APPENDIX

Theme 1: Energy and Material Sciences

Project	Number & Project Title	T1A , Development of Highly Efficient Thin Film Solar Cells with Organic and Inorganic Materials	
Name 8	& Designation of the Principal Investigator	Dr. Saji K J, Associate Professor, International School of Photonics	
Name & Designation of the Co-Principal Investigator(s)		 Dr. Kala R, Assistant Professor, Department of Applied Chemistry Dr. K Sreekumar, Professor (Rtd.), Department of Applied Chemistry Dr. Leena R, Assistant Professor, Department of Applied Chemistry Dr. N Manoj, Professor, Department of Applied Chemistry Dr. M K Jayaraj, Professor (Rtd.), Department of Physics 	
Head o	f Account	1-98-0-U-1-027	
	Budget		(Amount in Rupees)
SI. No.	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II
1	LC-MS (Single Quad)	72,00,000	0
2	Atomic Layer Deposition (ALD) system	0	1,50,00,000
3	Electrode deposition system	0	8,00,000
4	Ultra-Low Temperature Reactor setup	0	8,00,000
Total	2,38,00,000	72,00,000	1,66,00,000
SI. No.	Item - Soft Components	Phase I	Phase II
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	25,28,640	24,17,280
2	Consumables	14,00,000	20,00,000
3	Contingency	4,00,000	4,00,000
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	10,00,000	20,00,000
5	Travel	2,05,000	2,05,000
6	Computers/Softwares/Minor Components	14,00,000	2,00,000
7	Seminars/Conferences	0	4,82,000
8	Workshops and Skill Training	1,00,000	2,20,000
9	Internships to PG and UG Students	1,00,000	2,12,000
10	Books and Journals	0	7,97,360
Total	1,60,67,280	71,33,640	89,33,640
Grand Total	3,98,67,280	1,43,33,640	2,55,33,640

Theme 1: Energy and Material Sciences

		T1D Development of Matal Dishalassan	ides Newscamensites and Daluman
Project	Number & Project Title	T1B , Development of Metal Dichalcogenides, Nanocomposites and Polymer Materials for Energy Storage Applications	
		liviaterials for Energy Storage Applications	
Name 8	& Designation of the Principal Investigator	Dr. Asha A S, Associate Professor, Depart	ment of Physics
Name & Designation of the Co-Principal Investigator(s)		Dr. Jayalatha Gopalakrishnan G, Professor, Department of Polymer Science & Rubber Technology Dr. Prasanth Raghavan, Professor, Department of Polymer Science & Rubber Technology	
Head o	f Account	1-98-0-U-1-028	
	Budget		(Amount in Rupees)
SI. No.	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II
1	Battery Analyser with electrochemical work station	35,00,000	
2	Glove Box	0	31,00,000
Total	66,00,000	35,00,000	31,00,000
Sl. No.	Item - Soft Components	Phase I	Phase II
1 1	Manpower (JRF/SRF/Project Assistant/Post Doc)	18,51,360	18,51,360
2	Consumables	8,08,032	10,08,032
3	Contingency	2,00,000	2,54,016
1 4 1	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	2,54,016	6,54,016
5	Travel	42,912	1,13,504
6	Computers/Softwares/Minor Components	2,54,016	6,54,016
7	Seminars/Conferences	0	2,72,410
8	Workshops and Skill Training	0	1,81,606
9	Internships to PG and UG Students	0	2,27,008
10	Books and Journals	0	4,54,016
Total	90,80,320	34,10,336	56,69,984
		<u> </u>	
Grand Total	1,56,80,320	69,10,336	87,69,984

Theme 1: Energy and Material Sciences

		I	
Project Number & Project Title		T1C , Development of Functional Materials/Systems for Artificial Photosynthesis	
Name & Designation of the Principal Investigator		Dr Sebastin Nybin Remello, Assistant Professor, Department of Applied Chemistry (on LWA) Dr. Suja Haridas, Associate Professor, Department of Applied Chemistry (in	
Name & Designation of the Co-Principal Investigator(s)		Charge of the project) 1. Dr. Suja Haridas, Associate Professor, Department of Applied Chemistry 2. Dr. M K Jayaraj, Professor (Rtd.), Department of Physics 3. Dr. Honey John, Professor, Department of Polymer Science & Rubber Technology 4. Dr. N Manoj, Professor, Department of Applied Chemistry 5. Dr. Anoop K K, Assistant Professor, Department of Physics 6. Dr. Susmita De, Associate Professor, University of Calicut	
Head o	f Account	1-98-0-U-1-029	
	Budget	I	(Amount in Rupees)
Sl. No.	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II
1	Photochemical and Electrochemical reactor and online GC equipped with FID and TCD detectors with online gas sampling	25,00,000	0
2	Rotary evaporator with vacuum pump and chiller	0	11,00,000
3	Microbalance	0	5,00,000
4	Ice flaker	0	3,90,000
Total	44,90,000	25,00,000	19,90,000
SI. No.	Item - Soft Components	Phase I	Phase II
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	26,80,000	26,80,080
2	Consumables	12,00,000	15,00,000
3	Contingency	3,60,000	3,60,000
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	5,00,000	8,60,000
5	Travel	1,50,000	1,50,000
6	Computers/Softwares/Minor Components	8,00,000	6,00,000
7	Seminars/Conferences	0	3,75,000
8	Workshops and Skill Training	1,00,000	1,00,000
9	Internships to PG and UG Students	0	3,00,000
10	Books and Journals	0	6,50,820
Total	1,33,65,900	57,90,000	75,75,900
Grand Total	1,78,55,900	82,90,000	95,65,900

Theme 1: Energy and Material Sciences

Project	T1D , Development of Cerium Oxide Nanoparticle Approach for Enhancing Radio lodide Avidity in Papillary Thyroid Carcinoma by Augmenting the Expression of the Sodium Iodide Symporter		
Name 8	& Designation of the Principal Investigator	Dr. Ajith Vengellur, Assistant Professor,	Department of Biotechnology
	& Designation of the Co-Principal gator(s)	Dr. Baby Chakrapani P S, Assistant Professor, Department of Biotechnology Dr. Sailaja G S, Associate Professor, Department of Polymer Science & Rubber Technology	
Head o	f Account	1-98-0-U-1-030	
	Budget		(Amount in Rupees)
Sl. No.	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II
1	Real-time PCR	12,50,000	0
2	Hypoxia Incubator	8,50,000	0
Total	21,00,000	21,00,000	0
SI. No.	Item - Soft Components	Phase I	Phase II
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	4,32,000	4,32,000
2	Consumables	4,00,000	4,00,000
3	Contingency	84,000	84,000
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	1,60,000	1,30,000
5	Travel	0	30,000
6	Computers/Softwares/Minor Components	0	3,00,000
7	Seminars/Conferences	0	0
8	Workshops and Skill Training	0	0
9	Internships to PG and UG Students	0	0
10	Books and Journals	0	20,800
Total	24,72,800	10,76,000	13,96,800
Grand Total	45,72,800	31,76,000	13,96,800

Theme 1: Energy and Material Sciences

		T	
Project	Number & Project Title	T1E , Optimization and Transplantation of Rat Blood Derived Stem Cells Using a Novel Biodegradable Scaffold for Treating Parkinson's Disease(PD)	
Name 8	& Designation of the Principal Investigator	Dr. Baby Chakrapani P S, Assistant Profe	ssor, Department of Biotechnology
	& Designation of the Co-Principal gator(s)	Dr. Sailaja G S, Associate Professor, Department of Polymer Science & Rubber Technology Dr. Ajith Vengellur, Assistant Professor, Department of Biotechnology	
Head o	f Account	1-98-0-U-1-031	
	Budget		(Amount in Rupees)
Sl. No.	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II
1	Microtome (with Cryo facility)	0	29,00,000
Total	29,00,000	0	29,00,000
SI. No.	Item - Soft Components	Phase I	Phase II
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	5,90,720	5,90,720
2	Consumables	2,95,360	2,95,360
3	Contingency	73,840	73,840
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	1,47,680	1,47,680
5	Travel	36,920	36,920
6	Computers/Softwares/Minor Components	1,00,000	1,95,360
7	Seminars/Conferences	0	88,608
8	Workshops and Skill Training	0	59,072
9	Internships to PG and UG Students	0	73,840
10	Books and Journals	0	1,47,680
Total	29,53,600	12,44,520	17,09,080
Grand Total	58,53,600	12,44,520	46,09,080

