

DEPARTMENT OF MECHANICAL ENGINEERING

Laboratory Details

Curriculum Lab Description	Exclusive use/Shared	Space, Number of Students(30)	Number of experiments	Qualify of instruments	Lab manuals
Engineering Practices Laboratory	Exclusive	24.4mx7.8m	11	Available	Available
Computer Aided Drafting and Modeling Laboratory	Exclusive	9.1mx7.6m	10	Available	Available
Manufacturing Technology Lab-I	Exclusive	24.4mx7.8m	11	Available	Available
Fluid mechanics and machinery lab	Shared	18.2mx7.6m	10	Available	Available
Strength of materials lab	Shared	18.2mx7.6m	10	Available	Available
Manufacturing Technology Lab-II	Exclusive	24.4mx7.8m	10	Available	Available
Thermal Engineering Laboratory – I	Exclusive	21.7mx7.8m	10	Available	Available
Dynamics Laboratory	Exclusive	21.7mx7.8m	10	Available	Available
Metrology & Measurements Laboratory	Shared	9.1mx7.6m	12	Available	Available
CAD / CAM Laboratory	Exclusive	11.2mx4.6m	10	Available	Available
Thermal Engineering Laboratory – II	Exclusive	21.7mx7.8m	10	Available	Available
Computer Aided Simulation & Analysis Laboratory	Exclusive	9.1mx7.6m	10	Available	Available
Mechatronics Laboratory	Shared	9.1mx7.6m	10	Available	Available

HENRY FORD WORKSHOP

Manufacturing Engineering is an important domain in Mechanical Engineering Stream. **Manufacturing Engineers** focus on the design, development and operation of integrated systems of production to obtain high quality & economically competitive products.

Henry ford workshop caters the need of the students to study about the Manufacturing Engineering processes. This laboratory is aimed at providing an introduction to the Know-how of common **processes** used in industries for **manufacturing** parts by removal of material in a controlled manner. Auxiliary methods for machining to desired accuracy and quality will also be covered.



Photograph: Henry workshop- I- Lathe section



Photograph: Henry workshop- II- Special Machines section

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JOHN WALKER CAD LAB:

Computer-Aided Engineering (CAE) is playing a pre-dominant role in higher education in the disciplines of Science and Engineering. At the under-graduate level, students use Engineering simulation to learn physics principles and gain hands-on, real-world experience that can jump-start their careers. At the postgraduate level, researchers apply simulation tools to solve complex application problems. Commercial organizations regularly partner with educational institutions to foster innovative research-sometimes at the basic level-that can lead to breakthrough solutions.

The **JOHN WALKER CAD LAB**, available in **Mechanical Engineering department** of **Einstein College of Engineering** offers **Mechanical packages** which induce the outside box thinking in students and make them to incorporate the Engineering simulation to meet the demands of the present industry.



Photograph: JOHN WALKER CAD LAB

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TETSURA MORI MECHATRONICS LAB

Mechatronics is the synergistic integration of Mechanical Engineering, Electrical Engineering, Electronics, Computer Science, and control theory for the design of intelligent systems.

Tetsura Mechatronics Lab in Einstein College of Engineering has **Mechatronic** systems which are capable to simulate the prototypes which are used in automotive systems, aerospace systems, consumer electronics, and robotics. The lab also imparts the potential to include information processing as part of a product to make it more 'intelligent' that gives rise to the development of a vision for the use of future machinery.



Photograph: TETSURA MORI MECHATRONICS LAB

RUDOLPH DIESEL THERMAL ENGINEERING LAB

Thermal Engineering course involves real-time applications of **fluid flow** and **heat** transfer in **Thermal** Energy Systems, Cryogenic **Engineering** and Refrigeration & Air Conditioning etc.

