

RESEARCH PROGRAMME in ADVANCED MANUFACTURING

We currently have 13 PhD candidates with us, of which seven were recruited this year. The remaining six students have completed one year of training, were recruited last year and have undergone 4 courses during this training.

The research programme at CPDM (MTech by Research and PhD) in Advanced Manufacturing is carried out in a variety of areas, materials and processes, digital manufacturing, manufacturing supply chains, sustainable manufacturing, Industry 4.0, controls/autonomous systems and robotics, and policy and entrepreneurship in manufacturing. CPDM pioneered research in the area of smart manufacturing in India with the initiation of India's first indigenous Smart Factory research platform in 2015 in collaboration with The Boeing Company, USA; Boeing is a strategic partner of IISc, similar to University Cambridge in the UK and Tshinghua University in China. Equipped with a strong faculty, a well-groomed library and an array of sophisticated facilities for prototyping and manufacturing and associated research, CPDM has a vibrant atmosphere to develop future leaders in manufacturing research.

CPDM hosts a technology business incubator (TBI) in MedTech with special focus on Geriatric Healthcare funded by KBITS, GOK. The TBI is intended to support innovators via a programme that straddles incubation, training and mentorships, as well as having access to four state of the art facilities in the areas of mechanical, chemical, biological and user testing. It is also extending its earlier work on developing India's first indigenous Smart Factory into a demonstration platform for industry called I4.0India@IISc (I for India at IISc). The platform is being developed as a Common Engineering Facility Centre (CEFC) under the SAMARTH Udyog Bharat 4.0 programme of the department of Heavy Industries, GoI. A major thrust of research at CPDM in manufacturing is developing new processes, technologies and tools for supporting development of complex and advanced manufacturing systems.

For fostering international research into manufacturing in India, CPDM initiated a major conference series called I-4AM (pronounced I forum) - International Conference series on Industry 4.0 and Advanced Manufacturing. Its first edition will be held during 28-29 June 2019 at Indian Institute of Science Bangalore, to deliver international quality at affordable price.

Research students are selected thorough a stringent selection procedure comprising a rigorous and extensive interview, in order to determine their individual ability and motivation. Based on the background of the student, each research student will be allocated a research topic at the time of admission, from among the topics of research offered for admission in the year of admission. Each student will be jointly supervised by two faculty members among those who are involved in the manufacturing programme (see list of faculty members involved in the manufacturing programme below).

Ph.D. at IISc generally requires three and half years of extensive, in-depth research. A PhD student is expected to make major contributions in philosophy, understanding or enhancement of the state of the art in manufacturing.

MTech by Research [MTech(R)] is generally a two years research course. MTech(R) students are required to enrol more courses than that required for PhD students. MTech(R) is a perfect blend of course work and research, thus providing students with freedom to take up further either doctoral research, join a company where both research and general design are essential, or initiate/join a startup.