



## **GURU NANAK DEV ENGINEERING COLLEGE, BIDAR DEPARTMENT OF MECHANICAL ENGINEERING**

### **COMPUTER AIDED ENGINEERING DRAWING LABORATORY**

It is one of the important lab used by all the students of First and Second semester of all the branches. The lab is equipped with 63 computer systems in LAN with a LCD projector. The lab is having adequate power backup facility with 4 air-conditioners, it is having high speed internet connection with printing facility.





**GURU NANAK DEV ENGINEERING COLLEGE, BIDAR**  
**DEPARTMENT OF MECHANICAL ENGINEERING**

		
Prof. Q. Rahaman	Mr. Chitradas Karabari	Mr. Channappa Bhangure
LAB INCHARGE	LAB INSTRUCTOR	LAB ATTENDER/MECHANIC



## **GURU NANAK DEV ENGINEERING COLLEGE, BIDAR DEPARTMENT OF MECHANICAL ENGINEERING**




### **DESIGN LABORATORY**



Design Laboratory consists of the equipments such as Governors, Polariscope, Journal Bearings, Strain Gauge Rossette, Longitudinal Vibrations, Torsional Vibrations, Whirling Speed of Shaft and Balancing of Rotating Masses. Performance evaluation of Governors such as Porter and Proell are carried out, determination of natural frequency, damping factor, damping coefficient and other related parameters will be studied in vibration equipments. Strains and stresses at a point can be determined using strain gauge rosette and polariscope setup. Further distribution of pressure in journal bearing will be studied.



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**DEPARTMENT OF MECHANICAL ENGINEERING**

		
<b>Prof. Parmeshwar Patil</b>	<b>Mr. Rajkumar</b>	<b>Mr. Vicky Singh</b>
<b>LAB INCHARGE</b>	<b>LAB INSTRUCTOR</b>	<b>LAB ATTENDER/MECHANIC</b>

<b>Lab Area</b>		<b>79 Sq. m</b>
<b>Sl. No</b>	<b>Equipment's</b>	<b>Quantity</b>
1	Governor apparatus	1
2	Whirling speed of shaft	1
3	Balancing of rotating masses	1
4	Strain gauge rosette	1
5	Torsional vibration apparatus	1
6	Longitudinal vibration	1
7	Polariscope apparatus	1
8	Journal bearing apparatus	1





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**ENERGY LABORATORY**



Energy conversion deals with the study of internal combustion engines and their performance. The purpose of this lab is to develop an understanding of basic internal combustion engine and its performance. The other interests of this lab are to determine the speed, load, and fuel flow rate producing the maximum brake thermal efficiency. The experiments related to the following topics are conducted in the lab: calorific value determination, finding viscosity of fluids, study of valve timing diagrams, petrol engines, diesel engines, performance and efficiency test on IC engines.



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<b>Prof. Priyanka G.</b>	<b>Mr. Rajkumar</b>	<b>Mr. Vicky Singh</b>
<b>LAB INCHARGE</b>	<b>LAB INSTRUCTOR</b>	<b>LAB ATTENDER/MECHANIC</b>

<b>Lab Area</b>		<b>100 Sq. m</b>
<b>Sl. No</b>	<b>Equipment's</b>	<b>Quantity</b>
1	VCR Petrol ngine	1
2	Multi cylinder 4 strokr petrol engine	1
3	Double cylinder 4 stroke diesel engine	1
4	Single cylinder 4 stroke diesel engine	1
5	Boomb calorimeter	1
6	open cup apparatus	1
7	Close cup apparatus	1
8	Red wood viscometer	1
9	Saybolt visco meter	1
10	Plani meter	1
11	Two stage air compressor	1



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**FLUID MECHANICS AND MACHINES LABORATORY**






Fluid mechanics is the study of fluids (liquids and gases) and forces on them. The fundamental purpose of the lab is the study of the phenomena and effects of flow of fluids by experimental measurements and computations while providing knowledge about the various types of turbines, pumps and blowers. The lab deals with the concepts related to natural flows, gas-thermodynamics, combustion, and flow and transport phenomena. The experiments related to the following topics are conducted in the lab: flow through pipes, impact on vanes, calibrations, turbines, nozzles, pumps and blowers.





