

Academic and Research Facilities

We are strong in fundamental disciplines of manufacturing engineering and in various thematic areas namely, Production Process, Tool Engineering & Design, Industrial Engineering, Manufacturing Automation, Engineering Design and Analysis, Plant Engineering and Maintenance, Industrial Lubrication & Tribology, Mechatronics, Micro and Nano Engineering, Additive Manufacturing, Metrology and Quality Control amongst other subject areas. We provide an impressive range of research at Production Engineering Department, much of it nationally acclaimed. We have a research ethos borne out by the Institutes interdisciplinary research activities. In the department, broad ranges of research activities are supported by excellent experimental and computing facilities. Recently (2015-16) department has filed eleven patents based on the work carried out by M. Tech, Ph.D. students and faculty members. The Laboratory facilities of the department have been improved with induction of new equipment in Rapid Prototyping Lab and Terrotechnology Lab.

An outreach project of Massachusetts Institute of Technology (MIT's) Centre for Bits and Atoms (CBA), COEP's Fab Lab provides a significant fillip to technological empowerment; peer to peer project based technical training and high-tech business incubation. The centralized Robotics and Automation Laboratory of COEP is a notable feature of the department. The recently renovated and modernized 'Vinod Doshi Memorial Production Engineering Workshop', is equipped with machines like CNC lathes, Vertical Machining Centre, Co-ordinate Measuring Machine and Robots is now more in line with the industrial needs. Currently department is setting up state-of-the art Additive Manufacturing Lab with the support of Geometric Ltd. Pune.

Key research areas include: -

- Reliability Engineering
- Micro-machining
- Manufacturing Automation
- Metrology and Quality Control
- Tribology
- Layout Optimization and Simulation
- Ergonomics and Biodynamics
- Analysis for Design and Manufacturing
- Additive Manufacturing

Department has 14 well-equipped laboratories to cater the needs of undergraduate students, graduate students, and research scholars. The summary of these labs is as follows.

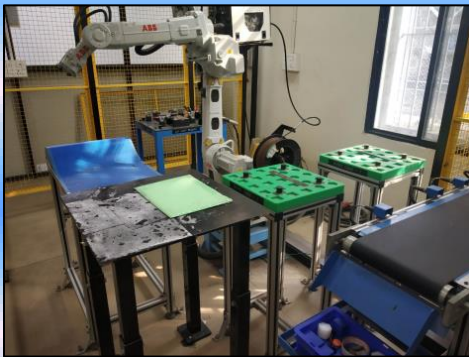
FAB Lab

The **COEP FAB LAB** established in August 2009 in association with center for **Bits and Atoms, MIT, USA** is fully equipped with cutting edge digital fabrication facilities such as computer-controlled laser cutter, for press-fit assembly of 3D structures from 2D parts, larger CNC wood router for making bigger 2D & 3D parts, a vinyl cutter to produce printing masks, flexible circuits and antennas, desktop precision (micron resolution) CNC milling machine to make three-dimensional molds and surface-mount circuit boards. The lab also provides excellent facilities of various programming tools for low-cost high-speed embedded processors, PCB assembly, programming and testing with an array of microcontrollers and microprocessors.



State of art central Fab Lab

Robotics and Automation Lab



Robotics and Automation Lab

Bio Medical Engineering & Technology (Incubation) center:

Biomedical Engineering & Technology Incubation Centre (BETiC) is a highly ambitious initiative of IIT-Bombay in collaboration with COE-Pune and VNIT-Nagpur with the vision to provide a single window access to experts and facilities for medical device lifecycle engineering, enabling seamless transition from market research to device development. The 5-year project brings together four stakeholders: hospitals, engineering institutes, manufacturing industry, and Government bodies with a mission of creating new breakthroughs in low-cost medical device innovation through the integrated facilities for design, analysis, prototyping, and testing of low-cost medical devices. The team at the department is set out to revolutionize medical device design with indigenous research and development activities.



Bio Medical Engineering & Technology (Incubation) center

Rapid Prototyping Lab (3 D Make Lab)

The Rapid Prototyping Laboratory has facilities for making physical objects directly from CAD models. The FDM (RP) machine is available for experimentation and product development for UG and PG students.



