

List of R&D Projects sanctioned under STI Policy

F.Y. 2019-2020

Research Support Scheme

Sr. No.	Title	PI Name and Name of Institute	Duration (in years)
Nanotechnology			
1.	Tailored made drug release kinetics from the cyclosporine- hyaluronic acid surfactant laden contact lens to treat dry eye syndrome	Dr. Furqan A. Maulvi Maliba Pharmacy college, Uka Tarsadia	3
2.	Synthesis of Multipurpose Hydrogels from Polysaccharide- Waste- Derived Sources for application in Environment Remediation	Dr. Sonal I. Thakore The Maharaja Sayajirao University of	3
3.	Synthesis of novel Bipolar Antenna Based Ligands Modified hybrid Nanostructure Graphene/ Carbon for the LEDs/OLEDs and Wavelength Conversion Polymeric Composite coating	Dr. Rajamouli Boddula UKA Tarsadiya University	3
4.	Growth and Characterization of Nano structured thin films of Magnetic materials for high speed computer memory cell	Dr. Chetna Chauhan Nirma University	3
5.	Gold Nano heater mediated Targeting of Powering in Cancer for next Generation Chemo Photo thermal Therapy	Dr. Sudipta Basu Indian Institute of Technology, Gandhinagar	3
6.	Development Nanoparticle using Supercritical Fluid Technique for use in Ischemic Brain Stroke	Dr. Hitesh A. Patel Sankalchand Patel Nootan Pharmacy College, Visnagar	3
Waste Treatment and Management Solutions			
7.	High sensitive detection of atmospheric pollutant gases to monitor the effects of industrial emissions on urban air quality	Prof. Arup Lal Chakraborty IIT, Gandhinagar	3
8.	Development of Low pressure driven reverse osmosis membrane to counter fluoride problem in water: laboratory scale study for field water application	Dr. A. Bhattacharya Central Salt & Marine Chemicals Research Institute (CSMCRI), Bhavnagar	3
9.	Plasma Pyrolysis of Municipal Solid Waste (MSW) for Syngas and Electricity Generation	Dr. Sanjay S Patel Nirma University	3
Sustainable Habitat			
10.	High Performance fiber Reinforced Concrete (HPFRC): Introducing a Capacity based Mix Design Framework	Dr. Dhiman Basu IIT, Gandhinagar	3
Artificial Intelligence and Robotics			

11.	Design, dynamic study and control of a cable driven flexible robotic manipulator	Dr. Venkata M Vadali IIT, Gandhinagar	3
12.	Development of Autonomous Reconfigurable Load Carrier	Dr. A.I. Mecwan Nirma University	3
Internet of Things			
13.	Investigation, analysis of Multiband Array Antennas for 5G Mobile Handset in IoT Application	Dr. Gautam D. Makawana GTU	2
14.	IOT Enabled, smart Micro-Sensor for Integrated Plant Disease Management	Prof. Vinay S Palaparthi DA-IICT Gandhinagar	3
Energy Storage Solutions			
15.	Developing new plasmonic antenna- reactor platform for efficient storage of solar energy as clean fuels	Dr. Saumyakanti Khatua IIT, Gandhinagar	3
Nutrition Sensitive Research			
16.	Nutrition Sensitive research for dairy Animals and productivity	Dr. Duggirala S Murty Gujarat Vidyapith	3

F.Y. 2020-2021

Research Support Scheme

Sr. No.	Title	PI Name and	Duration
Artificial Intelligence and Robotics			
1	Design and implementation of a visibility Improvement model for haze removal in images acquired from real time cctv camera	Dr. Manish Khare DAIICT, Gandhinagar	2
2	A Forensic Tool for Land Revenue Documents Forgery Detection	Dr. Priyanka Singh DAIICT, Gandhinagar	2
3	Rescue Support Robotics for Earthquake Situation	Dr. R.B Jadeja Marwadi University, Rajkot	3
4	Detection of Diabetic Peripheral Neuropathy Using Perception of Vibration Mechanism and its Electrophysiological Study	Dr. Vijay Pravinbhai Dave Government Engineering College, Gandhinagar	3
5	Spider: A Security Device- Based on Theo Jansen Mechanism	Dr. Pina Bhatt Silver Oak College of Engineering, Ahmedabad	2
Pollution Abatement			

