

10. RESOURCE REQUIREMENTS

10.1 Physical Resources

10.1.1 Space Requirement:

Norms and standards laid down by All India Council for Technical Education (AICTE) may be followed to work out space requirement in respect of class rooms, tutorial rooms, drawing halls, laboratories, space required for faculty, student amenities and residential area for staff and students.

10.1.2 Laboratory Requirement:

Sr. No. Name of Equipment

Polymer Processing Techniques Laboratory		Qty.
1	CNC Horizontal Automatic Injection Moulding M/C (80 ton/75 ton)	1
2	Blowm Film Plant LD/LLDE/HD/HM (25 kg/hr)	1
3	PVC extruder – 3” or 4”	2
4	Oven (1.2m*0.6m*0.8m)having 6 shelves	1
5	Automatic Hydraulic Compression Moulding Machine	1
6	Pad Printing Machine	1
7	Hot Stamping Machine	1
8	Blender	1
9	Scrap Grinder	1
10	Thermoforming/Vaccuum forming M/c	1
11	Screen Printing Machine	1
12	Palletization Plant	1
13	Coextrusion Plant	1
14	Rotational Moulding M/C with Rotational Mould	1
15	Chilling Plant	1
16	Automatic Injection Moulding Machine	2
17	Microprocessor based Double Station Blow Moulding Machine	1
18.	Cutting and Sealing Machine of Plastic Films	1
19.	Verticle (Hydraulic) Injection Moulding Machine	1
20.	PVC (High frequency) Welding Machine	1
21.	Hand Blow Moulding Machine with Mould	2
22	Hand Compression Moulding Machine Lever Type with Mould (10-15 ton)	2
23	Hand Injection Moulding Machine with Mould	2

Unit Operation Laboratory

1. Hydraulic Bench consisting of Venturi meter, Orifice meter, Bernoulli's tube, Reynold tube, Notch and Weirs, friction pipes
2. Reciprocating pump with intake and discharge tank
3. Centrifugal pump with intake and discharge tank
4. Filter Press (Plate and Frame with 5 Nos. apparatus)
5. Cyclone separator set up
6. Digital liquid mixing equipments
7. Ball mill of 5 kg/hr capacity (Demo working model)
8. Sieve analysis (a set of different mesh nos.)
9. Sieve shaker
10. Sedimentation apparatus
11. Viscometer
12. Rotameter
13. Thermal Conductivity apparatus
14. Double pipe heat exchanger (parallel and counter flow)
15. Set up for emmissivity test
16. Set up to prove Stefan's Boltzmann law
17. Batch distillation column
18. Humidification column
19. Experimental setup for dyeing characteristics
20. Bourdon pressure gauge equipment
21. Temperature calibration test
22. Experiment setup for diffusion coefficient

Polymer Science Laboratory

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|----|--|---|
| 1. | Dean And Starb Apparatus for water content determination | 1 |
| 2. | Melting point apparatus for polymers | 1 |
| 3. | Viscosity/Molecular weight determination set up | 1 |
| | (Brook fields, Viscometer-01, Ostwald Viscometer-01) | 1 |
| 4. | Hot Air Oven | 1 |
| 5. | Abbe Refractometer | 1 |
| 6. | Boiling point Apparatus | 1 |

Plastic Die and Mould Shop

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|----|---|----|
| 1. | HMT/Kirlosker Lathe gear operated with motor 1.8m size, 4 jaws and 3 jaws, chuck and centre chuck | 3 |
| 2. | Shaper MMM Loyal | 2 |
| 3. | Radial Drill Machine micro milent | 1 |
| 4. | CNC Grinder 250mm size | 1 |
| 5. | Universal milling machine with DRO System | 1 |
| 6. | Vertical milling machine with DRO System | 1 |
| 7. | Tool Craft/praga Pentograph machine | 1 |
| 8. | Fitter Benches | 15 |
| 9. | Vice 150mm | 30 |

10	Electra 6040 M EDM (with DRO System x,y,and z axis)	1
11	Jig Boaring Machine	1
12	CNC Lathe Trainer	1
13	EDM	1

Workshop Machine and Equipment

1.	CNC trainer lathe machine with boring attachment system	1
2.	CNC Trainer milling machine with drilling attachment	1
3.	Trainer Grinding machine	1
4.	Trainer Shapar machine	1
5.	Trainer EDM machine with DRO	1
6.	Trainer CNC wire cut machine	1

Additive and Compounding Laboratory

1	High speed mixer	1
2	Banbary mixer	1
3.	Two roll mill	1
4	Kneader	1

Repair and Maintenance of Polymer Machines Laboratory

1	Temperature controller	5
2	Thermocouple	5
3	Relay	5
4	Apparatus for conversion of AC to DC	5
5	Resistance 47ohm,100ohm	10
6	Capacitor	10
7	Limit Switch	5
8	Heater Wire	20m
9	Bearings	5
10	Gear Box	1
11	Chilling Plant	1
12	Filters	5
13	Oil Seals	10
14	O-Rings	20
15	Pressure valve	1
16	Non-Return Valve	1
17	4-way Directional Valve	1
18	2-way Directional Valve	1
19	Haudraulic Pump	1
20	heater Wire element 1000w	5

Qty

Testing and Quality Control Laboratory

Sr. No.	Name of equipment	
1	CNC Universal Testing Machine	1
2	Climate/conditioning chamber	1
3	Hot Air Oven	1
4	Bend Tester	1
5	Rockwel Hardness Tester	1
6	Shore Hardness Tester	1
7	Dart Impact Tester	1
8	Melt Flow Indexer (CNC based)	1
9	Heat Distortion Temperature Apparatus	1
10	Vicat Softening point Apparatus	1
11	Gloss Meter	1
12	Carbon Black Content Tester	1
13	Abrasion Testing Machine	1
14	Volume and Surface Resistivity Tester	1
15	Izod and Charpy Impact Tester	1
16	ESCR tester	1

CAD Laboratory for Polymer Engineering

1	Computers with latest configuration	30
2	Plotter with latest configuration	01
3	Solid Works/Cosmos Work Software (latest version)	35 Nos. licenses or lan supported
4	AutoCAD 2011	-do-
5	Mould Flow Software and Mould Creator software (latest version)	-do-