

Department: Mechanical & Automation Engineering (MAE)

S.N	Year	Semester	Name of the laboratory	Code
1.	Ist	I	Work-shop Practices	ETME-157
2		I	Engineering Graphics	ETME-159
3		II	Engineering Mechanics	ETME-158
4.	2 nd	III	Fluid Mechanics	ETME-253
5		III	Mechanics of solids	ETME-253
6		III	Mechanical Engineering Drawing	ETME-255
7		IV	KOM/DOM	ETME-252
8		IV	Machine Shop	ETME-254
9	3 rd	V	Machine Design-I	ETME-353
10		VI	Fluid System	ETME-356
11		VI	Metal cutting & Tool Design	ETME-358
12		VI	Machine-Design-II	ETME-352
13.	4 th	VII	Computer Aided Manufacturing Lab	ETME-453
14.		VII	Metrology Lab.	ETME-451
15.		VII	Mechatronics Lab	ETME-455
16.		VII	Refrigeration & Air Conditioning Lab	ETME-457
17.		VIII	Quality & Assurance Control Lab	ETME-452
18.		VIII	Robotics Lab	ETME-456

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Name of the Lab : Workshop Practices (1st year, 1st Sem)

Equipment available

Fitting Shop: Fitting hand tools (Holding, stroking, cutting, scraping & drilling) marking tools, measuring gauge etc.

Hand Tools:

Bench vice	:	08
Hand drilling Machines	:	01
Spanner sets	:	08
Screw Driver sets	:	07
Plier sets	:	04
Drill sets	:	21
Tap sets & Tap handle	:	6 & 1
Hammer of different types & sizes	:	09
Files of different types & sizes	:	34
Needle file	:	10
Hacksaws	:	15
Chisels	:	03
Number sets		
(Numerical)	:	01
(Alphabetical)	:	01
Grinder	:	01

Marking Tools & Gauges

Surface plate	:	01
Angle plate	:	01
Height gauge	:	01
Try squares of different sizes	:	09
Inside & outside calipers	:	02
Scribers	:	10
Engineering steel rules of different sizes	:	11
Centre punches of different sizes	:	10
Vernier calipers	:	01
Micro-meter	:	01
Angle protector	:	01
Dividers	:	03
Depth gauge	:	01
Scribing block	:	01
Wire gauge	:	01

Welding Shop:

- Electric arc welding sets
- Edge preparation tools & equipment
- Oxy-Acetylene welding & cutting
 - Pressurized
 - Non-pressurized
- Soldering & brazing tools & equipment

Electric are Welding Section

• Electric are welding sets	:	02
• Welding goggles & screens	:	10
• Tongs	:	03
• Chipping hammers	:	03
• Welding apron & gloves	:	08
• Welding flux cleaning brush	:	04
• Electric Fire fighting equipment	:	01
• First aid & medical facilities	:	Yes

Oxy-Acetylene Welding & Cutting

• Pressurized oxy-acetylene welding set	:	01
• Non-pressurized oxy-acetylene welding set	:	01
• Cutting torch	:	01
• Fire-fighting equipment	:	01
• First-aid & medical facilities	:	yes

Soldering & Brazing

• Soldering & brazing equipments, tools & accessories	:	02
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Foundry Shop

- Floor moulding facilities
- Bench moulding facilities
- Patterns of different types
- Core-making facility
- Metal melting, transferring & pouring

Floor Moulding/Bench Moulding

• Floor moulding space	:	22.84 sq. mts.
• Bench moulding space	:	6 sq. mts.
• Green sand	:	sufficient quantity
• Shovels	:	01
• Riddle	:	01
• Rammers	:	05
• Vent wires	:	05
• Slicks	:	05
• Lifters	:	05
• Swabs	:	05
• Trowels	:	06
• Gate cutters	:	01
• Strike off-bars	:	01
• Mallets	:	05
• Moulding boards	:	05
• Patterns of various types	:	05
• Core making facility	:	01
• Metal melter	:	01
• Hand Ladle	:	01
• Cop & drop	:	10

