

## **CPDM inducts distinguished members as ‘Adjunct Faculty in Design and Manufacturing’ to support its MDes and research in Product Design and Engineering and its MTech and research in Smart and Advanced Manufacturing Programmes**

CPDM has inducted four distinguished members from the Industry and Academia as Adjunct Faculty in Manufacturing to support its Smart and Advanced Manufacturing Programme. The Department has a brand-new two-year MTech Programme in Smart Manufacturing which is about to enrol its third batch of students. This Programme is an IISc-wide initiative with faculty members drawn from twelve Departments of the Institute with a primary focus in manufacturing and associated research. The Programme which is anchored at CPDM provides a 360-degree view of manufacturing lifecycle, with the goal of preparing students to become future leaders of manufacturing. The course covers both ‘materials-manufacturing-design’ and ‘systems-sensors-analytics’ in the context of smart manufacturing. The students apply the above knowledge to the hands-on maker’s Projects where the students ‘develop-test-debug’ manufacturing systems.

As part of their final project, students are expected to undertake cutting-edge, industrially relevant, research or development projects. The Department also offers a highly popular research programme (MTech by research) which addresses various aspects of advanced manufacturing. CPDM has initiated the first, indigenous Smart Factory R&D platform in India in 2014 which has now grown to be one of the four Common Engineering Facility Centres (CEFC) under the SAMARTH UDYOG Bharat 4.0 Programme of the Department of Heavy Industry, Government of India.

The ‘Adjunct Faculty in Manufacturing’ will interact with MDes and MTech students and mentor them about practical needs and importance of their areas and their specific competence; assist in formal evaluation of their final projects along with regular Faculty members; advise CPDM leadership on various aspects of design and manufacturing; help MDes and MTech students hone their preparedness for placement, interview skills, understanding the requirements of industrial positions, etc; and, advise and help students for appropriate internships and placement.

The recently inducted Adjunct Faculty members are Dr. Purnendu Sinha, Tata Technologies, Bangalore (I4.0 Maturity Models, Analytics); Dr. S. Dwarakanath, Former CEO Airbus India, Bangalore (Strategy); Dr. Nagahanumaiah, Director CMTI, Bangalore (Machine Development); and Dr. U. Chandrashekar, Wipro 3D (Additive Manufacturing). The members have expertise in key areas of Industry 4.0 technologies, smart manufacturing, and digital manufacturing, with strong technical and academic background, and international exposure and experience in project leadership positions across diverse industries. The induction of these experts with a wealth of practical experience would make great value addition to the Department.



**Dr. Purnendu Sinha** has 21+ years of expertise in industrial IoT, AI/ML, engineering analytics, systems engineering, design innovation in domains of industry 4.0, digitalization, smart manufacturing, smart mobility, and UAVs. He has extensive work experience across varied industries/sectors and academia. His current engagement is with Tata Sons, Group Technology & Innovation Office as Technology & Innovation Leader and his previous engagements have been with Samsung R&D Institute India as Group Engineering Manager and Part Leader IoT Analytics Lab; General Motors R&D as Lab Group Manager and Staff Researcher, Philips Innovation Campus as Principal Scientist and Cluster Leader. He has a PhD from Boston University and is an Alumnus of IIM-Ahmedabad. He is the Fellow of Institution of Engineers (India) and Senior Member of IEEE (USA). He has teaching experience as Associate Professor at IIIT Bangalore, Assistant Professor at Concordia University Montréal, Research Assistant/Teaching Assistant at Boston University/NJIT/Stevens Institute of Technology, Adjunct Professor at IIT Kharagpur and Doctoral Committee Member at Institute of Advanced Studies, Colorado Tech. Univ., Colorado Springs. Dr Purnendu has authored/co-authored over 60 articles in reputed journals, peer-reviewed conferences and workshops, and over 25 peer-reviewed internal research reports.