The **Objective** of Rudolph Diesel Thermal Engineering lab of Einstein College of **Engineering** is to provide exhaustive knowledge on **thermal engineering**. The lab is well-equipped and enables students to understand the basic construction of two stroke and four stroke diesel and petrol engine. The lab has two segments:

- a. Rudolph Diesel Thermal Engineering Lab I- IC Engines section
- b. Rudolph Diesel Thermal Engineering Lab II- Heat and Mass Transfer section



Photograph: Rudolph Diesel Thermal Engineering Lab I- IC Engines section



Photograph: Rudolph Diesel Thermal Engineering Lab II- Heat and Mass Transfer section

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STEPHEN TIMOSHENKO DYNAMICS LAB

Dynamics of Machinery gives an introduction to the **dynamics** and vibrations of lumped-parameter models of mechanical systems. Topics covered include kinematics, force-momentum formulation for systems of particles and rigid bodies in planar motion, work-energy concepts, virtual displacements and virtual work.

Stephen Timoshenko Dynamics Lab of Einstein College of Engineering helps the student to;

- Develop and understanding of the fundamentals and **principles engineering mechanics**: statics and dynamics of particles, and rigid bodies in two and three dimensions including: kinematics and kinetics of particles and rigid bodies in 2D and 3D motion, Rotations, translations, oscillations.
- To solve equilibrium of rigid bodies including the **calculations of moment of force**, inertia moments of solid bodies, and basic structural analysis, and be able to determine the requirement for the equilibrium of particles and solid bodies.
- To develop the ability to apply **Newtonian mechanics** to model and predict the responses of simple dynamical system (particle and rigid body) subjected to applied forces.
- To learn the basics of oscillations and **different possibilities** for vibrations of mechanical systems.



Photograph: Stephen Timoshenko Dynamics Lab

FREDRICH MOH'S STRENGTH OF MATERIALS LAB:

In the **mechanics of materials**, the **strength** of a **material** is its ability to withstand an applied load without failure or plastic deformation. A load applied to a **mechanical** member will induce internal forces within the member called stresses, when those forces are expressed on a unit basis.

Fredrich Moh's Strength of materials lab is equipped to cater students to:

- Understand the concepts of stress, strain, principal stresses and principal planes.
- Study the concept of shearing force and bending moment due to external loads in determinate beams and their effect on stresses.
- Determine stresses and deformation in circular shafts and helical spring due to torsion.
- Compute slopes and deflections in determinate beams by various methods.
- Study the stresses and deformations induced in thin and thick shells.



Photograph: Fredrich Moh's Strength of materials lab

ARCHIMEDES FLUID MECHANICS LAB:

Fluid Mechanics is the study of **fluids** at rest (**fluid statics**) and in motion (**fluid dynamics**). A **fluid** is defined as a substance that continually deforms (flows) under an applied shear stress regardless of the magnitude of the applied stress.

Archimedes Fluid Mechanics Lab of **Einstein College of Engineering** is capable to test and find the flow rate of equipment like venturimeter, orifice meter, and notches and can calibrate them. Darcy's as well as Chezy's coefficient of friction for different pipes can be found out in pipe friction apparatus. The lab is equipped with centrifugal pump, reciprocating pump and turbines in which students can carry out the performance test and report the efficiency at different operating conditions.



Photograph: Archimedes Fluid Mechanics Lab

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SUTHERLAND –PARSONS CAM LAB:

Computer Aided Manufacturing (CAM) is the use of software and **computer-controlled** machinery to automate a **manufacturing** process. Based on that definition, you need three components for a CAM system to function: Software that tells a machine how to make a product by generating toolpaths.

Sutherland- Parsons CAM lab of Einstein College of Engineering is equipped with CNC milling and Lathe Trainer which is capable to train students in the concepts of CNC programming and inspire the students to pursue excellence and adopt innovative thinking.



Photograph: Sutherland- Parsons CAM Lab

Also, the Lab is equipped with Keller Symplus software which provide the platform for simulating the real time operations in Manufacturing sectors.

