

**OFFICE OF THE DEAN (R&C)  
NATIONAL INSTITUTE OF TECHNOLOGY CALICUT  
Faculty Research Seed Grant (FRG) Projects 2019**

**Details of Sanctioned Projects**

Sl. No.	Project Number	Name & Dept.	Title of the Project Proposal	Fund Approved (Rs.)		
				First Year	Second Year	Total
	<b>Architecture and Planning</b>					
1	FRG/2019/ARCHI/01	Dr. Anjana Bhagyanathan, DAP	Impact of Landuse Landcover changes on Hydrology of South Western Ghats	248715	248715	497430
2	FRG/2019/ARCHI/02	Dr. Deepthi Bendi, DAP	Roadmap for Adoption of Off-Site Construction Technologies in the Housing Sector, India	249431	160000	409431
	<b>Chemical Engg</b>					
3	FRG/2019/CHED/03	Dr. Chandra Shekar Bestha, CHED	Chemical Process Control	242500	250000	492500
4	FRG/2109/CHED/04	Dr. Dhanya Ram V, CHED	Identification and Control of Liner Multi Input Multi Output Systems	225000	275000	500000
5	FRG/2019/CHED/05	Dr. Noel Jacob Kaleekkal, CHED	Membrane based technology	250000	250000	500000
6	FRG/2019/CHED/06	Dr. Panneerselvam Ranganathan, CHED	Reactor Development for Hydrothermal Liquefaction of Microalgae	250000	250000	500000
7	FRG/2019/CHED/07	Dr. Prasanna Kumar S Mural, CHED	Electrospun Nanofibers	250000	250000	500000
8	FRG/2019/CHED/08	Dr. Sudev Das, CHED	Fabrication, Synthesis and Performance Analysis of Nano-engineered Surface for Cooling of Nano Electric Device Application	250000	250000	500000

9	FRG/2019/CHED/09	Dr. Susmitha Das,CHED	Nanotechnology-Microfluidic Photocatalytic Degradation of Dyes Exploiting ZnO.CuO Nanocomposite	250000	250000	500000
10	FRG/2019/CHED/10	Dr. Vakamalla Tejaswi Sreeram Kumar Reddy,CHED	Classification of Iron ore slimes using Hydrocyclones	250000	250000	500000
	<b>Chemistry</b>					
11	FRG/2019/CHEM/11	Dr. Janardhan Banothu, Chemistry	Novel Fused Imidazole – Coumarin Hybrids: Synthesis, Characterisation, Antimicrobial Investigation and Structural – Activity Relationship Studies	250000	250000	500000
12	FRG/2019/CHEM/12	Dr. Mini Mol Menamparambath, Chemistry	Development of Nanomaterials for Neurotransmitter Dopamine Detection in Human Body	250000	250000	500000
13	FRG/2019/CHEM/13	Dr. Muniyandi Sankaralinkam, Chemistry	One-Step Selective Hydroxylation of Benzene to Phenol with Hydrogen Peroxide Catalyzed by Nickel(II) Complexes of Pentadentate Ligands	250000	250000	500000
14	FRG/2019/CHEM/14	Dr. Raju Dey, Chemistry	Organic and Organometallic Chemistry - Synthesis and Characterization of Transition Metal Pincer Catalysts and their Application in Carbon-Carbon and Carbon-Heteroatom bond Formation Reactions	250000	250000	500000
	<b>Civil Engg</b>					
15	FRG/2019/CED/15	Dr. Agilan V, CED	Hydroclimatology - Development of a Web-based Expert System for Updating Rainfall Intensity-Duration-Frequency Curves over Kerala	250000	250000	500000
16	FRG/2019/CED/16	Dr. Anjana Bhasi, CED	Geocel Supported Embankments	220000	225000	445000
17	FRG/2019/CED/17	Dr. Arunkumar R, CED	Surface Water Resources Systems - Real Time Reservoir Operation for Flood Control: A System Dynamics Approach	250000	250000	500000