Theme 1: Energy and Material Sciences

Project	Number & Project Title	T1F, Development of an Inherently Rad Effective TACE System With Liver Regen Hepatocellular Carcinoma	-
Name 8	& Designation of the Principal Investigator	Dr. Sailaja G S, Associate Professor, Dep Technology	artment of Polymer Science & Rubber
	& Designation of the Co-Principal gator(s)	 Dr. Sarita G Bhat, Professor, Department of Biotechnology Dr. Ajith Vengellur, Assistant Professor, Department of Biotechnology Dr. Baby Chakrapani P S, Assistant Professor, Department of Biotechnology 	
Head o	f Account	1-98-0-U-1-032	
	Budget		(Amount in Rupees)
Sl. No.	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II
1	Refrigerated Centrifuge	6,19,500	0
2	Rotary Evaporator	0	7,80,500
3	High Pressure Homogenizer	0	10,00,000
4	Ultrasonic bath	0	1,00,000
Total	25,00,000	6,19,500	18,80,500
Sl. No.	Item - Soft Components	Phase I	Phase II
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	5,43,120	5,43,120
2	Consumables	3,95,360	1,95,360
3	Contingency	73,840	73,840
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	2,47,680	47,680
5	Travel	10,000	63,840
6	Computers/Softwares/Minor Components	1,47,680	1,47,680
7	Seminars/Conferences	0	1,38,608
8	Workshops and Skill Training	0	59,072
9	Internships to PG and UG Students	0	73,840
10	Books and Journals	0	1,92,880
Total	29,53,600	14,17,680	15,35,920
Grand Total	54,53,600	20,37,180	34,16,420

Theme 1: Energy and Material Sciences

Grand Total	35,80,000	15,93,240	19,86,760
			7,1,
Total	15,80,000	10,93,240	4,86,760
10	Books and Journals	0	69,950
	Internships to PG and UG Students	0	19,750
8	Workshops and Skill Training	0	23,600
	Seminars/Conferences	0	39,400
6	Computers/Softwares/Minor Components	1,00,000	80,560
4	Testing Charges, Data Collection expenses Travel	89,000 10,000	79,000
3	Contingency Hiring of Technical Services, Analysis and	40,000	39,000
2	Consumables	2,00,000	1,16,000
1	Doc)	6,54,240	· ·
	Item - Soft Components Manpower (JRF/SRF/Project Assistant/Post		O
CI No	Itom Soft Components	Phase I	Phase II
Total	20,00,000	5,00,000	15,00,000
5	Standalone Fish system	0	6,00,000
4	CO2 Incubator for fish cell culture	0	3,00,000
	Class II B2 Biosafety cabinet	0	3,00,000
2	Cooled incubator with programmable light and temp control	0	3,00,000
1	Microinjector	5,00,000	0
31. NO.	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II
	Budget		(Amount in Rupees)
	f Account	1-98-0-U-1-033	
	& Designation of the Co-Principal gator(s)	 Dr. Baby Chakrapani P S, Assistant Pro Dr. Ajith Vengellur, Assistant Professor 	
Name 8	& Designation of the Principal Investigator	Dr. Sarita G Bhat, Professor, Department	of Biotechnology
Project	Number & Project Title	T1G , Application of Bacterial Pigments as Dietary Supplements as well as Therapeutic Modules for Inflammation	

Theme 1: Energy and Material Sciences

Grand Total	1,66,08,480	1,40,00,000	26,08,480
iotai	31,00,700	3,00,000	20,00,700
Total	31,08,480	5,00,000	26,08,480
9	Internships to PG and UG Students Books and Journals	0 0	1,00,000 50,000
8	Workshops and Skill Training	3,00,000	1,00,000
7	Seminars/Conferences	0	1,00,000
6	Computers/Softwares/Minor Components	0	2,00,000
5	Travel (5.6)	0	1,50,000
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	2,00,000	2,00,000
3	Contingency	0	1,00,000
2	Consumables	0	3,00,000
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	0	13,08,480
SI. No.	Item - Soft Components	Phase I	Phase II
Total	1,33,00,000	1,33,00,000	<u> </u>
Total	1,35,00,000	1,35,00,000	0
	and analysis software for recording and evaluation		
_	sensor array, illumination and zooming optics	1,55,00,000	•
1	mount, special mount for tensile testing, CCD	1,35,00,000	0
	interferometry System with optical table		
	of Purchase) High resolution 3D Electronic speckle Pattern		
Sl. No.	Item - Hard Components (in the Priority Order	Phase I	Phase II
	Budget		(Amount in Rupe
Head o	f Account	1-98-0-U-1-035	
Name & Designation of the Co-Principal Investigator(s)		 Dr. Supriya M H, Professor, Department of Electronics Dr. Biju N, Professor, Division of Mechanical Engineering, School of Engineering Dr. Thomas Kurian, Emeritus Professor, Department of Polymer Science & Rubber Technology 	
Name & Designation of the Principal Investigator		Dr. A Mujeeb, Senior Professor, Interna	
Project Number & Project Title		T1I , Development of 3D Electronic Laser Speckle Pattern Interferometry Set for Structural Testing Analysis	

Theme 1: Energy and Material Sciences

Project	ect Number & Project Title T1J , Investigation on Room Temperature Ferromagnetism in Spray Pyrolyse Doped Ceria Thin Films and Polymer Ceria Nanocomposite Films		
Name 8	& Designation of the Principal Investigator	Dr. Dhannia T, Associate Professor, Divis Humanities, School of Engineering	sion of Applied Science and
	& Designation of the Co-Principal gator(s)	Sri. Unni A M, Associate Professor, Division of Electronics and Communication Engineering, School of Engineering	
Head o	f Account	1-98-0-U-1-036	
	Budget		(Amount in Rupees)
SI. No.	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II
1	Spray pyrolysis unit	12,00,000	0
2	Spin coating unit	0	2,50,000
3	Digital magnetic stirrer with hot plate	0	26,000
4	Conductivity cell	0	8,58,000
5	Thickness measurement set up	0	80,000
Total	24,14,000	12,00,000	12,14,000
SI. No.	Item - Soft Components	Phase I	Phase II
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	3,00,000	5,65,600
2	Consumables	2,00,000	2,32,800
3	Contingency	54,100	54,100
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	30,000	1,86,400
5	Travel	20,000	34,100
6	Computers/Softwares/Minor Components	1,00,000	1,16,400
7	Seminars/Conferences	0	64,920
8	Workshops and Skill Training	0	43,280
9	Internships to PG and UG Students	0	54,100
10	Books and Journals	0	1,08,200
Total	21,64,000	7,04,100	14,59,900
Grand Total	45,78,000	19,04,100	26,73,900

