

List of items likely to be procured in the next 3-5 years

Note:

- 1. This list may change from time to time depending on project requirements.**
- 2. Detailed specifications will be available at the time of raising the indent.**

1. MS and SS chambers with refractory and thermal insulation linings from inside like in a furnace.
2. IGBT based power supply of rating 100kW
3. Process Instrumentation and sensors with PLC based feedback controls integrated in control panel.
4. Steam based medical waste sterilization equipment made of SS material with accessories
5. Heavy duty industrial shredder to shred sterilized red category biomedical waste
6. Effluent treatment plant to treat water from discharge of wet scrubbers and other equipment consisting of sedimentation, dosing tanks and filter press.
7. Diesel generator for emergency backup
8. Oxygen and Nitrogen generators based on swing adsorption technique
9. RF power supply (1KW, single phase along with matching network)
10. Pressure gauges
11. Heaters and heater power supply
12. Mass Flow Controller
13. Water chiller
14. High-Temperature Vacuum Furnace with High-Pressure Gas Quenching
15. Multi-stage roots pumping station
16. Vacuum Chambers of various dimensions
17. Optical Emission Spectrometer
18. Ion Source for Producing ion beam of energy range 50 - 2000 eV
19. UHV system of various dimensions
20. SNOM AFM Scanner,
21. FTDT/SPIP software
22. Portable Raman system
23. Compact e-beam evaporator
24. Turbo Molecular pump of various specifications
25. High Vacuum SS Chamber (Spherical, Diameter: 500 mm with load lock)
26. HIPIMS Power supply (6 KW, 3 phase)
27. Ion energy analyzer
28. Vacuum Chamber and subsystems
29. Power supplies
30. Quantum Efficiency Measurement
31. H₂S detectors and Upgradation of safety system
32. Diesel generator
33. Flue Gas Analyzer,
34. Power supplies,
35. Experimental system + PS for electric and magnetic fields,
36. Turbo pump
37. AFM scanner
38. Vibrating sample magnetometer (VSM),
39. Experimental plasma pyrolysis chamber

40. RF Components such as amplifier, Directional antenna system, and Broad band Antennas and SDR etc.
41. Controlling systems for vacuum and power supplies such as console, leak detector, high voltage power supply etc.
42. Radiation measuring systems such as Wein Filter, Spares gamma and neutron detectors, HV feed through, Insulator etc.
43. System for RF applications on seeds or similar etching system such as Water Contact Angle Measurement Instrument, Optical Emission Spectroscopy up gradation, Florescent Microscope etc.
44. High Voltage Probe & Current Transformers (CTs)
45. High speed RF switch 2GHz to 20 GHz (SPDT)
46. ZERO-BIAS SCHOTTKY DIODE DETECTORS 2GHz to 20GHz
47. RF Power Meter with Diode sensors 2GHz to 20GHz
48. Semiconductor devices(100 Ampere, 1.5kV) IGBT, Diodes, MOSFets, Diodes, SCRs
49. Hot Wire Anemometer, 0-30m/s
50. Vector Network Analyser (1MHz to 20 GHz)
51. Combination Vacuum gauge (1500 mbar-10(-8)mbar)
52. Turbo Molecular Pump (80 liter/sec)
53. Bidirectional couplers 2GHz to 20 GHz
54. Voltage controlled oscillator 2GHz to 20GHz
55. Gas dosing valve (high Precision)
56. Circulators 1 GHz to 2 GHz
57. Spectrum Analyser (10kHz to 20 GHz)
58. CW 13.56 MHz RF source with impedance matching network for making of plasma, impedance range=0.1 to 10 ohm
59. Stub tuner for matching impedance in frequency range of 100-500 MHz with power handling capacity 100 watt
60. RF Power meter for (-20dBm to +50 dBm) with frequency range 10-500 MHz
61. Power Amplifiers for 10-500 MHz for 100 watt output
62. Programmable software defined radio SDR (transceiver) for frequency 50 MHz to 3 GHz
63. Tunable RF filters with High power handling of 100 watt in frequency range 10-500 MHz
64. RF Fixed attenuators, high-power attenuators, digital step / programmable attenuators, voltage variable attenuators from DC to 1 GHz with 20dB attenuation
65. Signal generator (2 GHZ/18 GHZ)
66. Radiation measurement meter (frequency upto 20 GHZ)
67. optical emission spectrometer in 320-1000 nm wavelength range and focal length >300mm, optical resolution of 0.2nm
68. CW Signal generator (9kHz-3GHz) with FM,AM modulation and output power of -120 to 10dBm
69. NF3 gas detector 0-30ppm
70. Mass flow controller (NF3 gas) 0-500 sccm
71. 40 KF FUSED SILICA (QUARTZ) VIEWPORT
72. UHV gate valve with DN 100 CF flange
73. "Wien Filter with a fixed magnetic field (with rare-earth permanent magnet circuit) and a set of electrostatic plates.
74. Fission Chamber/Boron lined proportional counter :1500 mm to 400 mm
75. Neutron and Gamma Area monitor:He3 and GM counter
76. Bending Magnet

