

Instrument List for Procurement 2020-21*

S.No.	Instrument Name	Quantity
1.	Spectrophotometer	01
2.	VW Total Pressure Cell-TPC (Vibrating Wire, 1 MPa)	05
3.	VW Contact Pressure Cell- CPC (Vibrating Wire, 1 MPa)	04
4.	MPBX (4-point anchor, Vibrating wire, Sensor range: 1-100 Kpa)	04
5.	VW Load Cell (Vibrating Wire, 1-100 Kpa)	04
6.	Readout Unit (For TPC,CPC and LC)	01
7.	Peizometer (50mm dia, 1 to 3 m length with data logger)	04
8.	Electronics balance (0.001-10 kg, accuracy up to 2nd decimal place)	01
9.	Atterberg Limit Apparatus	01
10.	Tell Tale (No. of Anchors: 1 to 4, range: 5 mm to 30 mm)	10
11.	Density meter (online)	01
12.	Computer/Peripherals	01
13.	Smart sensors Vibration, Temperature Load and Height, tire pressure with wireless module processing system	01
14.	Onboard tracking and transmitting instruments	03
15.	Fault tolerant wireless network	01
16.	Cloud Server	01
17.	Local area network and computing accessory	01
18.	Application software	01
19.	Flat sheet membranes, Hollow fibre membranes, NF, UF, FO, MF	As per requirements
20.	Chemicals, analysis kits	As per requirements
21.	Glassware (Round bottom flask, BOD bottles etc)	As per requirements
22.	Plastic containers like samplinf bottles, protective gloves, and others	As per requirements
23.	Fabrication of the integrated prototype	01
24.	Ion specific Electrode	01
25.	Water purification System	01
26.	COD,BOD and DO analyser	01
27.	Microwave Digester	01
28.	UV Visible Spectrophotometer	01
29.	Inductively Coupled Plasma Atomic Emission Spectrophotometer along with accessories and CMC/AMC	01
30.	Water purification system	01
31.	Shotcrete Penetrometer (1000N)	01
32.	Digital compression testing machine, 2000kN	01
33.	Portable Ultrasonic Pulse Wave Velocity Testing Instrument	01
34.	Rebound Hammer	01
35.	Molding Apparatus	01
36.	Materials for Fabrication of Stemming Machine	01
37.	Pilot plant for closed loop pumping test and accessories including PLC unit, data logger, pressure transducers etc. + AMC	01
38.	Hobart mixerpan mixer (60-100 lit capacity) with system to monitor the power drain	01
39.	Density meter (Range: 30-80 % Concentration by weight)	01

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40.	Liquid Limit and Plastic Limit test apparatus	01
41.	Digital moisture analyzer	01
42.	Humidity Chamber, Moulding and curing facility & lab setup for Paste fill mix design	01
43.	Work station	01
44.	AERMOD software	01
45.	XL statistical software	01
46.	Origin Lab software	01
47.	Servo controlled stiff testing machine with accessories for UCS test, Tensile test and Triaxial test with accessories to measure load and displacement	01
48.	Hydraulic controlled rock core drilling machine	01
49.	Automated rock cutting machine	01
50.	Rock grinding/lapping machine	01
51.	Slake durability Index apparatus with accessories	01
52.	An oven capable of maintaining temperature of 105 + 5 OC for a period of at least 24 hours	01
53.	A electronic weight balance up to 5kg with least count of 0.01gm	01
54.	Point load strength index	01
55.	Digital Vernier caliper	01
56.	Brazillian test apparatus	01
57.	Universal Testing Machine with accessories	01
58.	Contingent items like diamond drill bit, Rock Cutting blade, triaxial jackets, almirah, accessories tools for various apparatus, wrenches, screw driver, etc	01
59.	Digitally controlled muffle furnace	01
60.	RFID TAGS	5000
61.	RFID Reader	02
62.	A Multi-channel blast induced vibration and air overpressure recording system and accessories	01
63.	Multi-Channel data acquisition system for recording acceleration, strain and Velocity of Detonation and accessories such cables and connectors	01
64.	Ultrasonic Velocity Measurement and Analysis System for Rock Sample	01
65.	Cross-hole and Down hole Seismic Monitoring System	01
66.	High Speed Camera with Motion analysis system for rock fragmentation analysis	01
67.	Schmidt Hammer (N-Type)	01
68.	JK SIM Blast Software Package for Surface and Underground Blast Design pre-loaded in Toughbook for Site Use	01
69.	WipFrag and Wip Joint Software preloaded in ios Tablet	01
70.	200 Ton UTM for Determination of Engineering Properties of Rock Mass	01
71.	Laboratory Core Cutting Machine	01
72.	Rock Core Trimmer and Cut-off Machine	01
73.	Point Load Strength Testing Machine	01
74.	Sample Polishing and Lapping Machine	01
75.	Rock Core Specimen Grinding Machine	01
76.	Rock Abrasion Testing Machine	01