6	Studies and Prototype Development for recycle and reuse of waste streams from stainless steel Industries	Dr. Jayesh Ruparelia Nirma University, Ahmedabad	2
7	Development and Investigation of Zero head Sustainable System for Power Generation from Flowing Canal Water	Dr. Pankaj P. Gohil Sarvajanik College of Engineering and Technology, Surat	3
8	Design, Development and experimental analysis of combined focus solar collector for 1kw power generation	Dr. Hemant Kumar Gupta Shroff S R Rotary Institute of Chemical Technology, Ankleshwar	2
Internet of Things			
9	Smart Incubator using Internet of Things and Machine Learning Architecture	Prof. Seema Mahajan Indus University, Ahmedabad	3
10	Design and Development of low cost Corioli's Flow Meter	Dr. Dilip C. Patel GIDC Degree Engineering College (Managed by GIDC Education Society), Abrama, Navasari	2
11	Car Dashboard recording device	Dr. Suketu Jani Indus University, Ahmedabad	1
Energy Storage Solutions			
12	Dithienopyrrolobenzo-chalcogendiazole based Organic Molecules for Dyes Sensitized Solar Cells	Dr. Arun Kumar Patel The Maharaja Saiyajirao University of Baroda, Vadodara	3
Waste Treatment and Management Solutions			
13	Investigation on the use of Submicron/Nanoscale Powder Waste from Industries (Ceramic Tiles Waste and Bottom Ash) as a Cement Replacement for Concrete / Construction Applications	Dr. Niragi Dave PDEU, Gandhinagar	3
14	Geosynthesis Modification Landfill Mined Soil Like Fraction as a Sustainable Fill Material	Dr. Trudeep N Dave IITRAM, Ahmedabad	3
Nanotechnology			
15	Mechano- Chemical synthesis of low cost and Efficient Perovskite Solar cells	Dr. Pankaj Yadav PDEU, Gandhinagar	3
16	Preparation of Nanostructured Functional Oxide Composites for Various potential Applications	Dr. Nimesh A. Shah Department of Physics Saurashtra University, Rajkot	3
17	Development of Novel Thermal Spray Coating with Nano Carbonaceous and Rare Earth Reinforcements for Industrial Applications	Dr. Sekar Prakash Saladi SVIT, Vasad	3
18	Design and synthesis of Quantum dots based calix[4]arenes: Applications for detection and determination of biomolecules	Dr. Sahajkumar A. Gandhi	3

		Bhavan's Shri I.L.Pandya Arts Science and Smt. J.M. Shah Commerce College , Dakor	
19	From single Molecules to live cells: in situ, Multiplexed, High- throughput imaging with DNA-Nanotechnology	Dr. Bhatia Dhiraj Devidas IIT, Gandhinagar	3
20	Graphene- Based Nanomaterials in Property Enhancement of Cement Composite and Concrete	Dr. Gaurang R Vesmawala SVNIT, Surat	3
21	Synthetic chitosan carrying anti-bacterial agents loaded nanoparticles for the enhanced treatment of periodontitis	Ms. Payal Chauhan Ramanbhai Patel College of Pharmacy, CHARUSAT University, Changa	3
Polymers and Special Materials			
22	Development, Analysis and Optimization of Multi layered plasma transferred hard facing of advanced materials	Dr. Janak B. Valaki Government Engineering College Bhavanagar	2
23	Tailoring porous macromolecular organometallic architecture for the mitigation of heavy metals from water	Dr. Saroj Sharma CSMCRI, Bhavanagar	3
24	Solar Power operated indigenous electro dialysis unit for providing drinking water in primary school near Bhavnagar	Dr. Uma Chatterjee CSMCRI, Bhavanagar	3

Special Covid Call

F.Y. 2020-21

Research Support Scheme

Sr. No.	Title	PI Name and Name of Institute	Duration (in years)
1	Development of a Vision based Multi degree of freedom serial Manipulator for the patients suffering from Neurological disorders and infectious diseases (COVID-19)	Dr. Reena Trivedi, Nirma University, Ahmedabad University	2
2	Design of Tobo-Version 3- A Service Robot	Dr. Subhanarayan Sahoo, Adani Institute of Infrastructure Engineering	1
3	Development of wearable hand-sanitizer dispensing wristband (SANifit) using 3D-printing technology	Dr. Manish Mehta Dr. Jivraj Mehta Institute of	1

