

Malaviya National Institute of Technology Jaipur

Department of Metallurgical and Materials Engineering

MECHANICAL METALLURGY LABORATORY

| S.No. | Name of the Equipment | Quantity (in numbers) |
|--------------|---|------------------------------|
| 1 | Lathe Machine | 3 |
| 2 | Electrical Resistance Furnace (Max Temp 900°C) | 2 |
| 3 | Rolling Mill | 1 |
| 4 | Forging Hammer | 1 |
| 5 | Disc Cutter | 2 |
| 6 | Circular Band Saw | 2 |
| 7 | Abrasive Grinding Wheel Machine | 1 |
| 8 | Spinning Lathe Machine | 1 |
| 9 | Sheet Cutter | 1 |
| 10 | Bench Vice | 1 |
| 11 | Pipe Vice | 1 |
| 12 | Surface Grinding Machine | 1 |
| 13 | Wire Drawing Machine | 1 |
| 14 | Shaper Machine | 1 |
| 15 | Vertical Drilling Machine | 2 |
| 16 | Impact Testing Machine | 1 |
| 17 | Arc Welding Equipment | 2 |
| 18 | Gas Welding Equipment | 1 |
| 19 | Vernier Caliper 0-150mm (Digital Mitutoyo make) | 3 |
| 20 | Digital Micrometer 0-25 (Mitutoyo make) | 3 |
| 21 | Digital Tako meter (LT make) | 2 |
| 22 | Digital Multimeter | 2 |
| 23 | Tong tester 3-3/4 Digits | 2 |
| 24 | Digital Clamp tester 1100 volt 400 Amp | 1 |

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List of Various Equipments in FOUNDRY LABORATORY

| S.No. | Name of the Equipment | Quantity (in numbers) |
|--------------|---|------------------------------|
| 1 | Sand Rammer | 2 |
| 2 | Muffle Furnace (Max Temp 900°C) | 2 |
| 3 | Sand Washer | 1 |
| 4 | Rapid Drier | 1 |
| 5 | Hot Tensile Tester | 1 |
| 6 | Hot Tensile Tester (Automatic) | 1 |
| 7 | Infrared Moisture Tester | 1 |
| 8 | Permeability Tester | 1 |
| 9 | Sieving Machine | 2 |
| 10 | Peel Back Tester | 1 |
| 11 | Core Gas Determinator | 1 |
| 12 | Slurry Pot Tester | 1 |
| 13 | Silicon Carbide Furnace (Max Temp 900°C) | 1 |
| 14 | Heating Oven(Max Temp 300°C) | 1 |
| 15 | Vertical Drilling Machine | 1 |
| 16 | Disc Polisher | 1 |
| 17 | Energy Charger | 1 |
| 18 | Bottom Pouring Pot Type Furnace | 4 |
| 19 | Magnetic Vibrator | 1 |
| 20 | Programmable Muffle Furnace (Max Temp 1200°C) | 1 |

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List of Various Equipments in FURNACE LABORATORY

| S.No. | Name of the Equipment | Quantity (in numbers) |
|--------------|---|------------------------------|
| 1 | Salt Bath Furnace | 3 |
| 2 | Disc Polisher | 2 |
| 3 | Induction Furnace | 1 |
| 4 | Raising Hearth Furnace | 1 |
| 5 | Bottom Pouring Furnace | 1 |
| 6 | Solid state Reactor | 1 |
| 7 | Electrical Resistance Furnace (Muffle Furnace) | 1 |
| 8 | Oven | 1 |
| 9 | Digital Bomb Calorimeter | 1 |
| 10 | Engler Viscometer | 2 |
| 11 | Pensky Martens Flash Point (Close Up) Apparatus | 2 |
| 12 | Cleave land (Open Cup) Flash Point & Fire Point | 2 |
| 13 | Gas Calorimeter Apparatus | 1 |
| 14 | Red Wood Calorimeter | 2 |

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List of Various Equipments in MATERIAL TESTING LABORATORY

| S.No. | Name of the Equipment | Quantity (in numbers) |
|--------------|---|------------------------------|
| 1 | Brinell Hardness Tester | 3 |
| 2 | Houns Field Tensometer | 1 |
| 3 | Formability Tester | 1 |
| 4 | Rockwell Hardness Tester | 3 |
| 5 | Superfacial Hardness Tester | 1 |
| 6 | Universal Testing Machine (Computerized) | 1 |
| 7 | Electronic Tensometer | 1 |
| 8 | Digital Vickers Hardness Tester (Manual & Computerized) | 1+1 |
| 9 | Digital Brinell Hardness Tester (Manual & Computerized) | 2+1 |
| 10 | Bond Tester | 1 |
| 11 | TenniousOlsen | 1 |
| 12 | Impact Testing Machine(For Plastics) | 1 |
| 13 | Impact Testing Machine | 1 |
| 14 | Vickers hadrnesstestor | 2 |

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List of Various Equipments in METALLURGICAL ANALYSIS LABORATORY

| S.No. | Name of the Equipment | Quantity (in numbers) |
|--------------|---------------------------------|------------------------------|
| 1 | Muffle Furnace (Max Temp 900°C) | 1 |
| 2 | Sensitive Balance | 1 |
| 3 | Carbon-SulphurDeterminator | 1 |
| 4 | pH meter | 1 |
| 5 | Conductivity Meter | 1 |
| 6 | Glasswares | 1 |
| 7 | Chemicals | 1 |

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List of Various Equipments in PLASMA NITRIDING UNIT LABORATORY

| S.No. | Name of the Equipment | Quantity (in numbers) |
|--------------|------------------------------|------------------------------|
| 1 | Microwave furnace | 1 |
| 2 | Nitriding Unit | 1 |