Rapid Prototyping Lab



Rapid Prototyping Lab

Mechatronics Lab

Research Lab



Metrology Lab



Metrology Lab

Non-conventional Machining Lab (Micromachining Lab)



Non-conventional Machining Lab

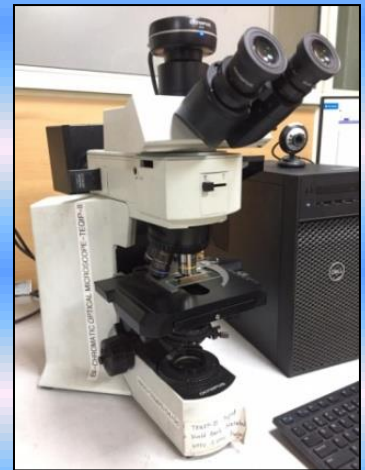
Machine tools lab

Machine tools are grouped into production units, which are capable of performing all necessary operations on a certain group of work-pieces. The department is equipped with 10 CNC Lathes and 2 CNC Milling Machines and a 3 axis CNC machining centre CNC engraving machine. In addition to this Machine tools lab has conventional Lathes, Milling Machines, Drillings Machines, Gridding Machines, Shaper, Planer etc.



Machine tools lab

Terotechnology Lab



Terotechnology Lab

Central Workshop

The Workshop for the institute is an integral part of the Production Engineering Department. The workshop provides to enhance the skill sets of the undergraduate students in basic trades such as carpentry, fitting, sheet metal working, soldering/brazing and machining etc. Workshop plays a vital role in developing skills, knowledge, creativity, enthusiasm in budding engineers. Workshop extends itself for fabrication of projects and establishment of experimental setups and lends support to research activities.



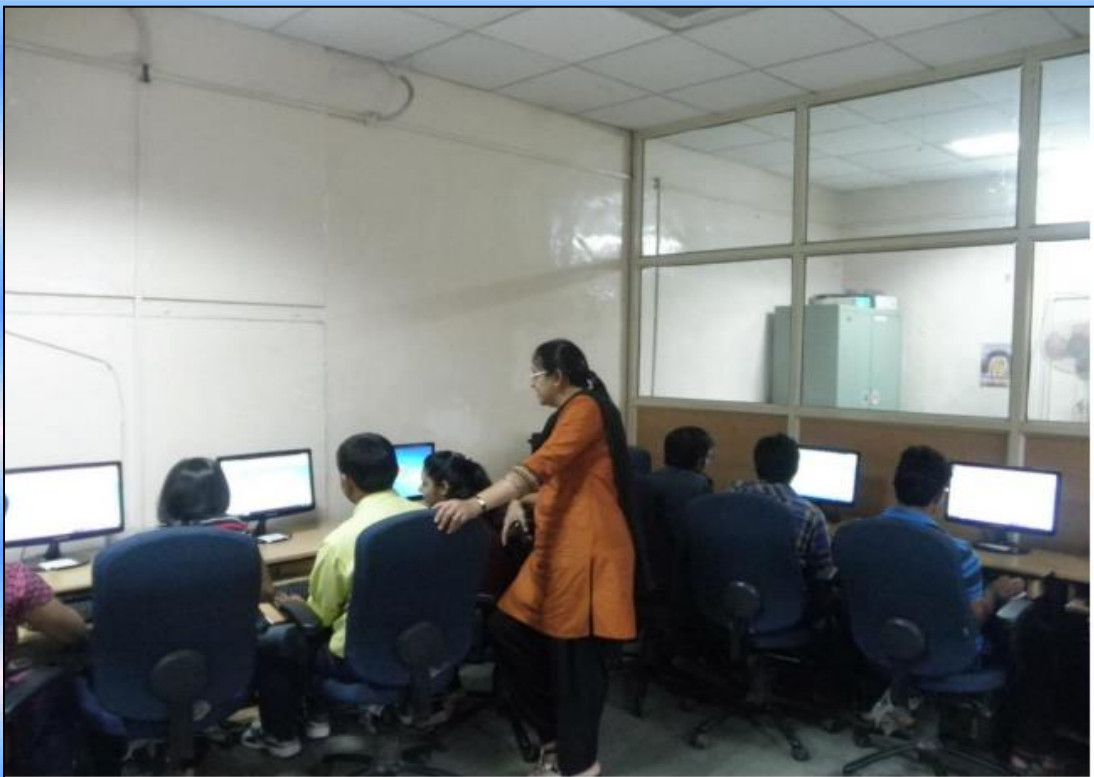
Central Workshop

Computer Lab I (Graphics Lab)