		Technology, Anand	
4	Development and Evaluation of Organic Sanitizer	Mrs. Avani Khristi Parul University	2
5	Alcohol-Free Non-Toxic Hand Sanitizer Gel for Children	Dr. Nirmal Shah Sumandeep Vidyapeeth	1
6	UV- Based Large - Scale Instinctive Sanitization of Agglomerative Products	Mr. Om Prakash Shukla Parul University	1
7	Development of industry friendly technology for fabricating highly reactive, non-toxic, and transparent antiviral surface coating	Dr. Emila Panda IIT, Gandhinagar	1
8	Bioengineered Copper Oxide Nanoparticles based Coatings as Promising Green Approach for Antiviral Textiles.	Dr. Sejal Shah RK University, Rajkot	1
9	Smart Steam Disinfection System to Fight COVID 19 in Public Places	Dr. Vivek Patel PDEU, Gandhinagar	1
10	Formulation and development of Curcumin and Ascorbic Acid Neutraceuticals Granules as a Preventives measure for COVID- 19	Mrs. Manisha Jadav Parul University	1

F.Y. 2021-2022

Research Support Scheme

Sr. No.	Title	PI Name and Institute	Duration (in years)
Nanotechnology			
1.	Electrochemical synthesis of shape controlled nanostructured tTe from ionic liquid medium for non-enzymatic electrochemical H ₂ O ₂ sensor	Prof. Dr. Indrajit Mukhopadhyay PDP, Gandhinagar	3
2.	Hybrid Perovskite based Flexible memristor on Paper Substrate for data Storage and Neuromorphic Computing	Dr. Ankur Solanki School of Technology PDEU	3
Waste Treatment and Management Solutions			
3.	Conversion of waste sugarcane bagasse to value added products/bio fuel additives over modified Polyoxometalates	Prof. Dr. Anjali Patel	3

		M.S University, Baroda, Vadodara	
4.	Multipurpose Metal Organic Ionic Frameworks (MOIFs) and Metal Organic Gels (MOGs): Applicable to Removal of organic/ inorganic pollutants from waste water (dyes, heavy metal ions/ fluoride)	Dr. Rakesh Kumar Ameta Sri M M Patel Institute of Sciences & Research Kadi Sarva Vishwavidhyalaya, Gandhinagar, Gujarat	3
5.	Deployment of Sustainable Concrete for Reducing Brine Water Losses in Earthen Salt Pans: An Experimental Investigation at CSIR-CSMCRI, Bhavnagar	Dr. Bhoomi Andharia CSIR-CSMCRI, Bhavnagar	3
6.	Waste Water Treatment: Polyoxometalates Hybrids as Adsorbents of Organic Dyes	Dr. Ritambhara Jangir Sardar Vallabhbhai National Institute of Technology, Surat	3
Sustainable Habitat			
7.	Design and development of PCM based passive cooling system for E house	Dr. Manish K. Rathod SVNIT, Surat	3
8.	Enhancing the Service life of Concrete Structures through Cement less or Geo-Polymer Concrete	Dr. B Kondraivendhan SVNIT, Surat	3
9.	Examining congestion mitigation strategies for Indian cities towards accomplishment of sustainable habitat	Dr. Shriniwas Arkatkar Department of Civil Engineering Sardar Vallabhbhai National Institute of Technology, Surat	3
Artificial Intelligence and Robotics			
10.	Intelligent Control for Active Shunt Compensator in Wind based Renewable Energy System for Remote Power Application	Dr. Sabha Raj Arya SVNIT, Surat	3
11.	Developing a Privacy Preserving Framework for Securing Organizational Data Publication	Dr. Payal Chaudhari PDEU, Gandhinagar	3
12.	Semantic Person Retrieval in Surveillance	Dr. Mehul S. Raval Ahmedabad University	3
13.	Smart Ecosystem to Facilitate Elderly People in Ambient Assisted Living Environment	Dr. Rutvij Javeri PDEU, Gandhinagar	3
14.	"Prototyping Dog Jacket for Real-Time Rescue Operation Inspired by Robotics Technology	Dr. Tapas Kumar Maiti DAIICT, Gandhinagar	3
15.	Margdarshak: A sensor driven cloud-enabled dynamic and safe route explorer	Dr. Saurin Sharad Parikh Nirma University, Ahmedabad	2