Theme 1: Energy and Material Sciences

Total

25,03,040

Project Number & Project Title Name & Designation of the Principal Investigator Name & Designation of the Co-Principal Investigator(s)		T1S1, Probing Cobalt Complexes Based Hole Transporting Materials for Photovoltaic Applications Dr. Manoj E, Assistant Professor, Department of Applied Chemistry 1. Dr. Saji K J, Associate Professor, International School of Photonics 2. Dr. N Manoj, Professor, Department of Applied Chemistry					
				Head o	f Account	1-98-0-U-1-037	
					Budget		(Amount in Rupees
Sl. No.	Item - Soft Components	Phase I	Phase II				
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	4,31,520	4,31,520				
2	Consumables	2,00,000	3,00,608				
3	Contingency	62,576	62,576				
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	1,58,796	1,59,696				
5	Travel	31,288	31,288				
6	Computers/Softwares/Minor Components	1,00,000	2,19,392				
7	Seminars/Conferences	0	75,091				
8	Workshops and Skill Training	0	50,061				
9	Internships to PG and UG Students	0	63,476				
10	Books and Journals	0	1,25,152				

9,84,180

15,18,860

Theme 1: Energy and Material Sciences

Project	Number & Project Title	T1S2 , Development of Bisbenzotriazole Based Co-Polymers Using the Donor Acceptor Approach Towards Organic Solar Cells	
Name 8	& Designation of the Principal Investigator	Dr. Sindhu Mathai, Assistant Professor,	Department of Applied Chemistry
	& Designation of the Co-Principal gator(s)	Dr. Saji K J, Associate Professor, International School of Photonics Dr. N Manoj Professor, Department of Applied Chemistry	
Head o	f Account	1-98-0-U-1-038	
	Budget		(Amount in Rupees)
Sl. No.	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II
1	Glove Box	9,00,000	0
2	Low Temperature Reactor Vessel	0	3,00,000
Total	12,00,000	9,00,000	3,00,000
Sl. No.	Item - Soft Components	Phase I	Phase II
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	6,00,000	2,64,000
2	Consumables	2,00,000	3,36,000
3	Contingency	62,000	62,000
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	1,30,000	1,30,000
5	Travel	31,000	31,000
6	Computers/Softwares/Minor Components	50,000	2,50,000
7	Seminars/Conferences	0	74,000
8	Workshops and Skill Training	0	80,000
9	Internships to PG and UG Students	0	60,000
10	Books and Journals	0	1,20,000
Total	24,80,000	10,73,000	14,07,000
Grand Total	36,80,000	19,73,000	17,07,000

Theme 1: Energy and Material Sciences

Project	Number & Project Title	T1S3 , Antifouling Multi-Layered Membranes for the Removal of Micro Organisms from Water Dr. Usha K Aravind, Professor, School of Environmental Studies Dr. Ratheesh Kumar C S, Assistant Professor, School of Environmental Studies	
Name 8	& Designation of the Principal Investigator		
	& Designation of the Co-Principal gator(s)		
Head o	f Account	1-98-0-U-1-039	
	Budget		(Amount in Rupees)
SI. No.	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II
1	Dead end low pressure filtration cell	4,00,000	0
2	Water quality sensors and probes	5,00,000	0
Total	9,00,000	9,00,000	0
SI. No.	Item - Soft Components	Phase I	Phase II
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	6,12,000	6,12,000
2	Consumables	2,62,000	2,62,000
3	Contingency	65,000	65,000
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	1,31,000	1,31,000
5	Travel	32,000	32,000
6	Computers/Softwares/Minor Components	1,00,000	1,62,000
7	Seminars/Conferences	0	76,000
8	Workshops and Skill Training	0	0
9	Internships to PG and UG Students	0	0
10	Books and Journals	0	81,040
Total	26,23,040	12,02,000	14,21,040
Grand Total	35,23,040	21,02,000	14,21,040

Theme 2: Environment and Marine Science

Project	Number & Project Title	T2B , National Facility for Marine Extracts and Genetic Resources for Bioactive Molecules	
Name & Designation of the Principal Investigator		Dr. T P Sajeevan, Associate Professor, National Centre for Aquatic Animal Health	
Name & Designation of the Co-Principal Investigator(s)		Dr. Valsamma Joseph, Professor, National Centre for Aquatic Animal Health Dr. Jayesh Puthumana, Assistant Professor, National Centre for Aquatic Animal Health Dr. I S Bright Singh, University Emeritus Scientist, National Centre for Aquatic Animal Health Dr. Rosamma Philip, UGC BSR Faculty, Department of Marine Biology, Microbiology & Biochemistry	
Head o	f Account	1-98-0-U-1-040	
	Budget	•	(Amount in Rupees)
I SI. IVO. I	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II
1	Liquid Chromatography System (Flash)	0	18,00,000
2	CO2 Incubator	6,00,000	0
3	Rotary Shaker	0	6,00,000
4	Biosafety Level II	0	5,00,000
5	Rotary evoparator	0	9,50,000
6	Flammable cabinet (2 Nos)	0	1,00,000
7	Hot air ovens (2 Nos)	0	1,00,000
8	Ultarsonic bath	0	75,000
9	Deep Freezers (-20C) (2 nos)	0	5,00,000
10	BOD Incubator	0	75,000
11	Environmental Chamber	0	4,00,000
12	Laminar Flow hood	0	1,00,000
Total	58,00,000	6,00,000	52,00,000
SI. No.	Item - Soft Components	Phase I	Phase II
	Manpower (JRF/SRF/Project Assistant/Post Doc)	20,88,000	36,72,000
2	Consumables	8,00,000	20,80,000
3	Contingency	3,00,000	4,20,000
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	8,40,000	6,00,000
5	Travel	0	3,60,000
6	Computers/Softwares/Minor Components	6,00,000	8,40,000
7	Seminars/Conferences	0	4,32,000
8	Workshops and Skill Training	0	2,88,000
9	Internships to PG and UG Students	50,000	3,10,000
10	Books and Journals	0	7,20,000
Total	1,44,00,000	46,78,000	97,22,000
Grand Total	2,02,00,000	52,78,000	1,49,22,000

Theme 2: Environment and Marine Science

Project	Number & Project Title	T2C , Marine Biodiversity and Bioprospecting		
Name & Designation of the Principal Investigator		Dr. S Bijoy Nandan, Senior Professor, Department of Marine Biology, Microbiology & Biochemistry		
Name & Designation of the Co-Principal Investigator(s)		 Dr. A A Mohamed Hatha, Senior Professor, Department of Marine Biology, Microbiology & Biochemistry Dr. Swapna P Antony, Assistant Professor, Department of Marine Biology, Microbiology & Biochemistry Dr. K B Padmakumar, Assistant Professor, Department of Marine Biology, Microbiology & Biochemistry Dr. Priyaja P, Assistant Professor, Department of Marine Biology, Microbiology & Biochemistry 		
Head o	f Account	1-98-0-U-1-041		
	Budget		(Amount in Rupees	
Sl. No.	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II	
1	Particle Size Analyzer	54,00,000	0	
2	Ice Flake Machine	0	3,00,000	
3	Gradient PCR	0	5,00,000	
Total	62,00,000	54,00,000	8,00,000	
Sl. No.	Item - Soft Components	Phase I	Phase II	
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	27,91,440	27,91,440	
2	Consumables	8,50,000	16,50,000	
3	Contingency	2,50,000	3,75,000	
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	2,00,000	4,20,000	
5	Travel	2,00,000	6,62,000	
6	Computers/Softwares/Minor Components	1,50,000	11,00,000	
7	Seminars/Conferences	0	3,75,000	
8	Workshops and Skill Training	1,50,000	1,00,000	
9	Internships to PG and UG Students	0	3,10,000	
10	Books and Journals	0	1,25,000	
Total	1,24,99,880	45,91,440	79,08,440	
Grand Total	1,86,99,880	99,91,440	87,08,440	

