



UPCOMING...

Precision Engineering Centre of Innovation (PE COI) at SIMTech is a joint initiative of SPRING Singapore and the Agency for Science, Technology and Research (A*STAR). PE COI supports the PE industry in developing enabling technologies for innovations in material, product, process, operations and business. Through these innovations, PE companies can seize new opportunities in growth industries such as medtech, oil and gas, aerospace, automotive and semiconductor equipment. PE COI is hosted at SIMTech, a research institute of A*STAR.

This inaugural issue of the PE COI quarterly newsletter is part of our continuing effort to offer our assistance to the PE industry in the current economic downturn and seize new opportunity when the global economy recovers. PE COI has planned for a series of programmes and initiatives for PE companies to tap on.

Dr John Yong
Director, PE COI

Quarterly Technical Forum

30 September 2009 @ SIMTech Training Room 1&2
(Time : 0900 – 1000 hrs)

The Quarterly Technical Forum is a platform for PE companies to share technical problems and discuss issues with PE COI's PE consultants. The consultants will also share their technical knowledge and experience in their fields for the industry to know them better. The company, on this understanding, can tap on the consultants' expertise to solve their company's technical challenges.

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Monthly Meet-the-Consultants Session

PE companies can consult our pool of PE Consultants specialising in various technology know-how and expertise.

Mr Chang Jen Heng will give a presentation on how to be more economical and environmentally friendly in chemical etching, metal stripping and recovery processes.



Biography of Mr Chang Jen Heng

Mr Chang Jen Heng specialises in decorative/ functional electroplating, precious metal stripping and recovery, waste water treatment, and etchant off/ online recycling in various industries using the electrochemistry technology.

Mr Chang worked as an R&D Director and is co-founder of the ex-Technochem, Japan for 12 years, making many technical breakthroughs. These include:

(1) Bright nickel plating on brass with 2.3% lead substrate

- (2) Electrolytic nickel stripping from steel substrate saving chemical and waste water treatment cost
- (3) Production yield improvement by reducing open/ short circuit problem in PCB manufacturing
- (4) Activation of the copper surface passivated by the baking process, using specific microetch instead of conventional mechanical brushing.

He is a chemical consultant and an excellent expert in trouble shooting and problem solving in the area of electro-chemistry technology for many companies. His current research area focuses on the recovery processes on low internal stress high hardness Ni-Co alloy plating for the precision engineering, tin silver recovery from alloy 42 substrate and its waste water treatment.

Please contact PE COI Technical Hotline to make an appointment for 30 September 2009. Confirmed appointment is on a first-come-first-serve basis.

Monthly-Meet-the-Consultants Sessions
 30 September 2009, 1000 - 1200 hrs
 27 October 2009, 0900 - 1200 hrs
 18 November 2009, 0900 - 1200 hrs

Programme for PE COI Quarterly Technical Forum & Monthly Meet-the-Consultants Session

Quarterly Technical Forum																														
09:00 - 09:40	How to be more economical & environmentally friendly in chemical etching, metal stripping and recovery processes by Mr Chang Jen Heng																													
09:40 - 10:00	Tea Break & Networking																													
Monthly Meet-the-Consultants Session																														
Consultants	#1-2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20	#21	#22-23	#24-25	#26	#27	#28	#29	#30	#31		
1st Appointment 10:00 - 10:40																														
2nd Appointment 10:40 - 11:20	Metal Forming	Metal Casting	Metal & Ceramic Moulding	Plastic Injection Moulding	Welding	Joining	Mechanical Machining	Laser Machining	Wet Coating (Sol Gel)	Wet Coating (Hi Temp & Wear Resistance)	Tribology Coating (PVD & CVD)	Decorative Plating & Metal Recovery	Green Manufacturing	MedTech Manufacturing	Manufacturing Operation Management	ERP & Supply Chain Management	Production Planning & Scheduling	Lean Manufacturing	Process & Tool Condition Monitoring	Equipment Development	Simulations (Machining & Precision Machines, etc.)	Reliability (Mechanical & Electronic/Electrical)	Precision Motion Control & Automation	Precision Mechanism & Machine Design	Precision Measurements - Optics & Metrology	Image Processing & Vision Inspection	Material Characterisation	Dimension Metrology		
3rd Appointment 11:20 - 12:00																														



New Consultant



Dr Nishiyama Sabrou

For 18 years, PE Consultant - Dr Nishiyama Sabrou has engaged in extensive R&D on metal forming (forging, form rolling, thermo-mechanical treatment, sheet forming), tribology, nonlinear finite element method and modelling during his tenure at Nissan Motors Japan.