77. Linear Induction Motors 0 to 415V, ~1kA (short pulse)
78. 3-phase, 415V, Variable Frequency Drives
79. Alpha detector
80. Workshop machines (CNC VMC, shearing machine with accessories)
81. 12 MW Water Cooling System
82. Wi-Fi Access Points & Controller
83. Containerized Data Center turnkey project with 8 racks
84. High Configuration Server
85. Routers with 10G interface
86. "Multiparty VC End Points,
87. Multi Control Unit (MCU)"
88. 2 Petabyte Storage System solution
89. VDI (Virtual Desktop Infrastructure)
90. Smart Class Room with accessories
91. "Desktop Computers
92. (All-In-One, Desktop Computers)"
93. Multi-Function Printers
94. Network Access Control solution for the campus network
95. High Configuration Server Hardware
96. Data Backup Solution for minimum 500TB storage
97. GPU-CPU cluster (NVlink or equivalent configuration)
98. Position control power supply (Feedback power supply rating 300 V, +/- 3 kA.)
99. Divertor Power Supply (300V, 30 kA)
100. Cryo valves for helium as well as nitrogen services (On-off, control or Hand valve, Electro/pneumatic valve)
101. Impurity detector (Trace Impurity of N₂, O₂, Moisture and THC in Helium gas, Range: 0-100 ppm)
102. PLC Upgradation of Cold-Box (Upgradation PLC module of cold-box Eurotherm T2750 PAC modules, IO: 140 nos. , # 02 CPU with designated 16 modules racks, 08 module AI, 09 AO, 01 DI and 12 nos. of DO)
103. Cryo Temperature Sensors (Range: 4.2 K - 325 K) , Model: Cernox or CCS
104. Cryo compatible Resin Epoxy (10 Kg)
105. Stainless Steel Pipes (SS 316 L, Size: ½ in to 4 in (NB), Length: 10 m)
106. S-Glass Roving (9 micron, 360 tex, S-Glass Yarn)
107. Oil consumables for Rotary and Roots vacuum pumps 50 L container x 02 nos., P3 grade Oil)
108. Breox Oil (B35) and Charcoal (Breox B35 Oil for He compressors 200 L x 3 drums, 200 kg Charcoal)
109. ORS, POS and Purifier Filters for periodic maintenance
110. Filter FC 410 & FC 418 for Helium cold box
111. O-rings / Gaskets / seals (10 kF, 16 kF, 25 kF, 40 kF and 50 kF)
112. Material: Viton / Nylon / Teflon PFTE)
113. Cryo Compatible Bellows (SS 316 L, Size: ½ in to 4 in (NB), Length: 0.25 -1 m)
114. Multi-layer Insulation (MLI) (Aluminized Mylar, Fibre Glass Net as spacer material, Punched holes, 100 m L and 1 m width Roll)
115. HTS Tape – BISCCO or YBCO (Bi-2223 or Di-BSSCO, YBCO, L : 50 m, Critical Current at self-field at 77 K: > 120 A)