Project Number & Project Title		T2D , Stable Isotope Research Facility for Marine and Climate Sciences	
Name & Designation of the Principal Investigator		Dr. Habeeb Rahman K, Assistant Professor, Department of Chemical Oceanography	
Name & Designation of the Co-Principal Investigator(s)		 Dr. Midhun M, Assistant Professor, Department of Atmospheric Sciences Dr. Lekshmy P R, Assistant Professor, Department of Atmospheric Sciences Dr. V Vijith, Assistant Professor, Department of Physical Oceanography 	
Head o	f Account	1-98-0-U-1-042	
	Budget		(Amount in Rupees)
SI. No.	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II
1	Stable isotope ratio mass spectrometer + Pheripherals		
2	High vacuum cryogenic extraction line and accessories		
3	CTD profiler		
4	High vacuum sampling bottles	0	65,00,000
5	Microdrill		03,00,000
6	Microscope with Digital Camera		
7	Microtome		
8	Microbalance		
9	Samplers		
Total	65,00,000	0	65,00,000
SI. No.	Item - Soft Components	Phase I	Phase II
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	19,16,880	31,16,880
2	Consumables	8,08,000	17,12,000
3	Contingency	2,45,670	3,90,570
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	4,41,000	8,19,000
5	Travel	1,10,250	2,04,750
6	Computers/Softwares/Minor Components	3,41,000	9,19,000
7	Seminars/Conferences	0	3,78,000
8	Workshops and Skill Training	88,200	1,63,800
9	Internships to PG and UG Students	94,500	2,20,500
10	Books and Journals	0	6,30,000
Total	1,26,00,000	40,45,500	85,54,500
Grand Total	1,91,00,000	40,45,500	1,50,54,500

Project	T2E , Neotectonic Framework of Central Kerala Coast and its Implications on Shoreline Changes: An integrated Geological, Geophysical and Geodetic Approach				
Name 8	& Designation of the Principal Investigator	Dr. Ajayakumar P, Assistant Professor, D Geophysics	epartment of Marine Geology &		
Name & Designation of the Co-Principal Investigator(s)		Dr. Sunil P S, Associate Professor, Department of Marine Geology & Geophysics Dr. N R Nisha, Assistant Professor, Department of Marine Geology & Geophysics			
Head o	f Account	1-98-0-U-1-043			
	Budget		(Amount in Rupees)		
Sl. No.	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II		
1	Gravimeter and GPS	0	96,00,000		
Total	96,00,000	0	96,00,000		
Sl. No.	Item - Soft Components	Phase I	Phase II		
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	17,26,080	28,06,080		
2	Consumables	8,12,000	13,68,000		
3	Contingency	1,58,000	5,42,000		
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	4,56,000	8,84,000		
5	Travel	1,14,000	3,71,000		
6	Computers/Softwares/Minor Components	4,56,000	6,84,000		
7	Seminars/Conferences	0	3,42,000		
8	Workshops and Skill Training	91,000	1,37,000		
9	Internships to PG and UG Students	50,000	1,71,000		
10	Books and Journals	0	2,31,486		
Total	1,13,99,646	38,63,080	75,36,566		
Grand Total	2,09,99,646	38,63,080	1,71,36,566		

Project	Number & Project Title	T2F , Development of Functional Materials and Systems for Environmental Applications with Special Focus on Pollution Reduction and Control	
Name 8	& Designation of the Principal Investigator	Dr. V Sivanandan Achari, Professor, School	ol of Environmental Studies
Name & Designation of the Co-Principal Investigator(s)		 Dr. Ratheeshkumar C S, Assistant Professor, School of Environmental Studies Dr. Suja Haridass, Associate Professor, Department of Applied Chemistry Dr. Preethy Chandran, Assistant Professor, School of Environmental Studies 	
Head o	f Account	1-98-0-U-1-044	
	Budget		(Amount in Rupees)
1 SI. NO. I	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II
1	ICP-MS [Inductively Coupled Plasma - Mass Spectrometer] Coupled With Ion Chromatography and All Accessories	1,50,00,000	0
Total	1,50,00,000	1,50,00,000	0
Sl. No.	Item - Soft Components	Phase I	Phase II
	Manpower (JRF/SRF/Project Assistant/Post Doc)	11,96,960	18,31,200
2	Consumables	6,40,000	10,20,000
3	Contingency	1,60,000	2,54,000
1 4 1	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	3,30,000	5,10,000
5	Travel	80,000	1,30,000
6	Computers/Softwares/Minor Components	3,36,080	5,00,000
7	Seminars/Conferences	0	2,40,000
8	Workshops and Skill Training	1,00,000	70,000
9	Internships to PG and UG Students	56,960	1,45,000
10	Books and Journals	0	4,00,000
Total	80,00,200	29,00,000	51,00,200
		,	
Grand Total	2,30,00,200	1,79,00,000	51,00,200

Project Number & Project Title Name & Designation of the Principal Investigator		T2G , Development of Electrochemical Sensors for the Detection and Quantification of Environmental Pollutants Dr. Leena R, Assistant Professor, Department of Applied Chemistry	
Investi	gator(s)	2. Dr. Kala R, Assistant Professor, Depa	rtment of Applied Chemistry
Head o	f Account	1-98-0-U-1-045	
	Budget		(Amount in Rupees)
SI. No.	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II
1	Electrochemical workstation	0	25,00,000
Total	25,00,000	0	25,00,000
SI. No.	Item - Soft Components	Phase I	Phase II
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	8,77,920	25,57,920
2	Consumables	6,60,512	10,45,248
3	Contingency	1,71,184	2,56,776
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	3,18,144	5,31,696
5	Travel	85,592	1,28,388
6	Computers/Softwares/Minor Components	3,42,368	5,13,552
7	Seminars/Conferences	1,02,710	1,54,066
8	Workshops and Skill Training	68,474	1,02,710
9	Internships to PG and UG Students	85,592	1,28,388
10	Books and Journals	1,71,184	2,56,776
Total	85,59,200	28,83,680	56,75,520
Grand Total	1,10,59,200	28,83,680	81,75,520

Grand Total	59,80,800	35,90,000	23,90,800
Total	აა,ის,ისს	13,30,000	23,30,000
Total	Books and Journals 39,80,800	15,90,000	1,98,000 23,90,800
-	Internships to PG and UG Students	49,000 0	49,000
_	Workshops and Skill Training	0	79,000
-	Seminars/Conferences	0	1,19,000
	Computers/Softwares/Minor Components	2,98,000	1,06,800
	Travel	49,000	49,000
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	1,00,000	2,98,000
3	Contingency	0	1,98,000
-	Consumables	2,98,000	4,98,000
	Manpower (JRF/SRF/Project Assistant/Post Doc)	7,96,000	7,96,000
SI. No.	Item - Soft Components	Phase I	Phase II
Total	Total 20,00,000 20,00,000 0		U
	Reactor Construction	20,00,000	0
SI. NO.	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II
	Budget		(Amount in Rupees)
Head of	f Account	1-98-0-U-1-046	
Name & Designation of the Co-Principal Investigator(s)		Dr. Anand M, Assistant Professor, School of Environmental Studies 1. Dr. Usha K Aravind, Professor, School of Environmental Studies 2. Dr. G Madhu, Professor, Head, Division of Safety & Fire Engineering, School of Engineering 3. Dr. Renu Pawels, Professor, Division of Civil Engineering, School of Engineering 4. Dr. Ratheesh Kumar C S, Assitant Professor, School of Environmental Studies 5. Dr. Preethy Chandran, Assistant Professor, School of Environmental Studies.	
	T2H , Development of 1 Tonne Capacity Unitized Composting Apparatus for the Conversion of Urban Food Waste into Manure at Community Level		