18	FRG/2019/CED/18	Dr. Aswathi E.V, CED	Wastewater Treatment - Photocatalytic Removal of Pharmaceutical Compounds under Visible Light by Green Synthesized Zinc Oxide-Graphene Oxide Nanocomposite	250000	250000	500000
19	FRG/2019/CED/19	Dr. K.V Anand, CED	Coastal Protection – an Alternative to Hard Protective Structure	250000	250000	500000
20	FRG/2019/CED/20	Dr. Renjitha Mary Varghese, CED	Geosynthetic Reinforced Soil Retaining Wall - Analysis on the Effect of Compaction of Geosynthetic Induced Stresses on the Performance of Geosynthetic Reinforced Soil Walls	250000	250000	500000
21	FRG/2019/CED/21	Dr. Robin Davis P	Experimental Study on the Behaviour of Cold Formed Sections under Flexure and Axial Compression	250000	250000	500000
	<b>Computer Science and Engg</b>					
22	FRG/2019/CSSED/22	Dr. Arun Raj Kumar P, CSSED	Congestion Control and Data Offloading in Heterogeneous Networks	250000	175000	425000
23	FRG/2019/CSSED/23	Dr. Hiran V Nath, CSSED	Critical Infrastructure Threat Detection & Forensic Analysis	195000	305000	500000
24	FRG/2019/CSSED/24	Dr. Jay Prakash, CSSED	Text Mining - Design and Development of a Social Networks Monitoring System to Prevent and Recognize Cyber Crime through Multiple Aliases Detection	0	450000	450000
25	FRG/2019/CSSED/25	Dr. M Prabu, CSSED	Monitoring Health and Behaviour Analysis of Cows	250000	185000	435000
26	FRG/2019/CSSED/26	Dr. T Veni, CSSED	Resource Management in Fog Computing	250000	220000	470000
27	FRG/2019/CSSED/27	Dr. Vasudevan A.R, CSSED	Network Intrusion Detection System, Penetration Testing	88000	200000	288000
	<b>Electrical Engg</b>					
28	FRG/2019/EED/28	Dr. Gopakumar Pathirikkat, EED	Composite Power System Model	250000	250000	500000

29	FRG/2019/EED/29	Dr. Nikhil Sasidharan, EED	Solar Powered Community Grid - A Resilient DC Community Grid for the Provision of Ancillary Services to Local Grid	250000	250000	500000
30	FRG/2019/EED/30	Dr. S. Kanagalakshmi, EED	Investigations on Advanced Control Systems and Algorithms Setting up Experimental Platform for Verifying Adaptive Control Schemes using Two Tank Hybrid Interacting System (TTHIS)	250000	250000	500000
31	FRG/2019/EED/31	Dr. Sanjay M, EED	Neurophysiology of Stroke	50000	250000	300000
32	FRG/2019/EED/32	Dr.V Karthikeyan, EED	Power Converters to EV drive and Fast-charging Infrastructure	250000	250000	500000
	<b>Electronics and Communication Engg</b>					
33	FRG/2019/ECED/33	Dr. Gopi Krishna Saramekala, ECED	Modeling and Simulation of Semiconductor Devices	250000	250000	500000
34	FRG/2019/ECED/34	Dr. Lintu Rajan, ECED	Flexible FET for Tactile Sensing in Medical prosthetics	250000	244000	494000
35	FRG/2019/ECED/35	Dr. M Surya Prakash, ECED	VLSI Signal Processing - Design and Asic-chip Tapeout of Distributed Arithmetic based Adaptive Equalizers for Wireless Communications	250000	200000	500000
36	FRG/2019/ECED/36	Dr. Sudeep P.V, ECED	Image Denoising using Deep Neural Networks	100000	400000	500000
37	FRG/2019/ECED/37	Dr. Venu Anand, ECED	Thin film Transistors - Development of Zinc Oxy-Nitride based Thin Film Transistors for Photo-Sensing Applications	250000	250000	500000
38	FRG/2019/ECED/38	Dr. Waquar Ahmad, ECED	Automatic Speaker Verification (ASV)	221869	276414	498283
	<b>Mechanical Engg</b>					
39	FRG/2019/MED/39	Dr. Ashesh Saha, MED	Analysis of Instabilities in Jeffcott control	190000	310000	500000