At Hitachi Zosen Information Systems Co., Japan, where he subsequently joined in 1996, he took on the General Manager role to oversee the development of production related CAE systems such as forging simulation and expert system as well as the development of mould related systems.

Dr Nishiyama Sabrou has also worked with the industry in Japan to transfer and commercialise flow forming and hot forging technology. He lends his expertise in metal forming to meeting various marketing and purchasing functions in forging products, dies and punches.

Dr Nishiyama Sabrou received his PhD in Engineering from Osaka University, Japan with his dissertation on precision forging for automobile parts. In 1995, he garnered the Technical Incentive Award for the “Study on Precision Forging of Automobile Parts” and the Technical Development Award in 1999 for “Development of Forging Expert System” from the Japan Society for Technology of Plasticity.



New Initiative: MedTech Manufacturing Consortium

SIMTech's MedTech Manufacturing Consortium aims to address the medical technological needs and challenges faced by the manufacturing industry. It focuses on sharing experiences, knowledge and best practices in medical manufacturing technology and helps in facilitating research collaborations among the consortium members and the research institutes.

Other objectives include:-

- To help diversify the capabilities of local manufacturing industry to medtech manufacturing and help in overcoming the barriers in this migration process
- To establish medical technology platforms and networks for technology transfer and knowledge sharing among stakeholders in the medtech industry
- To facilitate greater interaction and leveraging of expertise from industry research institutes and funding organisations.

In conjunction with the SIMTech MedTech Manufacturing Consortium, a Workforce Skills Qualifications (WSQ) Graduate Diploma in MedTech Manufacturing will also be launched to help upgrade the medtech knowledge and skill sets for the existing pool of engineers and managers in the local industry.

For more information, please contact
Ms Jenny Ang, Chair, MedTech Manufacturing Initiative
Email: jenny@SIMTech.a-star.edu.sg
Mobile: 9173 4083