Theme 3: Mathematics and Computing

Project Number & Project TitleT3A , Solving Complex Problems using High Performance Cluster		igh Performance Cluster	
Name & Designation of the Principal Investigator		Dr. Charles Jose, Assistant Professor, Department of Physics	
1. Dr. Titus K Mathew, Professor, Department of Physics 2. Dr. N Balakrishna, Senior Professor, Department of Statistics 3. Dr. N Manoj, Professor, Department of Applied Chemistry 4. Dr. Rhine Kumar A K, Assistant Professor, Department of Physics 5. Dr. Sasidevan V, Assistant Professor, Department of Physics 6. Dr. Ronald Benjamin, UGC-FRP Assistant Professor, Department of Physics Investigator(s) 7. Dr. Senoy Thomas, Assistant Professor, Department of Physics 8. Dr. Jayasree E G, Professor, Department of Applied Chemistry 9. Dr. Priya Rose T, Assistant Professor, International School of Photon 10. Dr. Irshad M R, Assistant Professor, Department of Statistics 11. Dr. A Noufal, Assistant Professor, Department of Mathematics 12. Dr. V B Kiran Kumar, Assistant Professor, Department of Mathematics 13. Dr. Ambily A A, Assistant Professor, Department of Mathematics 14. Dr. Susmita De, Assistant Professor, University of Calicut (Collaboan		pepartment of Statistics of Applied Chemistry sor, Department of Physics Department of Physics ant Professor, Department of Physics or, Department of Physics ent of Applied Chemistry International School of Photonics Department of Statistics epartment of Mathematics ssor, Department of Mathematics Department of Mathematics	
Head o	f Account	1-98-0-U-1-047	
	Budget		(Amount in Rupees)
SI. No.	Item - Soft Components	Phase I	Phase II
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	8,64,000	
2	1000)	3,6 1,865	10,86,500
<u> </u>	Consumables	2,00,000	10,86,500 2,00,000
3	Consumables Contingency		
-	Consumables	2,00,000	2,00,000
3	Consumables Contingency Hiring of Technical Services, Analysis and	2,00,000 3,00,000	2,00,000 3,00,000
3 4	Consumables Contingency Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	2,00,000 3,00,000 0	2,00,000 3,00,000 0
3 4 5	Consumables Contingency Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses Travel	2,00,000 3,00,000 0 3,50,000	2,00,000 3,00,000 0 90,000
3 4 5 6	Consumables Contingency Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses Travel Computers/Softwares/Minor Components	2,00,000 3,00,000 0 3,50,000 2,34,00,000	2,00,000 3,00,000 0 90,000 45,00,000
3 4 5 6 7	Consumables Contingency Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses Travel Computers/Softwares/Minor Components Seminars/Conferences	2,00,000 3,00,000 0 3,50,000 2,34,00,000 7,00,000	2,00,000 3,00,000 0 90,000 45,00,000 1,00,000
3 4 5 6 7 8	Consumables Contingency Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses Travel Computers/Softwares/Minor Components Seminars/Conferences Workshops and Skill Training	2,00,000 3,00,000 0 3,50,000 2,34,00,000 7,00,000 1,86,000	2,00,000 3,00,000 0 90,000 45,00,000 1,00,000 1,20,000

Theme 4: Engineering Sciences

Project Number & Project Title		T4B , Membrane Bioreactor for Biological Nutrient Removal from Waste waters	
Name & Designation of the Principal Investigator		Dr. Renu Pawels, Professor, Division of Civil Engineering, School of Engineering	
Name & Designation of the Co-Principal Investigator(s)		 Dr. G Madhu, Professor, Division of Safety & Fire Engineering, School of Engineering Dr. Saju K K, Professor, Division of Mechanical Engineering, School of Engineering Dr. Anand M, Assistant Professor, School of Environmental Studies 	
Head o	f Account	1-98-0-U-1-048	
	Budget		(Amount in Rupees
Sl. No.	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II
1	Progressing Cavity Pump	3,00,000	0
2	Online D.O meter with D.O sensor	0	90,000
3	On line pH meter with pH sensor	0	1,00,000
4	Suction pump	50,000	0
5	Manometer	10,000	0
6	Oil less Air compressor	0	1,00,000
7	Membranes, modules, frames	0	1,00,000
8	Distilling apparatus for kjeldhal determinations	0	10,000
9	Goniometer	40,000	0
Total	8,00,000	4,00,000	4,00,000
Sl. No.	Item - Soft Components	Phase I	Phase II
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	3,72,000	3,76,000
2	Consumables	1,88,000	1,88,000
3	Contingency	47,000	47,000
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	94,000	94,000
5	Travel	23,500	23,500
6	Computers/Softwares/Minor Components	98,000	95,000
7	Seminars/Conferences	28,200	28,200
8	Workshops and Skill Training	18,800	18,800
9	Internships to PG and UG Students	23,500	23,500
10	Books and Journals	47,000	47,000
Total	18,81,000	9,40,000	9,41,000
Grand Total	26,81,000	13,40,000	13,41,000

Theme 4: Engineering Sciences

Project Number & Project Title		T4C , Multi-parameter Buoy Monitoring System for Data Collection in Arabian Sea	
Name 8	& Designation of the Principal Investigator	Dr. Supriya M H, Professor, Department of Electronics	
Name & Designation of the Co-Principal Investigator(s)		Sri. Arun A Balakrishnan, Assistant Professor, Department of Electronics Ms. V Y Vidhu, Assistant Professor, Department of Electronics Sri. Mithun Haridas T P, Assistant Professor, Department of Electronics	
Head o	f Account	1-98-0-U-1-049	
	Budget		(Amount in Rupees)
Sl. No.	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II
1	Desktop (4 Nos) – Intel Xeon processor, 64 GB DDR4, NVIDIA Quadro P2000 4 GB, 1 TB HDD	6,00,000	1,50,000
2	DG Set – 24 kW/30 kVA, Silent Electric Generator Set with Acoustic Enclosure, Atleast 38 BHP at 1500 RPM	5,50,000	0
l	Rack-mountable Workstation - Xeon processor, Dual socket, 64 GB RAM, 2 P5000 cards, 1 Mellanox card	0	10,00,000
Total	23,00,000	11,50,000	11,50,000
Sl. No.	Item - Soft Components	Phase I	Phase II
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	9,18,000	9,22,500
2	Consumables	75,000	1,00,000
3	Contingency	79,500	1,00,000
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	1,00,000	3,00,000
5	Travel	50,000	50,000
6	Computers/Softwares/Minor Components	5,50,000	3,00,000
7	Seminars/Conferences	1,00,000	1,00,000
8	Workshops and Skill Training	50,000	50,000
9	Internships to PG and UG Students	50,000	50,000
10	Books and Journals	0	240
Total	39,45,240	19,72,500	19,72,740
Grand Total	62,45,240	31,22,500	31,22,740

Theme 4: Engineering Sciences

Grand Total	96,00,000	48,00,000	48,00,000	
	-			
Total	26,00,000	13,00,000	13,00,000	
10	Books and Journals	0	0	
	Internships to PG and UG Students	0	0	
8	Workshops and Skill Training	0	0	
	Seminars/Conferences	0	0	
	Computers/Softwares/Minor Components	12,10,000	4,00,000	
5	Travel	0	0	
	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	0	0	
	Contingency	50,000	50,000	
	Doc) Consumables	40,000	70,000	
	Manpower (JRF/SRF/Project Assistant/Post	0	7,80,000	
Sl. No.	Item - Soft Components	Phase I	Phase II	
Total	70,00,000	35,00,000	35,00,000	
5	Vibration measurement and analysis system consists of channel analysers, accelerometers, mics, vibration shakers, associated software and other accessories	0	35,00,000	
4	Measuring Instruments	3,00,000	0	
3	High speed video camera and accessories	6,25,000	0	
	Telephoto zoom lens and accessories	1,75,000	0	
1	Laser vibrometer	24,00,000	0	
SI INO I	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II	
	Budget		(Amount in Rupees	
Investig	f Account	1-98-0-U-1-050		
	& Designation of the Co-Principal	IDE KIN Madnusoodanan Emeritus Professor Denartment of Instrum		
Name & Designation of the Principal Investigator		Dr. Reju V G, Associate Professor, Department of Instrumentation (on LWA) Dr. Pankaj Sagar, Assistant Professor, Department of Instrumentation (in Charge of the project)		
Project	Number & Project Title	T4D , Setting up of a Research Facility for Signal Analysis, Processing and Machine Intelligence with an Initial Project being Development of a Visual Vibrometer with Specific Objective of Voice Capturing and Vibration Analysis.		

