1. List of equipment required for Applied Biology department

No.	Name of the Equipment/ No.	Estimated cost in lakhs	Justification (in 2 points)	No. of expected PIs	Expected ECF generation, if any	Year
1.	Biochemistry Analyzer (Integrated clinical chemistry and immunoassay analyzer) 1 No.	60 lakhs	The existing instrument is 13 yrs old and is giving frequent repairs. It is also informed by suppliers that the instrument is outdated and from Dec 2025 onwards there is no service and spares support. 1. This instrument is essential for day to day research work involving biochemical analysis of serum samples from laboratory animals as a part of research in the areas of inflammation, cancer and metabolic disorders including diabetes, NASH, etc. 2. T**his instrument is needed in this FY**	15+	Important in the generation of ECF as a part of efficacy and safety evaluation of test items in the studies sponsored by clients	2026-27
2	Next Generation microfluidics 1 No.	150 lakhs	Microfluidic platform used for the scalable and reproducible manufacture of lipid nanoparticles (LNPs), particularly for applications like drug delivery, Adjuvant delivery, mRNA delivery, gene therapy, and vaccines. Useful in the stages of preclinical development at low volumes reduces risks, simplifies workflows and accelerates drug development timelines. This platform ensures reproducibility, scalability, high precision, and flexibility of LNP formulations.	05+	High quality research output may attract the clients	2026-27
3	Real-Time PCR system (96 and 384 well module) with computer 1 No.	20 lakhs	Acquiring an RT-qPCR machine is crucial for precise, high-throughput gene expression analysis in *in vitro* and in *vivo model*s. It supports studies on disease mechanisms, therapeutic responses, and biomarker discovery with high sensitivity and specificity. This versatile tool enhances the lab's capacity for advanced molecular biology research.	10+	Plays important role in efficacy studies sponsored by clients	2026-27
4	Microplate reader 1 No.	20 lakhs	A microplate reader is vital for high-throughput analysis of biochemical and cellular assays, offering versatile measurements of absorbance, fluorescence, and luminescence. It ensures accurate, reproducible data and improves efficiency for large sample volumes and time-sensitive studies,	10+	Plays important role in efficacy studies sponsored by clients	2026-27

			significantly enhancing research capabilities.			
5	High resolution LC-MS/MS (Orbitrap) 1 No.	300 lakhs	The procurement of LC-MS/MS equipment is critical for advancing proteomics and ADME (Absorption, Distribution, Metabolism, and Excretion) studies. Its high sensitivity and resolution enables detailed analysis of proteins, metabolites, and drug interactions, facilitating biomarker discovery, pharmacokinetic profiling, and drug development. This technology will enhance data accuracy, improve workflow efficiency, and support cutting-edge research in drug discovery and personalized medicine.	6+	High quality research output may attract the clients	2027-28
6	Micro CT: 1 No.	~ 400 lakhs	(1) Useful for studying the efficacy of lead molecules in the areas of tumor biology, bone, cardiovascular and pulmonary research in drug discovery. Being a 3D x ray microcomputer tomography, it is similar to CT scan in hospitals but in smaller scale for laboratory animals (up to rabbits) with precision and enhanced resolution. (2) This instrument helps in generating quality data on proof of concepts in drug discovery areas which we proposed in our PAB commitments. Needed by many PIs in the division.	10+	High quality research output may attract the clients	2028-29
7	Nanotemper or Biolayer Interferometry 1 No.	125 lakhs	The procurement of Nanotemper or Biolayer Interferometry (BLI) equipment is essential for accelerating drug discovery by enabling real-time, label-free analysis of biomolecular interactions. It provides high-throughput, precise measurements of binding kinetics, affinity, and specificity, facilitating the identification and optimization of drug candidates. This will streamline the drug development process, reduce time and costs, and support more effective therapeutic innovations	6+	High quality research output may attract the clients	2028-29
8	High-Content	250 lakhs	High-Content Screening (HCS) is an essential tool (screening		High quality research	2029-30

	Screening Station 1 No.		and drug discovery) for cancer and fibrosis studies as it enables high-throughput, quantitative analysis of complex cellular processes such as proliferation, apoptosis, and extracellular matrix remodeling. Its ability to evaluate drug efficacy and mechanism of action in physiologically relevant 2D and 3D models, including organoids, accelerates therapeutic discovery and development. HCS supports personalized medicine by analyzing patient-derived cells to identify tailored treatment strategies, enhancing translational research outcomes.		output may attract the clients	

