-date technology
- Case studies highlighting industrial application
- Expert trainers in the field with industrial experience

**Who Should Attend**

This course is designed for engineers, researchers and technicians from the precision engineering, electronics, aerospace, automotive and other relevant industrial 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

How to Apply High-Speed Machining

- HSM overview
- Machining principles and fundamentals
- HSM technology and strategy
- QuickCNC NC code generation for HSM
- Case study: HSM of microwave channel for microfluidic applications

How to Select HSM Tools

- Work materials
- HSM tool materials
- Tool selection based on work materials
- Case Study: HSM tool wear classifications

How to Qualify HSM

- Machine tool dynamics
- Geometrical measurements
- Case Study: Chatter-free high-speed pocket milling for mould and die applications

About the Course Leaders

Dr Liu Kui received his PhD degree from the National University of Singapore in 2002. As a Scientist and Team Lead at SIMTech, his research interests include ultra-precision machining, micro/nano machining, ultrasonic vibration-assisted machining, ductile mode machining of brittle materials, HSM, micro EDM, diamond tool fabrication, deburring, and edge modification. He is a senior member of the Society of Manufacturing Engineering, Euspen, and the Japan Society of Professional Engineers.

Dr Ko Jeong Hoon received his PhD degree from the Pohang University of Science Technologies, South Korea in 2003. Currently a Scientist at SIMTech, he previously worked as an Alexander von Humboldt Research Fellow in the Institute of Machine Tools, Germany and as a Postdoctoral Fellow at the University of British Columbia, Canada as well. His research interests include multi-scale machining mechanics and dynamics, process induced vibrations, modeling and simulations/optimisations, ultrasonic vibration-assisted machining, spindle/tooling dynamics, ultra-precision machining and remanufacturing.

Course Fee and Funding

- The full course fee for this module is S$2,400 before course fee funding & GST.
- All Singaporeans and Permanent Residents aged 21 years and above can enjoy course fee funding of up to 50% of the course fee (capped at S$15/training hour).
- Singaporean or Permanent Resident employees fully sponsored by SMEs can enjoy course fee funding support of up to 90% of the course fee (capped at S$50/training hour) 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 (capped at S$50/training hour) under the SkillsFuture Mid-career Enhanced Subsidy.
- Singaporeans aged 35 years and above with earnings not more than S$2,000 per month can enjoy course 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 fee.

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