Theme 4: Engineering Sciences

Droject Number & Droject Title		T4E , Development of Water Treatment System Based on Advanced Oxidation Process (AOP) for the Removal of Emerging Contaminants	
Name & Designation of the Principal Investigator		Dr. G Madhu, Professor, Division of Safety & Fire Engineering, School of Engineering	
Name & Designation of the Co-Principal Investigator(s)		Dr. Renu Pawels, Professor, Division of Civil Engineering, School of Engineering Dr. V Sivanandan Achari, Professor, School of Environmental Studies	
Head o	f Account	1-98-0-U-1-051	
	Budget		(Amount in Rupees)
Sl. No.	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II
1	Ultrasonic Probe Sonicator	2,50,000	0
2	UV Photo Reactor	0	2,50,000
Total	5,00,000	2,50,000	2,50,000
Sl. No.	Item - Soft Components	Phase I	Phase II
1 1	Manpower (JRF/SRF/Project Assistant/Post Doc)	2,10,000	0
2	Consumables	0	1,00,000
3	Contingency	0	15,000
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	0	40,000
5	Travel	0	15,000
6	Computers/Softwares/Minor Components	2,00,000	15,000
7	Seminars/Conferences	0	15,000
8	Workshops and Skill Training	0	15,000
9	Internships to PG and UG Students	0	0
10	Books and Journals	0	0
Total	6,25,000	4,10,000	2,15,000
Grand Total	11,25,000	6,60,000	4,65,000

Theme 4: Engineering Sciences

Project Number & Project Title		T4F , Video Content Analysis for Cybers	ecurity Applications
Name 8	& Designation of the Principal Investigator	Dr. Bijoy A Jose, Associate Professor, Department of Computer Science	
Name & Designation of the Co-Principal Investigator(s)		Dr. Santosh Kumar G, Professor, Department of Computer Science Dr. Sabu M K, Professor, Department of Computer Applications	
Head o	f Account	1-98-0-U-1-052	
	Budget		(Amount in Rupees)
SI. No.	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II
1	GPU workstation	7,50,000	0
2	FPGA and accessories	0	2,00,000
3	Edge development components	0	5,50,000
Total	15,00,000	7,50,000	7,50,000
Sl. No.	Item - Soft Components	Phase I	Phase II
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	12,94,560	12,94,560
2	Consumables	13,000	13,000
3	Contingency	1,50,000	1,50,000
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	0	0
5	Travel	1,00,000	1,00,000
6	Computers/Softwares/Minor Components	50,000	50,000
7	Seminars/Conferences	20,000	20,880
8	Workshops and Skill Training	20,000	20,000
9	Internships to PG and UG Students	0	0
10	Books and Journals	0	0
Total	32,96,000	16,47,560	16,48,440
Grand Total	47,96,000	23,97,560	23,98,440

Theme 4: Engineering Sciences

Project Number & Project Title		T4G , Big Data Weather Forecasting Sys	tem Using Deep Learning Techniques
Name 8	& Designation of the Principal Investigator	Dr. Binsu C Kovoor, Professor, Division of Information Technology, School of Engineering	
Name & Designation of the Co-Principal Investigator(s)		Dr. Daleesha M Viswanathan, Professor, Division of Information Technology, School of Engineering Dr. Job Thomas, Professor, Division of Civil Engineering, School of Engineering	
Head o	f Account	1-98-0-U-1-053	
	Budget		(Amount in Rupees)
Sl. No.	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II
1	AI-GPU Development Board	0	3,00,000
2	Power backup - 24KW/ 30KVA, Silent Electric Generator with customized control system and amf panel	0	4,95,000
3	Google Coral USB Edge TPU ML Accelerator -2	0	20,000
4	Color printer	0	48,500
Total	8,63,500	0	8,63,500
SI. No.	Item - Soft Components	Phase I	Phase II
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	5,46,000	5,46,000
2	Consumables	2,75,000	2,75,000
3	Contingency	68,750	75,750
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	1,37,500	1,37,500
5	Travel	34,375	34,375
6	Computers/Softwares/Minor Components	11,73,954	2,38,800
7	Seminars/Conferences	41,250	41,250
8	Workshops and Skill Training	27,500	27,500
9	Internships to PG and UG Students	34,375	34,375
10	Books and Journals	68,750	68,750
Total	38,86,754	24,07,454	14,79,300
Grand Total	47,50,254	24,07,454	23,42,800

Theme 4: Engineering Sciences

Droiect Number & Droiect Title		T4H , Design and Development of Radio Direction Finding & Localization Systems to Improve the Management of 5G Networks	
Name 8	& Designation of the Principal Investigator	Dr. Deepti Das Krishna, Assistant Professor, Department of Electronics	
Name & Designation of the Co-Principal Investigator(s)		Dr. Abdulla P, Professor, Division of Electronics and Communication Engineering, School of Engineering Dr. Nalesh S, Assistant Professor, Department of Electronics	
Head o	f Account	1-98-0-U-1-054	
	Budget		(Amount in Rupees)
SI. No.	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II
1	RF Switches and Accessories	4,00,000	0
2	Multichannel USRP and Accessories	7,00,000	7,00,000
Total	18,00,000	11,00,000	7,00,000
SI. No.	Item - Soft Components	Phase I	Phase II
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	4,32,000	4,32,000
2	Consumables	50,000	50,000
3	Contingency	1,38,000	1,40,000
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	0	0
5	Travel	40,000	38,000
6	Computers/Softwares/Minor Components	11,00,000	15,00,000
7	Seminars/Conferences	0	0
8	Workshops and Skill Training	40,000	40,000
9	Internships to PG and UG Students	0	0
10	Books and Journals	0	0
Total	40,00,000	18,00,000	22,00,000
Grand Total	58,00,000	29,00,000	29,00,000

Theme 4: Engineering Sciences

Project	Number & Project Title	T4J , Design and Development of a Robot Controller for Synchronized Cooperative Control of Heterogenous Industrial Robot Arms		
Name 8	& Designation of the Principal Investigator	Dr. Tripti S Warrier, Assistant Professor	, Department of Electronics	
Name & Designation of the Co-Principal Investigator(s) Sri. Ratheo		Sri. Ratheesh P M, Assistant Professor,	ri. Ratheesh P M, Assistant Professor, Department of Instrumentation	
Head o	f Account	1-98-0-U-1-055		
	Budget		(Amount in Rupees)	
IN NO.	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II	
1	Mobile Robot Development Platform	11,00,000	0	
2	Robotics Arm	0	11,00,000	
Total	22,00,000	11,00,000	11,00,000	
SI. No.	Item - Soft Components	Phase I	Phase II	
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	8,15,000	11,00,000	
2	Consumables	2,50,000	2,50,000	
3	Contingency	1,00,000	1,00,000	
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	90,000	1,00,000	
5	Travel	45,000	30,000	
6	Computers/Softwares/Minor Components	4,50,000	2,00,000	
7	Seminars/Conferences	0	0	
8	Workshops and Skill Training	50,000	36,000	
9	Internships to PG and UG Students	50,000	50,000	
10	Books and Journals	0	0	
Total	37,16,000	18,50,000	18,66,000	
Grand Total	59,16,000	29,50,000	29,66,000	