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List of Various Equipments in HEAT TREATMENT LABORATORY

| S.No. | Name of the Equipment | Quantity (in numbers) |
|--------------|---|------------------------------|
| 1 | Muffle Furnace | 8 |
| 2 | Thermostat | 1 |
| 3 | Metallurgical Microscope | 4 |
| 4 | Belt Grinder | 2 |
| 5 | Vacuum Oven | 1 |
| 6 | Abrasive Cutting Machine | 1 |
| 7 | Automatic Disc Polishing Machine | 1 |
| 8 | Disc Polisher | 2 |
| 9 | Intermediate Grinding Machine | 1 |
| 10 | Silicon Carbide Furnace (Max. 1400°C Temp.) | 1 |
| 11 | Hot Mounting press | 1 |
| 12 | Cold Mounting Press | 1 |
| 13 | Vacuum Oven | 1 |

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List of Various Equipments in EXTRACTIVE METALLURGY LABORATORY

| S.No. | Name of the Equipment | Quantity (in numbers) |
|--------------|---|------------------------------|
| 1 | Grinder-Polisher | 1 |
| 2 | Electronic Sensitive Balance | 1 |
| 3 | Particle Size Analyzer | 1 |
| 4 | Induction Furnace | 2 |
| 5 | High Temperature Viscometer | 1 |
| 6 | Heat Transfer Coefficient Measurement Equipment | 1 |
| 7 | MoSiO ₂ Tube Furnace | 1 |
| 8 | Bench Vice | 1 |
| 9 | X-Ray Unit | 1 |
| 10 | Penskey Martin Viscometer | 1 |
| 11 | Flash Point Apparatus | 1 |
| 12 | Fire Point Apparatus | 1 |
| 13 | Cleave land (Open Cup) Flash Point & Fire Point | 2 |
| 14 | Engler Viscometer | 2 |
| 15 | Pensky Martens Flash Point (Close Up) Apparatus | 2 |
| 14 | Red Wood Calorimeter | 2 |

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List of Various Equipments in ELECTRO METALLURGY & CORROSION LAB

| S.No. | Name of the Equipment | Quantity (in numbers) |
|--------------|--|------------------------------|
| 1 | Rectifier | 1 |
| 2 | Hot Plate | 1 |
| 3 | Stirrer | 1 |
| 4 | Ammeter | 1 |
| 5 | Voltmeter | 1 |
| 6 | Distilled Water Project | 1 |
| 7 | Potentiostate | 1 |
| 8 | PH Mtere Pen Type | 2 |
| 9 | Conductivity Meter (Pen type) | 2 |
| 10 | Magnetic Stirrer with hotplate, 2 litres cap Digital indicator (Remi make) | 4 |

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List of Various Equipments in POWDER METALLURGY LAB

| S.No. | Name of the Equipment | Quantity (in numbers) |
|--------------|--|------------------------------|
| 1 | Electronic balance (1kg) | 1 |
| 2 | Electronic balance (100gm) | 1 |
| 3 | Sieve analyzer | 1 |
| 4 | V-Cone mixture | 1 |
| 5 | Attrition mill | 1 |
| 6 | Horizontal high energy ball mill | 1 |
| 7 | Hall flow meter | 1 |
| 8 | Pusher type sintering furnace (1200°C) | 1 |
| 9 | Bearing testing unit | 1 |
| 10 | Stereo microscope | 1 |
| 11 | Image analyzer | 1 |
| 12 | Vacuum oven | 1 |
| 13 | Hydraulic P/M press (60 tons) | 1 |
| 14 | Vertical tensometer | 1 |
| 15 | Universal testing machine (20 tons) | 1 |
| 16 | Vacuum press | 1 |
| 17 | Silicon carbide furnace | 1 |

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List of Various Equipments in METALLOGRAPHY LAB

| S.No. | Name of Equipment | Quantity (in numbers) |
|--------------|--|------------------------------|
| 1 | Metallographic Microscope | 2 |
| 2 | Two-Wheel Policer | 2 |
| 3 | Single-Wheel Policer | 1 |
| 4 | Belt Grinder | 1 |
| 5 | Standard Sample for Non Ferrous alloys | 1 |
| 6 | Standard Sample for Steels | 1 |
| 7 | Standard Sample for Cast Irons | 1 |
| 8 | Inclined Binocular Metallurgical microscope | 1 |
| 9 | Inverted Binocular Metallurgical microscope | 1 |
| 10 | Trinocular Metallurgical microscope | 1 |
| 11 | Abrasive cutter for Metallographic Samples Twelve cut-off wheel | 1 |
| 12 | CCD color camera for computerized microscoping | 1 |
| 13 | Hand grinder for metallographic | 1 |
| 14 | Specimen Leveler | 1 |
| 15 | Microscope digital camera Nikon 16M pixel with image capture card for computer | 1 |

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MINERAL PROCESSING LABORATORY

| S.No. | Name of Equipment | Quantity (in numbers) |
|--------------|------------------------------|------------------------------|
| 1 | Blake Type Jaw Crusher | 1 |
| 2 | Roll crusher | 1 |
| 3 | Pulverizer | 1 |
| 4 | Rod Mill | 1 |
| 5 | Ball Mill | 1 |
| 6 | Single Deck Vibratory Screen | 1 |
| 7 | Double Deck Vibratory Screen | 1 |
| 8 | Air Classifier | 1 |
| 9 | Hydro Classifier | 1 |
| 10 | Magnetic Separator | 1 |
| 11 | Spiral Classifier | 1 |
| 12 | Mineral Jig | 1 |
| 13 | Thickner | 1 |
| 14 | Froth Floation Machine | 1 |