**GURU NANAK DEV ENGINEERING COLLEGE, BIDAR**  
**DEPARMENT OF MECHANICAL ENGINEERING**

		
Dr. N. D. Rao	Mr. Deelip Yadav	Mr. Ranjeet Singh
LAB INCHARGE	LAB INSTRUCTOR	LAB ATTENDER/MECHANIC

**MACHINE SHOP LABORATORY**

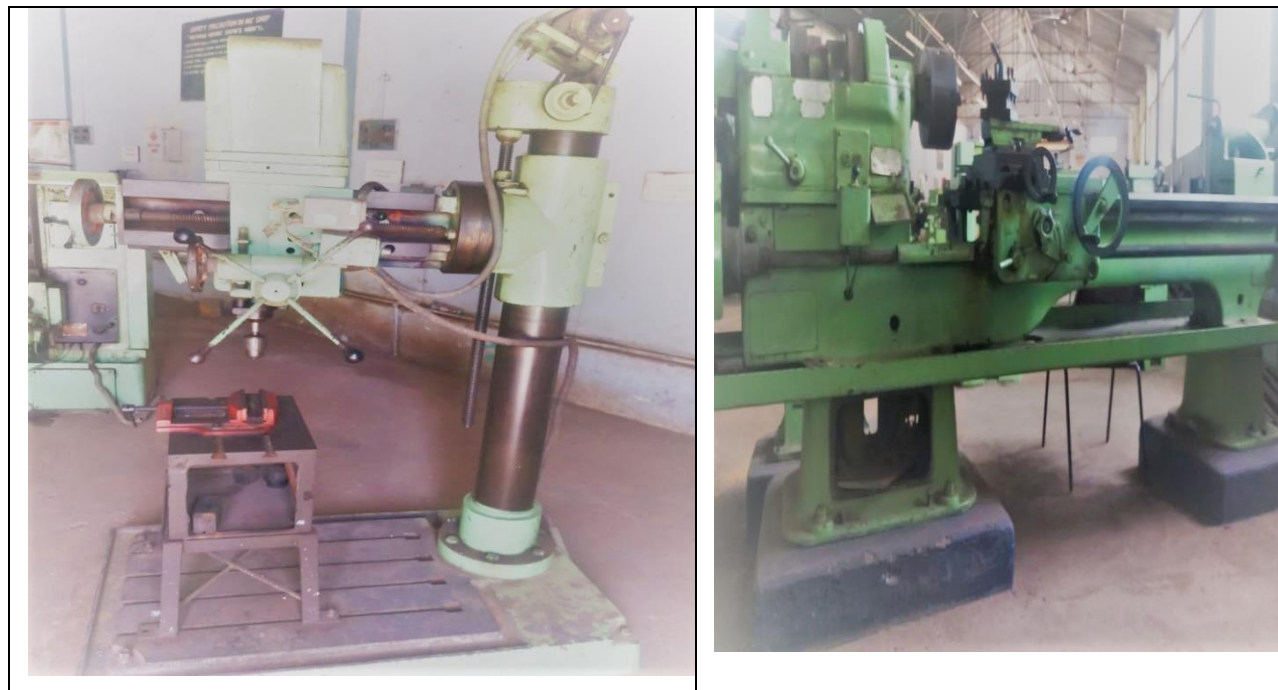






## GURU NANAK DEV ENGINEERING COLLEGE, BIDAR

### DEPARTMENT OF MECHANICAL ENGINEERING



The Machine Shop is equipped with Centre Lathes, Drilling Machines, Shaping Machines and Milling Machine for preparing the models and gaining the practical exposure in operating the machines. Also, the machine shop is equipped with high quality cutting tools for the operations like Marking, Centre drilling, Facing, Taper turning, Grooving, knurling, Profile turning, Drilling, Boring, Thread cutting etc., The students are also trained in using inserts for cutting tool for machining purpose and Gear cutting operation.