2. Prioritized Equipment List - CEPT Department

S.No. (Year)	Name of the equipment	Estimated Cost (INR)	Justification (in two points)	Number of expected PIs	Expected ECF generation, if any (INR)	Year
1. (2026-27)	ARC Upgradation	60 Lakhs	• Accelerating Rate Calorimetry (ARC) specializes in simulating worst-case adiabatic (no heat loss) conditions to study thermal runaway and hazards of self-accelerating exothermic reactions, unlike standard reaction calorimeters (like RC1 or DSC), which might operate under controlled cooling/isothermal conditions to measure heat flow for process optimization. • ARC can bring in consultancy projects for determining onset temperatures, self-heat rates, and pressure generation to design safe emergency relief systems and storage, crucial for reactive chemicals, explosives, and batteries.	4 PIs	5 Lakhs per annum	(2026-27)
2. (2026-27)	Melt Extrusion Unit	50 Lakhs	• For the GFL project to extrude ion exchange membranes by melt extrusion at IICT	3 PIs	Rs 4 Lakhs	(2026-27)
3. (2026-27)	Gas Absorption Kinetics and Phase Equilibria System	1.5 crores	▪ This lab scale facility is required to generate reliable experimental data on CO_2 absorption kinetics and CO_2–amine phase equilibria, which are essential for scale-up and design of efficient gas absorption systems. ▪ The data generated is crucial for modelling and designing pilot-scale absorber systems, enabling the CEPT-CCUS team to advance their promising phase-change amine/intensified CO_2 sorption technology from TRL-4 to TRL-6. • No such facility exists in IICT	6/7 Scientists working in CCUS, it is an essential facility for the execution of ongoing and upcoming CCU projects	~25 L/ annum from industry projects Industry projects are ongoing, and in the pipeline	(2026-27)
4. (2026-27)	BET Surface Area Analyzer	60 Lakhs	• To assess the surface area of nanosilica, biochar, and other products for different industrial clients	3 PIs	4 Lakhs per	(2026-27)
5. (2027-28)	High-Pressure Temperature Fixed Bed	60 Lakhs	• This reactor unlocks the high-T/P process conditions essential for breakthroughs in CO_2 conversion, biomass valorization, and green	3 PIs	3 Lakhs per annum	(2027-28)

	Reactor Unit		chemistry, where our Scientists are leading. • It fuels high-impact publications, attracts industry funding, and strengthens our national & international research collaborations. • It will help in collaboration with industry partners, cross-disciplinary teams, and joint lab projects that multiply impact.			
6. (2027-28)	Fast Vacuum Pyrolysis Unit	60 Lakhs	• Enables cutting-edge waste-to-value research, boosts publication output in high-impact journals, and opens new industry-collaboration avenues in circular-economy tech. • It provides a scalable, low-carbon solution to convert plastic/tire/biomass waste into premium bio-oil & char, cutting disposal costs and creating new revenue streams with strong ROI potential.	5 PIs	Rs. 2.5 Lakhs per annum	(2027-28)
7. (2027-28)	Reaction Calorimeter system (Ambient and Pressure system – up to 10 bar)	3.0 crores	• Reaction Calorimeter provides detailed and precise information, such as the complete heat of reaction, a large number of process parameters, as well as process safety information under all operating conditions. • CSIR-IICT has a large group of Chemical Engineers and Process Chemists working on a variety of chemical process developments from lab to commercial scale. There are a lot of queries from other industries and institutions for RC studies	More than 10 (Scientists working in Process Development / Intensification / Process scale-up in all departments of IICT working in the area of Process chemistry, scale-up)	More than 10 – 12 Lakhs per year. (Industry queries and Skill development)	(2027-28)
8. (2027-28)	In-situ DRIFTS (Diffuse Reflectance Infrared Fourier Transform Spectroscopy)	1.5 crores	▪ In-situ DRIFTS is an essential instrument used to evaluate reaction intermediates, active sites, and surface species directly during catalytic processes. This helps fine-tune reaction conditions, such as temperature, pressure, and reactant concentrations, to maximize efficiency and yield. Furthermore, catalyst behaviour under realistic operating conditions, including deactivation mechanisms (e.g., coke formation or sintering),	More than 6 (Scientists working in Process Development, design and scale-up of vapor phase catalytic processes)	~5-10 Lakhs/annum (Industry queries)	(2027-28)