Theme 4: Engineering Sciences

Project	T4K , Building Self Sustainable Smart Cities Through Energy Efficient H Using Intelligent Design		ties Through Energy Efficient Homes
Name 8	& Designation of the Principal Investigator	Dr. Santhosh Kumar G, Professor, Department of Computer Science	
	& Designation of the Co-Principal gator(s)	Dr. V Sivanandan Achari, Professor, School of Environmental Studies Dr. Deepa G Nair, Professor, Divison of Civil Engineering, School of Engineering	
Head o	f Account	1-98-0-U-1-056	
	Budget		(Amount in Rupees)
Sl. No.	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II
1	Advanced PLC based Data Collection/ Acquisition/Logging Hardware System	2,50,000	0
2	Smart Energy Meters	0	2,50,000
Total	5,00,000	2,50,000	2,50,000
Sl. No.	Item - Soft Components	Phase I	Phase II
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	14,50,000	11,10,000
2	Consumables	1,00,000	1,00,000
3	Contingency	50,000	50,000
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	3,20,000	3,20,000
5	Travel	20,000	40,000
6	Computers/Softwares/Minor Components	11,00,000	12,80,000
7	Seminars/Conferences	0	1,80,000
8	Workshops and Skill Training	0	1,20,000
9	Internships to PG and UG Students	1,60,000	0
10	Books and Journals	0	0
Total	64,00,000	32,00,000	32,00,000
Grand Total	69,00,000	34,50,000	34,50,000

Theme 4: Engineering Sciences

Project	T4L, Material Characterisation and Defect Sizing by Tone Burst Eddy Currer Thermography		
Name 8	& Designation of the Principal Investigator	Dr. Biju N, Professor, Division of Mechar	nical Engineering, School of Engineering
Name & Designation of the Co-Principal Investigator(s)		1. Dr. Tide P S, Professor, Division of Mechanical Engineering, School of Engineering 2. Dr. M R Radhakrishna Panicker, Professor, Division of Mechanical Engineering, School of Engineering 3. Dr. Gireesh Kumaran Thampi B S, Professor, Division of Mechanical Engineering, School of Engineering	
Head o	f Account	1-98-0-U-1-057	
	Budget		(Amount in Rupees)
SI. No.	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II
1	CNC milling machine	15,00,000	0
1)	Infrared camera with associated software and data acquisition system	0	15,00,000
Total	30,00,000	15,00,000	15,00,000
Sl. No.	Item - Soft Components	Phase I	Phase II
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	4,80,000	4,80,000
2	Consumables	1,50,000	2,00,000
3	Contingency	1,50,000	1,50,000
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	0	2,50,000
5	Travel	0	1,00,000
6	Computers/Softwares/Minor Components	15,00,000	8,00,000
7	Seminars/Conferences	0	1,20,000
8	Workshops and Skill Training	0	1,00,000
9	Internships to PG and UG Students	0	1,20,000
10	Books and Journals	0	0
Total	46,00,000	22,80,000	23,20,000
Grand Total	76,00,000	37,80,000	38,20,000

Theme 4: Engineering Sciences

Project Number & Project Title T4N , Performance Enhancement of Renewable Energ			ewable Energy Integrated Systems
-		Dr. P G Latha, Associate Professor, Divisi	
Name 8	& Designation of the Principal Investigator	Engineering, School of Engineering	
Name & Designation of the Co-Principal Investigator(s)		Engineering, School of Engineering 1. Dr. Gireesh Kumaran Thampi B S, Professor, Division of Mechanical Engineering, School of Engineering 2. Dr. Asha Elizabeth Daniel, Professor, Division of Electrical & Electronics Engineering, School of Engineering 3. Dr. Biju N, Professor, Division of Mechanical Engineering, School of Engineering 4. Dr. James Varghese, Professor, Division of Mechanical Engineering, School of Engineering	
Head o	f Account	1-98-0-U-1-058	
	Budget		(Amount in Rupees)
SI. No.	Item - Hard Components (in the Priority Order of Purchase)	Phase I	Phase II
1	Swiched Reluctance Motor Drive (Motor+ loading arrangement+ Controller + Position encoder)	3,00,000	0
2	Power Electronic Converter Systems	7,00,000	0
3	Solar PV emulator	7,25,000	0
4	Solar PV modules	0	2,50,000
5	Vibration Analyzer	0	5,00,000
6	Programmable load	0	3,50,000
7	Solar thermal collectors	0	1,50,000
8	Measuring devices (Thermocouple, Radiation meter, Anemometer etc.)	0	75,000
9	Data Acquisition systems	0	75,000
10	Infrared Camera	0	1,75,000
11	Battery & inverter	0	1,50,000
Total	34,50,000	17,25,000	17,25,000
SI. No.	Item - Soft Components	Phase I	Phase II
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	4,50,000	5,50,000
2	Consumables	1,00,000	1,60,000
3	Contingency	60,000	60,000
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	2,00,000	1,50,000
5	Travel	50,000	50,000
6	Computers/Softwares/Minor Components	5,50,000	4,50,000
7	Seminars/Conferences	12,000	12,000
8	Workshops and Skill Training	30,000	20,000
9	Internships to PG and UG Students	30,000	30,000
10	Books and Journals	0	0
Total	29,64,000	14,82,000	14,82,000
Grand Total	64,14,000	32,07,000	32,07,000

Project Number & Project Title		T5C , Climate Change Consciousness in Law : An Overview		
Name & Designation of the Principal Investigator		Dr. Aneesh V Pillai, Assistant Professor, So	Dr. Aneesh V Pillai, Assistant Professor, School of Legal Studies	
Name & Designation of the Co-Principal Investigator(s)		 Dr. P S Seema, Associate Professor, School of Legal Studies Smt. Arathi Ashok, Assistant Professor, School of Legal Studies Dr. Sangeetha K Prathap, Assistant Professor, School of Legal Studies 		
Head o	f Account	1-98-0-U-1-059		
	Budget		(Amount in Rupees)	
Sl. No.	Item - Soft Components	Phase I	Phase II	
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	4,31,520	0	
2	Consumables	0	0	
3	Contingency	35,000	35,000	
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	0	0	
5	Travel	0	0	
6	Computers/Softwares/Minor Components	0	0	
7	Seminars/Conferences	0	0	
8	Workshops and Skill Training	1,73,480	0	
9	Internships to PG and UG Students	0	0	
10	Books and Journals	0	25,000	
Total	7,00,000	6,40,000	60,000	

Project Number & Project Title		T5E , Conservation and Mangement of Forest Resources and Welfare of Tribal Populations in State of Kerala	
Name 8	& Designation of the Principal Investigator	Dr. Sreejith S, Assistant Professor, Scho	ol of Legal Studies
1	& Designation of the Co-Principal gator(s)	 Dr. Harigovind P C, Assistant Professor, School of Legal Studies Dr. Naveen S, Assistant Professor, School of Legal Studies Dr. Nemat Shereen S, Assistant Professor, School of Legal Studies Dr. Irshad M R, Assistant Professor, Department of Statistics Dr. Sivanandan Achari, Associate Professor, School of Environmental Studies Dr. Junaid Bushiri, Professor, Department of Physics 	
Head o	f Account	1-98-0-U-1-060	
	Budget	(Amount in Rupe	
SI. No.	Item - Soft Components	Phase I	Phase II
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	3,59,600	0
2	Consumables		
3	Contingency	25,000	25,000
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	0	0
5	Travel	2,00,000	0
6	Computers/Softwares/Minor Components	40,400	0
7	Seminars/Conferences	0	0
8	Workshops and Skill Training	1,00,000	0
9	Internships to PG and UG Students	0	0
10	Books and Journals	0	1,00,000
Total	8,50,000	7,25,000	1,25,000

