

## **IPRs filed by the faculty during the financial year 2019-20**

1. Potential Well Based FDSOI MOSFET (PWFDSOI MOSFET)
2. A Spring Induced Ornithopter Wing Design
3. A Method for Classifying Touch Response on a Capacitive Touch Screen Panel and Apparatus Thereof
4. Sensorless Permanent Magnet Synchronous Motor Drive with Online Stator Resistance and Load Torque Estimation
5. Community Based Integrated Water Filter System for Clean Drinking Water
6. A Hybrid Large Area Display Device
7. Recombinant AAV Vector, Post Translational Modification During Packaging, Sequences and Methods
8. Electron Transport Layer Based on Doped ZnO Layer and Method Thereof
9. Startup Incubation & Innovation Centre Trademark
10. Cytotoxic AAV Vector, Pro-apoptotic Gene, Hepatocellular Carcinoma and Methods
11. A Compact Table Top Plasma System in a Dipole Magnetic Field for Confinement of Hot Electrons: A Unique Device for Plasma Processing to Simulating Magnetospheres in the Laboratory
12. Tissue Engineering Scaffold Derived from Plant Based Material
13. Device for Calibration Free Monitoring of Fluid Level and Method Thereof
14. Force Measurement Arrangement
15. Large Area Micro-Texturing on Free-Form Surfaces by Flexible-Electrode Through-Mask Electrochemical Machining
16. Combination of Fluorenylmethyloxycarbonyl Conjugated Amino Acids (Fmoc-AA) and Membrane Permeabilizing Agents against Gram-negative Bacteria
17. Conductive Aqua Nano-ink Formulation for a Range of Writing Instruments
18. An IGZO Based Dual Gate Ion Sensitive Field Effect Transistor
19. Antibacterial Platinum-N-Heterocyclic Carbene Compounds and Process of Preparation Thereof
20. A Highly-stable Therapeutic Protein Antigen having Vaccine Application against Shigellosis, and a Simple and Cost-effective Method for Preparing the same
21. A System for Measuring Nutrient in the Soil and Method Thereof
22. Surface Finishing Composition For AFM Process and AFM Process Using the Same
23. Frequency and Polarization Shift Free Optical Phase Conjugator
24. High Strength Steel Composition and Method Thereof
25. Targeted AAV Vector, Pro-apoptotic Gene and Therapeutic Applications
26. Electrosurgical Cautery with Suction Inbuilt design
27. Simulated Marine Environment Device for Corrosion Testing
28. Use of Carbon Fibers for Removing Soil Toxic Metals and Increasing Micronutrient Supply to Plants
29. An Automatic Page Turning Device and Method Thereof
30. Assistive Application for Children with Dyslexia and Dysgraphia (AACDD) Copyright
31. Art of Making Earthenware with Variable Porosity and High Damping Capacity
32. Language-agnostic, Limited Vocabulary Speech Recognition
33. SPATIA
34. An Improved Tissue Engineering Scaffold and a Method for Fabrication Thereof
35. Apparatus and Method for Real-time, in Situ Monitoring of Water Quality
36. Polydimethylsiloxane Nanoparticles Coated Scaffolds for Culturing Cells and Tissue Engineering
37. A System and Method for Detection of Keystroke using Defocus
38. Super Buck for High Voltage Step Down Applications

39. Disease Modifying Agents, Drug Delivery System and Method Thereof for the Management of Osteoarthritis
40. A Noise Decoupling Method for Power PCBs in Low Power Converter Design Copyright
41. System and Method for Estimation of Yaw Angle for Mobile Objects
42. Hardware Acceleration System, Device And Method for Cryptographic Transactions
43. A Process for Synthesis of Nano Particles of  $\text{LiNi}_{0.5}\text{Co}_{0.5}\text{PO}_4$  (LNCP) and Use Thereof
44. Protective Layer for Microwave Metamaterial Absorbers and Method Thereof
45. Computational Orthographic Image Generator
46. An Espresso Emulsification Method for Synthesis of Uniform Hollow Polymer Nanoparticles
47. FLEXE Trademark
48. The Tinker Bull Design
49. The Tinker Rhino Design
50. The Tinker Elephant Design
51. Low Nox Fuel Port Array Burner for Emission Control
52. Current-driven Active Matrix Sensor Array and Method to Measure Sensor Resistance in the Same
53. mooKIT Trademark
54. A Process for Fabrication of Electrolytic Gated Field-effect Transistor-based Sensors
55. Multipurpose Proctoscope: Nested Type Design
56. Multipurpose Proctoscope: Hinge Type Design
57. A Method for Parameter Estimator of Untransposed Distribution Cable and System Thereof
58. A Novel Control Surface "Auxiron" to Optimize Solar Power Collection of Solar Aircraft
59. Frame Less Automatic Solar Panel Cleaning System Design
60. Frame Less Automatic Solar Panel Cleaning System with Rotating Cleaning Brushes Design
61. Frame Less Automatic Solar Panel Cleaning System with Rotating Cleaning Brushes by Pulley Design
62. Frame Less Automatic Solar Panel Cleaning System for Snow Cleaning Design
63. Amla Grating Machine Design
64. A Circuit And A Method for A DC – DC Converter
65. Regenerative Snubber Circuit for Flyback and Other Converters and Method Thereof
66. A Wearable Device for Assisting a Visually Impaired User
67. Adu – Huli Trademark
68. Exosome-associated AAV (vexosome) Vector in Suicide Gene Therapy, Compositions and Methods Thereof
69. A Peripheral Vortex Reverse Flow Combustor with Coaxial Fuel Injection (PVRF-COAX) And Method Thereof
70. An Organic Light Emitting Diode based Cluster Display
71. Taurine Functionalized Diketopiperazine and Process to Synthesise the Same
72. Methods for High Throughput Fabrication of Devices Based on Piezo, Pyro, and Ferroelectric Polymers
73. A System for Simultaneous Detection of Cholesterol, Creatinine and Glucose
74. Paper Based Multi-layered Epidermal Equivalent and Methods for the Production Thereof
75. Weight Training Device for Cramps, Medical Injury & Exercise in Leg Design
76. A Process for Synthesizing Defective Titanium Oxide ( $\text{TiO}_2$ ) Microspheres Coated Glass Beads
77. Board Game Design
78. Combination of Niclosamide and Doxorubicin
79. Nanoparticulate Formulation for Diagnosis and / or Treatment of Cancer
80. Nickel Based Amorphous Coating for Line Pipe Steel, for Preventing Atmospheric Corrosion and Hydrogen Embrittlement
81. System and Method for Hall Sensor-Superconductor Based Limiter of Fault Current

82. Apparatus for Performing an Electrochemical Micro-machining Process
83. Method for Controlling a Combustion Apparatus and Control Device
84. A Hydrogel Dressing for Chronic Wound and Infection and A Process of Preparation Thereof

#### **IPRs granted during the financial year 2019-20**

1. Process for Synthesis of Nanocrystalline Hydroxyapatite
2. SMC Logo
3. Method of Manufacturing of Carbon Nano Tube Coated Glass Fiber/ Fabric and its Hybrid Nanocomposites
4. Integrated Hybrid Bio-artificial Liver Bioreactor Design and Thereof
5. Polymeric Nanocomposite Films with Embedded Channels and Methods of Their Preparation and Use
6. Process for the Production of Directed Assembly of Tailored Monolayer and Multilayers of Nanoparticles on a Substrate
7. Wide Band Loop Antenna
8. Metallic Nanocatalyst and Process of Preparation Thereof
9. Dielectric Resonator
10. A Hybrid Ink Formulation and a Method for Preparing the Same
11. WDM Optical Packet Switch Incorporating Fiber Bragg Gratings and Circulator
12. Flexible Supercapacitors Utilizing Electrochemically Active Materials Based Nanocomposite Hybrid Electrodes and Method of Manufacturing Thereof
13. A Power Supply System for Electronic Devices
14. Process for Immobilization of Liquid Crystal on Solid Surface
15. Tool for Measuring and Drawing Triangles
16. A process for preparation of nanoparticles of higher molecular weight of polyethylene polypropylene and polystyrene
17. Controlled Growth of Carbon Nanocones on Carbon Fiber(s)/fabric and Method of Synthesis Thereof
18. Nanoparticles Loaded Polymer Capsules, Process for Synthesis and Application Thereof
19. A Process for Preparation of Nanoparticles of Higher Molecular Weight of Polystyrene
20. Process for the Synthesis of Highly Functionalized Racemic and Non-racemic Piperidines
21. Tool for Measuring and Drawing Quadrilateral
22. Electrosurgical Cautery with Suction Inbuilt
23. Carbon Nanocomposite Preparation and Uses Thereof
24. Temperature Sensitive Paint for the Usage in Green Spectrum of Light
25. A Dynamic Logic Family using only N or P-type Enhancement Mode-MOSFET
26. Ferromagnetic Nanoparticle Encapsulated Carbon Nanotubes with High Encapsulation/filling Ratio for High Density
27. A Method of Measuring BMP Signaling using BMP Responsive Reported Cell Line
28. A Multipurpose Transporter with Modular Configuration
29. Core -shell Sinter Resistant Nanosphere
30. A Noise Decoupling Method for Power PCBs in Low Power Converter Design Copyright
31. Hand Exoskeleton for Assisting Stroke Patients in Full Extension Exercise of Three Fingers and Grasping/ball-squeezing Exercising
32. Pond Ash-kaolinite Based Geopolymer Brick and Process for Manufacturing the Same
33. The Tinker Rhino Design
34. A Horizontal Axis Wind Turbine for Augmenting Torque
35. A Green Reduction Approach for Graphene Oxide Into Graphene Nanosheets by Urea
36. Signal Detection System

37. A Lithography Based Two Stage Reservoir in an Electrolyte Insulator Semiconductor Device
38. A Nanotextured Surface Immobilized Structure-modified Enzyme Biocatalyst
39. An Architecture for Rearrangeably Non Blocking All Optical Cross Connect Wavelength Division Multiplexing Switching System
40. Novel Fly Tumor Model and Methods of Screening Drugs Thereon
41. A 3D Integrated Universal Digital Gate
42. Integrated Hybrid Bio-artificial Liver Bioreactor Design and Thereof
43. Method for Fabricating Micro Structures
44. Safety System for Vehicles
45. Enhanced Electrochemical Performance of Waste Tyre Recycled Activated Carbon as an Anode in Li-ion Battery
46. All Optical Reflectors Based WDM Optical Packet Switch

#### **Technology Licensed during the financial year 2019-20**

1. Carry Bag Making Machine licensed to PROSOC Innovators Pvt. Ltd
2. Intelligent Tutor System licensed to Robust Results Pvt. Ltd

#### **Institute Lectures conducted during the year 2019-20**

1. Prof. Eluvathingal D. Jemmis, Importance of early questions
2. Prof. Frederic Lefevre, The Energy-Climate Challenge: IPCC's Contributions
3. Prof. Harald Schuh, Contribution of Geodesy to Monitoring Global Changes and Natural Hazards
4. Prof. Anatoli Polkovnikov, Chaos and Determinisms: a two-way road between Newton's laws and thermodynamics
5. Dr. Pravin Bhagwat, Securing data from Wi-Fi network attacks
6. Prof. Siddharth Ramachandran, Space: the less explored dimension of light
7. Prof. Maresi Nerad, Are They Converging? Doctoral Education Worldwide: Trends and Future Challenges
8. Prof. Kannan M. Krishnan, Magnetic Particle Imaging: Translating Science and Engineering to Medicine
9. Prof. Hans-Bernd Schaefer, Law and the Poverty of Nation
10. Prof. Stephan Winter, Place in Mobility Research
11. Prof. William Detmold, The secret life of quarks
12. Prof. Pulickel M. Ajayan, Nano-Engineered Materials
13. Prof. Yuval Gefen, Weal Measurements: A Peephole to the Quantum World
14. Prof. Utpal Banerjee, A structured Construction and deconstruction of Research for the early Undergraduate Curriculum
15. Prof. Norman J. Wagner, Micromechanics of Shear Thickening Fluids: Their Application as Protective Materials for medical professionals, first responders, athletes and astronauts
16. Prof. Pankaj Jalote, India's Quest for World Ranked Universities
17. Prof. Shankar Subramaniam, Is Big Data the sine qua non of Human Future?
18. Prof. Will Featherstone, Geodesy? What on Earth's that?
19. Prof. Dr. Ing. Habil Ulrich L. Rohde, New Radio Networks and Emerging Trends: SDR, 5G & IoT
20. Prof. Sumit Chakraborty, Time will tell: Tales of crustal evolution from the global to the atomic scale
21. Dr. Bibek Debroy, Contemporary Issues in Indian Economic Development
22. Prof. Alper Erturk, Dynamics of Next-Generation Smart/Meta Structures: Energy Harvesting, Bio-Inspiration, & Vibration Mitigation
23. Prof. Vishwanath Prasad, Energy: Human Evolution to Present Day Conflicts
24. Prof. Debraj Ray, Similarity, Difference, and Social Conflict

25. Prof. Tooraj Jamasb, Energy Systems Integration: Economics of a "Network of Networks"
26. Shri Ajit Kumar Seth, The Challenge of Climate Change and India's response

### **Memorandum of Understanding:**

During the year 2019-20, IIT Kanpur strengthened its relations with many national and international institutes and organizations through research collaborations and signed several Memorandum of Understanding. During the year, the following institutes/ universities/ organizations have joined hands with IIT Kanpur for the purpose of research work in the diverse fields of science and technology. Some of such organizations are:

1. CSC e-Governance Services India Limited, New Delhi, to collaborate for the project titled "Developing and validating the feasibility of a sustainable model for Digital Village in remote unserved rural area of India using an optimal mix of technologies and to assess the feasibility of providing internet access to various Government locations such as schools, hospitals and anganwadis etc. and to assess the feasibility of providing data connectivity to local customers by setting up Common Service Centres which will be operated by Village level entrepreneurs".
2. Bhabha Atomic Research Centre (BARC) Department of Atomic Energy, Mumbai, to collaborate for the project titled "Development of Background Oriented Schlieren (BOS) Technique for Density Measurement and Visualization in Buoyant Plumes".
3. Department of Biotechnology (DBT), New Delhi, to collaborate for the project titled "Identification of the molecular mechanism(s) by which BMP signaling regulates the migration of mouse cortical neurons".
4. Ministry of Environment, Forest & Climate Change (MoEF & CC), New Delhi and Uttar Pradesh Pollution Control Board (UPPCB), Lucknow, to collaborate under the NCAP programme to tackle all sources of air pollution especially with city specific interventions and action plans.
5. Centre for Science and Environment, New Delhi, to collaborate for the consultancy agreement for commissioning study on "Guidance Manual for Source Apportionment and Emission Inventory Studies".
6. Department of Biotechnology (DBT), New Delhi, to Collaborate for the project titled "Delhi Air Pollution Health and Effects (DAPHNE)".
7. Indian Institute of Technology Delhi, New Delhi, to collaborate for the MoU signed between IIT Delhi and IIT Kanpur as MHRD has identified IIT Kanpur as one of the "Regional Coordinating Institutes" to contribute in the implementation of the Unnat Bharat Abhiyan (UBA) effectively in the neighbouring districts.
8. Central Power Research Institute (CPRI), Bangalore, to collaborate for the project titled "Thermoelectric Power Generator for Clean Energy Generation by Recycling Waste Heat Generated in Power Plant".
9. North Eastern Space Applications Centre (NESAC), Meghalaya, to collaborate for the project titled "The Development of LiDAR Based Solutions for Mapping, Monitoring and Management of Infrastructure and Natural Assets".
10. Department of Biotechnology (DBT), New Delhi, to collaborate for the project titled "Combination of EGFR targeting aptamers and chemotherapeutic agent in a single stimuli-responsive drug delivery system for improved treatment of triple negative breast cancer".
11. Bureau of Indian Standards (BIS), New Delhi, to Collaborate to undertake R&D Projects related to Standardization & Conformity Assessment.
12. The Council of Scientific and Industrial Research (CSIR), Bangalore, to collaborate for the IMPRINT project titled "Development and Demonstration of a Fibre-Optic Sensor-Based System for Aircraft Loads and Usage Monitoring".