			can also be explored ▪ The instrument is handy for Chemical Engineers and Process Chemists at CSIR-IICT working on various vapor-phase catalytic processes, as it provides critical data to design robust catalysts and processes and evaluate reaction kinetics, which are essential for process development, design, and scale-up activities. • No such facility exists in IICT			
9. (2027-28)	Inductive heated Pyrolizer	70 lakhs	• Facility is required for conducting pyrolysis of various feed stock for valorization into valuable products • POC is established on the conventional heating systems	More than 1 (Scientists working on Process Development / Intensification)	~5-10 lakhs per annum (queries from multiple Industry)	(2027-28)
10. (2027-28)	Activated carbon plant	75 lakhs	• This facility is required to prepare activated carbon from terrified/pyrolyzed char in batch mode for application in various like Agri, Pharma and industrial etc. • POC is established on the conversion of the biomass to activated carbon from different feed stock at 1 kg scale.	More than 3 (Scientists working in Process Development / Intensification / Process scale-up)	~5-10 lakhs per annum (queries from multiple Industry)	(2027-28)
11. (2027-28)	Sima-Pro LCA software	~55L	▪ Single user permanent license Sima pro Expert User with database and software updates for 4 years. ▪ To assess environmental impacts of processes and products, supporting sustainable design. Its databases and tools enable efficient evaluation of alternatives and regulatory compliance. • It's an important tool for most of the CEPT scientists for assessing the sustainability of the technologies developed	~10 Scientists	~10 Lakhs / annum (Industry queries)	(2027-28)
12. (2027-28)	High Pressure Vapour Liquid Equilibria Unit	50 Lakhs	• High Pressure Vapour Liquid Equilibria measuring equipment is of prime importance in generating design data, especially for multiphase reactors and for separations involving high pressures. An	More than 5 (Scientists working in Process	At least 2 Lakhs per year	(2027-28)

			integrated system including on-line analysis will provide composition data accurately. There is no such unit available at CSIR-IICT. • Moreover, there have been requests from clients like INVENSYS (presently Schneider-Electric) for data generated in such equipment for use in their commercial process design software. Therefore, purchase of such a unit will be beneficial for CSIR-IICT for use in sponsored projects as well as for attracting new projects.	Development / Process Design/ Process scale-up)		
13. (2027-28)	Commercial ASPEN Plus Software	1 Crore (Annual subscription basis)	• Commercial software essential and is used for several sponsored (industrial)/ technology transfer related projects where process simulation, and design studies necessary for process scale-up and commercial plant design based on bench scale and pilot scale experimental trails.	More than 10 Scientists working in Process Development, Design, Intensification / Process scale-up	~10-20 Lakhs / annum (from multiple Industry queries)	(2027-28)
14. (2027-28)	Customized Continuous High Pressure (Reactive) Distillation Column (1Kg/hr)	1 Crore	• This facility is required to conduct high-pressure distillation and reactive distillation in both batch and continuous mode for separation as well as hybrid reactive separation. • Established facility will be useful for process development and scale-up activity relevant to CEPT & IICT where intensified processes and downstream continuous processes are required with high temperature and pressures.	More than 5 (Scientists working in Process Development / Intensification / Process scale-up)	~5-10 Lakhs / annum (from multiple Industry queries)	(2027-28)
15. (2027-28)	Refinery Gas Analyzer	70 Lakhs	• Detailed analysis of pyrolysis and gasification process output gas mixtures. • Hydrocarbon liqquid mixture analysis	3 PIs	Rs 5 Lakhs per annum	(2027-28)

16. (2028-29)	Pilot-Scale Agitated Reactor with Short Path Distillation for high-viscous molecules	50 lacs	This facility is required to carry out pilot-scale reaction, transformation, and conditioning of high-viscosity and thermally sensitive molecules under controlled temperature, pressure, and shear conditions, enabling realistic simulation of industrial processing for complex fluids such as bio-oils, polymers, lipids, and oligomeric systems. • The integrated short path (wiped-film/thin-film) distillation unit is essential for efficient separation and purification of high-boiling, viscous compounds at reduced residence time and low thermal stress, supporting process development, optimization, and scale-up of intensified downstream operations relevant to CEPT & IICT.	More than 5 (Scientists working in Process Development / Intensification / Process scale-up)	~5-10 Lakhs / annum (Industry queries)	(2028-29)
17. (2028-29)	Pilot-Scale Electrowinning Unit	60 Lacs	• This facility is required for pilot-scale electro-winning and electrochemical recovery of metals from complex aqueous leachates, enabling controlled deposition under optimized current density, voltage, pH, and electrolyte composition, particularly for low-concentration and multicomponent metal streams. • The established electro-winning unit will support process development, optimization, and scale-up activities relevant to CEPT & IICT, facilitating integration with upstream leaching/bioleaching and downstream purification processes for sustainable recovery of critical and strategic metals.	More than 3 (Scientists working in Process Development / Intensification / Process scale-up)	~5-10 Lakhs / annum (Industry queries)	(2028-29)
18. (2028-29)	Pilot-Scale Bioreactor	35 Lacs	• This facility is required to carry out controlled bioleaching of metals from low-grade ores, industrial residues, and e-waste using specialized microbial consortia under optimized physicochemical conditions (pH, redox potential, temperature, aeration, and pulp density), enabling systematic evaluation of metal solubilization kinetics and	More than 3 (Scientists working in Process Development / Intensification / Process scale-up)	~5-10 Lakhs / annum (Industry queries)	(2028-29)