Internet of Things			
16.	Design and Development of 5G Enabled Intelligent Transportation System in Gujarat	Dr. Dhaval Patel Ahmedabad University	3
17.	Miniaturization and calibration of an IOT enabled ultra-low power consuming heart monitoring device for long term monitoring of patient with cardiovascular diseases for resource constrained regions	Dr. Biswajit Mishra DA-IICT	2
18.	KAVACH - Futuristic Flexible electronics based communication system for monitoring the Soldiers condition during warfare	Dr. Rutu M. Parekh Dhirubhai Ambani Institute of Information and Communication Technology, Gandhinagar	2
Energy Storage Solutions			
19.	Design and Development of Hybrid Battery Thermal Management System for Electric Vehicles (EVs) using phase Change Material	Dr. Rajesh Patel PDEU, GAndhinagar	2
20.	Development of Reversible Aluminum Ion Battery	Dr. Vilas Gunjal ERDA, Vadodara	3
Nutrition Sensitive Research			
21.	Investigation of Traditional Medicinal Plant Used as Anti- Diabetic	Dr. Dayaben Lakhabhai Chothani B.K.Mody Government Pharmacy Collage - Rajkot	3
22.	Synthesis and Rheological Characterization of Liposome Stabilized Emulsion- Hydrogel Matrix for Controlled Release of Essential Oil	Dr. Sundar S.K. SVNIT, Surat	3
23.	Natural Antioxidant Phycobiliproteins from Cyanobacteria: A therapeutic	Prof. Datta Madamwar P. D. Patel Institute of Applied Sciences, Charotar University of Science and Technology	3
Polymers and Special Materials			
24.	Development of multi-material welding approach for ultrahigh-strength steel and 7xxx aluminium alloys to promote light-weighting and green mobility in the automobile sector	Dr. V. D. Kalyankar SVNIT, Surat	2
Pollution Abatement			
25.	Design, Construction and testing of C-core 13/16 Radial Flux Switched Reluctance Motor for Electrical Vehicle Application	Dr. Nikunj R Patel SSASIT, Surat	2
26.	Investigation of Thermal and Emission Characteristics with Multi Tube Inverse Diffusion Flame Burner	Rupesh D. Shah Department of Mechanical Engineering, SVNIT, Surat	2

F.Y. 2022-2023**Research Support Scheme**

Sr. No.	Title	PI Name and Institute	Duration (in years)
Nanotechnology			
1.	Development of Ink-Printed Flexible Solar Cell with Antimony-based Nanostructured Perovskite using Slot-Die Coating	Dr. Vipulkumar Amirbhai Kheraj, SVNIT, Surat	3
2.	Development of visible light sensitive inexpensive thin film photocatalysts for removal of inorganic and organic contaminants for drinking water	Dr. Abhijit Ray, PDP, Gandhinagar	3
3.	Development of a Urine treatment system for recovery of ammonia and liquid waste management	Dr. Bhaskar Datta, IIT Gandhinagar	3
4.	Development of a Novel Tapered Variable Channel width Microchannel heat Sink for Futuristic High end Microelectronics Cooling	Dr. Jyotirmay Banerjee, SVNIT, Surat	2
5.	The Nanobiophysical template of Go-MNPs-Proteins for functional electronic interfacial applications	Prof. Man Singh, Central University of Gujarat	3
6.	Nanomaterials for pre-treatment of sea-water and industrial waste water to enhance the reverse osmosis (RO) system recovery	Dr. Ajay Kumar Gupta, Ganpat University	3
Artificial Intelligence and Robotics			
7	Development of remotely Operated Structure Climbing Robot with Modular Attachment for Telecom Tower Maintenance	Dr. Jatin Dave, Nirma University	2
8	A Smart robot to assist healthcare workers	Dr. Chirag Patel, MBIT, Anand	2
9	Robotic Manipulation of Flexible Objects: An Experimental Study to understand the role of Joint-Compliances and Tactile Feedback	Prof. Harish Palanhandalam Madapusi, IIT Gandhinagar	3
10	Artificial Intelligence Based Green Analysis of Power Blend Uniformity: a novel paradigm in Pharmaceutical Sciences	Dr. SwayamPrakash Patel, CHARUSAT University, Gujarat	3
11	Muscle activity-based control strategy to assist disabled individuals using a cable-driven robotic exoskeleton	Dr. Vineet Vashista, IIT Gandhinagar	3
12	Design, Development and Testing of advance AI-IOT based efficient Accident Management system	Prof. (Dr.) Priyanka Sharma, Rashtriya	3