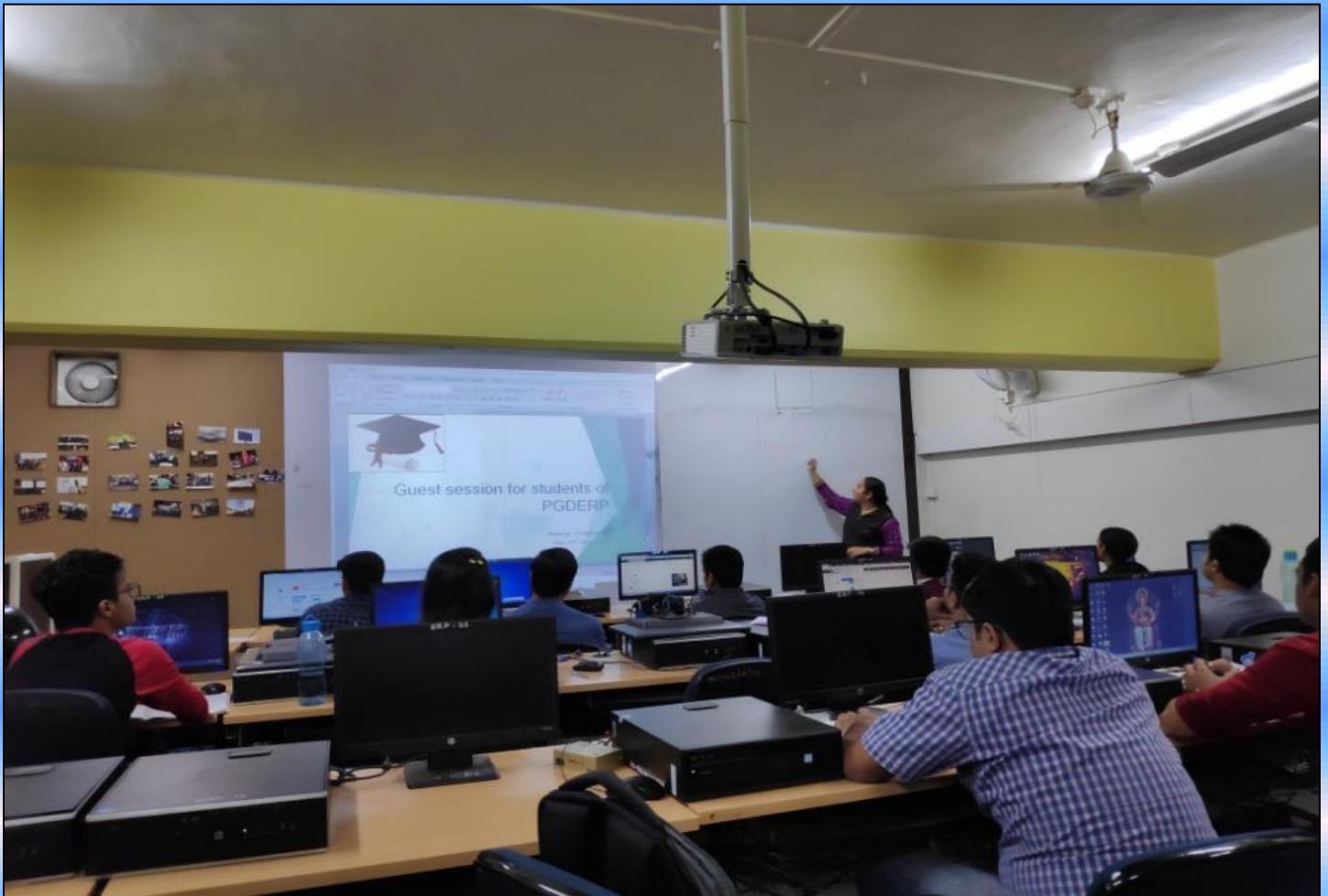
Graphics Lab

Computer Lab II (Computer Centre)



Computer Centre

Enterprise Resource Planning (ERP) Lab



ERP Lab