			process efficiency. • The established pilot-scale bioleaching fermenter will support process development, optimization, and scale-up activities relevant to CEPT & IICT, facilitating integration with downstream metal recovery techniques such as solvent extraction, electrowinning, and crystallization for sustainable and intensified processing.			
19. (2028-29)	High-end Capillary flow porometer	50 Lakhs	• Used for characterizing the porous structure of membranes, as it allows direct determination of the largest pore size (bubble point), mean flow pore size, and overall pore size distribution by measuring gas flow through liquid-filled, interconnected pores under controlled pressure conditions	3 PIs	2 lakh / annum (CCUS project)	(2028-29)

3. Name of Dept: Catalysis and Fine Chemicals

Sl. No.	Name of the Equipment	Estimated cost (Rs./USD$)	Justification (in 2 points)	No. of expected PIs	Expected ECF generation, if any	Year
1	BET Surface Area 1 No.	Rs. 50 Lakhs	1. Required for estimation of physical properties like surface area, pore size distribution of catalysts. 2. This is regular technique required for all the catalysts/materials	All Scientists of C& FC	Rs. 10 Lakhs per annum	2026
2	1-5 Kg Catalyst preparation units (Driers, Extruders, glass reactors, Low temperature cooling circulators, Furnaces) 1 No.	Rs. 100 Lakhs	1. Essential for the scale up of catalysts related industrial application 2. Required for pilot scale studies of the industry sponsored projects	All Scientists of C& FC		2026
3	Multitubular Reactor	Rs. 1.2 Cr				2026
4	On line Mass analyzer 1 No.	Rs. 60 Lakhs	1. This is required for the analysis of reaction products particularly gas phase reaction. 2. This instrument is essential to	Nine Scientists working in vapour phase catalysis		2027

			overcome the problem of separation of products by gas Chromatography.			
5	ESR with low temperature cell 1 No.	Rs.300 Lakhs	1. Required to know the metal catalysts environment. 2. To know reaction intermediates like free radicals	All Scientists of C& FC	Rs. 15 Lakhs per annum	2028

4. Name of the Division/Department: A&SC

Sl. No.	Name of the Equipment	Estimated cost (Rs./ USD$)	Justification (in 2 points)	No. of expected PIs	Expected ECF generation, if any	Year
1	LC-HRMS/MS System for proteomics, metabolomics, and other biochemical studies 1 No.	5 Crore	CSIR-IICT presently has low-end HRMS systems with a mass range of up to 3000 units and with limited data-dependent and independent analysis features, and hence the existing equipment is not sufficient to discover the full proteome of biological samples. Currently, the development of monoclonal antibodies for the treatment of various infectious diseases is a top priority, and it is necessary to study their interactions with various proteins and understand the variations in protein profiling. For detailed investigations, the obtained peptides after digestion must be efficiently separated and identified for complete proteomic coverage, and the equipment needs to be sensitive and specific for conducting quantification of the targeted proteins. Similarly, the system must have very high resolution and stability to characterize the various metabolites that are formed during the progression of various diseases and to identify the biomarkers of specific diseases. The existing Q-TOFs and Exploris 120 systems are not having the required capability and hence the MS facility must be augmented with more sensitive and high resolution equipment that is needed to enhance the capabilities of the Analytical Chemistry Department.	5	Return of Investment in 4 years	2026-27
2	Scanning	~USD	1.Exiting Hitachi made S-3000N Scanning Electron	1	10-12 lakh	2026-27

	Electron Microscope 1 No.	20000 0.00 (~Rs. 1.7 Crore)	Microscope which is an age old machine of 20 years and it has been obsolete and manufacturers are not supporting spare parts any more for maintenance and not working properly 2.It is one of the essential equipment for material research.	Users: above 50 scientists.	per annum	
3	LC-MS/MS triple quadrupole system 1 No.	3.5 Crore	Presently, there are three LC-MS/MS triple quadrupole systems purchased in the year 2014, 2016 and 2017. The Agilent 6420 (procured in 2014) system is currently non-functional and this equipment has generated considerable ECF over the years. Therefore, a replacement with a new equipment is necessary for smooth functioning of the lab and providing timely deliverables. Further, we have been continuously getting many projects for quantitative analysis of various analytes from biological, food and environmental samples from the research institutions and industries. Moreover, there are several ongoing GAP project works that need quantitative studies for estimation of various metabolites from human body fluids. Hence, it is important to upgrade the existing LC-MS/MS systems with latest high sensitive equipment.	5	ROI 2 years	2026-27
4	Thermogravimetric analysis (TGA-MS/IR) 1 No.	Rs. 1.2 Crore	Presently, we have only one TGA in working condition, which was procured in 2015 and all the samples are analyzed by this. Since the instrument is 10 years old and facing numerous problems, there is a lot of time delay in getting spare parts from the vendor. They also suggest that very soon they will stop supporting as the instrument is going to be obsolete. To have a backup and reduced the overload on the existing instrument we need an additional instrument to run the center	3 & Common facility	IICT Research and Industry needs	2026-27

