Indian Institute of Technology Indore

DST-FIST Center of Excellence in Gear Engineering (CEGE)

Organizing

Synergistic Training Using Scientific and Technological Infrastructure (STUTI) Program on

"Advances in Gear Engineering"

19th to 25th December 2022

Supported by Department of Science and Technology, Govt. of India

In collaboration with Shivaji University Kolhapur

About IIT Indore: IIT Indore established in 2009, is among the 2nd generation eights IITs, as the part of the initiative that envisages to propel India as a global knowledge and technology leader. Continuing with the tradition of the older IITs. IIT Indore is playing an active role in propelling India on a growth- trajectory by focusing on research-based education and innovation-driven research and entrepreneurship. IIT Indore aims to achieve this mission with the humanistic approach.

About CEGE, IIT Indore: Center of Excellence in Gear Engineering (CEGE) was established at IIT Indore in 2015 with financial support from the DST under the FIST scheme to acquire following sophisticated equipment used in different aspects of gear engineering thus augmenting the existing research and training facilities: (i) CNC WSEM Machine with inclined surface machining capability, (ii) 3D Surface roughness measuring-cum-contour tracing equipment, (iii) Noise and vibration analyzer for gears along with sound intensity probe, (iv) Computerized dual flank roll tester for conical gears, (v), Machinery fault simulator, (vi) Gear prognostic equipment, (vii) High-frequency laser, (viii) Conical gear manufacturing machine. In addition to these equipment, the CEGE also has CNC gear metrology machine, CMM machine, gear hobbing machine equipped with MQL, in-house developed apparatus for single and dual flank roll tester for cylindrical gears, test rig for measuring noise and vibrations of gear, advanced finishing of gears by ECH, PECH and AFF processes, flank modification of spur gears by electrolytic dissolution processes and many other facilities. Details of other facilities available in CEGE are available at
https://iiti.ac.in/page/dst-fist-center-of-excellence-in-gear-engineering

About STUTI: Synergistic Training program Utilizing the Scientific and Technological Infrastructure (STUTI) Program is funded by the **Department of Science Technology (Government of India) with Shivaji University, Kolhapur being the PMU**. It is intended to human resource and its capacity building through open access to S and T Infrastructure across the country by organizing training program on DST supported equipment targeting Faculty members, Scientists, Post-doctoral fellows, PhD and PG/UG students actively involved in research across various institutions in the country.

Goal of STUTI Program: Participants will gain valuable knowledge on fundamental and applied aspects of net-shape and green manufacturing, metrology, diagnostics, prognostics, and laser treatment of gears and recent advances in these fields. They will gain skill-based hands-on practical training on the various sophisticated equipment (supported by the DST and other funding agencies) used for testing and measurement of different performance parameters of gears.

Course Content:
Content of this STUTI program devotes 50% time to the lectures on the following topics and 50% time to the practical based on them:
Net-shape and Sustainable Manufacturing, and Advanced Finishing of Gears: WEDM Net-shape manufacturing of miniature and non-circular gears by WSEM process; Sustainable hobbing of gears using green lubricants in MQL. ***Metrology of Gears:*** Measurement of microgeometry errors, surface roughness, functional performance parameters of gears. ***Diagnostics of Gears:*** Condition monitoring; monitoring of vibrations and noise of gearbox; Dynamic modelling and automated fault detection of gearbox. ***Prognostics of gears:*** Basic of prognostics approach; Gear failures and its prognostics; Gearbox prognostics equipment. ***Laser based surface Treatment and micro processing of Gears:*** Laser shock peening, laser nitriding and Laser Texturing of gears.

Eligibility:
- Participants should be Indian Citizen
- Faculty members/ Scientists/ Post-doctoral Fellows / PhD and PG students/ B.Tech. students who are active researcher in engineering/technology and interested to pursue research in gear engineering.
- Industry professionals who are actively involved in R&D of gears and gearbox.

Registration Procedure:
- Interested persons should **apply online only** by clicking the **registration link** given **during 16th Nov to 8th Dec 2022**.
- The participants will be selected according to the eligibility and available seats. Maximum 3 participants will be allowed from one institute or Industry.
- The selected candidates will be intimated through email latest by **10th Dec 2022**.

General Information:
- Registration kit, Course material, and certificate of participation will be provided to the participants.
- Reimbursement of 3 tier train ticket will be done as per actuals for the domestic travel of the selected outstation participants and faculty.
- Accommodation and food will be provided.

Contact Us

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Registration Link: https://iiti.ac.in/page/dst-fist-center-of-excellence-in-gear-engineering/STUTI2022/Registration

Last for online application: **8th December 2022** Last date for confirmation of selection: **10th December 2022**