1st MedTech Roundtable on 25 February at SIMTech

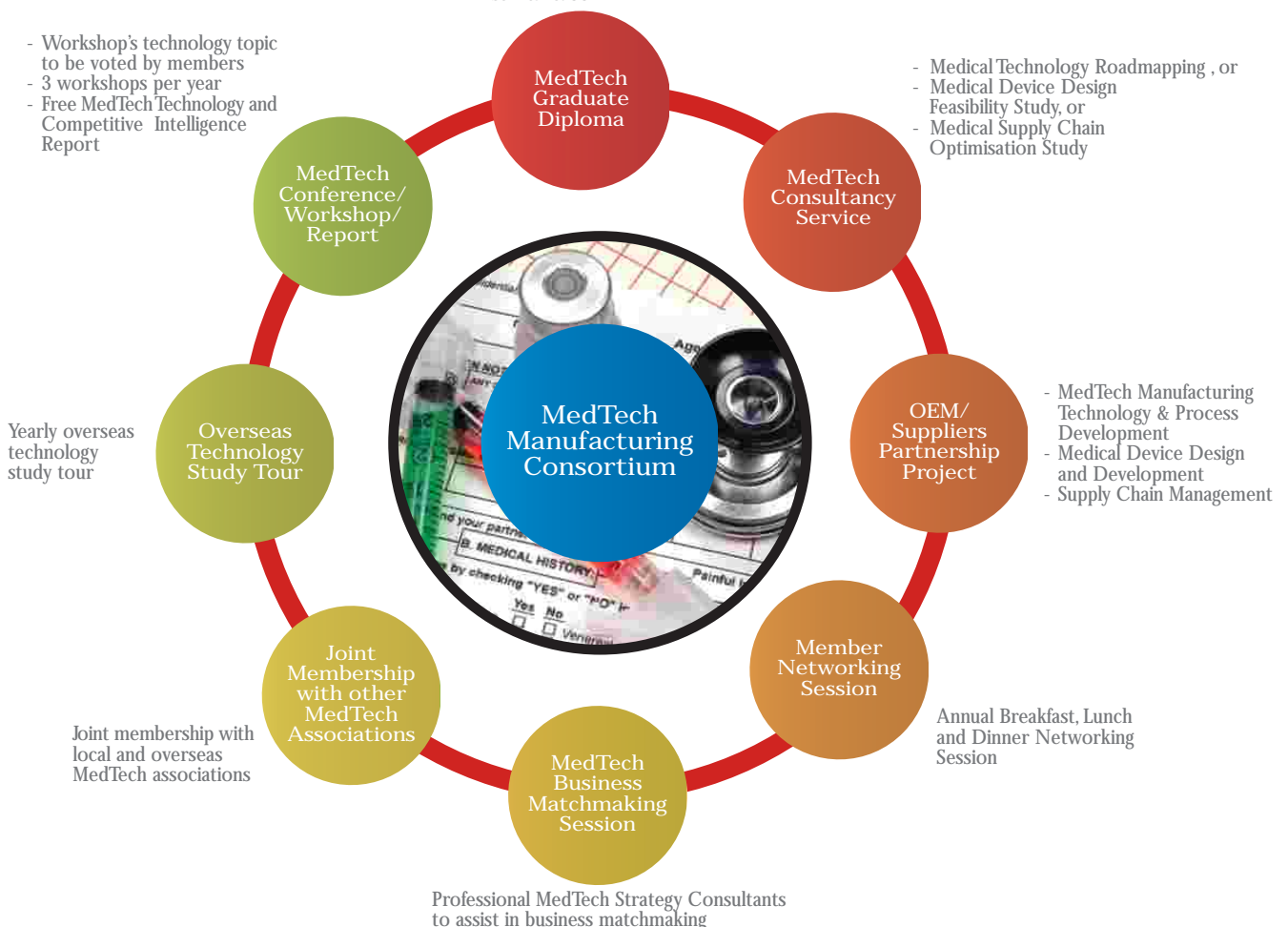


In discussion during 1st MedTech Roundtable

- 90% of the course fee to be sponsored by WDA's SPUR programme
- Class starts in Jan 2010
- First intake: 30

- Workshop's technology topic to be voted by members
- 3 workshops per year
- Free MedTech Technology and Competitive Intelligence Report

- Medical Technology Roadmapping , or
- Medical Device Design Feasibility Study, or
- Medical Supply Chain Optimisation Study



Technology Consortia and Manpower Development Programmes Launched



(L-R): Mr Adrian Lim, MD, Disk Precision Industries, Mr Berne Chung, MD, Component Technology, Mr Kwan Lok Suen, MD, CKE Manufacturing, Mr Low Hwee Hwa, Director, Advance Tech Precision, Mr Michael Oxborrow, MD, ACP Metal Finishing, Mr Chan Heng Kee, CE, WDA, Dr Lim Ser Yong, ED, SIMTech, Ms Shann Yap, Atg GM, Electroloy Metal, Mr Liam Kok Chye, Director, Matcor Technology & Services, Ms Siti Hawa Jumhat, Rep, Riso Seiki, Mr William Kuek, Ops Manager, Sky Engineering, Dr Song Yun Feng, Director, Sunny Instruments Singapore, Dr Li Xiaomin, MD, WinTech Nano-Technology Services

SIMTech announced two new initiatives on 10 June 2009 involving the formation of technology consortia and development of manpower to boost the local Precision Engineering (PE) industry. These initiatives are significant to propel the industry's capabilities to handle more complex manufacturing processes. The two new initiatives focus on High-Mix Low-Volume Manufacturing and Precision Measurements and Characterisation. In each of these areas, a technology consortium is formed with SIMTech and PE companies to develop technologies required.



Dr Lim Ser Yong, ED of SIMTech launched the Technology Consortia and Manpower Development programmes

Complementing these consortia are new Precision Engineering Workforce Skills Qualifications (PE WSQ) Graduate Diploma Programmes jointly organised by SIMTech and the Singapore Workforce Development Agency (WDA) to equip Professionals, Managers and Engineers (PMEs) with relevant skills in these niche and specialised areas.



SIMTech researchers explaining their technology to the visitors



Industries sharing their vision with Mr Lee Yi Shyan, Minister of State, Ministry of Trade & Industry and Manpower

Upon completion of their training, the skilled professionals will be channelled to the consortia to further advance the R&D work.
<http://pe-wsq.SIMTech.a-star.edu.sg/>

New PE COI Equipment Ready for Industrial Collaboration



Modulation Transfer Function equipment

This equipment measures optical lens property such as Modulation Transfer Function (MTF). The PE industry may benefit from traditional qualitative measurement to quantitative measurement of lens property. Two service projects and lens in-house project have been initiated.

A fully automatic 6-axis tool and cutter grinder in generating more complicated and accurate cutting tools specialise in manufacturing polycrystalline diamond (PCD) and cubic boron nitride (PCBN) cutters. Optional EDM enhances the machining productivity. It is also suitable for customised tools, form tools and new tool for advanced materials which are required by the PE industry. Currently, one in-house and three potential industrial projects have started.



EWAG - Ewamatic Line



ENGEL All-electric Injection Moulding machine

An electric driven, 55-Ton, Tie barless Injection Moulding System is available to support research and industry projects for moulding precision plastic parts such as medical devices, optical devices, precision products with engineering materials, thin wall parts, etc.