Project Number & Project Title		T5F , Impact of IP on Agriculture, Access to Information and Promotion of Innovation in India	
Name 8	& Designation of the Principal Investigator	Dr. M Bhasi, Senior Professor, School of	Management Studies
1	& Designation of the Co-Principal gator(s)	 Dr. I G Rathish, Assistant Professor, Inter University Centre for IPR Studies Dr. Anson C J, Assistant Professor, Inter University Centre for IPR Studies Dr. Kavitha Chalakkal, Assistant Professor, Inter University Centre for IPR Studies Dr. Vishnu Sankar, Assistant Professor, Inter University Centre for IPR Studies 	
Head of Account		1-98-0-U-1-061	
	Budget	(Amount in Rupees	
SI. No.	Item - Soft Components	Phase I	Phase II
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	14,12,000	0
2	Consumables	0	0
3	Contingency	1,50,000	1,50,000
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	0	0
5	Travel	3,00,000	0
6	Computers/Softwares/Minor Components	10,50,000	0
7	Seminars/Conferences	13,08,000	0
8	Workshops and Skill Training	0	0
9	Internships to PG and UG Students	0	0
10	Books and Journals	0	5,00,000
Total	48,70,000	42,20,000	6,50,000

Project Number & Project Title T5G , Effectiveness of Regulatory and Policy Control over Primary Health Centres in the State of Kerala			olicy Control over Primary Health
Name 8	& Designation of the Principal Investigator	Dr. Vani Kesari A, Associate Professor, S	School of Legal Studies
Name & Designation of the Co-Principal Investigator(s) 1. Dr. S M Sunoj, Professor, Department of Statistics 2. Dr. Santhosh Kumar S, Professor, School of Management Studies 3. Dr. Binu Mole K, Assistant Professor, School of Legal Studies 4. Dr. Preetha S, Assistant Professor, School of Legal Studies 5. Dr. Nemat Sheereen S, Assistant Professor, School of Legal Studies		nool of Management Studies School of Legal Studies hool of Legal Studies	
Head o	f Account	1-98-0-U-1-062	
	Budget		(Amount in Rupees)
SI. No.	Item - Soft Components	Phase I	Phase II
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	3,59,600	0
2	Consumables	60,000	0
3	Contingency	35,200	35,200
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	0	0
5	Travel	2,00,000	0
6	Computers/Softwares/Minor Components	75,000	0
7	Seminars/Conferences	62,500	0
8	Workshops and Skill Training	62,500	0
9	Internships to PG and UG Students	0	0
10	Books and Journals	0	1,60,000
Total	10,50,000	8,54,800	1,95,200

Project Number & Project Title		T5H , A Study of Subaltern Literature in India	
Name & Designation of the Principal Investigator		Dr. Aneesh K N, Assistant Professor, Department of Hindi	
Name & Designation of the Co-Principal Investigator(s)		Dr. Girishkumar K K, Assistant Professor, Department of Hindi Dr. Aneesh V Pillai, Assistant Professor, School of Legal Studies	
Head o	f Account	1-98-0-U-1-063	
	Budget	•	(Amount in Rupees)
SI. No.	Item - Soft Components	Phase I	Phase II
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	4,31,520	0
2	Consumables	0	0
3	Contingency	25,000	25,000
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	0	0
5	Travel	2,00,000	0
6	Computers/Softwares/Minor Components	0	0
7	Seminars/Conferences	2,00,000	0
8	Workshops and Skill Training	0	0
9	Internships to PG and UG Students	0	0
10	Books and Journals	0	4,00,000
Total	12,81,520	8,56,520	4,25,000

Project Number & Project Title		T5I , Sustainable Urbanasition and IP - Study on the impact of Urbanisation on its Traditional and Collective Intellectual Property with Specific Reference to Kochi		
Name 8	& Designation of the Principal Investigator	Smt. Arathi Ashok, Assistant Professor, School of Legal Studies		
Name & Designation of the Co-Principal Investigator(s)		 Dr. Seema P S, Associate Professor, School of Legal Studies Dr. Aneesh V Pillai, Assistant Professor, School of Legal Studies Dr. Anson C J, Assistant Professor, Inter University Centre for IPR Studies 		
Head o	f Account	1-98-0-U-1-064		
	Budget (Amount in Ru			
Sl. No.	Item - Soft Components	Phase I	Phase II	
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	2,16,000	0	
2	Consumables		0	
3	Contingency	25,000	25,000	
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	0	0	
5	Travel	25,000	0	
6	Computers/Softwares/Minor Components	75,000	0	
7	Seminars/Conferences	1,55,000	0	
8	Workshops and Skill Training	0	0	
9	Internships to PG and UG Students	0	0	
10	Books and Journals	0	3,00,000	
Total	8,21,000	4,96,000	3,25,000	

Project	Number & Project Title	T5J , Capacity Building of Women Through Entreprenurship Development Programmes : Design, Implementation and Impact Assessment	
Name & Designation of the Principal Investigator		Dr. Sangeetha K Prathap, Assistant Professor, School of Management Studies	
Name & Designation of the Co-Principal Investigator(s)		Dr. Jagathy Raj V P, Senior Professor, School of Management Studies Dr. Aneesh V Pillai, Assistant Professor, School of Legal Studies	
Head of Account		1-98-0-U-1-065	
	Budget		(Amount in Rupees)
SI. No.	Item - Soft Components	Phase I	Phase II
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	4,32,000	0
2	Consumables	0	0
3	Contingency	1,00,000	1,00,000
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	4,32,000	0
5	Travel	1,50,000	0
6	Computers/Softwares/Minor Components	2,00,000	0
7	Seminars/Conferences	0	0
8	Workshops and Skill Training	1,86,000	0
9	Internships to PG and UG Students	0	0
10	Books and Journals	0	0
Total	16,00,000	15,00,000	1,00,000

Project	Number & Project Title	T5K , Circular Economy and Sustainable Development : Evidence From Cities of Kerala		
Name & Designation of the Principal Investigator		Dr. Santhosh Kumar P K, Honorary Director, Centre for Budget Studies		
Name & Designation of the Co-Principal Investigator(s)		 Dr. S Hari Kumar, Professor, Department of Applied Economics Dr. Jagathy Raj V P, Professor, School of Management Studies Dr. Aneesh V Pillai, Assistant Professor, School of Legal Studies 		
Head o	f Account	1-98-0-U-1-066		
	Budget		(Amount in Rupees)	
Sl. No.	Item - Soft Components	Phase I	Phase II	
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	6,00,000	0	
2	Consumables	20,000	0	
3	Contingency	25,000	25,000	
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	0	0	
5	Travel	1,40,000	0	
6	Computers/Softwares/Minor Components	1,00,000	0	
7	Seminars/Conferences	1,00,000	0	
8	Workshops and Skill Training	0	0	
9	Internships to PG and UG Students	1,00,000	0	
10	Books and Journals	0	4,00,000	
Total	15,10,000	10,85,000	4,25,000	

Project	Number & Project Title	T5L , Psychological Contract Between Female Domestic Workers and Employers : Labour Relations Perspective		
Name 8	& Designation of the Principal Investigator	Dr. Devi Soumyaja, Assistant Professor, School of Management Studies		
Name & Designation of the Co-Principal Investigator(s) Head of Account		Dr. Sangeetha K Prathap, Assistant Professor, School of Management Studies Dr. Aneesh V Pillai, Assistant Professor, School of Legal Studies 1-98-0-U-1-067		
Sl. No.	Item - Soft Components	Phase I	Phase II	
1	Manpower (JRF/SRF/Project Assistant/Post Doc)	4,31,520	0	
2	Consumables	0	0	
3	Contingency	50,000	50,000	
4	Hiring of Technical Services, Analysis and Testing Charges, Data Collection expenses	25,000	99,980	
5	Travel	1,50,000	0	
6	Computers/Softwares/Minor Components	2,00,000	0	
7	Seminars/Conferences	50,000	0	
8	Workshops and Skill Training	75,000	0	
9	Internships to PG and UG Students	0	0	
10	Books and Journals	0	3,00,000	
Total	14,31,500	9,81,520	4,49,980	