MAGNA- METROLOGY LAB:

Engineering **metrology** is the use of measurement science in manufacturing. This **course** is designed to impart the knowledge to develop measurement procedures, conduct metrological experiments, and obtain and interpret the results.

This Laboratory is equipped with Sine bar 200 mm, V – Block, Profile Projector, Inside micrometer, Surface Plate, Depth micrometer, Outside micrometer, Vernier Caliper, Vernier Caliper Dial type, Slip gauge, Dial Gauge, Vernier Height Gauge, Mechanical Dial Comparator, Universal Bevel Protractor, Tool Maker Microscope, Magnetic base dial gauge stand, Plain plug gauge, Auto collimator, Floating carriage micrometer.



Photograph: Magna Metrology Lab

DEPARTMENT OF MECHANICAL ENGINEERING

DEPARTMENT LIBRARY- MECHANICALENGINEERING

Mechanical Engineering department library has books related to various fields like Manufacturing Sciences, Thermal Sciences, Robotics, Mechatronics, Design etc. It is also holds previous year Question papers, various reports like mini project and main project of Mechanical Engineering students. Library also has the collection of conference proceedings, yearly department magazines and journals in Mechanical Engineering Streams.

Other books includes GATE books, Reasoning and Quantitative aptitude books, Puzzle books and C programming books.

Total Number of books: 1500

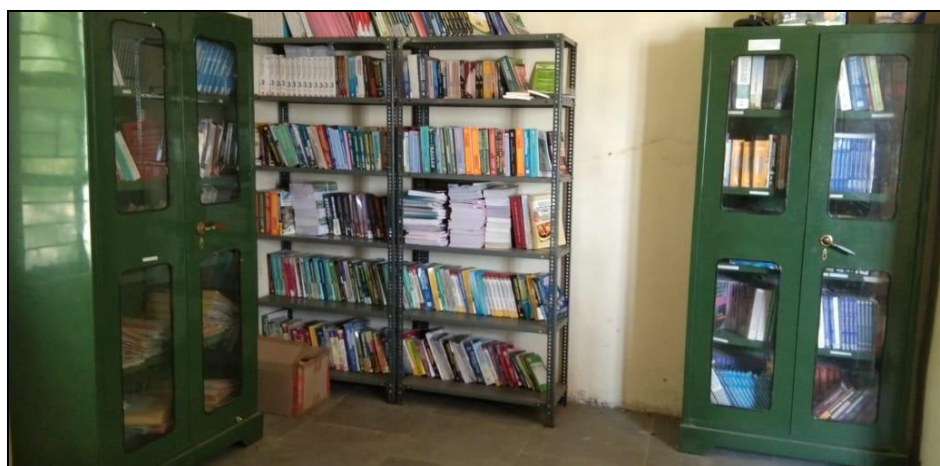
Total Number of journals: 150

Previous Year Question Papers

Previous year Anna university question papers from semester 1 to semester 8 in the year Dec 2006- May 2019 were stocked in the Department library.

Publications

Publications likely Wiley India, oxford, McGraw Hill, SciTech, Pearson and Technical Publications are most commonly available in the library.



Photograph: Department Library- Mech- Reference Section

DEPARTMENT OF MECHANICAL ENGINEERING

IN-HOUSE CONSULTANCY

The Department of Mechanical Engineering and Management of Einstein College of Engineering supports the students to enhance their innovative ideas. Due to that support many creative thinking has been tailored as projects and had been experimented. The experimented projects are E- Rider, Mini CAT, E-Defyne Gokart. Also, many students' projects have been installed in the lab for pursuing students to do their experiments .All the work of the students have been published in renowned journals.



Photograph: In-house consultancy

Project title			
2010-2011	2011-2012	2012-2013	2016-2017
Three dimension semi automatic desktop drilling machine	Vibrating Table	Design and fabrication of sequential control Circuit for industrial robot using cascading method	Design and Fabrication of miniature boiler

Table: List of Consultancy work