13. Department of Biotechnology (DBT), New Delhi, to collaborate for the project titled “Brain Computer Interface for Communication in Completely Locked in State Patients”.
14. Central Pollution Control Board (CPCB), Delhi, to collaborate for the project titled “Delhi Air Quality Experiment: A Paradigm Shift in Source Apportionment”.
15. Institut Mines-Telecom, France & @Health, France and Samsung R&D Institute India, Bangalore (CEFIPRA), to collaborate for the consortium agreement for Intellectual Property management plan for Industry-Academia Research & Development Programme for the project titled “Design of flexible sweat sensors and stretchable batteries embedded in e-textile to monitor personal health and fitness parameters”.
16. UiPath SRL, Romania, to collaborate for UIPATH Academic Alliance Program mainly with the intention to enhance the training of students in Robotic Process Automation (RPA).
17. Commonwealth of Learning (COL), Canada, to continue the collaboration with COL in the area of online education and a Contribution Agreement with IIT Kanpur under the COL Chairs Programme (Ref: C19-330).
18. Commonwealth of Learning (COL), Canada, to collaborate for the pilot project on design of a platform to deliver an audio-only course on Corporate Literacy for the Shareholders of Farmers Producers Organisations (FPOs) through Mobi MOOC, as well as for applied research in online learning technology by way of work with the Blockchain in online learning, and to offer two AgMOOCs (Ref: C19-409).
19. Regents of the University of California, Berkeley, to collaborate for the Amendment 3 to the Subcontract Agreement SA9233 for “Modeling of Advanced Bulk and SOI MOSFETs”.
20. Commonwealth of Learning (COL), Canada, to collaborate for the online course “MOOC: Introduction to the Blockchain”.
21. Pranveer Singh Institute of Technology (PSIT) & PSIT College of Engineering, Kanpur, to cooperate for the extension of MoU dated 9<sup>th</sup> July 2018 to collaborate in the area of academics to promote education, research and incubation activities in the areas of mutual interest.
22. Jadavpur University (JU), Kolkata and CSIR-Central Glass and Ceramic Research Institute (CGCRI), Kolkata, to collaborate for the IMPRINT project titled “Development of Energy Harvesting Device with Giant Power Density  $\sim 10 \text{ mW/cm}^2$  using Thin Film Multiferroic Composites”.
23. Prasar Bharati, New Delhi, to collaborate in the areas of mutual interest such as Direct to Mobile Broadcasting (DTM), Convergence with 5G, Rural Broadband, to setup a centre for converged Broadcasting and Broadband including Artificial Intelligence Incubation Center, next generation broadcasting standards, regulatory issues related to broadcasting, etc.
24. Bhabha Atomic Research Centre (BARC), Mumbai, to collaborate for the first amendment to the MoU for the project titled “Studies of Fire Propagation, Suppression and Scavenging with Associated Thermal Hydraulic Aspects in Multiple Compartments”.
25. Uttar Pradesh Police, Uttar Pradesh, to collaborate for the development of better security environment and orderliness at public places through a mutual academic-practitioner collaboration system.
26. Department of Biotechnology (DBT), New Delhi, to collaborate for the project titled “Targeting beta-arrestin dependent GPCR signaling with highly specific recognition modules as a therapeutic approach in breast cancer”.
27. Department of Biotechnology (DBT), New Delhi, Memorandum of Agreement for the project titled “Unlocking wastewater treatment, water re-use and resource recovery opportunities for urban and peri-urban areas in India [PAVITRA GANGA]”.
28. Survey of India - Department of Science & Technology, Dehradun, to collaborate for supplying Topographic Data to Central/ State Government Ministries/ Organizations/ Agencies without cost as per Pricing policy Under National Map Policy.

29. Indian Institute of Technology Gandhinagar, Gandhinagar, to collaborate for the project titled “Fluvial Geomorphology Study in stretches of Kosi, Nihal, Suheli and Geruwa rivers and impact of changing river dynamics induced by mining activities onto wildlife”.
30. Data Security Council of India, Noida, to collaborate for conducting joint programs on Cybersecurity and Privacy.
31. JCBCAT, DRDO, Kolkata, to collaborate for the project titled “Development of a Vision Based Autonomous Quadrotor System for Rescue and Search Operation”.
32. Chhattisgarh Environment Conservation Board, Nava Raipur, to collaborate for the Source Apportionment-based Action Plans for Maintaining and Restoring Air Quality in the Bhilai Region, Chhattisgarh.
33. Gujarat State Waqf Board, Gujarat, to collaborate for the project titled “GIS Mapping of Waqf Properties”.
34. Office of the Textile Commissioner, Mumbai, to collaborate to set-up Technical Textile Focus Incubation Center at IIT Kanpur for providing basic infrastructure to conduct R&D in innovative product design and development.
35. Jharkhand State Electricity Regulatory Commission (JSERC), Jharkhand, to collaborate for Regulatory Research Camps (RRCs), workshops, symposia, conference, programs, etc. of mutual interest.
36. Department of Biotechnology (DBT), New Delhi, to collaborate for the project titled “Developing Bone Active Molecule Functionalized Biomaterials for Prevention/Treatment of Osteoporotic Fractures”.
37. Delhi Electricity Regulatory Commission (DERC), New Delhi, to collaborate for Regulatory Research Camps (RRCs), workshops, symposia, conference, programs, etc. of mutual interest.
38. National Smart Grid Mission (NSGM), Ministry of Power, to collaborate for the objectives of “National Smart Grid Mission” through skill development and capacity building programs.
39. Swansea University, UK, Brunel University, London, Imperial College of Science, Technology and medicine, London, Indian Institute of Science, Bangalore, Indian Institute of Science, Education and Research, Puna, Indian Institute of Technology Bombay, Mumbai, Indian Institute of Technology Delhi, Delhi, Jawaharlal Nehru Centre for advanced Scientific Research, Bangalore, London South Bank University, London, The Chancellor, Masters and Scholars of the University of Cambridge, The Chancellor, Masters and Scholars of the University of Oxford, to collaborate for second amendment to the Collaboration Agreement for the SUNRISE Project dated 26<sup>th</sup> March 2018.
40. United Nations Environment Programme, Nairobi, Small Scale Funding Agreement to collaborate for the project titled “Emission Inventory and Modelling of Air Pollution Sources in Agra Region”.
41. M.P. Pollution Control Board, Bhopal, to collaborate for the Project titled “Emission Inventory and Source Appointment Study in Gwalior City”.
42. Andaman and Nicobar Islands UT Waqf Board, Port Blair, to collaborate for the Project titled “GIS/GPS Mapping of Waqf Properties under “Quami Waqf Board Taraqqiati Scheme” in the UT of Andaman and Nicobar Islands”.
43. Himachal Pradesh State Waqf Board, Shimla, to collaborate for the Project titled “GIS/GPS Mapping of Waqf Properties under “Quami Waqf Board Taraqqiati Scheme” in the Himachal Pradesh”.
44. Tripura State Waqf Board, Agartala, to collaborate for the Project titled “GIS/GPS Mapping of Waqf Properties under “Quami Waqf Board Taraqqiati Scheme” in the State of Tripura”.
45. Assam State Waqf Board, Guwahati, to collaborate for the Project titled “GIS/GPS Mapping of Waqf Properties under “Quami Waqf Board Taraqqiati Scheme”.
46. Meghalaya State Waqf Board, Shillong, to collaborate for the Project titled “GIS/GPS Mapping of Waqf Properties under “Quami Waqf Board Taraqqiati Scheme” in the State of Meghalaya”.

47. Punjab State Waqf Board, Chandigarh, to collaborate for the Project titled “GIS/GPS Mapping of Waqf Properties under “Quami Waqf Board Taraqqiati Scheme” in the State of Punjab”.
48. The Energy and Resource Institute, New Delhi, to collaborate for the implementation of certain work under the Project titled “Clean Air Project in India-Phase I”.
49. Gujarat Electricity Regulatory Commission (GERC), Gandhinagar, to collaborate for Regulatory Research Camps (RRCs), workshops, symposia, conference, programs, etc. on areas of common interest.
50. Chhattisgarh State Electricity Regulatory Commission (CSERC), Chhattisgarh, to collaborate for Regulatory Research Camps (RRCs), workshops, symposia, conference, programs, etc. on areas of common interest.
51. Indian Institute of Science, Bangalore, Indian Institute of Technology, Guwahati, CSIR-Indian Institute of Toxicology Research, Lucknow and Central Institute of Plastics and Engineering Technology, Chennai, to collaborate for the Project titled “Development of new generation Acetabular Socket Liner and Femoral Head Prototypes with unique 3D microstructures and better fracture resistance for Osteoporosis and Osteoarthritis treatment”.
52. Andhra Pradesh State Waqf Board, Vijayawada, to collaborate for the Project titled “GIS/GPS Mapping of Waqf Properties under “Quami Waqf Board Taraqqiati Scheme” in the State of Andhra Pradesh”.
53. Institute of Stem Cell Science and Regenerative Medicine (InStem), Bangalore, to collaborate for the purpose of “Developing nano/biomaterials for delivery of drugs: Encapsulation of drugs into hydrogels for the treatment of Osteoarthritis, and developing BMP inhibitor based pro drugs”.
54. Defence Research and Development Organization, New Delhi, to collaborate for a Project titled “Complex Defence Object Recognition and Autonomous Handling in Unstructured and Noisy Outdoor Environment (Phase-I)”.
55. The University Court of the University of Glasgow, Glasgow and James Hutton Institute, Dundee, to collaborate for the Project titled “Developing statistical downscaling to improve water quality understanding and management in the Ramganga sub-basin”.
56. The University Court of the University of Glasgow, Glasgow, James Hutton Institute, Dundee, UK Centre for Ecology & Hydrology, Oxfordshire and University of Stirling, Scotland, First Amendment Agreement to the Collaboration Agreement dated 3<sup>rd</sup> December 2019, to add two more parties to the Agreement.
57. University of Surrey, UK, to collaborate through a Research Collaboration Agreement for a Project titled “Acoustic Scene Analysis with Deep Embeddings”, which is supported by the ASEM DUO-India Fellowship Programme.
58. London School of Economics and Political Science, London, Appointment Letter for engagement as a sub-contractor to deliver services for the International Growth Centre (IGC) Project titled “Knowledge is Power: A Scoping Study on Women’s Safety.”
59. Hanyang University, Korea, Modification to Research Agreement dated 28<sup>th</sup> June 2018 to collaborate for the project titled ‘Development of Optimal Eco Driving System in HEV/PHEV Based on Vehicle Environment’.

**During the year 2019-20, Memorandum of Understanding have also been signed with many companies such as:**

1. Tech Mahindra Ltd., Pune, to collaborate for joint initiatives and research in the areas of Cyber Security, Crowd Sourcing in Information Security, Automation of SOC in Cyber Security and to Enhance digital resilience of Critical National Infrastructure.
2. Tata Consultancy Services Limited, Chennai, to co-operate for the Collaborative Research Agreement for the project titled “Programming Robots by Demonstration for Industrial and Warehouse Automation”.



3. Stockbay Services Private Limited (Trading name: Algo8), New Delhi, to collaborate in training revolution of Artificial Intelligence and Data Science to provide cutting edge experience to students.
4. Akamara Biomedicine Pvt Ltd., New Delhi, to collaborate for the project titled “Martinizing anti-cancer drugs and optimizing multicomponent supramolecular formulations”.
5. Samsung India Electronics Private Limited, New Delhi, to co-operate for the sponsored research agreement to collaborate in the areas of mutual interest.
6. Pinnacle Digital Analytics (P) Ltd., New Delhi, to collaborate for the consultancy project titled “Development of Complaint Prediction Algorithms”.
7. Boeing Corporation, USA, University Student Project Agreement- “2019 Boeing Technical Externship Program-IIT Kanpur”.
8. TrackIT Solutions FZ LLC, UAE, to collaborate for the consultancy project titled “To complement Computer Vision Techniques to enhance existing RFID based Aviation Tracking Systems”.
9. The Boeing Company, USA, to collaborate for the project titled “Computational Studies of Plasma Treated Polymers” (Project Agreement No. 2019-144-1).
10. TrackIT Solutions FZ LLC, UAE, to collaborate for the consultancy project titled “Real Time Location System using BLE”.
11. NHPC Limited, Haryana, to avail the research, development and advisory services of IIT Kanpur by NHPC Limited for undertaking the studies in the field of Science, Engineering and Technology for NHPCL’s ongoing and future projects at its various sites within and outside the country.
12. Schneider Electric India Pvt. Ltd, New Delhi, to create industry thought leadership in Cyber Security and to co-operate in bringing real-world industry exposure to students of IITK and carry out joint studies on Cyber Security.
13. Shell India Markets Pvt Ltd., Bangalore, to co-operate for the third amendment to the agreement for the project titled “Catalytic Waste Water Oxidation of SMPO Waste Water: Regeneration of Cu-PhB-CNF-K post CWAO of SMPO Water and Development of Bimetal CWAO Catalyst”.
14. Reliance Life Sciences Pvt. Ltd., Mumbai, to collaborate in research and development, and consultancy studies in the field of mutual interest especially in the field of molecular and cellular therapy.
15. Tata Steel Limited, Mumbai, to collaborate for the project titled “Investigation on the hydrogen embrittlement susceptibility in NiP coated X70 steel by SSRT”.
16. Hindustan Aeronautics Limited, Bangalore, to collaborate for third amendment to the MoU dated 22-07-2014 for the “Development of an Autonomous RUAV of 10kg class for surveillance and reconnaissance role by HAL”.
17. AirBus Group India Private Limited, Bangalore, to co-operate for the Research & Technology Framework Agreement to collaborate in the areas of mutual interests in the field of Aircraft Engineering Design, Aircraft Technologies, etc.
18. Sepio Products Private Limited, Vasai, to develop a smart label with hybrid integration approach that would incorporate printed conducting lines and antenna as well as commercially available RFID or hybrid RFID-NFC IC(s) and to develop mono cartons using this technology
19. Stamlo Industries Ltd., Hyderabad, Cooperation Agreement to collaborate in conducting basic studies and scientific investigations in the areas of OLED material characterization, OLED device fabrication, etc.
20. Semiconductor Research Corporation (SRC), Durham, to collaborate for first amendment to the research project titled “Time for Secure Memory Hierarchies” (SRC Contract No. 2018-1R-2853).
21. Maribor Water Management Bureau Ltd. (VGB Maribor), Slovenia, to jointly develop a state-of-the-art system for advanced water flow modelling and visualization in order to achieve improved water flooding predictions and support operational and strategic decision making within the Ganga River Basin (GRB).

