

B. Tech (6 Year) Mechanical Program

Automation, Artificial Intelligence and Design is the future of Mechanical Industries- by Prof. Venkatesh Deshmukh

The 6-year B. Tech. Integrated program at Department of Mechanical Engineering, MPSTME, NMIMS University has embarked on a vibrant journey by introducing two concentrated areas of specialization: A. Design and Manufacturing and B. Automation and AI. These are aimed at turning out graduates that understand the role of digital computers and cutting edge technology in conceptualization, design, fabrication, testing and validation of systems falling under the purview of core mechanical engineering.

The concentrated specializations are designed keeping in mind the skills and training needs of young engineers starting out their careers in the twenty-first century.

According to an article in The Economic Times, the general quality of India's engineering graduates now is where it stood ten years ago. Two main factors have caused this shocking effect, 1. Ad-hoc reforms in the early education system and 2. Lack of coding skills of Indian engineers.

The article also goes on to say that "However, more Indian engineers (4.6%) can code correctly compared to their Chinese peers (2.1%), the survey found. That, however, is poor consolation for India, because a far higher number of American candidates (18.8%) can write correct codes."

It is desired that the suggested curricula will bridge this gap on deployment and maturity.

Most of the everyday machines in our world such as airplanes, ships, submarines, automobiles, satellites, refrigerators, air-conditioners and specialized systems such as automatic axle straightening machines, pharmaceutical and food packaging machines, cooling towers, HVAC systems, centralized air conditioning equipment, to name a few, used by human beings are conceptualized, designed, built and tested by mechanical engineers. It is vital for a mechanical engineer not only to understand the fundamental principles used in the process but also the use of software tools and scripting in facilitating the process.

The process from conceptualization to having a finished product ready to ship requires knowledge of various aspects of mechanical engineering. The core mechanical engineering courses covering these aspects along with use of cutting edge and modern software tools form the basis of the Design and Manufacturing specialization.

The modern machines described earlier are also controlled by modern computers using complicated software programs. In the modern industrialized world, the process of conceptualization to having a finished product ready also depends on a crucial technology called Digital Twin Technology. Global giants such as Siemens and Dassault Systemes have digital industries software platforms for in-house R&D. Robotic Process Automation, which is the art of making Bots, has had sweeping reforms on and has opened vast opportunities in every possible technological field. If the graduates are desired to capture their fair share of this global marketplace, the training in machine learning and artificial intelligence is a must, which forms the basis of the Automation and AI specialization.