			efficiently. Furthermore, we are in requirement of TGA attached to IR and MS for the analysis of evolved gases, and meet industry requirement of analysis of pharmaceutical samples.			
5	BCU-02 with 4 mm CPMAS/HRMAS probe and autosampler	Rs. 2.5 crores	1. To cater the needs of internal as well as external samples, a solid state NMR probe is required to integrate with existing 500 MHz NMR spectrometer. This probe is also suitable for analyzing Hydrogels, Resins, Insoluble Polymers and Pharmaceutical Polymers. For better utilization of the instruments, an autosampler is required. 2 A temperature control unit (BCU) is also required to regulate the temperature during the NMR experiments	3 & Common facility	RoI in 3 years	2026-27
6	High resolution MALD-TOF/TOF system with imaging 1 No.	4.5 Crore	The existing MALDI-TOF/TOF system has become 7 years old, which is the life time of the system. Presently the laser source of the system is under maintenance. The spare parts will not be available from 2028 onwards and hence the system needs a replacement at the earliest. There is increase in demand for the analysis of polymers, proteins and protein-drug conjugate analysis by MALDI-TOF/TOF system and is one of the main research equipment of CSIR-IICT. Hence, a new MALDI-TOF/TOF system need to be procured for uninterrupted services	6 user scientists, IICT and Industry	About 20 lakhs per annum	2027-28
7	Differential Scanning Calorimeter (DSC) and Modulated	Rs. 1.0 Crore	Presently, we have only one DSC in working condition which was procured in 2015 and all the samples are analyzed by this. We are in requirement of DSC along with MDSC. Our existing instrument is giving troubles frequently and any time it can be down. To have a backup and reduced the overload on the existing instrument we need an additional instrument to run the	3 & Common	IICT Research and Industry needs	2027-28

	DSC 1 No.		center efficiently.	facility		
8	LC-MS/MS triple quadrupole system	3.5 Crores	With the day to day increasing R&D activities of late stage molecule analysis, the need for Pharmacokinetic studies have surged. This equipment will be used exclusively to cater the PK studies of the institutional and industrial samples. Addition of this high throughput equipment will help us to deliver the results on a timely manner with high accuracy. Hence, it is important to upgrade the existing LC-MS/MS systems with latest high sensitive equipment.	6	RoI in 2 years	2027-28
9	Replacement of Femtosecond Oscillator for existing femtosecond laser set up.	For refurbishing /upgradation : USDS : 150000.00 (~Rs: 1.5 Cr) [New Oscillator	1.Existing femtosecond oscillator, a part of our laser set-up at IICT, has exceeded its shelf life of 10000 hours, it is of more than 10 years old and now not working properly. 2. It is essential to keep whole *femtosecond* laser system alive and present market value of whole new set-up is approximately Rs.9 -10 Cr. So it is worth to replace/upgrade with new oscillator for smooth running of the system. It is one of the essential equipment for measuring relaxation dynamics of photoexcited phenomena, a key process for developing new generation photo-responsive functional materials.	Several scientists of IICT	NA	2027-28

		approximately ~USD 200000 (~Rs: 2 Cr)				
10	500 MHz solid state NMR Console	5 Cr	Replacement of 17 year old solid state NMR console with similar configuration. This spectrometer has lot of demand in-house as well as pharmaceutical industries in and around Hyderabad	3	RoI in 5 years	2028-29
11	GC-MS single quadrupole systems	2 Cr	The existing GC-MS systems in the Mass Spectrometry centre are more than 10 years old and there is no support for these equipment from M/s Agilent technologies. It is necessary to augment the facility with new GC-MS systems for catering various needs of the laboratory such as OPCW proficiency testing, analysis of trace level chemicals, providing qualitative and quantitative data for samples submitted by both in-house project and external ISO sample analysis. The GC-MS systems are among the highest earning systems of the department.	6	RoI in 2 years	2028-29
12	LC-IMS-TOF	5 Cr	IMS (Ion Mobility Spectrometry) QTOF (Quadrupole Time-of-Flight) system is used for powerful separation, offering an extra dimension (drift time/collision cross-section, or CCS) to analyze complex mixtures, identifying molecules with higher confidence by separating isomers and confirming structures, crucial for proteomics, metabolomics, and lipidomics in drug discovery, food safety, and biological research. This equipment	6	RoI in 3 years	2028-29