<p>Prof. Digamber Benne</p>	<p>Mr. Deelip Yadav</p>	<p>Mr. Ranjeet Singh</p>

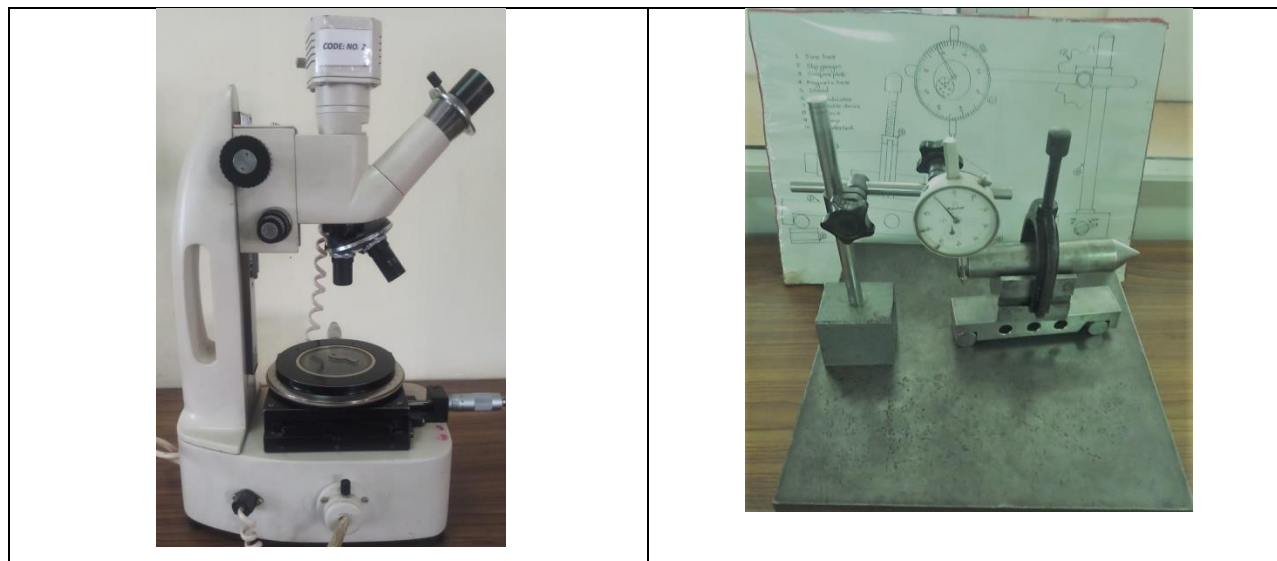


**GURU NANAK DEV ENGINEERING COLLEGE, BIDAR**  
**DEPARTMENT OF MECHANICAL ENGINEERING**

LAB INCHARGE	LAB INSTRUCTOR	LAB ATTENDER/MECHANIC
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Lab Area		405 Sq. m
Sl. No	Equipment's	Quantity
1	Bench vices	1
2	Drilling machines	1
3	lathe Machines	1
4	Shaper Machines	1
5	Milling machines	1
6	Power Hacksaw	1
7	Grinding Machines	1

**MECHANICAL MEASUREMENTS AND METROLOGY LABORATORY**





## **GURU NANAK DEV ENGINEERING COLLEGE, BIDAR**

### **DEPARTMENT OF MECHANICAL ENGINEERING**



An engineer must possess adequate knowledge of measurement techniques. Metrology and measurements constitute an important element in all laboratories for conducting experiments and for all types of control processes in the industrial activities. This lab provides the students an active learning environment for the measurement technologies used in production engineering field. Students use the laboratory to collect and analyze measurement data, evaluate measurement methodologies, and learn the capabilities and limitations of measurement technologies. The lab includes LVDT, Load Cell, Pressure transducer, Micrometer, Thermocouple, Slip gauges, Sine bar, Sine center, Bevel protractor, Profile projector, Lathe and Drill tool dynamometer and other equipments required for calibration and measurements.