116. MgB₂ wires (L : 500 m, Critical Current at self-field at 77 K: > 50 A)
117. Helium gas (Qty: 2000 M³, Purity: 99.999% (4.6 Grade Helium gas))
118. Liquid Nitrogen (Qty: 24 Lacs Liters (Every Year 8 Lacs x 3 Y), Purity: 99.999%)
119. PLC cards AO/AI for Compressors station
120. Consumables for Pneumatics Utility
121. Sub-components for Current leads
122. Helium Leak Detector (3 nos.) (1. Backing pumps capacity from 15 to 35m³/h. 2. Pumping Speed capacity from 2 to 10 l/s. 3. Vacuum and sniffing leak detection)
123. UHV Gauge Heads (15 nos.) (Replacement gauge heads with CF fitting compatible with M/s. Granville Phillips (MKS) make 356 Micro-Ion Plus modules -P/N: 356006-YG and 274 UHV Nude Gauge Flange - P/N: 274042.)
124. RGA Ion Source (10 nos.) (Replaceable Open Ion Source with Dual Thoria Filaments for MKS022 Series RGA (MKS make) P/N: 842-043)
125. Ionization Gauge (4 nos.)
126. Turbo molecular pump Hi pace 300 bearings (15 nos.)
127. Turbo molecular pump Hi pace 2300 bearings (15 nos.)
128. Oil consumables for Rotary and Turbo molecular vacuum pumps
129. Annual maintenance contracts
130. AMC of Pfeiffer make Pumps and helium leak detectors
131. Divertor Power Supply for Aditya-U
132. PF-6 Power Supply for SST-1
133. Up-gradation of Plasma Control System H/W and S/W Controller, A/D, D/A, Timer and DIO modules along with software drivers
134. Supply and Installation of Turbo Molecular Pumping System with 150 CF Inlet Flange and Nitrogen Pumping Speed ≥ 650 l/s
135. Supply and Installation of Turbo Molecular Pumping System with 250 CF Inlet Flange and Nitrogen pumping Speed ≥ 1900 l/s
136. Mass Flow Controller (MFC) with Local Display Unit and mass Flow rate 50, 100, 300 SCCM
137. Residual Gas Analyzer with 200 AMU Including Electronics Unit
138. Supply and Installation of Cryo Pumping System with 300 CF Inlet Flange and Water pumping Speed ≥ 9000 l/s
139. DCCT for pulsed and continuous operation; a) +/-2 kA; a) +/-5 kA; a) +/-14 kA; a) +/-20 kA
140. Power supplies and DAQ for magnet system
141. Upgradation of 82.6 GHz, 200 kW Gyrotron
142. 35kV Power supply
143. UV-VIS Spectrometer (200 – 700 nanometre)
144. CCD cameras
145. X- ray (0.5 KeV-100 KeV) Imaging systems
146. Fast Optical imaging system in visible spectrum
147. Phase Quadrature (IQ) Analyser (1-42 GHz) + Lab Equipments
148. Heterodyne Interferometer Systems (140 GHz) – 7 nos.
149. Microwave assemblies for 16-channels Radiometer (60 -110 GHz)
150. Millimetre Wave vibration time-series systems (90 GHz) & VCO assemblies (26 – 40 GHz)
151. Closed Loop Detector System for Michelson Interferometer (75 – 1000 GHz)
152. Vacuum pumps and components for Time of Flight System of Neutral Particle Analyzer (NPA).

153. Infrared cameras
154. Compact Charge Exchange- Neutral Particle Analyzer (for 100 eV – 1 KeV ion temperature) System
155. Vacuum, RF components, Electrical component, Power Supply
156. Fabrication and testing of TF coils (12.5 kA, 250 ms flat top Multi-stage Capacitor bank based Power Supply with a ramp rate of 1.5 MA/s)
157. New VF Power Supply
158. Equipment related with LN2 sub cooled system
159. Fabrication of one shaped coil
160. Fabrication of a solenoid coil producing magnetic field up to 3T
161. Procurement of vacuum components
162. Procurement of cryogenic components
163. Procurement of diagnostic equipment
164. Procurement of control equipment
165. Equipment for Characterization facility of different structural & functional materials
166. Equipment for integration of EHCL and HHF Test Facility
167. Cryocoolers
168. Calorimeter
169. Enhance data acquisition system of existing tokamaks -Aditya-U diagnostic data acquisition system: SST-1 central data storage capacity expansion; Server hardware for various DAC services
170. DAC system for ST
171. Motors + Gearbox + controllers + IPC for Hyper-redundant Inspection System
172. Power supplies, oscilloscope, function generator, Isolation transformers, soldering de soldering stations
173. 70 kV, 42 A HVDC power supply for ECRH and LHCD System
174. 35 kV, 105 A HVDC power supply for ICRH System
175. Tunable Diode Laser
176. RF Generators
177. Visible Spectrometer
178. TMP, Gate Valves & Gauges
179. DAC modules
180. Experimental chambers
181. High current power supplies for different magnet systems
182. Magnets
183. High Power microwave Coupler
184. Microwave components
185. Optical and Opto-Mechanical components
186. Energy Storage Capacitor
187. Thermogravimetric Analyzer, Vickers hardness tester, FTIR Spectrometer
188. W-Cu made segmented plasma torches
189. Electrical & Electronics components
190. Instrumentation feedthrough and view ports
191. Optical and Opto-Mechanical components
192. Graphite electrodes Sod. Hydroxide, etc.