22. Space-SI, Slovenia, to jointly develop a state-of-the-art system for remote sensing using satellites called "GANGASAT" which can also be used for Ganga river rejuvenation.
23. Semiconductor Research Corporation (SRC), Durham, to collaborate for the contract for research services for the project titled "Breaking the Memory Wall with Near-Core Optimizations" (SRC Contract No. 2019-1R-2922).
24. Semiconductor Research Corporation (SRC), Durham, to collaborate for the First Amendment to the research project titled "Formal Methods for Security Validation of Trustworthy SoC Platforms" (SRC Contract No. 2018-1R-2854).
25. European Commission, Brussel & Vlaamse Instelling Voor Technologisch Onderzoek N. V. (VITO), Belgium & Fachhochschule Nordwestschweiz (FHNW), Switzerland & Stichting Ihe Delft Institute for Water Education (IHE DELFT), Netherlands & Technische Universiteit Delft (TU Delft), Netherlands & Consiglio Nazionale Delle Ricerche (CNR), Italy & Aquafin N. V., Belgium & Stichting Akvo (AKVO), Netherlands & Aqua-Q AB, Sweden & The Energy and Resources Institute (TERI), New Delhi & Indian Institute of technology Delhi (IIT Delhi), Delhi & Ion Exchange (India) Limited (IEI), Mumbai & Institute for Resource Analysis and Policy (IRAP), Hyderabad & Progressive Water Engineering Private Limited (PWE), New Delhi & Hochschule Bochum (HBO), Germany, to collaborate for the project titled "Unlocking waste water treatment, water re-use and resource recovery opportunities for urban and peri-urban areas in India (PAVITRA GANGA)".
26. Tata Steel Limited, Mumbai, to collaborate for the joint Research Agreement for the project titled "Synthesis of Fe based metallic glass coatings from HPPI (selected modified compositions (II and III)) via HVOF and ASP methods".
27. Tata Advanced Systems Limited, New Delhi, to collaborate for the extension and amendment to a contract for consultancy regarding Design work on projects related to aerodynamics of UAV.
28. Unilever Industries Private Limited, Mumbai, to co-operate for the RA Contract to collaborate for the project titled "Phase diagram of Salt Hydrate in presence of Surfactants".
29. Calderys India Refractories Ltd., Katni, to collaborate for the consultancy project titled "To formulate regression based models for through refractory wear from operating data and to assess their predictive capabilities".
30. Titan Company Limited, Bangalore, to collaborate for a research project to perform "Improving the coloring and finish of the existing jewellery as against the benchmarked sample, Standardizing the coloring and finishing process to get uniform color & finish across all 22KT jewellery produced at various vendors and Development of eco-friendly (elimination of usage of acids like H<sub>2</sub>SO<sub>4</sub> & HNO<sub>3</sub>), fast, low cost, automated solution for coloring and finishing".
31. Synergy Systems and Solutions, Faridabad, to collaborate to provide real-world industry exposure to students of IITK and carry out joint studies on cyber security.
32. Kent RO Systems Ltd., Noida, to collaborate for the project titled "Test Strip Based On-Site Detection of Arsenic, Fluoride and Hardness in Drinking Water".
33. National Association of Software and Service Companies (NASSCOM), Noida and IIT Kanpur Research and Technology Park Foundation, Kanpur, to collaborate in the areas of research and development as well as consultancy studies in the field of mutual interest.
34. Momentive Performance Materials India Pvt. Ltd., Bangalore, to collaborate for the study related to manufacturing steps to obtain natural fibre to mean particle size of 5 micron (4-6 microns) size via cryomilling.
35. PBT Infrastructure LLP, Lucknow, to collaborate for the study of survey along the major rivers flowing through forest area.
36. Mitsubishi Heavy Industries Ltd., Japan, to collaborate for the research project titled "Design and Investigation of a Fail-Safe System for Drone Positioning and Posture Estimation".

37. Pfizer Inc., New York, global Hemophilia ASPIRE (Advancing Science through Pfizer Investigator Research Exchange) Research Award.
38. State Informatics Ltd., Mauritius, to collaborate for the project titled "Development of a prototype of a KYC System using Blockchain technology".
39. Center for Curiosity, New York, Extension of the MoU for a consultancy project titled "Investigating the scope of knowledge-based services in the social enterprise ecosystem".
40. Boeing Research & Technology Organization, USA, Amendment A to the Project Agreement 2018-GT-181 for the project titled "Joining of Thermoplastic and Thermoset Composites".
41. Devic Earth Private Limited, Bengaluru, to collaborate for "Testing the Efficacy of Pure Skies under different conditions of Temperature, Humidity, Wind speed and Distance".
42. Tarang Kinetics Private Ltd., Roorkee, to work in the areas of "Development of ISD FUSE".
43. MKU Limited, Kanpur, to collaborate for the Project titled "Software and configure Hardware solution for Automated Tracking and Behavioural Profiling, and facilitate Psychological Assessment & Training".
44. Saankhya Labs Private Limited, Bangaluru, to collaborate for the Project title "Consultancy in the domain of Broadcast-Broadband convergence at IIT, Kanpur".
45. Honeywell Technology Solutions Lab Private Limited, Bangalore, to collaborate under the IMPRINT-2 programme to undertake a Project titled "Ku-K-Ka band phased array antenna for SATCOM on-the-move applications".
46. TurboTech Precision Engineering Private Limited, Bengaluru Rural, to collaborate for the Project titled "Decentralized power generation using micro gas turbines".
47. TAFE Motors & Tractors Ltd., Alwar, Rajasthan, to collaborate for the Project titled "Ultra-Clean emissions DME fueled Tractor engine prototype development for agricultural applications".
48. OSAW Industrial Products Private Limited, Haryana, to collaborate for the Project titled "Improvement in Software for Grain Analysis".
49. Sunflag Iron & Steel Co. Ltd., Nagpur, to collaborate for the Project titled "Improving steel cleanliness by engineering of ladle-Shroud-Tundish steel processing circuitry in SUNFLAG Iron and Steel at the Bhandara Road Works".
50. Prism Johnson Cement, Satna, to collaborate for the Project titled "Controlling emissions of NOx from a Cement Plant using SNCR system: A stochastic model development to save Ammonia".
51. L&T Technology Services Ltd., Mumbai, to engage for furthering industry-academic collaboration through the pursuit of joint research and development activities in the areas of mutual interest, and for determining the areas and subject of such collaboration by joint agreements.
52. Tata Steel Limited, Jharkhand, Addendum to the Research Agreement with Tata Steel Limited dated 10<sup>th</sup> August 2017.
53. MaxLinear, Inc., United States, Memo of Understanding for joint research on "Advanced CMOS Measurements and Characterization for RF/Microwave SOC Applications".
54. Mitsubishi Heavy Industries Ltd., Tokyo, First Amendment to the Research Agreement dated 19<sup>th</sup> December 2019 for the research project titled "Design and Investigation of a Fail-Safe System for Drone Positioning and Posture Estimation".
55. Alchemy AI Ltd., United Kingdom, to create an "AI driven/ machine learning data analytics platform tailored specifically to monitor and measure water data in river systems, such as the Ganges River".
56. Exo-Cubic Solutions Ltd., United Kingdom, to jointly develop advanced modular polymer recycling processes and other environmental solutions suitable for the Indian environment in order to achieve improved solid polymeric waste management and support the circular economy within the Ganga River Basin (GRB).

A list of a major sponsored and consultancy projects sanctioned during the financial year 2019-20 is provided below.

## **SPONSORED PROJECTS:**

### **A. NATIONAL PROJECTS:**

1. RCUPE LIFESCIENCES PRIVATE LIMITED, FUNDED BY DEPARTMENT FOR INTERNATIONAL DEVELOPMENT, SANCTIONED AMOUNT RS. 3000000.
2. ENERGY STORAGE PLATFORM ON HYDROGEN, FUNDED BY DEPARTMENT OF SCIENCE & TECHNOLOGY, SANCTIONED AMOUNT RS. 9706000.
3. INVESTIGATION OF MULTIFERROCITY IN STRAIN-ENGINEERED THIN FILMS, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 350000.
4. ELUCIDATING THE CONFORMATIONAL DYNAMICS OF NON-CANONICAL SEVEN-TRANSMEMBRANE RECEPTOR ACTIVATION AND SIGNALING, FUNDED BY WELLCOME TRUST, SANCTIONED AMOUNT RS. 16801400.
5. SPARC-SPOC IIT KANPUR, FUNDED BY MINISTRY OF HUMAN RESOURCE DEVELOPMENT.
6. CLIMATE ENERGY POLICY NETWORK: A COMPARATIVE STUDY OF INDIA AND JAPAN, FUNDED BY INDIAN COUNCIL OF SOCIAL SCIENCE RESEARCH, SANCTIONED AMOUNT RS. 1182500.
7. COMPUTATIONAL LIGAND DESIGN FOR PD-CATALYZED TRIFLUOROMETHYLATION: THEORETICAL PREDICTION TO EXPERIMENT, FUNDED BY DEPARTMENT OF SCIENCE & TECHNOLOGY, SANCTIONED AMOUNT RS. 3500000.
8. INTIGNUS BIOTECH PRIVATE LIMITED, FUNDED BY DEPARTMENT FOR INTERNATIONAL DEVELOPMENT, SANCTIONED AMOUNT RS. 3000000.
9. NIDHI-SSS, FUNDED BY DEPARTMENT OF SCIENCE & TECHNOLOGY, SANCTIONED AMOUNT RS. 52500000.
10. ELSAQ EDUCATIONAL SERVICES PRIVATE LIMITED, FUNDED BY DEPARTMENT FOR INTERNATIONAL DEVELOPMENT, SANCTIONED AMOUNT RS. 2499000.
11. DEVELOPING EFFICIENT METHOD FOR THE MEASUREMENT AND CHARACTERIZATION OF HIGH-DIMENSIONAL QUANTUM STATES FOR PHOTONIC QUANTUM INFORMATION, FUNDED BY DEPARTMENT OF SCIENCE & TECHNOLOGY, SANCTIONED AMOUNT RS. 30702000.
12. SINGLE-CARRIER DECOY-STATE FREQUENCY-CODED QUANTUM KEY DISTRIBUTION OVER 50KM OPTICAL FIBER, FUNDED BY DEPARTMENT OF SCIENCE & TECHNOLOGY, SANCTIONED AMOUNT RS. 48952000.
13. STUDIES ON MECHANICAL BEHAVIOUR OF RADAR ABSORBING STRUCTURAL COMPOSITES (RAS), FUNDED BY DEFENCE MATERIALS STORES AND RESEARCH & DEVELOPMENT ESTABLISHMENT, SANCTIONED AMOUNT RS. 984000.
14. STUDIES ON ADHESION CHARACTERISTICS OF RADAR ADSORBING STRUCTURAL COMPOSITE (RAS), FUNDED BY DEFENCE MATERIALS STORES AND RESEARCH & DEVELOPMENT ESTABLISHMENT, SANCTIONED AMOUNT RS. 996000.
15. AGRICULTURE GRAND CHALLENGE, FUNDED BY DEPARTMENT FOR INTERNATIONAL DEVELOPMENT, SANCTIONED AMOUNT RS. 999166.

16. CHROMIUM ISOTOPES AS TRACERS OF ENVIRONMENTAL CONTAMINATION AND REMEDIATION, FUNDED BY INDO FRENCH CENTRE FOR THE PROMOTION OF ADVANCED RESEARCH, SANCTIONED AMOUNT RS. 6450201.
17. UBA (UNNAT BHARAT ABHIYAN)- REGIONAL COORDINATION, FUNDED BY MINNISTRY OF HUMAN RESOURCE DEVELOPMENT, SANCTIONED AMOUNT RS. 1000000.
18. COBALT AND GROUP VII METAL CATALYZED C-C AND C-N BOND FORMATION USING ALCOHOLS, FUNDED BY COUNCIL OF SCIENCE&INDUSTRIAL RESEARCH, SANCTIONED AMOUNT RS. 900000.
19. DST INSPIRE, FUNDED BY DEPARTMENT OF SCIENCE & TECHNOLOGY, SANCTIONED AMOUNT RS. 1983333.
20. INCREDIBLE DEVICES PRIVATE LIMITED, FUNDED BY BIOTECHNOLOGY INDUSTRY RESEARCH ASSISTANCE COUNCIL, SANCTIONED AMOUNT RS. 3000000.
21. GRAPHS WITH COMBINATORIAL MATRICES & ALGEBRAIC COMBINATORICS, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 1920000.
22. SPARC: STABILIZING NEURODEGENERATIVE POLYGLUTAMINE REPEAT FIBRILS BY SUFEX CHEMISTRY: A COMBINED SYNTHETIC AND BIOPHYSICAL INVESTIGATION, FUNDED BY MINISTRY OF HUMAN RESOURCE DEVELOPMENT, SANCTIONED AMOUNT RS. 5990600.
23. CENTER OF EXCELLENCE FOR DEFENSE CORRIDOR-OFFICE EXPENSES, FUNDED BY UTTAR PRADESH EXPRESSWAYS INDUSTRIAL DEVELOPMENT AUTHORITY, SANCTIONED AMOUNT RS. 5800000.
24. EFFECT OF FLEXIBILITY IN FLAPPING FOIL ON FLOW AND THRUST GENERATION, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 4766510.
25. ACTIVE COLLOIDS IN COMPLEX ENVIRONMENTS, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 4951400.
26. IMAGE SPECIFIC MULTI-WELL POTENTIAL IN PARABOLIC PDE BASED GRAY SCALE IMAGE INPAINTING, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 660000.
27. SAFE STREETS AT NIGHT: AUTOMATED MONITORING OF STREETS WITH NATURAL LANGUAGE SUMMARIES, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 4791688.
28. GENERATION AND LABELLING OF LIDAR POINT CLOUD FOR AUTOMATIC CLASSIFICATION THROUGH CNN APPROACH, FUNDED BY DEPARTMENT OF SCIENCE & TECHNOLOGY, SANCTIONED AMOUNT RS. 4393616.
29. INVESTIGATION INTO THE CORRELATION BETWEEN POROSITY, MECHANICAL PROPERTIES AND PERFORMANCE OF SUPERCAPACITORS BASED ON VERTICALLY ALIGNED CARBON NANOTUBE ARRAYS, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 2391200.
30. AN EXPERIMENTAL INVESTIGATION ON SHOCK WAVE FOCUSING AND ASSOCIATED HIGH TEHMPERATURE RADIATING FLOWFIELD, FUNDED BY DEPARTMENT OF SCIENCE & TECHNOLOGY, SANCTIONED AMOUNT RS. 4970600.
31. SPARC: DEVELOPMENT AND NEUROLOGICAL APPLICATION OF HIGH DEFINITION FIBRE TRACKING (HDFT), FUNDED BY MINISTRY OF HUMAN RESOURCE DEVELOPMENT, SANCTIONED AMOUNT RS. 9723515.