40	FRG/2019/MED/40	Dr. Deepak Lawrence K, MED	AP242 Model based 3D Engineering for the Automation of Downstream Manufacturing Functions	250000	250000	500000
41	FRG/2019/MED/41	Dr. Murali K.P, MED	Materials for Electronics Applications - Development of Polymer/Ceramic Composite Substrates for Microwave Circuit/Device Application	250000	250000	500000
42	FRG/2019/MED/42	Dr. Saleel Ismail, MED	Development of a Decentralized Solar Water Distillation System	250000	250000	500000
43	FRG/2019/MED/43	Dr. Simon Peter, MED	Vortex- Induced Vibration (VIV)	205000	295000	500000
44	FRG/2019/MED/44	Dr. Srinu Gangolu, MED	Deformation Mechanism in Crystalline Materials - Development of Processing Maps for Mg-Zn-Ca Alloy	30000	470000	500000
45	FRG/2019/MED/45	Dr. Sujith Kumar C.S, MED	Film Boiling Heat Transfer Enhancement - Experimental Investigation on the Effect of Electro Assisted Quenching on Mechanical Properties of Ni-625 Superalloy Foams	250000	250000	500000
46	FRG/2019/MED/46	Dr. Vineesh K.P, MED	Wheel Gauge Widening Failure of Wagon Wheels in India Railways	250000	250000	500000
	<b>Physics</b>					
47	FRG/2019/PHY/47	Dr. Aswathi G, PHY	Synthesis of 2D transition metal dichalcogenides (TDM's) and layered double Hydroxides (LDH) through optimized ion intercalation and liquid exfoliation methods	235000	265000	500000
48	FRG/2019/PHY/48	Dr. Goutham Kumar Chandra, PHY	Experimental Condensed Matter Physics, Spectroscopy - Study and Characterize the Metal-Molecule Interactions Using Spectroscopic Techniques for Potential Applications	250000	250000	500000
49	FRG/2019/PHY/49	Dr. Maneesh Chandran, PHY	Thin Films	30000	470000	500000

50	FRG/2019/PHY/50	Dr. Ram Ajor Maurya, PHY	Studies on the Interior Structure and Dynamics of Solar Active Region and their Associations with Explosive Events	250000	250000	500000
51	FRG/2019/PHY/51	Dr. Saurabh Gupta, PHY	Quantum Field Theory and Supersymmetry	225000	250000	475000
52	FRG/2019/PHY/52	Dr. Subramanyan Namboothiri Varanakkottu, PHY	Self-Healing Optofluidic Platform as a Fast Optical and Electrical Switch	30000	470000	500000
53	FRG/2019/PHY/53	Dr. Suchand Sangeeth C.S, PHY	Effect of solvent Treatment on the Morphology and change Transport in Conducting Polymers	20000	480000	500000
<b>Biotechnology</b>						
54	FRG/2019/SOBT/54	Dr. Baiju G Nair, SoBT	Non- Viral Reprogramming of Somatic Cells to Induce Pluripotency	250000	250000	500000
55	FRG/2019/SOBT/55	Dr. Suresh P.S, SoBT	Non-coding RNA Mediated Regulation in Breast Cancer	250000	250000	500000
<b>Management</b>						
56	FRG/2019/SOMS/56	Dr. Reju George Mathew, SoMS	Comparative Cultural Studies - Film Studies - Comparative Study of the Emergence of the Dalit Popular in Tamil and Malayalam Film from the 1990s	250000	250000	500000
57	FRG/2019/SOMS/57	Dr. Sreejith S.S, SoMS	Organizational and Consumer Behavior	250000	250000	500000
58	FRG/2019/SOMS/58	Dr. Althaf S, SoMS	Patterns of Urban Change and its Political/Policy Determinants	231460	253000	484460
59	FRG/2019/SOMS/59	Dr. Nithya M, SoMS	Impact of social media on consumer perceptions towards brand	250000	0	250000