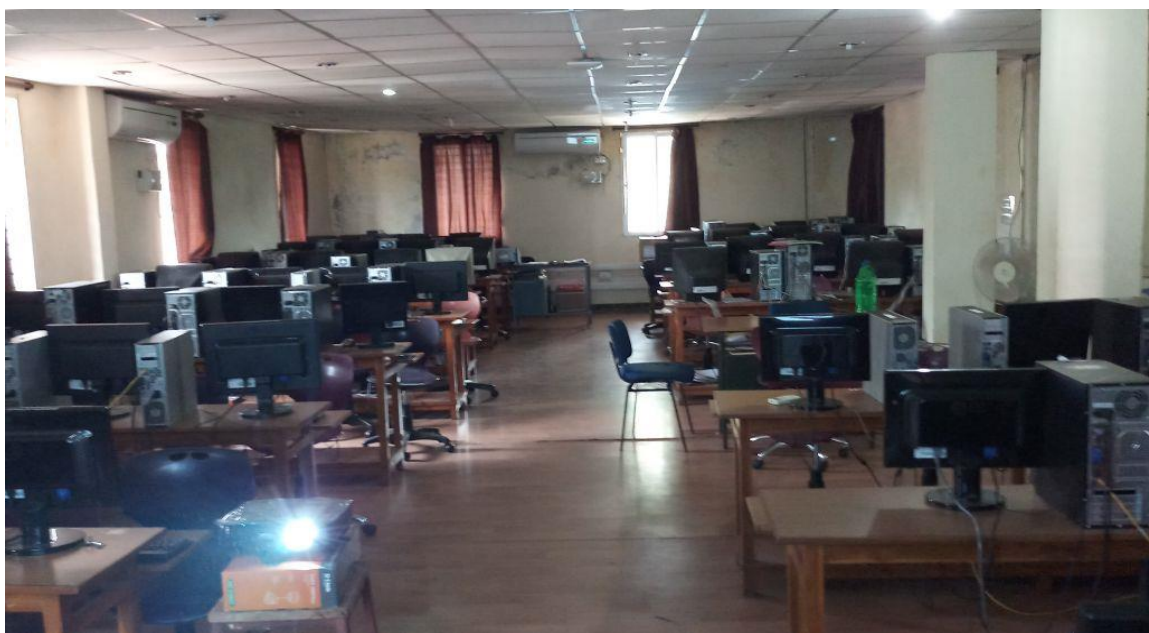


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<b>Prof. M. Vinodkumar</b>	<b>Mr. Chitradas Karabari</b>	<b>Mr. Channappa Bhangure</b>
<b>LAB INCHARGE</b>	<b>LAB INSTRUCTOR</b>	<b>LAB ATTENDER/MECHANIC</b>

<b>Lab Area</b>		<b>74 Sq. m</b>
<b>Sl. No</b>	<b>Equipment's</b>	<b>Quantity</b>
1	Calibration of pressure gauge	1
2	Calibration of thermocouple	1
3	Calibration of L V D T	1
4	Calibration of load cell	1
5	.strain gauge	1

**COMPUTER AIDED MACHINE DRAWING LABORATORY**





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Design drawings allow viewers to visualize a machine or its components before it is manufactured. In the current industrial trend CAD modeling is an imperative skill expected from all Mechanical engineers. Students practice the development of 3D drawings of machine components and perform virtual assembly using industry leading mechanical design software Solid Edge ST 6. Solid Edge modeling and assembly tools enable students to easily develop a full range of products, from single parts to assemblies containing thousands of components with accurate fit and modify them within the assembly model. The lab is equipped with 40 numbers of high end computer systems.

		
<b>Dr. Q. Rahaman</b>	<b>Mr. Chitradas Karabari</b>	<b>Mr. Channappa Bhangure</b>
<b>LAB INCHARGE</b>	<b>LAB INSTRUCTOR</b>	<b>LAB ATTENDER/MECHANIC</b>




Lab Area		66 Sq. m
Sl. No	Equipment's	Quantity
1	Ansys -12	1
2	CNC Trainer Fanuc OT&OM (Single Users)	1
3	Solid works Software	1
4	Solid Edge	1
5	Master CAM	1



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**MATERIAL TESTING AND METALLOGRAPHY LABORATORY**

Engineers in general and Mechanical engineers in particular should have knowledge of properties of engineering materials and their applications. Different materials have different physical, chemical and mechanical properties and suitability. Testing the material for its mechanical strength forms an integral part of manufacturing. In this lab the students are exposed to the procedure of testing of engineering materials with help of Universal testing machine, various hardness testing machines (Rockwell, Brinell, Vicker's), Wear, Impact and Torsion testing machines along with optical microscope required for metallographic examination of materials.