32. ONE DIMENSIONAL MODEL FOR THE STUDY OF OXIDATION MODELING OF PCS FIBRE ON STATIONARY CYLINDER ROLL, FUNDED BY DEFENCE MATERIALS STORES AND RESEARCH & DEVELOPMENT ESTABLISHMENT, SANCTIONED AMOUNT RS. 987000.
33. EXPERIMENTAL INVESTIGATION OF AEODYNAMIC INTERFERENCE OF PARACHUTE IN PRESENCE OF CREW MODEL, FUNDED BY AERIAL DELIVERY RESEARCH AND DEVELOPMENT ESTABLISHMENT, SANCTIONED AMOUNT RS. 4752000.
34. SPARC: DEVELOPMENT OF COMPUTATIONAL MODEL FOR MULTI-PHYSICS SIMULATION OF FLOWS DURING PLANETARY LANDING OF SPACECRAFTS, FUNDED BY MINISTRY OF HUMAN RESOURCE DEVELOPMENT, SANCTIONED AMOUNT RS. 3955275.
35. NYAYA: A LEGAL ASSISTANCE SYSTEM FOR LEGAL EXPERTS AND THE COMMON MAN IN INDIA, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 2539724.
36. TURBULENT FLOWS IN EQUILIBRIUM, FUNDED BY INDO FRENCH CENTRE FOR THE PROMOTION OF ADVANCED RESEARCH, SANCTIONED AMOUNT RS. 1400520
37. INDOOR DEVICE LOCALIZATION, FUNDED BY SAMSUNG, SANCTIONED AMOUNT RS. 1132500.
38. SPARC: DEVELOPING SAFE AND SECURE AUTONOMOUS CYBER-PHYSICAL SYSTEMS, FUNDED BY MINISTRY OF HUMAN RESOURCE DEVELOPMENT, SANCTIONED AMOUNT RS. 7176000.
39. BIOSCAN RESEARCH PRIVATE LIMITED, FUNDED BY DEPARTMENT FOR INTERNATIONAL DEVELOPMENT, SANCTIONED AMOUNT RS. 3000000.
40. PHYSICS OF DIRAC AND WEYL SEMIMETALS, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 2846679.
41. INVESTIGATING THE MOLECULAR MECHANISM OF CARTILAGE SEGMENTATION DURING EARLY CHICK EMBRYONIC DEVELOPMENT, FUNDED BY DEPARTMENT OF BIOTECHNOLOGY, SANCTIONED AMOUNT RS. 6563577.
42. IMPROVING PERFORMANCES OF POWER ELECTRONIC CIRCUITS USING GAN-HEMT DEVICES, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 5553230.
43. AIRSHED PLANNING PROFESSIONALS P LTD., FUNDED BY BIOTECHNOLOGY INDUSTRY RESEARCH ASSISTANCE COUNCIL, SANCTIONED AMOUNT RS. 3000000.
44. INDIA AGRITECH INCUBATION NETWORK (IAIN), FUNDED BY BILL AND MELINDA GATES FOUNDATION AND TATA TRUSTS, SANCTIONED AMOUNT RS. 120000000.
45. THERMOELECTRIC POWER GENERATOR FOR CLEAN ENERGY GENERATION BY RECYCLING WASTE HEAT GENERATED IN POWER PLANT, FUNDED BY CENTRAL POWER RESEARCH INSTITUTE, SANCTIONED AMOUNT RS. 4583700.
46. SOFT ACOUSTIC METAMATERIALS: FABRICATION, COMPUTATION AND INSTRUMENT DEVELOPMENT, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 3616800.
47. UNEXPLORED NEW REACTIVITY OF TRIARYLBISMUTHS AS THREEFOLD ATOM-ECONOMIC REAGENTS IN CROSS-COUPLING REACTIONS, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 4151400.
48. REAL-TIME HYBRID SIMULATION: IMPLEMENTATION, VALIDATION AND APPLICATION TO MULTI-HAZAR PERFORMANCE ASSESSMENT OF BUILDINGS

- OUTFITTED WITH A NOVEL DAMPING DEVICE, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 4992290.
49. CENTRAL LIMIT THEOREM AND BOOTSTRAP ASYMPTOTICS IN HIGH DIMENSION, FUNDED BY DEPARTMENT OF SCIENCE & TECHNOLOGY, SANCTIONED AMOUNT RS. 3500000.
  50. MAGNITUDE AND PATHWAY OF ANTHROPOGENIC PLATINUM GROUP ELEMENTS; EMERGING ENVIRONMENTAL CONTAMINANT IN INDIA, FUNDED BY DEPARTMENT OF SCIENCE & TECHNOLOGY, SANCTIONED AMOUNT RS. 663000.
  51. NATIONAL CENTER OF EXCELLENCE IN GEODESY, FUNDED BY DEPARTMENT OF SCIENCE & TECHNOLOGY, SANCTIONED AMOUNT RS. 211404096.
  52. SINGLE MOLECULE IMAGING OF NIPAH VIRUS ENTRY, FUNDED BY DEPARTMENT OF BIOTECHNOLOGY, SANCTIONED AMOUNT RS. 4250000.
  53. J C BOSE NATIONAL FELLOWSHIP, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 13600000.
  54. AAV MEDIATED GENE THERAPY FOR DUCHENNE MUSCULAR DYSTROPHY, FUNDED BY PARENT PROJECT MUSCULAR DYSTROPHY FOUNDATION, SANCTIONED AMOUNT RS. 2200000.
  55. WIND TUNNEL MODEL DESIGN, FABRICATION & TESTING OF CRUISE UAV VARIANT, FUNDED BY AERONAUTICAL DEVELOPMENT ESTABLISHMENT, SANCTIONED AMOUNT RS. 11496000.
  56. MODELING THERMO-MECHANICAL FATIGUE BEHAVIOR OF A NEAR ALPHA TITANIUM ALLOY FOR COMPRESSOR DISC/BLING APPLICATIONS, FUNDED BY AERONAUTICS R&D BOARD, SANCTIONED AMOUNT RS. 806400.
  57. SPARC: MODELING OF DILUTED TURBULENT SPRAY FLAMES IN HOT COFLOW USING LES-FGM, FUNDED BY MINISTRY OF HUMAN RESOURCE DEVELOPMENT, SANCTIONED AMOUNT RS. 3552750.
  58. SPARC: ADDING VALUE TO ADDITIVE MANUFACTURING-ADVANCED CHARACTERIZATION OF THE STRUCTURE-PROPERTIES-PERFORMANCE OF Ti6Al4V, FUNDED BY MINISTRY OF HUMAN RESOURCE DEVELOPMENT, SANCTIONED AMOUNT RS. 6482355.
  59. ENHANCED LIQUID ATOMIZATION THROUGH ACOUSTIC CAVITATION, FUNDED BY DEPARTMENT OF SCIENCE & TECHNOLOGY, SANCTIONED AMOUNT RS. 3500000.
  60. DEVELOPMENT OF MULTI-FUNCTIONAL NANO-HAP BONE SUBSTITUTE FOR EFFECTIVE BONE REGENERATION IN CRITICAL DEFECTS, FUNDED BY DEPARTMENT OF SCIENCE & TECHNOLOGY, SANCTIONED AMOUNT RS. 6210240.
  61. A TRIPLE APPROACH OF MUSCLE SENSE AND STEM CELL THERAPY FOR EARLY INTERVENTION TO WEAKENING MUSCLE AFTER CHEMOTHERAPY, FUNDED BY DEPARTMENT OF BIOTECHNOLOGY, SANCTIONED AMOUNT RS. 4250000.
  62. DISCOVERY OF LIGAND-INDUCED TRAFFICKING AND SIGNALING BIAS AT THE HUMAN COMPLEMENT C5AR1, A G PROTEIN-COUPLED RECEPTOR INVOLVED IN SEPSIS AND INFLAMMATION, FUNDED BY COUNCIL OF SCIENCE&INDUSTRIAL RESEARCH, SANCTIONED AMOUNT RS. 2300000.
  63. PROGRAMMING ROBOTS BY DEMONSTRATION FOR INDUSTRIAL AND WAREHOUSE AUTOMATION, FUNDED BY TATA CONSULTANCY SERVICES, SANCTIONED AMOUNT RS. 19286000.
  64. THE SOCIO-ECONOMIC COSTS OF ROAD CRASHES IN INDIA - EVALUATION OF THE ROLE OF EX-ANTE AND EX-POST POLICIES, FUNDED BY MINISTRY OF HUMAN RESOURCE DEVELOPMENT, SANCTIONED AMOUNT RS. 3627936.

65. SMALL MOLECULE SULFONYL FLUORIDES AS IRREVERSIBLE INHIBITORS OF CELLULAR GLUTATHIONE REDUCTASE (GSR), FUNDED BY COUNCIL OF SCIENCE&INDUSTRIAL RESEARCH, SANCTIONED AMOUNT RS. 1600000.
66. SURFACE PROPERTIES OF WEYL SEMIMETALS, FUNDED BY DEPARTMENT OF ATOMIC ENERGY, SANCTIONED AMOUNT RS. 1768100.
67. SCALABLE SPATIO-TEMPORAL MEASUREMENT AND ANALYSIS OF AIR POLLUTION DATA FOR DELHI-NCR USING VEHICULAR-MOUNTED SENSORS IMPRINT-II, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 2128000.
68. PALEOSEISMOLOGY ALONG THE FOOTHILL ZONE OF THE CENTRAL HIMALAYA UTTARAKHAND INDIA, FUNDED BY GEOLOGICAL SURVEY OF INDIA, SANCTIONED AMOUNT RS. 400000.
69. REVIEW MEETING FOR CYBER SECURITY CENTER, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 278500.
70. DO MAPS DIRECT MOTORS TO CHOOSE SPECIFIC HIGHWAYS? REGULATION OF CELLULAR TRANSPORT MACHINERY PROBED BY SUPER-RESOLUTION MICROSCOPY, FUNDED BY DEPARTMENT OF BIOTECHNOLOGY, SANCTIONED AMOUNT RS. 4250000.
71. OVERSEAS VISITING DOCTORAL FELLOWSHIP SCHEME (INDO-US FACULTY TRAVEL), FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 453994.
72. DESIGN OF FLEXIBLE SWEAT SENSORS AND STRETCHABLE BATTERIES EMBEDDED IN E-TEXTILE TO MONITOR PERSONAL HEALTH AND FITNESS PARAMETERS, FUNDED BY INDO FRENCH CENTRE FOR THE PROMOTION OF ADVANCED RESEARCH, SANCTIONED AMOUNT RS. 6352316.
73. SAPTKRISHI SCIENTIFIC PVT LTD., FUNDED BY DEPARTMENT FOR INTERNATIONAL DEVELOPMENT, SANCTIONED AMOUNT RS. 150000.
74. GAN BASED HIGH POWER LNA FOR 5G APPLICATIONS, FUNDED BY INDO-U.S. SCIENCE AND TECHNOLOGY FORUM, SANCTIONED AMOUNT RS. 8750000.
75. MATERIAL EVALUATION STAMLO FLEXE, IITK, FUNDED BY STAMLO INDUSTRIES LTD, SANCTIONED AMOUNT RS. 3115200.
76. PPP MODE INDUSTRY PROJECTS (PROTOTYPE DEVELOPMENT FUND), FUNDED BY STAMLO, SANCTIONED AMOUNT RS. 6600000.
77. ROBOT SKILL TRANSFER FROM SIMULATION TO REAL WORLD DEVELOPMENT IN MANUFACTURING INDUSTRIES AND WAREHOUSE (TRANSEARN), FUNDED BY INDO-GERMAN SCIENCE & TECHNOLOGY CENTRE, SANCTIONED AMOUNT RS. 12360000.
78. DEVELOPMENT OF A SMART LABEL WITH HYBRID INTEGRATION, FUNDED BY SEPIO PRODUCTS PRIVATE LTD, SANCTIONED AMOUNT RS. 3964800.
79. PPP MODE INDUSTRY PROJECTS (PROTOTYPE DEVELOPMENT FUND), FUNDED BY SEPIO PRODUCTS PRIVATE LTD, SANCTIONED AMOUNT RS. 4000000.
80. DESIGN SYNTHESIS AND PHYSICAL PROPERTIES OF TOPOLOGICAL MATERIALS, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 1790980.
81. SATSURE ANALYTICS INDIA PRIVATE LIMITED, FUNDED BY DEPARTMENT FOR INTERNATIONAL DEVELOPMENT, SANCTIONED AMOUNT RS. 2500000.
82. NATIONAL ENTREPRENEURSHIP AWARDS, FUNDED BY MINISTRY OF SKILL DEVELOPMENT AND ENTERPRENEORSHIP, SANCTIONED AMOUNT RS. 3375000.



