Mechanical Operation lab Facilities

Experimental set up Sieve Shaker, Ball Mill, Jaw Crusher, Magnetic Seperator

Technical Specification

Ball Mill

Shell Diameter	300mm
Shell Length	300mm
Shell Thickness	6mm0-420 mm
Shell MOC	MS
Motor	A reduction gear driven by a motor rotates the ball mill Bolls 6 nos ,
Tray	1no for collecting Sample
RPM Counter	1 No

Purpose: Size Reducing Equipment

Jaw Crusher

Maximum size for feed	50mm.
Product discharge size	5 mm - 15mm.
Capacity	100 - 200 Kg/hr
Jaw size	100 x 150 mm.

Purpose: Size Reducing Equipment

Magnetic Seperator

magnetic pulley
belt conveyor
DC motor drive 1 HP feed hopper,
Trays for collecting material .

Purpose: Separating iron particles from mixtures

Seive Shaker

200 mm dia. & 30 mm height,
230 V
50 cycle AC supply

Purpose: Separating Particles of different sizes

Mass Transfer lab Facilities

Experimental set up Packed Bed Tower, Fluidized Bed Dryer, Distillation Column, Water and soil test analyser

Packed Bed Column

Column	Borosilicate Glass Column
Packing	Raschig Rings
Flow Measurement	3 No. Pre calibrated Rota meter
Feed Tank	1 No. of stainless steel feed tank
Product receiver	1 No. SS tank
Gas supply	1 No. of gas cylinder with Pressure Gauge
Piping	SS , PVC
Setup Mounting	On sturdy MS stand with powder coated

Purpose: For separation of any gas from gaseous mixture

Fractionating distillation column/ leaching apparatus

Reboiler	Borosillicate Glass
Column	Borosillicate Glass
Stirrer	SS impeller and shaft coupled to FHP Motor
Condenser .	Coil type Borosilicate glass
Packing	Rasching Ring.
Heating Mantle	Aluminum body with fiber cloth
Digital Temp Indicator	0 – 400 0 C.
Temp Sensor	CR/AL Type
Distillate Receiver	Borosillicate Glass
Piping	SS , PVC
Setup Mounting	On sturdy MS stand with powder coated

Purpose: For extraction of oil from oil seeds and sepration of oil from solvent

Tray Dryer

tray drier with stainless steel.
RTD type PT-100 temperature sensors
Digital temperature indicator
Digital online weighing arrangement

Purpose: Find out exact time required time for drying

Water and Soil test analysis kit

Display	3½ Digit LCD
PH Range	0 – 14 pH
Resolution	0.01 pH
Accuracy	0.01, ± 1 Digit
Temp. Comp.	0 – 100 °C (Manual)

Conductivity	
Range	0 – 200 ?S 0 – 2, 0 – 20, 0 – 200 mS
Resolution	0.1 ?S
Range Select	Manual
Accuracy	± 0.5% FS, ± 1 Digit
Cell Constant	Adjustable (0.4 – 1.5)
Temp. Coeff.	2%
Temp. Comp.	Adjustable from Table
Ref. Temp.	25 °C
Temperature	
Range	0 – 100 °C
Resolution	0.1 °C
Accuracy	± 0.1 °C ± 1 Digit
Sensor	Semiconductor
TDS	
Range	0 – 200 ppm 0 – 2, 0 – 20, 0 – 200 ppt
Range Select	Manual
Resolution	0.1 ppm
Accuracy	± 0.5% FS,± 1 Digit
Cell Constant	On Display(0.4 – 1.5)
DO	
Range	0 – 20 ppm
Resolution	0.1 ppm
Accuracy	0.5 ppm,± 1 Digit
Temp. Comp.	5 – 55 °C (Manual)
Sensor	Gold/Silver Amperometric
mV (ORP)	
Range	0 – ± 1999 mV
Resolution	1mV
Accuracy	1 mV, ± 1 Digit
Turbidity	
Range	–
Resolution	–
Accuracy	–
Sample System	–
Salinity	
Range	0 – 50 ppt
Resolution	0.1 ppt
Accuracy	± 0.5% FS,± 1 Digit
Colorimeter	
Abs	–

Filters	–
Resolution	–
POWER SUPPLY	1.5V x 6Dry Cells/ 230 V ± 10% AC, 50 Hz.

Purpose: This kit is used for testing water samples and soil samples

Chemical Reaction Engineering lab Facilities

Experimental set up Batch Reactor, Semi Batch Reactor, Plug flow reactor, CSTR, Isothermal Batch Reactor

Technical Specification

Plug Flow Reactor

Reactor	Material Stainless steel (SS) .
Flow Measurement	2 No. Pre calibrated Rota meter.
Feed Tank	2 No. of stainless steel feed tank.
Feed Circulation	By Compressed Air.
Pressure Regulator	0-2 kgf / cm2 .
Pressure Gauge kgf	Bourdon type0 – 2/ cm2 .
Piping	SS , PVC.
Product receiver	1 No. SS tank.
Setup Mounting	On sturdy MS stand with powder coated.

Semi Batch Reactor

Reactor	Material Stainless steel (SS) .
Flow Measurement	1 No. Pre calibrated Rota meter.

Feed Tank	1 No. of stainless steel feed tank.
Feed Circulation	By Compressed Air.
Pressure Regulator	0-2 kgf / cm2 .
Pressure Gauge	Bourdon type0 – 2/ kgf cm2 .
Piping	SS , PVC.
Product receiver	1 No. SS tank.
Setup Mounting	On sturdy MS stand with powder coated.
Reactor	Material Stainless steel (SS) .
Flow Measurement	2 No. Pre calibrated Rota meter.
Stirrer	1 No.SS impeller and shaft coupled to FHP Motor
Digital Temp Indicator	0F H–P 2 0M0o 0t oCr, Indicator cum Controller

CSTR

Reactor	Material Stainless steel (SS)
Flow Measurement	2 No. Pre calibrated Rota meter.
Feed Tank	2 No. of stainless steel feed tank.
Feed Circulation	By Compressed Air
Pressure Regulator	0-2 kgf / cm2
Pressure Gauge	Bourdon type 0 – 2 kgf / cm2.
Piping	SS , PVC.

Isothermal Batch Reactor

Reactor	Material Stainless steel (SS), water bath
Heater	Nichrome wire heater
Stirrer	1 No.SS impeller and shaft coupled to FHP Motor
Temp Sensor	CR/ /AL Type
Piping	SS, PVC

Purpose Carry out chemical reaction with the help of different reactors for different physical conditions.