			will increase the scope of MS capabilities in different domains of industrial and institutional research.			
13	ICP-OES system	1.0 Cr	CSIR-IICT is presently having a ICP-MS system for sensitive quantification of inorganic metals from various biological, food, environmental, and organic samples. However, due to the high sensitivity of the system, and very low level quantifications, this system often not suitable for the quantification of inorganic metals such as Na, K, Ca, Fe, Ni, and Mg elements that are present in high quantities in majority of the samples. As the total volume of samples submitted by various project in CSIR-IICT are more, it is necessary to have a ICP-OES system for catering the needs of the scientists of this institute. Also, there is increasing demand for the ICP-OES analysis from various industries and academic institutions. Hence, the return of investment can be executed within one or two years and the system can fetch significant ECF.	6	RoI in 2 years	2029-30
14	GC-MS/MS triple quadrupole systems	3.5 Cr	The existing GC-MS systems in the Mass Spectrometry centre are more than 10 years old and there is no support for these equipment from M/s Agilent technologies. It is necessary to augment the facility with new GC-MS systems for catering various needs of the laboratory such as OPCW proficiency testing, analysis of trace level chemicals, providing qualitative and quantitative data for samples submitted by both in-house project and external ISO sample analysis. The GC-MS systems are among the highest earning systems of the department.	6	RoI in 2 years	2029-30
15	700 MHz NMR console	7 Cr	Replacement of 18 year old 700 MHz NMR console with similar configuration to take care of the internal as well as external projects. This instrument is also used for analysis of	3	RoI in 5 years	2029-30

			Biosimilars for HOS studies.			
16	Liquid Nitrogen Plant	Rs. 3.0 crores	Current LN2 plant is serving entire institute for last 20 years and facing frequent breakdowns. Need to replace with new plant for serving institute's LN2 requirement.	All the scientists	In-house use	2029-30

5. Name of the Division/Department: Department of Energy and Environmental Engineering

Sl. No.	Name of the Equipment	Estimated cost	Justification (in 2 points)	No. of expected PIs	Expected ECF generation, if any	Year of Purchase Required
1	**Auto Sulfur analyser** 1 No.	75,00,000	A **Sulfur Analyzer** is a crucial piece of equipment used in coal analysis to measure the sulfur content in coal samples. The sulfur content of coal is an important factor in determining its quality and its environmental impact during combustion.	2	Rs. 50,00,000/annum	2026 - 27
2	**Ash Fusion Tester** 1 No.	75,00,000	An **Ash Fusion Tester** is a specialized laboratory device used in coal analysis to determine the melting behaviour of coal ash at high temperatures. It is used to assess the temperature at which ash from coal starts to soften, fuse, or form a liquid, which is critical for understanding its behaviour during combustion in power plants and industrial furnaces.	2	Rs. 10,00,000/annum	2026 - 27
3	**Insitu- DRIFT analyzer** 1 No.	80,00,000	(1) Accurate measurement of both Brønsted acidic sites and Lewis acidic sites concentration in the zeolite and metal oxide type catalyst materials. (2) To study the molecular interaction on the solid surfaces and also Identification of functional groups present in the material.	1	Rs. 40,00,000	2026 - 27
4	**CHNS/O analyzer**	1,00,00,000	Elemental analysis of biomass samples is	3	Rs.	2026 - 27

	1 No.		required to evaluate the biogas generation potential. This analysis is vital in designing the biogas/CBG plants. We receive numerous samples to undertake BMP tests, and before conducting BMP tests, CHNS/O elemental analysis is a must. Therefore, the CHNS/O analyser is crucial for our group.		6,00,000/annum	
5	**Dual Carousel Macro Thermogravimetric Analyzer (TGA)** 1 No.	65,00,000	Thermogravimetric analysis (TGA) is a highly effective technique for analyzing the thermal stability and composition of coal and coal-related materials. In coal analysis, TGA can provide valuable information on the moisture content, volatile matter, ash content, and carbon structure, which are essential for assessing coal's combustion properties and quality.	2	Rs. 50,00,000/annum	2027 - 28
6	**UV-vis-DRS (Solid/powder)** 1 No.	15,00,000	Day to day basis optical properties and materials optimization To support the ongoing research and projects, a dedicated instrument is required	>10	>Rs. 1,00,000	2027 - 28