83. COURSE ON NANOTECHNOLOGY APPLICATIONS IN HEALTHCARE'S TOXICOLOGICAL RISK ASSESSMENT USING IN VITRO, EX VIVO AND IN VIVO HOST-MICROBIOME INTERACTION MODELS" AT IIT KANPUR, FUNDED BY INDO-U.S. SCIENCE AND TECHNOLOGY FORUM, SANCTIONED AMOUNT RS. 340000.
84. LINEAR SCALING DFT, FUNDED BY CENTRE FOR DEVELOPMENT OF ADVANCED COMPUTING, SANCTIONED AMOUNT RS. 10622000.
85. STRUCTURAL CONTROL USING TUNED LIQUID DAMPERS: AN INVESTIGATION THROUGH REAL-TIME HYBRID SIMULATION, FUNDED BY COUNCIL OF SCIENCE&INDUSTRIAL RESEARCH, SANCTIONED AMOUNT RS. 1690000.
86. CHANDRAYAAN-2 SCIENCE PLAN, FUNDED BY INDIAN SPACE RESEARCH ORGANIZATION, SANCTIONED AMOUNT RS. 2300000.
87. TECHNICAL SERVICES TO DMSRDE, FUNDED BY DEFENCE MATERIALS STORES AND RESEARCH & DEVELOPMENT ESTABLISHMENT, SANCTIONED AMOUNT RS. 2073145.
88. A NEW CAPACITANCE BASED MODEL FOR SDBD PLASMA ACTUATION, FUNDED BY AERONAUTICS R&D BOARD, SANCTIONED AMOUNT RS. 1967800.
89. UNIVERSITY CHALLENGE COMPETITION-WINNING UNIVERSITY TEAMS 2019, FUNDED BY INDO-U.S. SCIENCE AND TECHNOLOGY FORUM, SANCTIONED AMOUNT RS. 1100000.
90. SPACE DEBRIS DISPOSAL AND CONTROL MECHANISM - INNOVATION ID NO. IIGPUFP3VWX4P, FUNDED BY INDO-U.S. SCIENCE AND TECHNOLOGY FORUM, SANCTIONED AMOUNT RS. 1000000.
91. DEVICE FOR INRUSH CURRENT MINIMIZATION IN THREE PHASE TRANSFORMERS, FUNDED BY INDO-U.S. SCIENCE AND TECHNOLOGY FORUM, SANCTIONED AMOUNT RS. 1100000.
92. INDO-JAPAN JOINT PROJECT- FRONTIERS IN MOLECULAR SPECTROSCOPY: FROM FUNDAMENTALS TO APPLICATIONS IN CHEMISTRY AND BIOLOGY, FUNDED BY DEPARTMENT OF SCIENCE & TECHNOLOGY, SANCTIONED AMOUNT RS. 90600.
93. ESTABLISHMENT OF A STATE-OF-THE-ART FACILITY FOR DESIGN AND FABRICATION OF MEDICAL DEVICES AND EQUIPMENT WITH IN HOUSE QUALITY CONTROL SYSTEM FOR CULTIVATING A LOCAL PRODUCTION HUB OF MEDICAL GRADE TE, FUNDED BY BIOTECHNOLOGY INDUSTRY RESEARCH ASSISTANCE COUNCIL, SANCTIONED AMOUNT RS. 45802000.
94. PILOT PROJECT ON DEVELOPMENT AND IMPLEMENTATION OF INDUSTRY 4.0 PROTOCOLS FOR RAIL-COACH DESIGN & MANUFACTURING AT MODERN COACH FACTORY, RAEBARELY, FUNDED BY DEPARTMENT OF SCIENCE & TECHNOLOGY, SANCTIONED AMOUNT RS. 166384000.
95. COORDINATION AND REDOX CHEMISTRY OF BIOLOGICALLY RELEVANT LIGANDS, FUNDED BY DEPARTMENT OF SCIENCE & TECHNOLOGY, SANCTIONED AMOUNT RS. 3500000.
96. WIND TUNNEL STUDY OF PARACHUTE FOR DIRECTIONAL SONOBUOY AS PER SCOPE OF WORK & ATP, FUNDED BY AERIAL DELIVERY RESEARCH AND DEVELOPMENT ESTABLISHMENT, SANCTIONED AMOUNT RS. 198000.
97. EMI/EMC AND ELECTRICAL SAFETY TESTING FACILITY, IIT KANPUR, FUNDED BY BIOTECHNOLOGY INDUSTRY RESEARCH ASSISTANCE COUNCIL, SANCTIONED AMOUNT RS. 145165000.
98. WIND TUNNEL TESTING OG SM-C1 CONFIGURATION, FUNDED BY DEFENCE RESEARCH AND DEV LAB, SANCTIONED AMOUNT RS. 780000.

99. KNOWLEDGE IS POWER, FUNDED BY IGC INDIA (BIHAR), SANCTIONED AMOUNT RS. 1838000.
100. WIND TUNNEL MODEL DESIGN, FABRICATION AND TESTING OF A FLYING WING CONFIGURATION, FUNDED BY AERONAUTICAL DEVELOPMENT AGENCY, SANCTIONED AMOUNT RS. 4980000.
101. UNLOCKING WASTEWATER TREATMENT WATER RE-USE AND RESOURCE RECOVERY OPPORTUNITIES FOR URBAN AND PERI-URBAN AREAS IN INDIA, FUNDED BY DEPARTMENT OF BIOTECHNOLOGY, SANCTIONED AMOUNT RS. 41540600.
102. EXPERIMENTAL INVESTIGATION OF AERODYNAMICS CHARACTERISTICS OF PARACHUTE WITH AND WITHOUT TORPEDO, FUNDED BY AERIAL DELIVERY RESEARCH AND DEVELOPMENT ESTABLISHMENT, SANCTIONED AMOUNT RS. 4980000.
103. DESIGN SYSTEM FOR STACKING OF SURGERY BLADES, FUNDED BY KEHR SURGICAL P LTD., SANCTIONED AMOUNT RS. 690000.
104. MULTISCALE MICROSTRUCTURE SIMULATION AND MODELLING, FUNDED BY CENTRE FOR DEVELOPMENT OF ADVANCED COMPUTING, SANCTIONED AMOUNT RS. 8265000.
105. STUDY OF SOLAR CELL FROM QUANTUM THERMODYNAMICS PERSPECTIVE, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 2319960.
106. PLASMONIC JANUS NANOPARTICLE FOR PHOTOCATALYSIS, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 3201000.
107. DEVELOPMENT OF A MULTI-SCALE MODELLING FRAMEWORK FOR NON-COVALENT INTERACTIONS, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 1989980.
108. UNIDIRECTIONAL TAPE PRE-PREG BASED CARBON/EPOXY SHORT FIBER COMPOSITES: DEVELOPMENT MECHANICAL CHARACTERIZATION, STIFFNESS AND STRENGTH PREDICTIONS, FUNDED BY AERONAUTICS R&D BOARD, SANCTIONED AMOUNT RS. 4405600.
109. DEVELOPMENT OF A VISION BASED AUTONOMOUS QUADRATOR SYSTEM FOR RESCUE AND SEARCH OPERATION, FUNDED BY DEFENCE R&D ORGANIZATION, SANCTIONED AMOUNT RS. 5108000.
110. DEMODULATION OF COMPLEX WAVEFORM, FUNDED BY NATIONAL SECURITY COUNCIL SECRETARIAT, SANCTIONED AMOUNT RS. 3708000.
111. MAGNETIC FIELD DEPENDENT CHARGE-TRANSPORT IN NANOMETRIC CHIRAL MOLECULAR FILMS, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 4665000.
112. DEVELOPMENT OF INTEGRATED DAMPERS FOR COMBUSTION DYNAMICS ABATEMENT FOR LOW EMISSION/ADVANCED, BIOJET FUEL GT COMBUSTORS, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 11099889.
113. ISOTOPIC EVOLUTION OF TERRESTRIAL RESERVOIRS IN OPEN SYSTEM MODELS OF THE EARTH AND ITS IMPLICATION FOR CRUST MANTLE DIFFERENTIATION AND DISTRIBUTION OF CHEMICAL HETEROGENEITY IN THE MANTLE, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 2002240.

- 114.ROLE OF TRP CHANNELS IN THERMOSENSATION AND AS THERAPEUTIC TARGETS FOR THE CANCER, FUNDED BY DEPARTMENT OF BIOTECHNOLOGY, SANCTIONED AMOUNT RS. 4250000.
- 115.CONTROLLING THE MOTT INSULATING STATES BY DC CURRENT, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 2870120.
- 116.CRYSTAL GROWTH AND ELECTRONIC STRUCTURE EXPLORATION OF NEWLY DISCOVERED MAGNETIC WEYL SEMIMETALS AND MULTIPLE DEGENERATE FERMIONS, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 2211000.
- 117.COMPLEX DEFENSE OBJECT RECOGNITION AND AUTONOMOUS HANDLING IN UNSTRUCTURED AND NOISY OUTDOOR ENVIRONMENT (PHASE-I), FUNDED BY DEFENCE R&D ORGANIZATION, SANCTIONED AMOUNT RS. 21322000.
- 118.DEVELOPMENT OF IMPURITY TRANSPORT CODE FOR ADITYA-U TOKAMAK AT IPR GANDHINAGAR, FUNDED BY BOARD OF RESEARCH IN NUCLEAR SCIENCES, SANCTIONED AMOUNT RS. 2135500.
- 119.GO WITH THE FLOW PRACTICAL HARDWARE SUPPORT FOR EFFICIENT CONCURRENCY ANALYSES, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 825000.
- 120.TURBULENT BOUNDARY LAYER COMBUSTION FOR PROPULSION AND FIRE SCIENCE APPLICATIONS: THEORETICAL, EXPERIMENTAL AND COMPUTATIONAL STUDIES, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 2981000.
- 121.EXPLORING AN ALTERNATE ROUTE TO GEOSTROPHIC TURBULENCE THROUGH INSTABILITY, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 3079200.
- 122.SMART MUSIC TUTOR FOR INDIAN CLASSICAL MUSIC (VOCAL AND INSTRUMENTAL), FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 3079200.
- 123.DESIGN AND ANALYSIS OF MODERN COMMUNICATION NETWORKS USING STOCHASTIC GEOMETRY FOR MOLECULAR COMMUNICATION AND BEYOND-5G SYSTEMS, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 2203190.
- 124.RESOLVING AIRFOIL SELF-NOISE MECHANISM USING DIAGNOSTIC ACOUSTIC IMAGING TOOL, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 2994260.
- 125.EXPERIMENTAL AND NUMERICAL INVESTIGATION INTO THE LONGITUDINAL COMPRESSIVE FAILURE OF CARBON FIBRE REINFORCED COMPOSITES, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 3037100.
- 126.INVESTIGATION OF WETTING BEHAVIOR AND MOBILITY OF AQUEOUS DROPS ON LUBRICATING FLUID COATED SLIPPERY SURFACES, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 5552800.
- 127.FLOOD RISK ASSESSMENT IN TROPICAL RIVERS IN THE ANTHROPOCENE AND UNDER CLIMATE CHANGE SCENARIO USING HYDRO-GEOMORPHIC MODELING, FUNDED BY MINISTRY OF HUMAN RESOURCE DEVELOPMENT, SANCTIONED AMOUNT RS. 3365533.
- 128.STUDY OF PRESSURE WAVE EFFECTS IN BARRELS FOR ARTILLERY GUNS, FUNDED BY ORDINANCE FACTORY KANPUR, SANCTIONED AMOUNT RS. 3777400.

129. DEVELOPMENT OF NANO INK OF BINARY AND TERNARY SEMICONDUCTOR MATERIALS THEIR THIN FILMS AND EVALUATION OF THEIR OPTOELECTRONIC PROPERTIES, FUNDED BY DEFENCE MATERIALS STORES AND RESEARCH & DEVELOPMENT ESTABLISHMENT, SANCTIONED AMOUNT RS. 660000.
130. UNDERSTANDING THE THREE-DIMENSIONAL STRUCTURE OF PROTON, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 1962400.
131. SINGLE MOLECULE IMAGING OF MHC CLASS II PROTEIN MEDIATED BAT INFLUENZA VIRUS ENTRY INTO MAMMALIAN CELL, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 3307832.
132. 3D PRINTED BIOMEDICAL PERSONALIZED CAPS WITH DRUG RELEASING ABILITY FOR RESCUE OF ALOPECIA CONDITION AFTER CHEMOTHERAPY, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 2839100.
133. LEADERSHIP FOR ACADEMICS PROGRAMME (LEAP), FUNDED BY MINISTRY OF HUMAN RESOURCE DEVELOPMENT.
134. INVESTIGATION OF NEAR AND FAR FIELD ACOUSTICS DUE TO THE JET IMPINGEMENT ON THE FLAME DEFLECTOR DURING ROCKET LIFT-OFF, FUNDED BY SPACE TECHNOLOGY CELL, SANCTIONED AMOUNT RS. 2040000.
135. BRAZING OF ULTRA HIGH TEMPERATURE HFB2-ZRB2 BASED CERAMICS, FUNDED BY SPACE TECHNOLOGY CELL, SANCTIONED AMOUNT RS. 2970000.
136. DEVELOPMENT OF PRODUCT BASED ON HIGH ENTROPY ALLOYS FOR SPACE TECHNOLOGY APPLICATION, FUNDED BY SPACE TECHNOLOGY CELL, SANCTIONED AMOUNT RS. 1272000.
137. CONFORMAL, TRANSPARENT AND LIGHTWEIGHT MICROWAVE ABSORBERS FOR GROUND AND SPACE APPLICATIONS, FUNDED BY SPACE TECHNOLOGY CELL, SANCTIONED AMOUNT RS. 2475000.
138. EXPERIMENTAL AND NUMERICAL INVESTIGATION OF AEROSPIKE NOZZLES FOR EFFECTIVE PROPULSION SYSTEMS, FUNDED BY SPACE TECHNOLOGY CELL, SANCTIONED AMOUNT RS. 2300000.
139. PHASE-FIELD MODELLING OF MICROSTRUCTURE EVOLUTION IN TI-6 AL-4V ALLOY DURING ANNEALING, FUNDED BY SPACE TECHNOLOGY CELL, SANCTIONED AMOUNT RS. 2460000.
140. DEVELOPMENT OF SOLID ELECTROLYTE BASED SODIUM-SULFUR BATTERY, FUNDED BY SPACE TECHNOLOGY CELL, SANCTIONED AMOUNT RS. 2832000.
141. INVESTIGATION OF OPTICAL PROPERTIES OF METALLIC THIN FILMS MIRRORS BY LOW ENERGY PLASMA (ION) IRRADIATION FOR SPACE APPLICATIONS, FUNDED BY SPACE TECHNOLOGY CELL, SANCTIONED AMOUNT RS. 2000000
142. SYNTHESIS AND CHARACTERIZATION AL-B AND AL-B4C ALLOYS AS FUEL IN SOLID PROPELLANT, FUNDED BY SPACE TECHNOLOGY CELL, SANCTIONED AMOUNT RS. 1999680.
143. ULTRA-CLEAN EMISSIONS DME FUELLED TRACTOR ENGINE PROTOTYPE DEVELOPMENT FOR AGRICULTURAL APPLICATIONS, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 15972000.
144. ICT ACADEMY II, FUNDED BY MISCELLANEOUS.
145. NON-HEME METAL-PEROXYNITRITES: SYNTHESIS AND REACTIVITY, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 4972000.

