Thermal Sprayed Coatings & Composites: Science, Engineering and Applications

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Overview

Thermal spray processing involves deposition of metals, ceramics, polymers and nanomaterials as coatings and composites for a wide variety of applications. These applications include wear and corrosion resistant coatings, bioceramic coatings for orthopedic implants, solar cell coatings, embedded sensors, near net shape manufacturing, aerospace components, and functionally gradient materials.

The course will provide attendees an overview of the state of the art of thermal spray processes, powder materials and pre-treatment, equipment, process map development and their correlation with desired properties. The course will also focus on advanced materials characterization technique focused on studying thermals prayed coatings. The course will include exercises on design of coatings with an emphasis on applications.

Modules	**1. Thermal spray processes (Plasma, HVOF, Cold Spray, Wire Arc): theory, equipment** **2. Powder and Surface Treatment** **3. Process Map Development and Advanced Diagnostics** **4. Novel Characterization Methods for Thermal Sprayed Coatings** **5. Processing of Nanomaterials, Functional Gradient Materials and Near Net Shape Processing** **6. Case Studies and Applications** **Dates: June 20- July 1, 2016** **Number of participants for the course will be limited to forty.**
You Should Attend If…	▪ You are an executive, engineer, researcher, from manufacturing, government organizations including R&D laboratories. ▪ Mechanical, Chemical, Aerospace, Corrosion, Biomedical and Materials Engineers. ▪ Student at all levels (BTech/MSc/MTech/PhD) or faculty from academic institutions.
Fees	The participation fees for taking the course is as follows: **Participants from abroad : US$ 300** **Industry/ Research Organizations: ₹ 10000** **Academic Institutions: ₹ 5000** **Students (including Research Scholars): ₹ 2500** The above fee includes all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hrs free internet facility. The participants will be provided with lodging and boarding on payment basis subjected to availability. All course registrations will processed via the national GIAN portal (gian.iitkgp.ac.in), where a Rs 500/- one-time fee is payable in addition to the above amount. Registration fee can be directly deposited through NEFT to the designated account as given below or can be sent in the form of demand draft (D.D.) drawn on any nationalized bank in favour of "**GIAN-TSCC 2016**" payable at Allahabad. Account Name: **GIAN-TSCC 2016.** Account No.: **coming soon…….** Bank: **Vijaya Bank, MNNIT Branch, Allahabad- 211004, U.P.** IFSC Code: **VIJB0007184.**

The Faculty

Dr. Arvind Agarwal is a Professor, Associate Dean for Research and Director of Advanced Materials Engineering Research Institute (AMERI) at Florida International University (FIU), Miami, USA. He received his B. Tech in Materials & Metall. Engg. in 1993 from IIT Kanpur and a PhD from the University of Tennessee, Knoxville, USA. He spent 3 years in industry developing plasma sprayed coatings and freestanding structures for NASA and several aerospace companies. He established a Plasma Forming Laboratory (PFL) at FIU in 2002. His current research interests include: plasma and cold spray, surface engineering, spark plasma sintering, carbon nanotube (CNT), boron nitride nanotube (BNNT) and graphene reinforced composites and coatings, nano-indentation and nano-tribology, and mechanical properties of low dimensional and biological materials. Prof. Agarwal has published more than 225 technical articles, and has co-authored 2 books, and 7 edited books. Prof. Agarwal has been serving on International Thermal Spray Society's several committees for more than 15 years. His long association as: (i) "Editorial Board Member" of Journal Thermal Spray Society and (ii) Co-Editor- International Thermal Spray Conference (ITSC) will be of immense help to put India on World Thermal Spray map. He also serves on the Editorial Board of several journals including Surface Coating & Technology. Prof. Agarwal was inducted in 2012 class of Fellows of ASM International (FASM) for his contribution of carbon nanotube reinforced plasma sprayed coatings.

Dr. Anup Kumar Keshri is Assistant Professor at IIT Patna. He received his PhD form Florida International University, Miami, Florida, USA in July 2010. His current research interests include Carbon Nanotube Reinforced Ceramic Matrix and Metal Matrix Composites, Thermal Spraying, Tribology of Materials, Process-Structure-Property Relationship.

Dr. Anuj Jain is Professor in the Department of Applied Mechanics at Motilal Nehru National Institute of Technology Allahabad, India. He is member of TMS society. His research interests include composite materials, development of materials and coatings for biomedical implants.

Dr. Abhishek Kumar is Assistant Professor in the Department of Applied Mechanics at Motilal Nehru National Institute of Technology Allahabad, India. His research area includes nanomaterials, coatings and mechanical behaviour of materials.

Course coordinator(s)

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