Sheet Metal Shop

- Sheet metal tools (marking, cutting, notching, bending, riveting, soldering, folding, hollowing sinking, raising) and operation facilities

Shop is equipped with

- Steel rules : 11

• Steel squares	:	04
• Dividers	:	03
• Scrachers	:	10
• Punches	:	05
• Chisels	:	03
• Ships of various type & sizes	:	09
• Hammers & mallets	:	12
• Pliers	:	04
• Stakes	:	02
• Hacksaws & files	:	15 & 20
• Wire gauge	:	01
• Railings	:	01
• Anvils	:	03
• Solder	:	01
• Bench plate	:	01

Wood working shop

• Timber working tools (Planing, joining, marking, making, measuring, holding, boring, striking etc.)		
• Carpenter vices & working benches	:	4 & 2
• Saws of different types & sizes	:	06
• Chisels	:	03
• Axes	:	01
• Wooden & metallic jack plane	:	05
• Boring Tools	:	01
• Striking tools	:	01

• G-Clamp	:	01
• Screw drivers	:	03
• Pincers	:	01
• Rasp & files	:	06
• Carpenter's measuring & marking tools	:	04
• Tool Grinder	:	01

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Name of the Lab : Engineering Graphics – 1st Sem (1st year)

Equipments available

Drawing Boards	:	61 Nos.
Drafter	:	60 Nos.
Instrument Box	:	60 Nos.
Different Geometric Models	:	12 Nos.

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Name of the Lab : Engineering Mechanics – (1st year, IInd Sem.)

Equipments available

1. **Screw Jack** to determine its Mechanical advantage, velocity ratio & efficiency : 01
2. **Simply Supported Beam** to verify the Law of moments : 01
3. **Jib Crane** for finding the force in the member of Jib Crane : 01
4. **Bell Crank Lever** for verifying the law of moments. : 01
5. **Universal Force Table** to verify Law of Polygon. : 01
6. **Roof Truss for verifying** the force transmitted by the members of the given truss. : 01
7. **Differential Wheel & Axle** for finding its mechanical advantage, velocity ratio & efficiency. : 01
8. **Worm & Worm Wheel** for finding its Mechanical advantage, velocity ratio efficiency. : 01
9. **Inclined Plane Friction Apparatus** for determining the coefficient of friction between wood & various surfaces (Like Leather, Wood, Aluminum) : 01

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Name of the Lab : Mechanics of Fluids (IIInd Year, IIIrd Semester)

Equipments available:

- Venturimeter apparatus to find out the co-efficient of discharge. : 01
- Minor Head losses in pipeline (sudden expansion/contraction) apparatus. : 01
- Co-efficient of discharge (C_D , C_V , C_C) using orifices & mouthpieces apparatus : 01
- Major Head losses in a pipeline apparatus. : 01
- Bernoulli's Theorem apparatus. : 01

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Name of the Lab : Mechanics of Solids (IIInd Year, IIIrd Semester)

Equipments available:

- UTM of 20 ton capacity for tensile, double shear, compression
stiffness of spring and brinnel hardness test : 01
- Izod impact testing Machine : 01
- Rockwell hardness Tester : 01
- Torsion Testing Machine : 01

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Name of the Lab : Mechanical Engineering Drawing (IInd Year, IIIrd Semester)

Equipments available:

- Models of Knuckle Joint, Universal Coupling, Hook's Coupling, sleeve & muff Coupling, Simple bearing, Bush Bearing, Thrust Bearing, Cotter Joint, Oldham's Coupling, Crank Shaft, flexible Coupling & 4 Cut-sections model of 2 stroke and 4-stroke. Diesel & Petrol Engine.
- Drawing Boards : 61
- Drafters : 60
- Instruments Box : 60

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Name of the Lab : K.O.M./D.O.M. (IInd Year, IVth Semester)

Equipments available:

- Motorised Gyroscope : 01
- Static & dynamic Balancing Apparatus : 01
- Whirling of Shaft Apparatus : 01
- Kinematic pairs : 01
- Differential Gear Assembly : 01
- Epicyclic gear train : 01
- Cam & followers Models : 05
- Determination of damping factor in a
torsional vibrations set up. : 01
- Gear Box Sectionised Model 4/5
Speed with Lever. : 01

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Name of the Lab : Manufacturing Machine (IInd Year, IVth Sem.)