146. WIND TUNNEL TESTING OF STAR LAUNCH VEHICLE CONFIGURATION MODEL, FUNDED BY DEFENCE RESEARCH AND DEVELOPMENT LAB, SANCTIONED AMOUNT RS. 2640000.
147. DEVELOPMENT AND EVALUATION OF MULTISCALE CNT/POLYMER COMPOSITES, FUNDED BY SPACE TECHNOLOGY CELL, SANCTIONED AMOUNT RS. 2592000.
148. HYDROGEN STORAGE AND DELIVERY SYSTEM BASED ON INEXPENSIVE INDUSTRIALLY SCALABLE HYBRIDS, FUNDED BY SPACE TECHNOLOGY CELL, SANCTIONED AMOUNT RS. 2300000.
149. DEVELOPMENT OF RECONFIGURABLE FLAT PANEL METASURFACE ANTENNA, FUNDED BY SPACE TECHNOLOGY CELL, SANCTIONED AMOUNT RS. 3600000.
150. RAA LABS FOR SAMAGRA SHIKSHA DELHI, FUNDED BY UEE MISSION- EDUCATION DEPARTMENT DELHI GOVERNMENT, SANCTIONED AMOUNT RS. 204000000.
151. DEVELOPMENT OF AN EFFICIENT METHOD FOR FREE ENERGY CALCULATIONS, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 4479200.
152. SYNTHETIC PERSPECTIVE OF DOMINO RING-OPENING CYCLIZATION(DROC) AND RING-OPENING CYCLIZATION(ROC) OF ACTIVATED AZIRIDINES AND AZETIDINES TO VARIOUS BIOLOGICALLY SIGNIFICANT AZA/OXA-HETEROCYCLIC COMPOUND, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 6109940.
153. MICROCHANNELS CONTAINING AND METAL-GRAPHENE OXIDE DISPERSED CARBON FILM-BASED CHEMIREISTIVE/ELECTROCHEMICAL SENSORS FOR AQUEOUS METALS, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 4478760.
154. DECIPHERING THE ROLE OF SMALL RNAs IN THE DEVELOPMENT OF HEMOPHILIC ARTHROPATHY AND FORMULATION OF A MICRORNA BASED THERAPEUTIC TO ALLEVIATE JOINT DAMAGE, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 5799000.
155. MODELING THE NATURE OF ACTIVE SITES AND THE ROLE OF SUPPORT IN HYDRODEOXYGENATION CATALYST, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 6459992.
156. IMPROVING PULSE (CHICK PEA AND SOYABEAN) PRODUCTION AND NITROGEN CONTENT OF THE SOIL BY NANO IRON PYRITE SEED TREATMENT, FUNDED BY MINISTRY OF HUMAN RESOURCE DEVELOPMENT, SANCTIONED AMOUNT RS. 4697000.
157. TOPOLOGICAL TRANSFORMATION OF ELASTIC SURFACES, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 660000.
158. ALMOST AND GENERALIZED COMPLEX STRUCTURES ON PRINCIPAL BUNDLES, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 660000.
159. ARITHMETIC OF ELLIPTIC CURVE & SELMER GROUP, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 660000.
160. DEVELOPMENT OF A HYBRID APPROACH FOR HIGH-THROUGHPUT SCREENING OF MATERIALS, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 660000.

161. HILBERT SERIES CONSTRUCTION FOR EFFECTIVE FIELD THEORIES, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 660000.
162. EXPLORING FRACTAL DIMENSION AS A TECHNIQUE TO STUDY FACIAL EXPRESSIONS OF EMOTIONS, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 660000.
163. DESIGN OF FEEDBACK CONTROLLERS FOR SAFE OPERATIONS OF AUTONOMOUS SYSTEMS, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 660000.
164. EFFICIENT METHODS FOR CARRYING OUT HYBRID DENSITY-FUNCTIONAL BASED AB INITIO MOLECULAR DYNAMICS SIMULATIONS: DEVELOPMENT AND IMPLEMENTATION, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 660000.
165. A STUDY OF FIRST-ORDER METHODS IN SCALAR AND VECTOR OPTIMIZATION, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 660000.
166. SCALABLE ALGORITHMS FOR CONSTRAINED COMPOSITIONAL OPTIMIZATION, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 660000.
167. DEVELOPMENT OF A COMPUTATIONAL MODEL FOR REENTRY TRAJECTORY ANALYSIS OF SPACE DEBRIS, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 660000.
168. GOODNESS OF FIT STATISTICAL MODELS, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 660000.
169. A STUDY ON NON-PARAMETRIC REGRESSION, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 660000.
170. SUBCONVERGENCE PROBLEMS: DST INSPIRE FACULTY, FUNDED BY DEPARTMENT OF SCIENCE & TECHNOLOGY, SANCTIONED AMOUNT RS. 2625000.
171. HIGHLY EFFICIENT, LOW EMISSION GASOLINE COMPRESSION IGNITION ENGINE PROTOTYPE DEVELOPMENT, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 5920400.
172. MULTISCALE MODELLING OF SEGREGATION BEHAVIOUR AT INTERPHASE INTERFACES IN ADVANCED HIGH STRENGTH STEEL, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 2366200.
173. IN UNION THERE IS STRENGTH TO SENSE MECHANISMS OF MTOXIC CLUSTERING ON LYSOSOME FOR NUTRIENT SENSING AND THEIR IMPLICATIONS IN DIABETES PROBED WITH SUPER-RESOLUTION MICROSCOPY, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 6314001.
174. TURBULENT JET MANIPULATION USING UNSTEADY INJECTION, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT 5191279.
175. ROBOTICS AND AUTOMATION IN AGRICULTURE, FUNDED BY MINISTRY OF ELECTRONICS AND INFORMATION TECHNOLOGY, SANCTIONED AMOUNT RS. 19426000.
176. CYCLIC-PROTEIN TRIGGERED BY CHEMICAL OR PHOTOCAGED FOR SPATIOTEMPORALLY CONTROLLED DEGRADATION OF INTRACELLULAR PROTEINS IN CANCER, FUNDED BY DEPARTMENT OF BIOTECHNOLOGY, SANCTIONED AMOUNT RS. 6061600.

177. MOLECULAR DEVICE FABRICATION FOR CHARGE-TRANSPORT MEASUREMENTS: REPLACING METAL ELECTRODES BY CARBON ELECTRODE, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 2673000.
178. ONE SYMMETRY TO RULE THEM ALL, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 9777504.
179. COGNITIVE ROBOTICS BASED STUDY OF CHILD-ROBOT INTERACTION (CR)- CHARACTERIZATION OF CRITICAL PARAMETERS AND INTERACTION DESIGN, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 2721961.
180. CONTROLLING THE EFFICIENCY OF MOLECULAR SWITCHES AND THE DYNAMICS OF SWITCHABLE STATES ON SURFACE, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 8041000.
181. MAGNETO-ELECTRIC AND THERMAL TRANSPORT PHENOMENA IN TOPOLOGICAL MATERIALS, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 660000.
182. TEMPERATURE-SENSITIVE TRP ION CHANNELS AS BIOLOGICAL THERMOMETERS TO GAUGE THE PAIN, FUNDED BY DEPARTMENT OF BIOTECHNOLOGY, SANCTIONED AMOUNT RS. 5950240.
183. NIDHI PRAYAS-2020, FUNDED BY DEPARTMENT OF SCIENCE & TECHNOLOGY, SANCTIONED AMOUNT RS. 12000000.
184. COUPLING OF PARTICLE-BASED DEM AND DSMC TECHNIQUES FOR UNDERSTANDING DUSTY GAS FLOW DYNAMICS, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 1912384.
185. HYDROGENATED AMORPHOUS SILICON-GERMANIUM ALLOY FILMS FOR ENHANCED EFFICIENCY OF THIN-FILM SOLAR-CELL BASED ON  $\text{Cu}_2\text{ZnSnS}_4$  (CZTS), FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 5192000.
186. INVESTIGATION OF INSTABILITIES AND VIBRATIONS IN CABLES AND BELTS TRAVELLING OVER PULLEYS, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 4800400.
187. EXPERIMENTAL INVESTIGATION OF AZIMUTHAL COMBUSTION INSTABILITY (SCREECH) IN ANNULAR COMBUSTORS/AFTERBURNERS OF GAS TURBINE ENGINE, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 4758199.
188. REAL TIME FLIGHT VEHICLES DISTRESS MANAGEMENT USING INLINE SYSTEM IDENTIFICATION, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 4162400.
189. STUDY ON CYBER-PHYSICAL APPROACH FOR ELECTRIC POWER GRID, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 2411200.
190. STUDY OF WETTING KINETICS OF LIQUID ON SOFT SUBSTRATE IN PRESENCE OF ELASTO-CAPILLARY EFFECT AND SURFACE REACTION, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 3840000.
191. STRUCTURAL EVALUATION OF BUILDING BLOCK OF ICE IN DIFFERENT GEOMETRY/CONDITIONS AND ITS IMPACT ON NUCLEATION BEHAVIOR, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 3850000.

192. TRIBE CONNECT: INTEGRATED SMART TRIBAL ECO-PLATFORM-A PROOF OF CONCEPT IN CHATTISGARH, FUNDED BY MINISTRY OF ELECTRONICS AND INFORMATION TECHNOLOGY, SANCTIONED AMOUNT RS. 6214600.
193. UNDERSTANDING THE SELF-ASSEMBLY OF AMPLIPHILIC MOLECULES IN SUPERCOOLED SOLVENTS USING MOLECULAR SIMULATIONS, FUNDED BY SCIENCE AND ENGINEERING RESEARCH BOARD, SANCTIONED AMOUNT RS. 6462456.

## B. INTERNATIONAL PROJECTS

1. MAX-PLANCK PARTNER GROUP PROJECT, FUNDED BY MAX PLANCK GESELLSCHAFT, GERMANY, SANCTIONED AMOUNT RS. 4700000.
2. MOU FOR RESEARCH COLLABORATION BETWEEN NATIONAL NCTU & IIT KANPUR, FUNDED BY NATIONAL CHIAO TUNG UNIVERSITY, TAIWAN, SANCTIONED AMOUNT RS. 1788000.
3. NEB NARRES SPOTLIGHT AWARDS, FUNDED BY ELIFE SCIENCES PUBLICATION LIMITED, USA, SANCTIONED AMOUNT RS. 323646.
4. BREAKING THE MEMORY WALL WITH NEAR-CORE OPTIMIZATION, FUNDED BY SEMICONDUCTOR RESEARCH CORPORATION, USA, SANCTIONED AMOUNT RS. 213450.
5. VALIDATING REMOTE SENSING DATA WITH IN-SITU MEASUREMENTS FOR IMPROVING SOIL MOISTURE ESTIMATES AND WATER RESOURCE MANAGEMENT: TECHNOLOGY, FUNDED BY ALEXANDER VON HUMBOLDT FOUNDATION, GERMANY, SANCTIONED AMOUNT RS. 1370000.
6. DEVELOPING STATISTICAL DOWNSCALING TO IMPROVE WATER QUALITY UNDERSTANDING AND MANAGEMENT IN THE RAMGANGA SUB-BASIN, FUNDED BY ENGINEERING AND PHYSICAL SCIENCES RESEARCH COUNCIL, UK, SANCTIONED AMOUNT RS. 3775000.
7. TARGETED MODIFICATION OF POST-TRANSLATIONAL MODIFICATION SITES IN AAV1-RH10 SEROTYPES TO IMPROVE THE PHENOTYPIC OUTCOME OF AAV MEDIATED GENE THERAPY IN HAEMOPHILLIA, FUNDED BY PFZER INC, USA, SANCTIONED AMOUNT RS. 17597181.

## CONSULTANCY PROJECTS:

### A. NATIONAL PROJECTS:

1. AUDIT OF EQUIPMENT DEPLOYED BY CSC SPV, FUNDED BY CSC E GOVERNANCE SERVICES INDIA LTD, SANCTIONED AMOUNT RS. 295000.
2. DEVELOPMENT OF PURVANCHAL EXPRESSWAY (PACKAGE-VIII) IN THE STATE OF UP, FUNDED BY ORIENTAL STRUCTURAL ENGINEERS PVT. LIMITED, SANCTIONED AMOUNT RS. 423473.
3. RIVER CROSS SECTION FROM BIJNOR TO KARANBAS, FUNDED BY WWF- INDIA, SANCTIONED AMOUNT RS. 442500.
4. CONSULTANCY ON DEVELOPMENT OF ATTITUDE ALGORITHMS FOR AHRS, FUNDED BY HINDUSTAN AERONAUTICS LIMITED, SANCTIONED AMOUNT RS. 1475000.
5. WIND TUNNEL TESTING OF RLV-LEX TEST SERIES, FUNDED BY VIKRAM SARABHAI SPACE CENTRE, SANCTIONED AMOUNT RS. 3191900.