6. Name of the Division/Department: Fluoro-Agrochemicals

Sl. No.	Name of the Equipment	Estimated cost (Rs./USD$)	Justification (in 2 points)	No. of expected PIs	Expected ECF generation, if any	Year
1	Dispersion Stability Analyzer	Rs 52 Lacs	Formulation Equipment	Entire Dept		2026
2	Particle Size Analyzer & Zeta Potential	Rs. 45 Lacs	Formulation Equipment	--do--		2026
3	Goniometer	Rs. 25 Lacs	Formulation Equipment	--do--		2026
4	Tensiometer	Rs. 35 Lacs	Formulation Equipment	--do--		2026
5	Preparative HPLC	Rs. 70Lacs	To study the impurity profile. This can be used for mission products and also can be attracted sponsored projects.	--do--		2027
6	Freeze Dryer	Rs. 15lacs	Freeze drying & vacuum concentration equipment	--do--		2027
7	Oligonucleotide Synthesizer	Rs. 90Lacs	Flexible and fully-automated DNA/RNA oligonucleotide	--do--		2028

			synthesizer			
8	FT-IR Spectrometer	Rs. 30Lacs	For regular R&D work	--do--		2028
9	Cryocooler (immersion cooler for low temp reactions)	Rs. 10 Lacs	To conduct low temperature reactions up to -80^0C	--do--		2028

7. Name of the Department: Natural Products & Medicinal Chemistry

Sl. No.	Name of the Equipment	Estimated cost	Justification (in 2 points)	No. of expected PIs	Expected ECF generation, if any	Year
1	Schrodinger Software *(license for 5 years – 2026-2030)*	25-Lakhs	Drug Design/Molecular modeling activities; Software license is categorized under capital head.	05	NA	2026-27
2	LC-MS/MS	350 Lakhs	1. The equipment will be used for DMPK studies including PK, stability of compounds in various mediums, stability of compounds in microsomes, solubility of compounds in various mediums. 1. 2. Identification of metabolites	15 [The facility is needed for many PIs who work in the area of drug discovery]	ECF will be generated on industry project.	
3	Single-quad mass detector	60 lakhs	For routine mass analysis of synthetic and natural compounds	15	NA	
4	Circular Dichroism (CD)	70 Lakhs	a) for absolute stereochemistry of isolated natural products; to get valuable information of peptides, proteins and other chromophoric chiral molecules structural conformation. Protein-ligand interaction, Drug-DNA interaction and their subsequent change in the conformation, protein folding and aggregation studies can be studied in CD spectroscopy.	5	NA	2027-28
5	Rotary evaporator with pump and chiller (full set) –	40 Lakhs	One set per scientists from the department is required (this includes 3 new scientists that will join in 2025)	15	NA	

	15 nos					
6	Freeze dryer	50 lakhs	Required for drying of aqueous extracts	5	NA	2028-29
7	GC-MS/MS	200 Lakhs	Required for analysis of plant extracts/ essential oils	5	ECF will be generated on industry project.	

8. <u>Name of the Division/Department: DOLST</u>

Sl. No.	Name of the Equipment	Estimated cost (Rs./USD$)	Justification (in 2 points)	No. of expected PIs	Expected ECF generation, if any	Year
1.	Pulsed NMR for Solid Fat Compositions 1 No.	Rs. 50,00,000/-	• This equipment is used to measure the solid fat content of fat samples at different temperatures. The equipment we had in our department, earned considerable amount of revenues and we are getting many enquiries from the industries. The machine is not working now and its condition is beyond repairing. • As we are working on Interesterification and on Palm Oil, this machine will be required for both research work and industry work as well.	5	Rs. 5 lakhs per year	2026-27
2.	Deep Freezer -80 ^{0}C freezer 1 No.	Rs. 15,00,000/-	• Dedicated deep freezer for keeping tissue culture materials to be used in tissue culture lab (under development) in OLST • To preserve tissue samples	6	N/A	2026-27
3.	Kjeldahl Equipment for Nitrogen Estimation 1 No.	Rs. 20,00,000/-	• This is an equipment for Protein related work. As, we have some protein based research projects and planned basic research on protein based	4	N/A	2026-27
4.	GC with FID 1 No.	Rs. 30,00,000/-	• Our Laboratory is NABL accredited and GC machine is the most important equipment for both basic research and applied work. All the machines are more than 15 years old. We have to purchase a new one for Oils & Fats Analysis.	9	Rs.5 lakhs per year	2026-27
5.	Tensiometer	Rs.	• This is the equipment required for analysis of surfactants.	8	Rs. 2 lakhs	2026-27

	1 No.	30,00,000/-	Many of our scientists are working in this area and the old equipments are not working. • Industries are also showing interests		per year	
6.	Real-time RT-PCR 1 No.	Rs. 40,00,000/-	• To perform RNA level studies related to biological experiments to be done in OLST • No such dedicated instrument in OLST	5	N/A	2027-28
7.	HPLC (qualitative) 1 No.	Rs. 40,00,000/-	• Other HPLCs (3 nos.) are in heavy use for vegetable oil-based samples and for testing external oil samples; So, a dedicated system for drug-lipid formulation analyses would be of big help	5	Rs. 3 Lakhs per annum	2027-28
8.	Spray Drier 1 No.	Rs. 20,00,000/-	• Aids in moisture removal in heat sensitive materials • Helpful for various products prepared from oils and fats	2	Rs. 2 lakhs per year	2028-29

