

# Sri Sai Ram Engineering College

## Mechanical Department – Laboratories Details

Sl.No	Laboratories	Area (in Sq.m)
1.	Basic Workshop I	335
2.	Strength of Materials Lab	335
3.	IC Engines Lab	335
4.	Heat transfer Lab	335
5.	Instrumentation and Dynamics Lab	335
6.	Special Machines Lab	251
7.	Lathe Shop	251
8.	Fluid Mechanics & Machinery Lab	237
9.	Basic Workshop II	237
10.	Metrology Lab	90
11.	Computer Aided Design Lab -I	126
12.	Computer Aided Design Lab -II	126
13.	Computer Aided Manufacturing Lab -I	45
14.	Computer Aided Manufacturing Lab -II	126
15.	Mechatronics Lab	84
16.	Metallurgy Lab	360
	<b>TOTAL :</b>	<b>3608</b>

## 1. Basic Workshop

S. No	Major Equipments	Cost
1.	Demolition hammer	Rs. 1,69,908.00
2.	Welding Transformer 300 amps	
3.	Bench Drilling Machine	



Basic Workshop

## 2. Strength of Materials Laboratory

S. No	Major Equipments	Cost
1.	Torsion testing machine	Rs. 6,15,742.00
2.	Erichsen tester	
3.	Brinell Hardness test	
4.	Universal testing machine	
5.	Tensile tester	
6.	Fatigue testing machine	
7.	Impact Testing Machine	



Strength of Materials laboratory

### 3. IC Engines Laboratory

S. No	Major Equipments	Cost
1.	Single cylinder two stroke petrol engine test rig	Rs. 16,39,876.00
2.	Single cylinder four stroke diesel engine test rig	
3.	Twin cylinder four stroke diesel engine test rig	
4.	Multi cylinder four stroke petrol engine test rig	
5.	Cut section models for 4 stroke petrol multi cylinder ,2 stroke petrol engine ,4 stroke diesel engine	
6.	Single cylinder four stroke diesel engine test rig .with economical speed set up	
7.	Single cylinder four stroke diesel engine test rig. With retardation test set up	
8.	Low speed wind tunnel test rig	
9.	Single Cylinder four stroke Diesel engine test rig .With eddy current dynamometer	
10.	Multi gas Analyzer`	
11.	Steam Boiler with turbine set up	



IC Engines laboratory

#### 4. Heat Transfer Laboratory

S. No	Major Equipments	Cost
1.	Water Cooling tower	Rs. 5,10,568.00
2.	Sheel and tube exchanges (steam conductor)	
3.	PIN-FIN Apparatus	
4.	Emissivity Apparatus	
5.	Heat Exchanger	
6.	Thermal Conductivity of Metal bar	
7.	Thermal Conductivity of insulating powder	
8.	Heat Transfer in forced convection	
9.	Heat transfer in natural convection	
10.	Heat transfer in compositive walls	
11.	Stefan boltzmen apparatus	
12.	Two slab guarded hot plate method	
13.	Bomb calorimeter	
14.	Junkers gas calorimeter	
15.	Air compressor test rig.	
16.	Air blower	
17.	Refrigeration Test rig.	
18.	Air conditioning Test Rig.	
19.	Orsat Apparatus	
20.	Red wood viscometer	



Heat Transfer laboratory

## 5. Instrumentation and Dynamics Lab

S. No	Major Equipments	Cost
1.	Electrical dynamometer	Rs. 8,24,548.00
2.	Rope brake dynamometer	
3.	Prony break dynamometer	
4.	Flow measuring model	
5.	Optical pyrometer	
6.	Force measurement model	
7.	Torque measurement model	
8.	Velocity measurement model	
9.	Dynamic balancing machine	
10.	Vibration apparatus	
11.	Hydraulic dynamometer	
12.	Drilling tool dynamometer	
13.	Drilling tool dynamometer	
14.	Balancing of reciprocating masses	
15.	Motorized Gyroscope	
16.	Accelerometer	
17.	Vibrating Table	



Strength Of materials lab

## 6. Special Machines Lab

S. No	Major Equipments	Cost
	Slotting machine	Rs. 19,36,537.00
	Shaping machine – I	
	Shaping machine – II	
	Turret vertical milling machine	
	Universal milling machine - I	
	Universal milling machine - II	
	Universal milling machine - II	
	Surface grinding machine	
	Hydraulic surface grinding machine	
	Cylindrical grinding machine	
	Tool and cutter grinding machine	
	Gear hobbing machine	
	Planner	

## 7. Lathe Shop

S. No	Major Equipments	Cost
1.	Padmani student all gear lathe	Rs.11,94,161.00
2.	All gear lathe – PL - 4	
3.	Norton gear Lath – PL - 4	
4.	All gear lath panther brand	
5.	Omega Norton gear lathe	
6.	Turret Lathe	
7.	Capstan turret Lathe	
8.	Cone Pulley – PL - 4	
9.	Radial Drilling machine	
10.	Sensitive Drilling machine	
11.	Banka brand 4 ½” lathe machine all gear	