6. PREPARATION OF ACTION PLAN FOR CRITICALLY POLLUTED INDUSTRIAL CLUSTERS OF JAIPUR AND BHIWADI, FUNDED BY RAJASTHAN STATE POLLUTION CONTROL BOARD, SANCTIONED AMOUNT RS. 1416000.
7. DEVELOPMENT OF PURVANCHAL EXPRESSWAY (PACKAGE-VII) FROM MOJRAPUR (DIST-AZAMGARH) TO BIJAURA (DIST GHAZIPUR) IN UP, FUNDED BY GR INFRAPROJECTS LTD., SANCTIONED AMOUNT RS. 259600.
8. DEVELOPMENT OF PURVANCHAL EXPRESSWAY (PCKG-VI) FROM GOBINDPUR (AZAMGARH) TO MOJRAPUR (AZAMGARH) IN UP, FUNDED BY PNC INFRATECH LIMITED, SANCTIONED AMOUNT RS. 423473.
9. DEVELOPMENT OF PURVANCHAL EXPRESSWAY (PACKAGE-V) FROM SANSARPUR (SULTANPUR) TO GOBINDPUR (AZAMGARH) IN UP, FUNDED BY PNC INFRATECH LIMITED, SANCTIONED AMOUNT RS. 423473.
10. MISCELLANEOUS STRUCTURAL AND PRODUCT DESIGN.
11. WIND TUNNEL MODEL STUDY OF SIARANG SECTION OF NF RAILWAY IN MIZORAM, FUNDED BY CARITAS INFRA CONSULTING PVT. LTD., SANCTIONED AMOUNT RS. 3976000.
12. DEVELOPMENT OF COMPLAINT PREDICTION ALGORITHM, FUNDED BY PINNACLE DIGITAL ANALYTICS (P) LIMITED, SANCTIONED AMOUNT RS. 501500.
13. REVIEW OF FOUNDATION DESIGN OF MAJOR BRIDGE NO.1301/1 (BHIMSEN, U.P., FUNDED BY RAIL VIKAS NIGAM LIMITED KANPUR, SANCTIONED AMOUNT RS. 840750.
14. DEVELOPMENT OF PURVANCHAL EXPRESSWAY FROM SIDHI GANESHPUR TO SANSARPUR IN UP, FUNDED BY GR INFRAPROJECTS LTD., SANCTIONED AMOUNT RS. 259600.
15. SOIL TESTING FOR EARTHEN BUND AND TESTING OF BLENDED CLAY WITH BENTONITE, FUNDED BY ISGEC HEAVY ENGINEERING LIMITED, SANCTIONED AMOUNT RS. 1010375.
16. TECHNICAL SUPPORT IN IMPLEMENTATION OF SCADA/ADMSS/GIS IN THE AREA OF KESCO, KANPUR, FUNDED BY KESCO, KANPUR, SANCTIONED AMOUNT RS. 4425000.
17. PREDICTING THE RELEASE OF DRUGS FROM MULTI-COMPONENT SUPRAMOLECULAR MEMBRANES, FUNDED BY AKAMARA BIOMEDICINE PVT LTD, SANCTIONED AMOUNT RS. 1032500.
18. ELECTRICAL DISTRIBUTION SYSTEM REVIEW AND WASTE MANAGEMENT FOR UPSIDA MEGA LEATHER PARK, FUNDED BY UP STATE INDUSTRIAL DEVELOPMENT AUTHORITY, SANCTIONED AMOUNT RS. 3466250.
19. AUTO SCALING OF A DISTRIBUTED CLOUD DATABASE SERVICE, FUNDED BY NUTANIX INC, SANCTIONED AMOUNT RS. 1062500.
20. SPRING, FUNDED BY ENGINEERS INDIA LIMITED, SANCTIONED AMOUNT RS. 250000
21. SEISMIC DESIGN OF SLAB-COLUMN SYSTEM FOR VIA DUCT STRUCTURES, FUNDED BY DEDICATED FREIGHT CORRIDOR CORPORATION OF INDIA LTD. (DFCCIL), SANCTIONED AMOUNT RS. 1416000.
22. NDT TEST AND MATERIAL QUALITY TESTS OF FLY OVER UNDER CONSTRUCTION AT KM428 ON NH-91 OVER RAILWAY CROSSING 79D (COD CROSSING), FUNDED BY PWD, SANCTIONED AMOUNT RS. 1156400.
23. WIND TUNNEL STUDY OF STCK/CHIMNEY 3X5000NW HGAHHAR WFGD PROJECT, FUNDED BY GE POWER INDIA LIMITED NOIDA, SANCTIONED AMOUNT RS. 1416000.
24. SOURCE APPORTIONMENT-BASED ACTION PLANS FOR RESTORING AIR QUALITY IN SEVEN CITIES OF HIMACHAL PRADESH, FUNDED BY HIMACHAL POLLUTION CONTROL BOARD, SHIMLA, SANCTIONED AMOUNT RS. 22066000.

25. THIRD PARTY QUALITY ASSURANCE OF CONSTRUCTION OF ACADEMIC BLOCK AT IIT ROORKEE, FUNDED BY INDIAN INSTITUTE OF TECHNOLOGY ROORKEE UTTARAKHAND, SANCTIONED AMOUNT RS. 3044298.
26. REVIEW OF IT PROCESSES OF UPPCL, FUNDED BY UTTAR PRADESH POWER CORPORATION LTD., SANCTIONED AMOUNT RS. 295000.
27. DEVELOPMENT OF PURVANCHAL EXPRESSWAY (PKG-I & II) FROM CHAND SARAI (DIST LUCKNOW) TO SANSARA & SANSARA TO JARAIKAA IN UP, FUNDED BY GAYATRI PROJECTS LIMITED, SANCTIONED AMOUNT RS. 423473.
28. GUIDANCE MANUAL FOR SOURCE APPORTIONMENT STUDIES, FUNDED BY CENTRE FOR SCIENCE AND ENVIRONMENT, SANCTIONED AMOUNT RS. 413000.
29. STACK HEIGHT VALIDATION OF SULPHURIC ACID PLANT, FUNDED BY VEDANTA LIMITED CHENNAI, SANCTIONED AMOUNT RS. 413000.
30. MICROPROCESSOR DEVELOPMENT PROJECT, FUNDED BY CENTRE FOR DEVELOPMENT OF ADVANCED COMPUTING, SANCTIONED AMOUNT RS. 737500.
31. DRAWINGS OF TTP OF PANKI KANPUR CHECKING, FUNDED BY SUEZ INDIA PRIVATE LIMITED, SANCTIONED AMOUNT RS. 472000.
32. DEVELOPMENT OF PMU-BASED IT-OT APPLICATIONS FOR LINE FAULT LOCATION FOR CESC LTD. KOLKATA, FUNDED BY CESC LIMITED, SANCTIONED AMOUNT RS. 958750.
33. WIND TUNNEL TEST FOR RCC CHIMNEY FOR UPPUR 2X800 MW, FUNDED BY RELIANCE INDUSTRIES LTD., MUMBAI, SANCTIONED AMOUNT RS. 1829000.
34. CRYOMILLING OF JUTE FIBRE SAMPLES, FUNDED BY MOMENTIVE PERFORMANCE MATERIALS (INDIA) PRIVATE LIMITED, SANCTIONED AMOUNT RS. 376125.
35. STUDY OF EXCESSIVE HOGGING OF PSC GIRDERS, FUNDED BY PNC INFRATECH LTD AGRA, SANCTIONED AMOUNT RS. 944000.
36. A NETWORK OF TECHNICAL INSTITUTIONS AS KNOWLEDGE PARTNER OF NCAP, FUNDED BY SHAKTI FOUNDATION, SANCTIONED AMOUNT RS. 9050000.
37. LIFT OFF STUDY AND HIGH ANGLE OF ATTACK OF PSLV OI MODEL, FUNDED BY VIKRAM SARABHAI SPACE CENTRE, SANCTIONED AMOUNT RS. 0.
38. WIND TUNNEL MODEL STUDY OF SOLAR PANELS, FUNDED BY ADANI GREEN ENERGY LIMITED, SANCTIONED AMOUNT RS. 2006000.
39. LIFT OFF STUDY AND HIGH ANGLE OF ATTACK OF PSLV-QI/DL METHOD, FUNDED BY VIKRAM SARABHAI SPACE CENTRE, SANCTIONED AMOUNT RS. 3056200.
40. INVESTIGATION ON THE HYDROGEN EMBRITTLEMENT SUSCEPTIBILITY IN NIP COATED X70 STEEL BY SSRT, FUNDED BY TATAST, SANCTIONED AMOUNT RS. 1912500.
41. STUDY OF SUBSOIL CHARACTERISTICS AND POSSIBILITY OF BUTTRESSING TO ENHANCE THE ASH DYKE LIFE AT NTPC RIHAND, FUNDED BY NATIONAL THERMAL POWER CORPORATION, SANCTIONED AMOUNT RS. 6412120.
42. TESTING OF SS 304 COMPOSITE PANELS, FUNDED BY M. K. PERCISION METAL PARTS PVT. LTD., SANCTIONED AMOUNT RS. 354000.
43. CONSULTANCY FOR THE TESTING OF TWO BAGS SOIL SAMPLES AND ONE BAG OF BLANKET MATERIAL, FUNDED BY KCEC, SANCTIONED AMOUNT RS. 40563.
44. WIND TUNNEL TEST OF CHIMNEY, CHIMNEY DESIGN VALIDATION FOR 3X120 TPH CFBC BOILERS & 1X35 MW STG CPP AT HPL COMPLEX, HALDIA, FUNDED BY HALDIA PETROCHEMICALS LIMITED KOLKATA, SANCTIONED AMOUNT RS. 2714000.
45. REVIEW OF SEISMIC DUCTILE DETAILING OF INDUSTRIAL BUILDINGS, FUNDED BY ITCLTD, SANCTIONED AMOUNT RS. 236000.

46. EXTENDING THE LIFE OF GLASS-FORMING MOULD, FUNDED BY HSIL LIMITED (AGI-GLASPAC), SANCTIONED AMOUNT RS. 1233100.
47. WIND TUNNEL TESTING OF RLV-LEX GROUND EFFECT STUDY, FUNDED BY VIKRAM SARABHAI SPACE CENTRE, SANCTIONED AMOUNT RS. 5310000.
48. CONSULTANCY REGARDING SITE VISIT "TO CONDUCT THE STUDY FOR ASH DYKE AND ITS STRENGTHENING REQUIREMENTS" AT ESSAR POWER M.P. LTD 600X2 MN COAL BASED POWER PLANT AT SINGRAULI DISTRICT OF MADHYA PRADESH, FUNDED BY ESSAR POWER MP LTD, SANCTIONED AMOUNT RS. 147500.
49. PLATE LOAD TEST FOR FINDING SOIL BEARING CAPACITY AT TWO LOCATIONS FOR PURVANCHAL EXPRESSWAY WORKS (PACKAGE I & II), FUNDED BY GAYATRI PROJECTS LIMITED, SANCTIONED AMOUNT RS. 330400.
50. WET STACK MODEL STUDY FOR 2X500 MW SIMAHDRI WFGD PROJECT, FUNDED BY GE INDIA TECHNOLOGY CENTRE PVT. LTD., SANCTIONED AMOUNT RS. 1534000.
51. WET STACK MODEL STUDY FOR 3X660 MW SIPAT WFGD PROJECT, FUNDED BY GE INDIA TECHNOLOGY CENTRE PVT. LTD., SANCTIONED AMOUNT RS. 2124000.
52. WIND TUNNEL STUDY OF SOLID AND PERFORATED REFLECTOR, FUNDED BY TATA SKY LTD, SANCTIONED AMOUNT RS. 1416000.
53. GROUND PENETRATING RADAR (GPR) OF THE OPEN SPACE IN 40KHUH RECREATION AREA HRIDAY AMRITSAR, FUNDED BY MUNICIPAL CORPORATION OF AMRITSAR PUNJAB, SANCTIONED AMOUNT RS. 265000.
54. CONSULTANCY FOR TESTING OF DUCTILE IRON WATER PIPES (200 TO 1000 MM) RUBBER GASKETS IN THE LAB AND SIT VISIT, FUNDED BY U P JAL NIGAM, SANCTIONED AMOUNT RS. 200600.
55. SEISMIC SAFETY EVALUATION OF G+6 STORY BUILDING- MARRIED ACCOMMODATION- ANAND PARBAT, NEW DELHI, FUNDED BY M/S THE GARRISON ENGINEER, SANCTIONED AMOUNT RS. 1622500.
56. FIELD TESTING FOR MATERIAL QUALITY AND STRUCTURAL SAFETY ASSESSMENT AT LOK BHAWAN AND MANTRI AWAS, LUCKNOW, FUNDED BY UTTAR PRADESH RAJYA SAMPATI VIBHAG, SANCTIONED AMOUNT RS. 5310000.
57. CHARACTERIZATION OF MICROSILICA SAMPLES, FUNDED BY MISCELLANEOUS, SANCTIONED AMOUNT RS. 33040.
58. PAYMENT GATEWAY SOFTWARE REENGINEERING, FUNDED BY MMAD COMMUNICATIONS PVT LTD, SANCTIONED AMOUNT RS. 500000.
59. TESTING OF THREE BAGS SOIL SAMPLES AND ONE BAG OF BLANKET MATERIAL, FUNDED BY MEHROTRA BUILDCON PVT. LTD., SANCTIONED AMOUNT RS. 50150.
60. FOR STABILITY CHECK OF A SOLAR PANEL STRUCTURE IN WIND TUNNEL, FUNDED BY GANGES INTERNATIONAL P. LTD., SANCTIONED AMOUNT RS. 944000.
61. VALIDATION OF TT227 AND 214 RECOMMENDED BY OEM AND IDENTIFICATION OF ALTERNATE NDE FOR IN-SITU DETECTION OF CORROSION IN MIG-29 FIN, FUNDED BY BRD AIRFORCE STATION OJHAR NASHIK, SANCTIONED AMOUNT RS. 3513450.
62. SITE VISITS FOR VISUAL INSPECTION OF FAILED 132KV TRANSMISSION LINE TOWERS, BARUA GIDA, FUNDED BY UPPTCL, SANCTIONED AMOUNT RS. 103250.
63. FEASIBILITY STUDY AND PREPARATION OF DPR FOR SMART SHELL SYSTEM, FUNDED BY ORDNANCE FACTORY BAREILLY, SANCTIONED AMOUNT RS. 2507500.
64. WIND TUNNEL STUDY ON AERO ELASTIC MODEL OF 150M TALL RCC CHIMNEY(S), FOR 2X800MW GADARWARA TPP, FUNDED BY L&T SARGENT & LUNDY LIMITED VODODARA, SANCTIONED AMOUNT RS. 3109300.