**List of FRG Project Proposals – 2010 -11**

Sl. No	Name of faculty	Department	Project Title	Amount	Status
1	FRG10/0101 Dr.K.Krishnamurthy	CED	Black Spots Identification and Improvement Measures on NH-212 and NH-213 in Kerala	4,65,000/-	
2	FRG10/0102 Dr.Vinu Palissery	CED	Applications of In vitro Biomechanical Models as Performance Evaluation tools	4,60,000/-	
3	FRG10/0103 Dr.Kodi.Ranga Swami	CED	Non-linear dynamic analysis of Soil-Structure interaction	3,82,000/-	
4	FRG10/0104 Kumaravel S	EED	Development of Novel Power Conditioner for Hybrid energy systems	5,00,000/-	
5	FRG10/0107 Dr.Rajanikanth.G.K	SBT	In silico Design and Development of Novel Antagonists of Cholesterol Metabolic Pathway	5,00,000/-	
6	FRG10/0108 Dr.Md.Anaul Kabir	SBT	Understanding the fluconazole resistance in human fungal pathogen Candida Albicans.	5,00,000/-	
7	FRG10/0109 Dr.K.Rathinasamy	SBT	Rational combination of natural polyphenols with other cytotoxic agents to enhance cancer cell death with decreased toxicity. A novel strategy for cancer chemotherapy.	5,00,000/-	
8	FRG10/0111 A.Santhyagu	SBT	Production and Characterization of a nuclease from soil bacteria as a target for cystic fibrosis mucolytic therapy	5,00,000/-	
9	FRG10/0112 Dr.R.Aswati Nair	SBT	Elicitor identification from Pythium aphanidermatum, a causative agent of soft rot disease and antifungal mechanism of the sesquiterpene, Zerumbone	5,00,000/-	
10	FRG10/0113 Dr.Suchithra.T.V	SBT	Oxidative stress in diabetes mellitus patients in relation with myeloperoxidase activity and antioxidant status	5,00,000/-	
11	FRG10/0114 Vari Sivaji Reddy	Physics	Optoelectronic Properties of Organic Light Emitting Diodes	5,00,000/-	
12	FRG10/0115 M.K.Ravi Varma	Physics	Atmospheric Trace Gas Monitoring in the Presence of Aerosol Interference	5,00,000/-	
13	Lakshmi C FRG10/0116	Chemistry	Design and Synthesis of Spiropyran-Based Size Tunable Ionophores-Modular Systems for Ion-transport Sensing and Antimicrobial Applications	5,00,000/-	
<b>List of FRG Project Proposals – 2010 - II</b>					
Sl. No	Name of faculty	Department	Project Title	Amount	Status
1	FRG10-11/0101 Dr.S.Bhuvaneshwari	Chemical	Development and Characterization of Biodegradable Chitosan Films	5,00,000/-	
2	FRG10-11/0102	Chemical	Micro Fluidics	5,00,000/-	

	Dr.N.Selvaraju				
3	FRG10-11/0103 Dr.C.Arunkumar	Chemistry	Structural characterization and Properties of Meso-phenyl and B-pyrrole Functionalized Porphynn Metal Organic Frameworks.	5,00,000/-	
4	FRG10-11/0104 Dr.Parameswaran Pattiyil	Chemistry	Activation of Inert Molecules and Oligomerization Reactions of Alkynes by Uranium Complexes: A Quantum Mechanical Investigation	5,00,000/-	
5	FRG10-11/0105 Dr.Suni Vasudevan	Chemistry	Development of Gold Complexes of Polypyridyl Ligands as Active Antiproliferative Agents	5,00,000/-	
6	FRG10-11/0109 Sri.Ameer.P.M	ECED	Underwater Localization	5,00,000/-	
7	FRG10-11/0110 Sri.Jayakumar.E.P	ECED	VLSI Architecture for DSP Application (ID Signals)	5,00,000/-	
8	FRG10-11/0111 Dr.Rama Kumaragiri	ECED	Power Semiconductor Devices	4,68,000/-	
9	FRG10-11/0112 Sri.Sudhish.N. George	ECED	Encryption and Authentication of Multimedia Data	4,46,000/-	
10	FRG10-11/0107 Dr.Mukthi Barai	EED	A Closed Loop Control Strategy for Selective Harmonic Detection and Elimination for Generic Multi-level Inverter Configuration for Medium and High Voltage Applications.	5,00,000/-	
11	FRG10-11/0108 Dr. Sindhu.T.K	EED	Nano Composite insulators	5,00,000/-	
12	FRG10-11/0113 Dr. Sunil Mathew	Mathematics	Applications of Partial Cut sets in Graph Networks	5,00,000/-	
13	FRG10-11/0114 Dr. Arun.P	MED	Multi-objective Design of Hybrid Energy systems	5,00,000/-	
14	FRG10-11/0116 Sri.P.V.Manu	MED	Performance Analysis of Internal Combustion Engine using Cleaner alternate Fuels such as Electrolytic Hydrogen and Feasibility Study & Economic Analysis of Practical Implementation of Water Electrolytic system in the new Generation Vehicles.	5,00,000/-	
15	FRG10-11/0117 Sri. Rohini Kumar .B	MED	Thermal Science-Solar Energy	5,00,000/-	
16	FRG10-11/0118 Sri. Santhakumar Mohan	MED	Underwater Robotics	5,00,000/-	
17	FRG10-11/0119 Sri. K.Sekar	MED	Aluminium alloy casting	5,00,000/-	
18	FRG10-11/0120 Sri.Sreenath.A.M	MED	Multi Scale Modeling and Experimental Validation of the Tensile Properties of Carbon Nano Taube reinforced Composites.	5,00,000/-	
19	FRG10-11/0123 Sri.Vinay.V.Panicker	MED	Development and Analysis of a fixed Charge Transportation Model for a Multi-echelon supply Chain	4,95,000/-	