Equipments available:

- 6½ Ft. Lathe Machines with all required accessories : 4 + 6
(pipeline) = 10
- Universal Milling Machine with necessary accessories : 01
- Shaper with all required accessories : 01
- Pedestal Drilling machine with required accessories : 01
- Hydraulic Power Hacksaw machine : 01
- Tool Grinder : 01

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Name of the Lab : Machine Design-I (IIIrd Year, Vth Sem.)

Equipments available:

- Drawing Boards : 60 Nos.
- Drafters : 60 Nos.
- Instrument boxes : 60 Nos.

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Name of the Lab : Fluid System Lab (IIIrd Year, VIth Semester)

Equipments available :

- Impact of Jet on vanes : 01
- Pelton turbine : 01
- Francis turbine : 01
- Reciprocating Pump : 01
- Centrifugal Pump : 01
- Hydraulic Ram : 01

Additional equipments proposed

- Kaplan turbine : 01
- intensifier : 01

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Name of the Lab : Metal cutting & Tool Design (3rd Year, 6th Sem.)

Equipments available:

- 6½ Ft. Lathe Machines with required accessories : 10
- Universal milling machine with required accessories : 01
- Shaper with required accessories : 01
- Pedestal drilling machine with required accessories. : 01
- Tool grinder. : 01
- Power hacksaw Machine. : 01

Additional equipment proposed

- Tool Design Software.

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Name of the Lab : Machine Design-II (IIIrd Year, VIth Sem.)

Equipments available:

Models of

- Clutch : 01
- Connecting rod : 01
- I.C. engine cut section
(Petrol & Diesel Engines– Two stroke & four stroke) : 04

Procurement under Process

Models/cut sections of

- Automotive transmission : 01
- Brakes : 01
- Hydraulic Rivetting : 01
- Mechanical Hoist : 01

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Name of the Lab : Computer aided manufacturing (4th Year, 7h Sem.)

Equipments in process

1. C.N.C. Trainer Lathe with necessary accessories : 01

Procurement under Process :

1. C.N.C. Trainer Milling with necessary accessories : 01

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Name of the Lab : Refrigeration & Air conditioning (4th Year, 7th Sem.)

Equipments in process

- | | | | |
|----|---------------------------------------|---|----|
| 1. | Refrigeration equipment | : | 01 |
| 2. | Air-conditioning equipment | : | 01 |
| 3. | Evaporative cooling/heating equipment | : | 01 |
| 4. | Sling thermometer | : | 02 |

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Name of the Lab : Mechatronics (4th Year, 7th Sem.)

Equipments in process

1.	Pneumatic training Kit	:	01
2.	Basic electro pneumatic Kit	:	01
3.	PLC 3210/AB make + hand set P R	:	01
4.	Air compressor	:	01
5.	Cut section module-containing 5 components	:	01
6.	D C supply Training Kit	:	01
7.	Basic pneumatics training software	:	01

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Name of the Lab : Metrology (4th Year, VIIth Semester)

Equipments in process

1. Sine bar :
01
2. Slip guage :
01
3. Dial Indicator with Magnetic stand :
01
4. Precision Sprit Level :
01
5. Surface plate :
01
6. Dial Indicator :
02

- 7. Vernier Caliper :
01
- 8. Out side Micrometer :
02
- 9. Digimatic Micrometer :
02
- 10. Bevel Protector :
01
- 11. Dial Brove Guage :
01