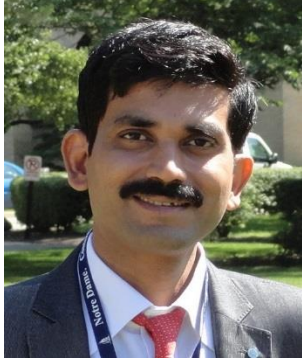




Dr. Kiran Suresh Bhole, Associate Professor, Department of Mechanical Engineering, SPCE, has received a **grant of Rs 20 Lakhs** in August 2016 from **Science and Engineering Research Board of Department of Science and Technology**, Government of India for his research project titled “*Design and Development of Three Axis Flexural Stages for Micro-Milling Workstation*”.

The project aims in indigenous design and development of low cost high resolution three-axis flexural based micro-milling workstation. The proposed workstation is expected to fabricate intricate shape microstructures such as mask for deep x-ray lithography, asymmetric high precision molds for micro-channels, defense parts etc. which are built in high strength materials consist of *features up to 50 microns*. To achieve desired accuracy and resolution the flexural stages which have proved its capability to provide high resolution in scanning is proposed. A flexure based system allows motion by bending the load elements. These are very simple to manufacture especially compared to some other types of mechanism and are easy and cheap to replace, and so maintenance is not a large issue. In addition they are light in weight; possess very low friction, no lubrication, and no hysteresis. Due to these advantages flexural based mechanisms are used in various applications demanding micro and nano positioning accuracy. Inherent accuracy in linear motion of the flexural guideways would be able to make micro-milling station with ease and in economical way. Thus the deployment of the flexural system is expected to provide low cost solution for the development of highly accurate micro-milling workstation.

The proposed utility of the flexural mechanism in micro-milling centre is expected to open new avenue in the development of the other micromachining centres such as micro-grinder, micro-turning centre and so on. Further the proposed project also aims in the synthesis of the mechanism in non-dimensional way. The non-dimensional characterization of the flexural mechanism will lay the design guidelines for the design of several other flexural based systems.