Lathe Shop

## 8. Fluid Mechanics & Machinery Lab

S. No.	Major Equipment	Cost
1.	Centrifugal pump test rig with tank	Rs.8,10,243.00
2.	Jet pump test rig with tank	
3.	Reciprocating pump test rig with tank	
4.	Self priming pump test rig with tank	
5.	Gear oil pump test rig with tank	
6.	Submersible pump test rig with tank	
7.	Pelton turbine test rig closed circuit	
8.	Francis turbine test rig closed circuit	
9.	Orifice meter apparatus	
10.	Venture meter apparatus	
11.	V – Notch apparatus	
12.	Bernoulli's apparatus	
13.	Friction Factor apparatus	
14.	Kaplan Turbine	



Fluid Mechanics and Machinery lab

## 9. Metrology Lab

S. No.	Major Equipments	Cost
	Surface Comparison chart England	Rs. 4,09,668.00
	Profile Projector With Accessories Metz – 801A	
	Optical Auto Collimator	
	Tool Makers Microscope	
	Pneumatic comparator set - 1	
	Floating carriage micrometer	
	Vibration Measurement setup	



### 10. Computer Aided Design Lab –I

S. No.	Major Utilities	Cost
1.	Computer: Desktop-Dell Optiplex(TM)980Dt Base N-Series	Rs. 8,66,200.00
2.	UPS -5KVA, BATTERIES	
3.	Hp laser jet printer-1008	

### 11. Computer Aided Design Lab –II

S. No.	Major Utilities	Cost
1.	Intel core 2.duo 2.9GhZProcessor Intel DG 41 RQ Mother Board 2 GB DDR2.RAM Seagate 250 GB sata Hard Disk Drive LG 19”TFT Monitor Microsoft Kit Mercury Cabinet	Rs. 21,98,377.00
2.	UPS – 10 KVA UPS – 06 KVA	
3.	HP Laser Jet Printer	
4.	SCANNER	
5.	PLOTTER	
6.	PRO-E 5.0	
7.	Solid Works	
8.	Edge CAM	
9.	Ansys 10.0	
10.	NX CAD/CAM Unigraphics	



Computer Aided Design Lab-II

## 12. Computer Aided Manufacturing Lab -I

S. No	Major Equipments	Cost
1.	CNC Jr. Milling Machine (With Master Software)	Rs. 48,42,939.00
2.	CNC Lath Machine (With MINIT Software)	
3.	LV45 Mini Vertical Machining Centre	
4.	LL15tL3 CNC Lathe Machine	



**Computer Aided Manufacturing lab I**

### **13. Computer Aided Manufacturing Lab –II**

<b>S. No</b>	<b>Major Equipments</b>	<b>Cost</b>
<b>1.</b>	<b>CNC Jr. Milling Machine (With Master Software)</b>	<b>Rs. 48,42,939.00</b>
<b>2.</b>	<b>CNC Lath Machine (With MINIT Software)</b>	
<b>3.</b>	<b>LV45 Mini Vertical Machining Centre</b>	
<b>4.</b>	<b>LL15tL3 CNC Lathe Machine</b>	



**Computer Aided Manufacturing Lab II**

#### **14. Mechatronics Lab**

<b>S. No</b>	<b>Major Equipments</b>	<b>Cost</b>
1.	Lab view software with computer based data logging	<b>Rs. 11,66,088.00</b>
2.	Automation studio	
3.	Basic pneumatics trainer kit (With Accessories)	
4.	Electro pneumatics trainer kit (With Accessories)	
5.	Electro basic pneumatics trainer kit with PLC (With Accessories)	
6.	Air compressor	
7.	Stepper motor Interfacing Board & 8051 CPU Card	
8.	Servo controller Interfacing for Open loop	
9.	Servo controller Interfacing for Closed loop	
10.	PID Controller Trainer kit	
11.	Intel P4 3.02 GHz 102 GGC Mother Board, 512 MB Ram, 80Gb SATA, Samsung CD ROM, Optical mouse, Samsung key board, ATX Cabinet (black)	
12.	Intel P4 3.02 GHz 102 GGC Mother Board, 512 MB Ram, 80Gb SATA, Samsung DVD-RW ROM, Optical mouse, Samsung key board, ATX Cabinet (black)	
13.	Intel core 2.duo 2.9GhZProcessor Intel DG 41 RQ Mother Board 2 GB DDR2.RAM Seagate 250 GB sata Hard Disk Drive LG 19”TFT Monitor Microsoft Kit Mercury Cabinet	

#### **15. Metallurgy Lab**

<b>S. No</b>	<b>Major Equipments</b>	<b>Cost</b>
1.	Krish cutoff Wheel machine (Modal – KA-CM)	<b>Rs. 1,15,392.00</b>
2.	Krish Double disk polishing Machine (Model-KA-DD)	
3.	Binocular Metallurgical Microscope	
4.	Binocular Metallurgical Microscope (Model-1v1E72-57)	
5.	Sieve shaker apparatus	
6.	Sand rammer	
7.	Permeability apparatus	
8.	Heat treatment furnace	
9.	End Quench Apparatus FEQ 25	
10.	Inerted Triangular metallurgical microscope(camera attachments)	
11.	Sand strength testing machine with accessories	