193. Consumables for nano powder production; Consumables for sterilization; Consumables (Ag, Au, wafers, sharp tip, gas, Desiccators, Freezer, maintenance of all systems, AFM tips, TEM grids, thermocouples etc.)
194. Consumables like targets, AFM tips, TEM grids, heaters, thermocouples, H₂S Gas, SS foil, Ar, N₂, O₂ UHP gases and commercial gases
195. Different gases and materials required for etching and neutronics such as deuterium, silicon wafers and Tritium Target
196. Installation and commissioning of hardware for digitization and integration for electrical distribution system of 132 kV Substation
197. Rooftop Solar Power System, LED lightings & spares and maintenance of Utility Power systems
198. Ferrous and non-ferrous metallic and nonmetallic materials for Workshop
199. Pipes, fittings, valves, tanks, pressurizers, cables, PLCs etc. for Water Cooling Plant
200. VFPS Upgradation
201. OTPS and Wave shaping circuit upgradation and new VFPS
202. Procurement of power supply spares and transformer overhauling
203. Liquid nitrogen and helium gas consumables
204. Cryogenic accessories and spares
205. Manufacturing of current leads
206. Cryo-plant maintenance and spares
207. Manufacturing of 4 Nos. of current leads
208. Upgradation of hot N₂ system
209. Delivery of hardware components
210. Delivery and testing of controller
211. Testing and commissioning of rectifier circuit
212. Components for Solid state crowbar Thyristors etc.
213. Components for Solid state Switch (IGBTs), Power supplies, CTs, probes etc.
214. Liquid Helium
215. HVDCPS, Consumables, Ferrite, Ceramic, Magnet, Copper disc, SS disc, etc.
216. Accessories and parts of Hard x-ray and soft ray systems
217. Thomson Scattering System Installation at Aditya-U
218. Prototyping and fabrication work of components
219. Procurement HTS tapes/2G HTS wire and associated consumable
220. Procurement of structural materials for shaped coils
221. Procurement of cryogenic accessories and consumables
222. Procurement of flexible cryostat
223. Professional services required for experiments performed in EHCL and HHF facility
224. Fabrication, Assembly and Testing of Target Handling System for HHFTF
225. RCC-MR double walled bellow of diameter ~2m
226. elliptic metallic seals 2 m x 0.7 m for UHV boundary
227. CFC Tiles
228. Prorotype THE with improved design
229. Fabrication of faraday cage
230. Vacuum vessel and vacuum pumps for xenon pumping, gate valves, gauges, mass flow controllers, water cooler, vacuum feed-through
231. CNC machining of extractor Grid and fixtures

232. Electrodeposition of OFHC copper
233. UPS power for tokamak systems.
234. Gases (Deuterium, helium, argon etc.)
235. Motors + Gearbox + Encoders + controllers + IPC for Single Arm Manipulator and Dual Arm Manipulator System
236. Gripper for Single Arm Manipulator and Dual Arm Manipulator System
237. Vision (Hand and Head Camera) and lighting system for Single Arm Manipulator and Dual Arm Manipulator System
238. Motors + Gearbox + Encoders + controllers for Winch System
239. Force Torque sensors, temperature sensors, electrical feed-throughs for Single Arm Manipulator and Dual Arm Manipulator System
240. Prototype Single Arm Manipulator and Dual Arm Manipulator System
241. Design, Fabrication, Assembly, Installation and Commissioning of Single Arm Manipulator, Winch System and Dual Arm Manipulator System
242. Design, Fabrication, Supply, Installation, Testing and Commissioning of Anechoic chamber of size 5m x 5m x 4 m (lwh) at 2 GHz to 26.5 GHz with shielding effectiveness of -80dB and cylindrical quiet zone with quietness level of -30 dB in the total frequency region
243. Inverted Metallurgical Microscope
244. Stereo Microscope
245. Impression Creep testing Machine
246. AFT Arrow software (network license)
247. Aluminum Extruded T-slot Profile 60 mm X 60 mm (150 meters) along with compatible accessories (90 deg. Al Die cast Corner bracket, Button Head Hex Screw (M8) SS304, Hammer Head T-bolt (M8) SS304, Flat nut slot-block sliding type (M8) CS, Floor Mounting Brackets Al, End Cap Plastic)
248. Continuous Emission Monitoring System (CEMS) to monitor stack gas.
249. Flue gas scrubbing system consisting wet scrubbers, heat exchanger, cyclone separator, Induced Draft fans.
250. Bottom ash collection system to remove residue from the waste disposal chamber.
251. Gate Valves made of SS / MS with cooling jackets to isolate waste processing chamber.
252. Industrial Chimney to exhaust flue gas as per standards stipulated by pollution control board.
253. Conveyor system to handle and feed bulk waste packets in semi continuous mode with full automation and control.
254. Process Calibrator with multifunction to calibrate temperature and pressure transmitters at field.
255. Temperature sensors and transmitters such as thermocouples, RTD
256. Pressure Sensors and Transmitters such as manometers
257. Bulk density Graphite electrodes for plasma arc generation
258. Input Power Cables Three & Half Core for Power Supply
259. Output Cables Single Core for DC Power Supply
260. Turbo Molecular Pump