		Raksha University	
Internet of Things			
13	Active Air: Active Learning for Air Quality Station Deployment	Dr. Nipun Batra, IIT Gandhinagar	2
Energy Storage Solutions			
14	Design, Implementation and Analysis of Hybrid Nano grid under various conditions	Dr. Sachin Rajani, VVP College Rajkot	2
15	Multi-objective control of Power Quality Friendly PV based distributed Generation for Effective Energy Storage and Utilization in Smart Grid	Dr. Pragneshkumar Natvarlal Tekwani, IOT, Nirma University	2
16	Design and development of Active Green House solar dryer for potential Agricultural products	Dr. Vikram P. Rathod, SVNIT, Surat	3
Waste treatment and management solutions			
17	Repurposing of Chitinous waste and application towards sustainable agriculture technology	Dr. Rushikesh Joshi, Gujarat University	3
18	Novel Nano-Materials Derived from Waste and its Application in Improving Rheological Properties of Bitumen	Dr. Ashish Unnarkat, School of technology, Pandit Dindayal Energy University	3
19	Preparation and Synthesis of low cost UF membranes for treatment of emulsified water.	Dr. Deepak Singh Panwar, P.P Savani University, Surat	2
Sustainable habitats			
20	Performance evaluation of novel green coagulants for portable water treatment and modelling through response surface optimisation	Dr. Darshana T. Bhatti, VVP Engineering College, Rajkot	2
21	Feasibility study on utilization of sustainable one part geopolymers concrete in precast structural concrete members with IoT enabled performance evaluation	Dr. Ankur C. Bhogayata, Marwadi University	3
22	Numerical investigation to develop cavitation assisted fuel injection system for LR- Biodiesel	Dr. Nikul Khushalbhai Patel, MSU, Baroda	2
Polymers and Special Materials			
23	Biopolymer Multilayer Barrier Films	Dr. Mamta Saiyad, Nirma University	2
24	Low cost selective powder deposition process for 3D printing of Metal/Ceramic Composites for industrial Application	Dr. Harshit K Dave, SVNIT, Surat	3
25	Developing A hybrid nanocomposite using SIC & bio-waste Nano filler in ZA-27 matrix material	Dr. Nikunj V. Rachchh, Marwadi University	3
26	Thermodynamic Stability of Ternary Intermediate phase Ni ₃ (Ti, X)	Dr. K. Santhy, Indus University	3
27	Exploration of Co-crystallization approach using conformers for commercialize product to reduce the dose by enhancing dissolution properties	Dr. Chetan H. Borkhataria, B.K.Modi Govt.	2

		Pharmacy College	
28	Experimental and numerical Investigation on the effect of Process Parameters on the weld Quality of different materials by fraction stir welding	Dr. P L Ram Kumar, IITRAM, Ahmedabad	3
29	Fatigue Analysis of Functionally Graded Engineering/Engineering Components due to Thermal Mismatch and Young's Modulus	Dr. Manoj Sahni, Pandit Deendayal Energy University	2
Pollution Abatement			
30	Development of noise prediction model and mitigation strategies for highway passing through residential areas using natural vegetation barrier.	Dr. Bhaven Tandel, SVNIT, Surat	3
31	Investigations of Deep Eutectic Solvent as Catalyst for Cyclo-addition of CO ₂ to propylene Oxide: Quantum Calculations and Experimental Verification	Dr. Dharamashi Rabari, Ahmedabad University	3
32	Advance Control Regulatory and Servo Problems of Three Improvements in Divided Wall Column: Heat Integration, Azeotropic Separation and Reactive Distillation	Dr. Md. Aurangzeb, Pandit Deendayal Energy University	2