This system is equipped with abrasion and corrosion resistance

screws and barrel for moulding of engineering materials such as PEI and PEEK. It has additional screws and barrels for the support of different product sizes as well as a dedicated screw and barrel for moulding of optical/ transparent products.

It has also been equipped with a 10K clean room module for supporting products such as medical devices that require clean room moulding environment.

For enquiries on the use of equipment, please contact Mr Eric Pook, sfpook@SIMTech.a-star.edu.sg

Newly Formed CAE Consortium

Ten companies have signed up for the consortium training programme on Computer Aided Engineering (CAE) for the Processing of Plastic Moulding and Metal Forming Parts for the PE Industry. These are: Yong Chang Mould Engineering, Micropoint Technologies Pte Ltd, T&C Plastic Moulding Pte Ltd, A-Plus Engineering Pte Ltd, Crafts Precision Engineering, Exsa Precision Technologies Enterprise, Peakpon Technology Pte Ltd, Kay Kay Plastic Industries Pte Ltd, OEM Sourcing & Product Development Enterprise, and Yeakin Plastic Industry Pte Ltd. The consortium training programme started on 1 July 2009.

For enquiries on PE COI simulation capabilities, please contact Dr Wong Ee Hua, ehwong@SIMTech.a-star.edu.sg.

Courses

The Precision Engineering Workforce Skills Qualification (PE WSQ) Graduate Diploma in Precision Measurements and Characterisation is a joint initiative by SIMTech and the Singapore Workforce Development Agency (WDA). The objective of the course is to provide the fundamental knowledge and hands-on training in precision measurements and metrology required for managers and engineers in precision engineering related manufacturing industries. The course is given by both local and international scientists with excellent track record in precision measurements. It comprises five units:

1. Geometric Characteristics and Tolerancing
2. Dimensional Measurements and Nano-scale Metrology
3. Engineering Optics & Optical Measurements
4. Image Processing and Industrial Vision Inspection
5. Materials Characterisation

For enquiries on courses, please contact Dr Zeng Xianting, xzeng@SIMTech.a-star.edu.sg



PE COI Expert Consultants Highlight

Metal Forming, Casting & Heat Treatment



Dr Atsushi Danno
• Former Board Member and Director in TOYOTA CRL.
• High Precision Bulk-Metal Forming Technology
danno@SIMTech.a-star.edu.sg



Dr Anders Jarfors
• Casting of Advanced Materials
• Superplasticity Forming
• Heat Treatment
anders@SIMTech.a-star.edu.sg



Dr Nishiyama Sabrou
• Modelling for Metal Forming
• Tool & Die
nishiyama@SIMTech.a-star.edu.sg

Plastic, Metal & Ceramic Moulding



Dr Li Qingfa
• Powder Injection Moulding and Powder Metallurgy
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Mr Chen Ge
• Plastic Injection Mould Design
• Mouldflow
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Welding & Joining



Dr Sun Zheng
• Welding Processes and Welding Metallurgy
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Dr Wei Jun
• Diffusion Bonding and Micro/Nanojoining
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Machining



Mr Kanno Shigeyuki
• Precision Machining Technology, Micro-machining and Micro-EDM
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Dr Lim Gnian Cher
• Laser Machining and Processing
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Mr Liu Peiling
• CAD/CAM/CNC Toolkit and Simulation System
Developer of InventorMould, Virtual CNC
Training Lab & QuickCNC
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Plating, Coating & Surface Treatment



Dr Andrew Soutar
• Surface Finishing
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Dr Sandor Nemeth
• High Temperature Resistant and Scratch Resistant Coatings
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Dr Ding Xing Zhao
• Tribological Hard Coatings
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Mr Chang Jen Heng
• Decorative Plating, Chemical Etching, Metal Stripping and Recovery
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Operation & Supply Chain Management



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Operations Management
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Dr Lim Yan Guan, Roland
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MedTech



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Equipment Development



Ms Wan Siew Ping
• Equipment and System Conceptualisation
• Automation and System Integration
• Modular Design and Documentation
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Process & Tool Condition Monitoring



Dr Lim Beng Siong
• High Integrity and Performance Monitoring
• Electrode, Tools and Work Piece Tracking
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Factory Automation



Dr Gong Zhiming
• Precision Motion Control
• Robotic Automation
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Dr Lin Wei
• Precision Mechanism and Machine Design
• Manufacturing Automation
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Dr Lin Wen Jong
• CAE for Precision Machines
• Vibration Analysis and Control
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Reliability



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Material Characterisation



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Partners