65. INVESTIGATE THE POTENTIAL EXISTENCE OF LIMIT CYCLE OSCILLATIONS FOR A FREELY HINGED WING TIP DRIVEN BY SHOCKWAVE MOVEMENT, FUNDED BY AIRBUS GROUP INDIA PRIVATE LIMITED, SANCTIONED AMOUNT RS. 3171250.
66. ASSESSMENT OF STRUCTURAL HEALTH AND SERVICE LIFE FOR MINE SUPPORTING STRUCTURE, FUNDED BY RSMML RAJASTHAN, SANCTIONED AMOUNT RS. 91450.
67. ANALYSIS OF PGE SAMPLES, FUNDED BY MINERAL EXPROATION CORPORATION LIMITED, SANCTIONED AMOUNT RS. 944000.
68. GROUND PENETRATING RADAR (GPR) SURVEY ON KAJJAKPURA-SARNATH ROAD: IDENTIFICATION OF UNDERGROUND UTILITY, FUNDED BY U.P. STATE BRIDGE CORPORATION, SANCTIONED AMOUNT RS. 778800.
69. STRUCTURAL CONDITION ASSESSMENT, DETAILED NON-DESTRUCTIVE TESTING & SUGGESTING REHABILITATION/STRENGTHENING MEASURES FOR JEEVAN TARA BULDING AT DELHI, FUNDED BY LIFE INSURANCE CORPORATION, SANCTIONED AMOUNT RS. 2950000.
70. POSSIBILITY OF RELATIVE SETTLEMENT OF THE FOUNDATION OF THE BLOCKS UNDER CONSTRUCTION AND THE BLOCKS TO BE CONSTRUCTED LATER DATE SAY IN TWO YEARS OF TIME OVER THE SAME RAFT FOUND. AMRAPALI YOJ., LUKHNOW, FUNDED BY U.P. AVAS VIKAS, SANCTIONED AMOUNT RS. 472000,
71. MISCELLANEOUS SITE VISIT, FUNDED BY PWD, SANCTIONED AMOUNT RS. 60000.
72. GROUND PENETRATING RADAR (GPR) SURVEY ON CHAUKAGHAT-LAHR TARA ROAD: IDENTIFICATION OF UNDERGROUND UTILITY (SEVER PIPE), FUNDED BY U.P. STATE BRIDGE CORPORATION, SANCTIONED AMOUNT RS. 171000.
73. AIR QUALITY DISPERSION MODELLING FOR TSPL, FUNDED BY TALWANDI SABO POWER LIMITED, SANCTIONED AMOUNT RS. 1106250.
74. BLOCKCHAIN WALLET, FUNDED BY STATE INFORMATICS LTD., MAURITIUS, SANCTIONED AMOUNT RS. 585058.
75. WIND TUNNEL STUDY FOR 150M HIGH RCC CHIMNEY OF FGD PROJECT FOR 2X500 MW DURGAPUR STEEL TPS FGD PROJECT, FUNDED BY LARSEN & TOUBRO, SANCTIONED AMOUNT RS. 1416000.
76. WIND TUNNEL STUDY FOR 150M HIGH RCC CHIMNEY OF FGD PROJECT FOR 2X600 MW RAGHUNATHPUR TPS FGD GUJARAT, FUNDED BY LARSEN & TOUBRO, SANCTIONED AMOUNT RS. 1534000.
77. WIND TUNNEL STUDY FOR 150M HIGH RCC CHIMNEY OF FGD PROJECT FOR 2X500 MW MEJIA TPS FGD PROJECT, FUNDED BY LARSEN & TOUBRO, SANCTIONED AMOUNT RS. 1534000.
78. TEST STRIP BASED ON-SITE DETECTION OF ARSENIC FLUORIDE AND HARDNESS IN DRINKING WATER, FUNDED BY KENT RO SYSTEMS LIMITED, SANCTIONED AMOUNT RS. 8576241.
79. REVIEW OF THE DESIGN OF GUIDE BUNDS FOR THE CHETAWALA GHAT BRIDGE ON RIVER GANGA, FUNDED BY PWD, SANCTIONED AMOUNT RS. 103250.
80. SPRING ANALYSIS, FUNDED BY EXEDY INDIA, SANCTIONED AMOUNT RS. 1400000.
81. SEISMIC DESIGN AND DETAILING RC FRAME BUILDING WITH HAUNCHED BEAMS, FUNDED BY GE INDIA TEHNOLOGY CENTRE PVT. LTD., SANCTIONED AMOUNT RS. 472000.
82. GIS/GPS MAPPING OF WAQF PROPERTIES IN THE STATE OF GUJARAT, FUNDED BY GUJARAT STATE WAQF BOARD, SANCTIONED AMOUNT RS. 1107095.
83. SEWER DESIGN OF LUCKNOW CANTONMENT, FUNDED BY RCC DEVELOPERS LIMITED, SANCTIONED AMOUNT RS. 177000.

84. PHASE DIAGRAM OF SALT HYDRATE IN PRESENCE OF SURFACTANT, FUNDED BY UNILEVER LIMITED, SANCTIONED AMOUNT RS. 1793600.
85. GOLD COLORING STANDARDIZATION, FUNDED BY TITAN COMPANY LIMITED, SANCTIONED AMOUNT RS. 885000.
86. HIRING CONSULTANT FOR WIND TUNNEL STUDY FOR SEIL 1 & NELLORE, FUNDED BY SEMBCORP ENERGY INDIA LIMITED, SANCTIONED AMOUNT RS. 3658000.
87. FLUVIAL GEOMORPHOLOGY STUDY IN STRETCHES OF KOSI, NIHAL SUHELI AND GERUWA RIVERS AND IMPACT OF CHANGING RIVER DYNAMICS INDUCED BY MINING ACTIVITIES ONTO WILDLIFE, FUNDED BY WWF-INDIA, SANCTIONED AMOUNT RS. 575250.
88. POSSIBLE REMEDIAL MEASURES TO THE UNIT TRANSFORMER FOUNDATION DISTRESS AT 3X660MW GHATAMPUR THERMAL POWER PROJECT, FUNDED BY GE, SANCTIONED AMOUNT RS.177000.
89. IMPACT OF SWIRLING FLOW GENERATED BY TURBOCHARGER OVER PERFORMANCE OF CLOSE COUPLED CATALYST, FUNDED BY CUMMINS TECHNOLOGIES INDIA PVT LTD, SANCTIONED AMOUNT RS. 1290625.
90. WIND TUNNEL TEST FOR CHIMNEY 2X660 MW NTPC BARH STAGE II-FGD, FUNDED BY BHARAT HEAVY ELECTRICALS LIMITED, SANCTIONED AMOUNT RS. 1770000.
91. WIND TUNNEL TEST FOR CHIMNEY 2X500 MW NTPC MAUDA STAGE I-FGD, FUNDED BY BHARAT HEAVY ELECTRICALS LIMITED, SANCTIONED AMOUNT RS. 1770000.
92. WIND TUNNEL TESTING FOR CHIMNEY 5X800 MW YADADRI TPS, FUNDED BY BHARAT HEAVY ELECTRICALS LIMITED, SANCTIONED AMOUNT RS. 3540000.
93. WIND TUNNEL TEST FOR AEROELASTIC MODEL OF 150M TALL RCC CHIMNEY FOR 2 X500MW DVC/KTPS TPP (PROJ.1 & 2), FUNDED BY THERMAX, SANCTIONED AMOUNT RS. 3109300.
94. STRUCTURAL ANALYSIS, DETAILED NON-DESTRUCTIVE TESTING & SUGGESTING REHABILITATION/STRENGTHENING MEASURES FOR UNDER CONSTRUCTION ITI BUILDING, HAISAR BAZAR, SANT KABIR NAGAR, FUNDED BY U.P. AVAS VIKAS, SANCTIONED AMOUNT RS. 958750.
95. SAFETY AUDIT OF PUNJAB STATE POWER CORPORATION LIMITED, FUNDED BY PUNJAB STATE POWER CORPORATION LIMITED, SANCTIONED AMOUNT RS. 116820.
96. DESIGN & INVESTIGATION OF A FAIL-SAFE SYSTEM FOR DRONE POSITIONING & POSTURE ESTIMATION, FUNDED BY MITSUBISHI HEAVY INDUSTRIES, SANCTIONED AMOUNT RS. 3047000.
97. SCENARIO ANALYSIS AND CARRYING CAPACITY STUDY OF THE AREA, FUNDED BY CENTRAL POLLUTION CONTROL BOARD, SANCTIONED AMOUNT RS. 254880.
98. WIND TUNNEL STUDY FOR 150M & 240M HIGH RCC CHIMNEY FOR STAGE-I & STAGE-II (6X210MW+2X500MW) OF VINDHYANCHAL SUPER THERMAL POWER PROJECT, FUNDED BY LARSEN&TURBO, SANCTIONED AMOUNT RS. 4956000.
99. SOURCE APPORTIONMENT OF STUDY OF BHILAI REGION, FUNDED BY CECB, SANCTIONED AMOUNT RS. 9808750.
100. CONSULTANCY SUPPORT FOR CIDCO PROJECT NAVI MUMBAI, FUNDED BY LARSEN&TURBO, SANCTIONED AMOUNT RS. 1032500.
101. STACK GAS DISPERSION MODEL STUDY FOR RAJPURA THERMAL PLANT, NABHA, PUNJAB, FUNDED BY NABHA POWER LIMITED, SANCTIONED AMOUNT RS. 1106250.
102. WIND TUNNEL MODEL CONFIGURATION & TESTING OF HIGH MAST, FUNDED BY RR ISPAT, SANCTIONED AMOUNT RS. 590000.

103. GIS/GPS MAPPING OF WAQF PROPERTIES IN THE STATE OF ANDHRA PRADESH, FUNDED BY ANDHRA PRADESH STATE WAQF BOARD, SANCTIONED AMOUNT RS. 700700.
104. OPERATING DATA BASED REGRESSION MODEL FOR PREDICTION OF BF TROUGH WEAR, FUNDED BY CALDERYS INDIA REFRATORIES LTD., SANCTIONED AMOUNT RS. 560000.
105. WIND TUNNEL TESTING OF VSSC-RLV 1:6:25 SCALE MODEL (FORCE MEASUREMENT WAKE SURVEY AND PARACHUTE CHARACTERIZATION), FUNDED BY VIKRAM SARABHAI SPACE CENTRE, SANCTIONED AMOUNT RS. 4967800.
106. FURNACE BURNER TESTING AND OPTIMIZATION, FUNDED BY B&G SPRAY SOLUTIONS, SANCTIONED AMOUNT RS. 258125.
107. CONSULTANCY FOR TESTING OF TWO BAGS SOIL SAMPLES AND ONE BAG OF BLANKET MATERIAL, FUNDED BY KAISER CONSTRUCTION ENGINEERS & CONTRACTORS, SANCTIONED AMOUNT RS. 45725.
108. LONG-TERM DEMAND FORECASTING AND POWER PROCUREMENT PLANNING, FUNDED BY CHHATTISGARH STATE ELECTRICITY REGULATORY COMMISSION, SANCTIONED AMOUNT RS. 3982500.
109. WIND TUNNEL STUDY FOR 275M HIGH CHIMNEY 2X660MW SJVN THERMAL (P) LIMITED AT BUXAR, BIHAR, FUNDED BY LARSON & TURBO, SANCTIONED AMOUNT RS. 1416000.
110. DEVELOPMENT OF TFT ARRAY AND LIQUID CRYSTAL LAYER AND THEIR INTEGRATION WITH METASURFACE ANTENNA, FUNDED BY INDIAN SPACE RESEARCH ORGANIZATION, SANCTIONED AMOUNT RS. 10300000.
111. IMPROVING STEEL CLEANLINESS BY ENGINEERING OF LADLE-SHROUD-TUNDISH STEEL PROCESSING CIRCUITRY, FUNDED BY SUNFLAG STEEL, SANCTIONED AMOUNT RS. 3186000.
112. ELECTROCHEMICAL TESTING OF MG AND ZN ANODES AND CHEMICAL COMPOSITIONS OF THE ANODES, FUNDED BY CONTROL PLUS OIL & GAS SOLUTIONS PVT LTD, SANCTIONED AMOUNT RS. 177000.
113. SYNTHESIS OF FE-BASED GLASS COATINGS FROM HPPI (SELECTED MODIFIED COMPOSITIONS (II AND III) VIA HVOF AND APS METHODS, FUNDED BY TATA STEELS LTD., SANCTIONED AMOUNT RS. 1977500.
114. JPC CONSULTANCY, FUNDED BY JPC INFRATECH P LTD, SANCTIONED AMOUNT RS. 200000.
115. CHECKING OF DESIGN OF SEWER NETWORK ALAMBAGH LUCKNOW, FUNDED BY AJAY PRAKASH ASSOCIATES (JV), SANCTIONED AMOUNT RS. 472000.
116. GIS/GPS MAPPING OF WAQF PROPERTIES UNDER QAUMI WAQF BOARD TARAQQIATI SCHEME IN BHATINDA PUNJAB, FUNDED BY PUNJAB STATE WAQF BOARD, SANCTIONED AMOUNT RS. 1969000.
117. FATIGUE TEST OF THREADED COUPLERS, FUNDED BY DEXTRA INDIA PVT LTD, SANCTIONED AMOUNT RS. 1652000.
118. ASSESSMENT OF THE CONCRETE STRENGTH & ANALYSIS OF THE DEVELOPMENT WORKS OF TRANS GANGA CITY UNNAO, FUNDED BY UP STATE INDUSTRIAL DEVELOPMENT AUTHORITY, SANCTIONED AMOUNT RS. 7301250.
119. UNDERSTANDING THE BASE METAL AND COATING ON SHUTTLE, PUSHER AND STOPPER METALLIC PARTS, FUNDED BY LOHIA CORP. LTD, SANCTIONED AMOUNT RS. 177000.

120. ADVICE ON MECHANICAL DESIGN AND PERFORMANCE ASPECTS OF AUTONOMOUS VEHICLE, FUNDED BY AMIDC AUTOMATION TECHNOLOGIES PVT. LTD., SANCTIONED AMOUNT RS. 314000.
121. IMPROVING RHEOLOGICAL BEHAVIOUR OF AGRO PRODUCTS, FUNDED BY UNITED PHOSPHORUS LIMITED, SANCTIONED AMOUNT RS. 1416000.
122. IDENTIFICATION OF AIR POLLUTION SOURCES AND THEIR PERCENTAGE CONTRIBUTION TO THE AMBIENT AIR THROUGH SOURCE APPORTIONMENT STUDIES AND REMEDIAL MEASURES FOR NON-ATTACHMENT CITIES VARANASI AND PRAYAGRA, FUNDED BY U.P. POLLUTION CONTROL BOARD, SANCTIONED AMOUNT RS. 12242500.
123. CONSULTANCY WORK FOR DLC & PQC MIX DESIGN AND OTHER SPECIFIC WORKS, FUNDED BY U.P. RAJKIYA NIRMAN NIGAM, SANCTIONED AMOUNT RS. 224200.
124. SDC-CLEAN AIR PROJECT IN INDIA, FUNDED BY THE ENERGY RESOURCE INSTITUTE, SANCTIONED AMOUNT RS. 10767500.
125. CONSULTANCY FOR THE STUDY OF FILTER MEDIA DESIGN FOR 1X660 PANKI THERMAL POWER PLANT KANPUR (FOR ASH POND ROCK TOE) AS PER FILTER CRITERIA AS PER IS-9429, FUNDED BY KANWAR ENTERPRISES PVT. LTD., SANCTIONED AMOUNT RS. 324500.
126. SOFTWARE AND CONFIGURE HARDWARE SOLUTION FOR AUTOMATED TRACKING AND BEHAVIOURAL PROFILING, FUNDED BY MKU LIMITED, SANCTIONED AMOUNT RS. 10797000.
127. TESTING AND EFFICACY OF PURE SKIES UNDER DIFFERENT CONDITIONS OF TEMPERATURE HUMIDITY WIND SPEED AND DISTANCE, FUNDED BY DEVIC EARTH PVT LTD, SANCTIONED AMOUNT RS. 5786000.
128. GIS BASED DECISION SUPPORT SYSTEM FOR PLANTATION WEB/MOBILE APPLICATION FOR HPFD, FUNDED BY HIMACHAL PRADESH FOREST DEPARTMENT, SANCTIONED AMOUNT RS. 3900000.
129. WIND TUNNEL TESTING FOR P120 CHIMNEY, FUNDED BY SHRIRAM ALKALI & CHEMICALS BHARUCH GUJARAT, SANCTIONED AMOUNT RS. 1770000.
130. EMISSION INVENTORY AND SOURCE APPORTIONMENT STUDY IN GWALIOR, FUNDED BY MADHYA PRADESH POLLUTION CONTROL BOARD, SANCTIONED AMOUNT RS. 6062500.

#### **B. INTERNATIONAL PROJECTS:**

1. EMISSION INVENTORY & MODELLING AT AGRA, FUNDED BY UNITED NATIONS ENVIRONMENT PROGRAMME, KENYA, SANCTIONED AMOUNT RS. 3700000.