		
<b>Prof. Shivshankar C</b>	<b>Mr. Deelip Yadav</b>	<b>Mr. Channappa Bhangure</b>
<b>LAB INCHARGE</b>	<b>LAB INSTRUCTOR</b>	<b>LAB ATTENDER/MECHANIC</b>

<b>Lab Area</b>		<b>75 Sq. m</b>
<b>Sl. No</b>	<b>Equipment's</b>	<b>Quantity</b>
1	Metallurgical Microscope	1
2	Ultrasonic Flaw Detector	1








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3	Magnetic Crack Detector	1
4	Muffle Furnace	1
5	Polishing Machine	1

### FOUNDRY AND FORGING LABORATORY



In foundry, the students are guided in preparing the mould cavities using foundry sand. This section is also has the facilities to test the molding sand properties like grain fineness test, moisture content test, mould hardness, core hardness test, etc. using well equipped instruments. The Foundry & Forging laboratory being smoke free (unique of its kind) is furnished with setup's of LPG fired furnace for performing forging models and is also equipped with foundry sand testing apparatus with proper ventilation, space and sufficient lighting.

		
Dr. Sanjay Patil	Mr. Rajkumar	Mr. Ranjeet Singh
LAB INCHARGE	LAB INSTRUCTOR	LAB ATTENDER/MECHANIC



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Lab Area		200 Sq. m
Sl. No	Equipment's	Quantity
1	Universal sand strength testing machine.	1
2	Tensile strength attachment.	1
3	Shear strength attachment.	1
4	Seive shaker with seive set.	1
5	Sand rammer.	1
6	Permeability meter VP.	1
7	Clay washer VCN.	1
8	3HP Electrical Blower	1

**HEAT AND MASS TRANSFER LABORATORY**






Heat and mass transfer explains the thermal energy interaction processes between physical systems. The heat and mass transfer lab is well equipped with the set-ups for the experiments on: natural convection, forced convection, radiation, emissivity, heat exchangers, refrigeration, air



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conditioning and unsteady state heat transfer. These experiments shall pave the way for the students to understand and appreciate the basic concepts of heat and mass transfer by providing in-depth practical exposure. Also the students shall be able to develop basic skill-sets in order to take up higher level experimental studies in heat and mass transfer in future.

		
<b>Prof. Sangamesh Sirsgi</b>	<b>Mr. Rajkumar</b>	<b>Mr. Vicky Singh</b>
<b>LAB INCHARGE</b>	<b>LAB INSTRUCTOR</b>	<b>LAB ATTENDER/MECHANIC</b>

<b>Lab Area</b>		<b>100 Sq. m</b>
<b>Sl. No</b>	<b>Equipment's</b>	<b>Quantity</b>
1	Air condition cycle test rig	1
2	Heat Transfer Through Composite Wall	1
3	Drop wise film wise condensation apparatus	1
4	Emmissivity measurement apparatus	1
5	Heat transfer through forced convection	1
6	Heat transfer through natural convection	1
7	Thermal conductivity of metal bar	1
8	Parallel & counter flow heat exchanger	1
9	Refrigeration cycle test rig	1
10	Stefan boltzmans apparatus	1





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11	Transient heat conduction apparatus	1
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**COMPUTER INTEGRATED MANUFACTURING AND AUTOMATION**  
**LABORATORY**

CIM and Automation Laboratory, provides a high quality laboratory experience to students about manufacturing automation, advanced material processing, computer assisted and computer controlled manufacturing. The lab is equipped with high end computers and CADEM software viz. CNC TECHNOLOGY multimedia NCyclopedia software (NCyclo), CNC Milling and Turning SIMULATION software (seeNC) and CNC Milling and Turning CAM software (CAPS). The laboratory has latest CNC machines, XL TURN CNC Lathe Machine and XL MILL CNC Milling Machine to impart hands on training to students in the area of computer assisted and computer controlled manufacturing.

		
Dr. Nagraj R G	Mr. Deepak Joshi	Mr. Channappa Bhangure
LAB INCHARGE	LAB INSTRUCTOR	LAB ATTENDER/MECHANIC

Lab Area		66 Sq. m
Sl. No	Equipment's	Quantity
1	Anslys -12	25



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2	CNC Trainer Fanuc OT&OM (Single Users)	15
3	Solid works Software	30
4	Solid Edge	60
5	Master CAM	10