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77.	Lab Centrifuge(10000rpm,100ml)	01
78.	Lab rotary shaker	01
79.	Hollow cathode Lamps	12
80.	Tube Furnace	01
81.	Shredder/grinder/Pulverizer	01
82.	Minor fabrications	As per requirements
83.	Particle size analyzer	01
84.	Mastersizer 2000	As per requirements
85.	Development of new apparatus system	As per requirements
86.	Palm top phased array ultrasonic instruments	01
87.	Pulse echo-technique instrument	01
88.	Circular Magnetic Particle Detector (Portable)	01
89.	Guided and Pulse-echo wave accessories	01
90.	Others MPCD accessories	01
91.	Bolt tension/stress monitor	01
92.	Instrumented rebar bolts	20
93.	Instrumented cable bolts	08
94.	Triple height/dual height Telltale	04
95.	Rock bolt load cell	01
96.	Readout units	02
97.	Rock cable/bolt testing equipment	01
98.	Up-gradation of existing FLAC3D and /or 3DEC software to the latest version	01
99.	Grouting materials	As per requirements
100.	Data cables, network and monitoring station	As per requirements
101.	Printing consumables	As per requirements
102.	Desktop Computers	100
103.	LaserJet Printer	30
104.	3D Printer along with resin and ultrasonic cleaner	01
105.	Photocopier (B/W)	10
106.	Office Furniture	As per requirements
107.	Air Conditioners	As per requirements
108.	Solar panel	01
109.	Fire Fighting Devices	04
110.	Internet and video-conferencing Facility	01
111.	Digital Display Board (With all accessories)	01

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Sl. No.	Instrument Name	Quantity
1	Teflon Bombs	12
2	Artificial Diesel Fume Creator	01
3	Online Monitoring and Data Accusation System for pressure, air velocity, gas and diesel particulate matter system	03
4	Auxiliary fan with VFD and Ventilation ducting with connectors and hanging arrangement of diameter 610, 760 mm.	01
5	Water Coolers	As per requirement
6	Hygrometer	As per requirement
7	Thermometer	As per requirement
8	Straw Shredder	As per requirement
9	Differential Scanning Calorimetry (DSC) with kinetic facilities, workstation, microbalance and with other accessories.	As per requirement
10	Bulk Emulsion Analyser (BEA) and other Analysers	As per requirement
11	Digital Flash Point	As per requirement
12	Mercury Intrusion Porosimeter	As per requirement
13	Feed Crusher with screening/coal conveying	As per requirement
14	Components of PFBG	As per requirement
15	CO, H ₂ , Smoke detectors, fire-fighting system, plant component problem identification/monitoring system.	As per requirement
17	Gas Pressure Regulators	As per requirement
18	WD-XRF	03
19	Ash Behavior Prediction Software	01
20	AFT	As per requirement
21	Slag Viscometer	01

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Sl. No.	Instrument Name	Quantity
1.	C Pillar Software	As per requirement
2.	Slim Borehole Scanner, Strain Gauges, LVDT, digital Vernier Caliper	As per requirement
3.	CorelDraw 2020	As per requirement
4.	SPSS Software	As per requirement

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Instrument list for procurement 2021-22 & 2022-23

Sl. No.	Instrument Name	Quantity
1.	Micro-reactor	01
2.	BET Surface Area Analyzer	01
3.	Rotary evaporator	01
4.	Magnetic stirrer	01
5.	pH meter	01
6.	Vacuum oven	01
7.	High pressure gas regulator	01
8.	MFC	01
9.	Fabricated CO2 absorption system	01
10.	Automatic Karl Fischer Titrator	01
11.	Gas Permeation unit fabrication	01
12.	Gas Chromatography	01
13.	Electrochemical Workstation with RDE Set Up	01
14.	Analytical Balance	01
15.	Biomass cutting mill/crusher	01
16.	Ball mill with different sizes of balls	01
17.	Palletizer machine (Hydraulic pellet press) and die with different sizes (as per the requirement)	01
18.	Stainless steel hot water boiler (Domestic boiler)	01
19.	Tumbling (Tumbler) machine (Pellet durability tester)	01
20.	Pellet Hardness / compressive strength tester	01
21.	Fluoromax-4C (Steady-state and lifetime), including DeltaTime kit for NanoLED source on FluoroMax systems, NanoLED-390, NanoLED-455, NanoLED-570	01
22.	Teflon-lined autoclave for hydrothermal treatment	01
23.	UV Torch / UV Lamp	01
24.	Ultrasonicate	01
25.	Electrochemical Analyzer / Potentiostat for measuring correction rate	01
26.	Contact angle optical tensiometer	01
27.	Plant cost / Prototype design & Fabricated systems / Demonstration model	As per requirement
28.	Acid Mine Water Treatment Plant	01
29.	Galena Software – 3 user licence	As per requirements
30.	Computerised direct shear test apparatus for soil	As per requirements
31.	Brunton compass	As per requirements
32.	Point lead tester	As per requirements

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