9. <u>Name of the Division/Department:</u>Organic Synthesis & Process Chemistry

Sl. No.	Name of the Equipment	Estimated cost (Rs)	Justification (in 2 points)	No. of expected PIs	Expected ECF generation, if any	Year	
3	FT-IR 1 No.	35,00,000	To characterize a compound For replacement of the existing one are older (more than 15 years)	1	50K/year	2026-27	
4	GC-MS 1 No.	75,00,000	To characterize and monitor a chemical reactions and mainly for mission mode projects. For replacement of the existing one are older (more than 15 years)	1	~5 lakhs	2026	
5	Centrifugal evaporator 1 No.	25,00,000	To remove the high boiling solvents from reaction mixture; especially like DMF, DMSO etc. For replacement of the existing one are older (more than 15 years)	1	Required for day to day use in all the projects	2027-28	
6	Shaker with temperature control 1 No.	20,00,000 (each one)	To execute bio-transformations No such equipment is available in the institute presently	4		2027-28	

8	Julabo 1 No.	10,00,000				2026-27	
9	Portiere Purification	35,00,000				2026-27	
10	Centrifugal system	30,00,000				2028-29	

10. Name of the Department: Polymers and Functional Materials

Sl. No.	Name of the Equipment	Estimated cost (Rs./USD$)	Justification (in 2 points)	No. of expected PIs	Expected ECF generation, if any	Year
1.	FT-IR 1 No.	15 Lakhs	FT-IR at PFM is now more than 15 yrs old and having frequent issues as spare parts are not available.			2026
2	Salt-spray unit 1 No.	20 L	Salt-spray unit is important and routinely required for testing accelerated corrosion performance of coating and paint formulations received from both PFM and Industry. This unit at PFM is now more than 20 yrs old and spare parts are not available and therefore not in fully functional conditions.			2026
3	QUV weathering 1 No.	30L	Used for measuring the accelerated weathering performance of the coating and paints it will be employed for testing samples from the IICT and industry. This unit at PFM is now more than 20 yrs old and spare parts are not available and therefore not in fully functional conditions			2026
4	TGA DSC	2 Cr				2026
5	Atomic Force Microscopy (AFM) with	USD 4,85,750.00	(1) Surface morphology studies with atomic-level resolution to visualize and manipulate materials at the nanoscale. Crucial for fields	60-70	ECF generation is possible from both academia	2027

	Accessories 1 No.		such as materials science, nanotechnology, energy storage, solar cell and molecular biology, and applicable to a diverse range of materials such as nanoparticles, semiconductors, polymers, biological molecules, battery materials, etc. Beyond imaging, with appropriate accessories, AFM can measureelectrical, magnetic, chemical, optical, mechanical, etc. properties of a sample surface with very high resolution in air, liquids or ultrahigh vacuum providing comprehensive data that other microscopy techniques cannot. This unique combination of capabilities makes AFM indispensable in most advanced science and technology labs around the world. (2) Currently IICT doesn't have any facility for surface topography studies, and groups who are working on different materials in diverse areas such as energy storage, solar cells, catalysis, polymer science, and biological science will be benefited from this equipment.		and relevant industries	
6	Photoemission Yield Spectroscopy in Air (PYSA) 1 No.	USD 1,50,000.00	(1) Since photoelectron spectroscopy (XPS) is done under ultrahigh vacuum, it limits the work function and ionization potential measurement for sensitive samples. Many samples, for example, organic samples cannot be put inside ultrahigh vacuum due to degassing issues. In this context, PYSA which is operated in ambient atmosphere, can	40-50	ECF generation is possible from both academia and relevant industries	2028

			have application in a number of diverse fields such as OELD, OTFT, Organic film solar cell, catalysis, photocatalyst, CO_2 adsorbents, Carbon nanotube, Fullerene, Carbon thin film, Diamond thin film, polymers, etc. (2) This equipment will be useful for multiple groups working in the area of materials chemistry such as electrochemistry, catalysis, organic electronic materials, photochemistry, photovoltaics. To the best of our knowledge, this unique equipment is not available with any institute in India, thus it has the potential for ECF generation from academia and relevant industries.			
	(2) Photo reactor 1 No. (3) Rotary evaporator (4 nos.)	Rs. 27 Lakhs 60 Lakhs	(1) Photo-reactor having UV-Vis irradiation with different excitation wavelengths and intensity. Creating new facility (2) Routinely used instrument and the existing ones are 10 yr old.	15-20	-	2028