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NIIST-industry tie-up for software use

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The National Institute for Interdisciplinary Science and Technology (NIIST) here is joining hands with a Mumbai-based company to deploy an advanced software that makes it possible for foundries to improve quality and reduce costs.

The software, developed by the Computational Modelling and Simulation Group at the NIIST, is designed to simulate metal casting without the need for shop floor trials. It is claimed to help in prediction of casting defects, thereby saving valuable time, effort, energy, and material.

The institute has tied up with 3D Foundry Tech Pvt. Ltd. (3DFT), a company incubated in the Indian Institute of Technology, Bombay (IIT-B) for a software package targeting small and medium-scale foundries. A virtual casting module developed by the NIIST will be incorporated into AutoCAST-X, a popular casting software developed at IIT-B and maintained and marketed by 3DFT.

The module named FLOW+ can perform coupled simulation of metal flow and solidification, enabling visualisation of mould filling sequence, changes in casting temperature, and solidification rate.

Metals shrink on solidification, leading to cavities in casting. So, foundry practice insists on providing extra metal in the form of feeders. It is not enough that the feeders are provided; in order to be effective there are a number of design conditions that they have to fulfil.

Proper design of feeding has been, over the years, considered an art rather than a science and feeder design for a new casting is usually finalised by trial and error.

A pressnote issued by the NIIST said the Indian foundry industry was losing over Rs.2,000 crore every year in shop floor trials for new castings and rejections in production castings. This, it said, could be saved by computer simulation and optimisation of casting designs.

The pressnote said SME foundries, which constituted a majority of the 5,000-strong foundries in India, were handicapped by a severe shortage of trained technical manpower.

The NIIST-IIT-B scientists aim to double the penetration of casting simulation software in the country within five years by keeping the new software affordable and easy to use, and supporting it with an online E-Foundry Academy.

The agreement between the NIIST and 3DFT is scheduled to be signed here on Monday. Under the terms of the partnership, the NIIST will receive a licence fee of Rs.5.5 lakh for the Solver module.

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