**Dr. Srinivasan Dwarakanath** has 20+ years of professional expertise in aerospace and aviation, general management, program management, business strategy, organizational transformation, digitalization & industry 4.0, engineering and information management, R&D and innovation, procurement, and international cooperation. He is an entrepreneur with an ambition to guide large organisations and start-ups to successfully venture into emerging markets. He is currently a mentor and independent consultant in Aerospace and Aviation and Guest Faculty at IIM-Bangalore to Aerospace MBA students. He has been the VP & Head of Eng. Procurement for Design, Manufacturing Engineering and Customer Services, Airbus Group (Toulouse, France), President and Board Member, Airbus Commercial Aircraft in India, CEO & MD, Airbus India Operations Pvt Ltd, VP and Head of Strategy & International Cooperation - Asia-Pacific, Middle East & North Africa (Toulouse, France /Bangalore, India), Country Manager and Head of Solutions Product Line Management - India (Toulouse, France). He has a PhD in Engineering from Darwin College, Cambridge University UK and Masters in Mechanical Engineering from Indian Institute of Science, Bangalore. He has undertaken various Career Development Programmes like Blockchain Strategy Programme, (6 weeks) - Online, Oxford University, UK, Mentorship Programme with Head of HR of Airbus Helicopter as the mentor, and Coaching Programmes like Mentor for Women Talents at Airbus Group India, Mentor for High Potential Airbus Junior Management programme, etc.



**Dr. Nagahanumaiah** is Director at Central Manufacturing Technology Institute (CMTI), Bangalore and Former Chief Scientist of CSIR-Central Mechanical Engineering Research Institute, Durgapur. He completed his PhD from IIT Bombay and Post-Graduation in Tool Engineering from Indo-Danish Tool Room. He has 20 years of research experience from CSIR-CMERI, 3 years of teaching experience and 2 years as mold designer in industrial tool rooms. His areas of research include micro-nano systems engineering including modular micro machines development, micro-nano scale

manufacturing processes and biomedical applications of micro-nano patterned surfaces. In the past, he has worked on dyes and molds, injection molding and rapid tooling areas. He established a research group “Micro Systems Technology” at CSIR-CMERI in 2006 and his group successfully developed four micro machines: micro-EDM, laser processing, nano-scratching and reconfigurable micro factory. He is a Professor of Academy of Scientific and Innovative Research (AcSIR), New Delhi and Honorary Professor of Indian Institute of Engineering Science and Technology (IEST) Shibpur. He is a recipient of ‘BOYSCAST Fellowship’, ‘Raman Fellowship’ and one of the recipients of ‘We Think for India’ award from Prime Minister of India for the Indian manufacturing policy draft prepared in 2003. He is a member, of International Institution for Micromanufacturing (I2M2), USA and International Association of Engineers, UK.



**Dr. U. Chandrasekhar** has about 35 years of experience encompassing leadership positions in research, academia and project leadership in the areas of design and development of aero engines, digital manufacturing, structural integrity evaluation and experimental stress analysis. He is presently the Program Director of AddWize Wipro 3D Bangalore which promotes industry-institute collaborations in metal additive manufacturing through the AddWize program of Wipro3D ([wipro-3d.com/addwize/addwize-academia](http://wipro-3d.com/addwize/addwize-academia)) and his past engagements have been with Gas Turbine

Research Establishment (DRDO), Ministry of Defence as Additional Director; The Institution of Engineers (India), Hyderabad as Director-General and Vel Tech University, Chennai & IIT Bombay as Pro Vice-Chancellor & visiting Professor. He received his graduation from NIT Suratkal, post-graduation from IIT Chennai in Mechanical Engineering and PhD from VTU for research in additive manufacturing of photopolymers carried out at DRDO. Dr. Chandrasekhar received a Gold Medal from the former President of India Dr. A.P.J Abdul Kalam for his academic achievements. He set up the country’s first-ever 3D Printing laboratory at GTRE, Bangalore in 1997. During his tenure at DRDO, he carried out several technology development projects and led a senior group of scientists in Moscow during the testing phase of a developmental aero gas turbine engine. He received a commendation medal from the Scientific Advisor to the Defence Minister in recognition of his contributions to the rapid prototyping of complex aeronautical systems. He has been invited as a keynote speaker by several international fora and serves on the editorial board of International Scientific Journals (Springer and Emerald Publications). He serves on the Academic Sub-Committee of the National Board of Accreditation for fostering outcome-based education. He is also the current Vice Chairman of NAFEMS, UK's India chapter.