20	FRG10-11/0124 Sri.Malladi.v.Pavan Kumar	Chemical	Reactive adsorption of Ammonia over activated Carbons derived from Coconut Shells.	5,00,000/-	
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<b>List of FRG Project Proposals – 2011-12</b>					
Sl. No	Name of faculty	Department	Project Title	Amount	Status
1	<b>FRG11-12/0102</b> Mr. M. Sivakumar	CED	Behaviour of Bituminous Mixture under Moisture and Adverse Temperature Conditions	4,80,000/-	
2	<b>FRG11-12/0103</b> Dr. S. Mathava Kumar	CED	Poultry Waste Water Treatment by the Combination of Zero-Valent Iron and Photo-Fenton Treatment	5,00,000/-	
3	<b>FRG11-12/0104</b> Mr. Vineesh Ravi	Chemical	Direct Methanol Fuel Cell Modeling and Simulation	5,00,000/-	
4	<b>FRG11-12/0105</b> Mr. K. Hari Babu	Chemical	Abatement of Organic Pollutants	5,00,000/-	
5	<b>FRG11-12/0106</b> Dr. A. Ramesh	MED	Humanitarian Supply Chain Management	5,00,000/-	
6	<b>FRG11-12/0107</b> Dr. T. J. Sarvothama Jothi	MED	Experimental Investigation on Noise Emission from Jet Flows	5,00,000/-	
7	<b>FRG11-12/0108</b> Dr. Mahesh Kumar	Mathematics	Bayesian Reliability Estimation, Prediction and Test Plans for Multi-Component Systems	5,00,000/-	
8	<b>FRG11-12/0109</b> Dr. Aji A. Anappara	Physics	Linear and Non-linear Optical Properties of Graphene	5,00,000/-	
<b>List of FRG Project Proposals – 2012-13</b>					
Sl. No	Name of faculty	Department	Project Title	Amount	Status
1	Dr. P. K. Madhavan Unni	Physics	Quadruple Critical Point (QCP) in the ternary system MEK + W + sBA	5,00,000/-	
2	Ms. Suja K. J.	ECED	Designing and simulation of MEMS based pressure sensor for environment monitoring.	5,00,000/-	
3	Dr. Praveen Sankaran	ECED	Biometrics – Driver Distraction Analysis using Face Pose Cues	5,00,000/-	
4	Dr. Aparna K	Chemical	Microwave Assisted Biodiesel Production with Homogeneous and Heterogeneous Catalysts	5,00,000/-	
5	Mr. Gangadhara Kiran Kumar L	MED	Heating Ventilation and Air Conditioning of Buildings with emphasis on passive technologies.	5,00,000/-	
6	Dr. Ashish Awasthi	Mathematics	Higher Order Numerical Methods for Singularly Perturbed Differential Equations	5,00,000/-	