Office of the Dean (Research and Consultancy) S V National Institute of Technology, Surat

Database of SVNIT Faculty Members: Research Specializations and Expertise

Department of Civil Engineering				
Sr no	Name of the faculty member	Research Specialization to be displayed on the R&C website.	Any specific interesting research problems that the faculty member is working or intends to work upon	
1.	Dr. G. J. Joshi	Urban Transportation Planning Traffic Flow Modeling Public Transport Planning Regional Planning	 Development of strategies for sustainable urban transportation systems. Development of framework for evaluating sustainability of urban transportation system. Efficacy of road safety engineering measures. Effectiveness of road signs to convey desired information to road users in rural areas User perception - compliance based study. How to enhance riderships for operating mass transit systems in cities? Comprehensive evaluation of transit accessibility and level of service. Traffic flow state assessment based on travel time variability based congestion measure. Efficacy of intersection improvement strategies with respect to traffic facility operation. 	
2.	Dr. C. D. Modhera	 Structural dynamics and Earthquake engineering. Health monitoring of structural concrete. Special concrete and relevant applications to the field. Proof checking of structural design and drawings for various civil infrastructures. Design of concrete mixes for various structures and rigid pavements. 	 Proof checking of structural design and drawings for various civil infrastructures. Condition assessment of various RCC and steel existing structures. Design of concrete mix of rigid pavement and various civil concrete structures. Third party inspection of various civil projects. Corrosion assessment and remedial measures of RCC existing structures. Development of new concrete mix with supplementary cementitious materials. Development of Geo polymer concrete for high strength concrete mix. Behavior of high strength concrete mix. Design and vetting of special RCC structures. 	

з.	Dr. J. N. Patel	Water Resources Engineering Geo-spatial Technologies Computational Techniques	 Groundwater Management using Transdisciplinary Approach Rainwater Harvesting and Groundwater Recharge Optimized storm water management with water saving Economical design of Storm Water Drainage System Flood Management and River Training Irrigation Water Management using IoT Agriculture Water Management using Hydrogel Conjunctive use of Surface water and Groundwater Solving Water Resources Engineering problems using Geospatial Technologies Optimization of water resources engineering problems using Soft Computing Techniques Reservoir Operating Policy Design of Hydraulic Structures Water Saving with Economical Solutions Reclamation of Saline Soil Flood Plain Management Control of Seawater Intrusion in Coastal Aquifers Techniques of Desalination of Seawater economically Design of Hydroponic and other related methods for farming using less water Integration of Solar Energy, Wind Energy, Surface water and Groundwater for Green house and Poly House Farming and Irrigation
			Irrigation • Water Management for Industries • TPI for all Water Resources Engineering Projects • Training and Services for all Water Resources Engineering
4.	Dr. P. L. Patel	Experimental and numerical investigations on transport of sediments and bed level variations in Alluvial rivers. Prediction of sediment yield and morphological studies of Alluvial rivers. Hydrodynamics of natural rivers. Stochastic approaches in modelling of turbulence in rigid and mobile boundary channels. Hydrodynamic modelling of floods. Hydrological modelling in assessment of water availability in the basin. Multi-objective approaches in optimal irrigation planning. Spatial and temporal variability of climatic and hydrological parameters in river basins. Inflow prediction into reservoirs.	 Projects Morphological changes in planform and bed level variations of alluvial rivers. CFD analysis of Hydropower projects to solve their specific problems. Analysis and design of water distribution and storm water drainage system. Efficient design of hydraulic structures.

5.	Dr. Atul K. Desai	Structural Dynamics, Soil Structure Interaction, Fiber reinforced soil, Machine Foundations, Geo Textile, Roller compacted concrete for Rural Road development. Turbo Machinery Frame Foundation, Fiber Reinforced concrete & its damping, Bridge engineering, Wind induced oscillation in structure, energy dissipation, Earthquake engineering & structural forensic, Pile raft foundation, Beam- column joint, Bridges subject to seismic loading, Synthetic time history analysis, Analysis and designing of tall structure (such as microwave towers, chimney, cooling tower, steel structure)	 Tornedo, cyclone modelling in CFD for improving Tall building resistance against winds. Fiber reinforced mortar and plaster for improvement in seismic performance of tall buildings with Infill wall effects, PT Beam and Slab behaviour with infill wall. Use of waste plastic mineral water bottle for improvement in concrete strength. (Patent already taken). To find speed of high-speed bullet train on cable stayed bridges for avoiding dynamic Resonance. To find 3 dimensional most innovative dynamic computer model for high speed bullet train passing above earthen embankments. (Already applied for Patent for testing equipment). Determination of pile capacity using new O - cell technology. Seismic Performance of extremely large span hybrid cable stayed suspension bridges. Use of plastic waste as Geo cell for high altitude mountain cold climate desert soil improvement of "Spiti area" in Himalaya. (Already applied for Patent). Development of new technology for Rural PQC (Pavement Quality Concrete) road for Indian village. Seismic performance of different types of buildings in Surat and development of Tragility damage index. Dynamic Behaviour of tall hybrid and monopole wind millstowers. Determination of seismic R factor (Response reduction factor) for different types of bridges. Development of blast resistance barriers for protection of buildings. Computer modelling of Nuclear Reactor Shell and foundation in Indian condition with dynamic loading.
6.	Dr. C. H. Solanki	Sub Soil Characteristics Prediction in Geo-technical Engineering Ground improvement techniques Geo- environmental Engineering	 Valorization of industrial byproducts for the potential utilization as the construction materials. Utilization of waste of tyre shred for the improvement of weak subsoils Seismic hazard mapping of using MASW and SASW test methods. Performance of mechanically stabilized earth walls: reinforcement, backfill and surcharge effects Reinforced granular column for deep soil stabilization Liquefaction hazard mapping Fiber reinforced clay soil Rapid assessment of compressibility parameters Bio char and its applications in geotechnical engineering Effect of degree of saturation on strength properties of soil using geo cells Solutions for foundations on problematic soils
7.	Dr. Krupesh A. Chauhan	Urban Planning Urban design Urban infrastructure planning Housing Road Safety and Pavement Design	 Rural/ Urban/ Regional Planning & Design Urban Infrastructure Planning & Management Green Building & Smart City Project - Rating / Auditing/ Performance Evaluation
8.	Dr. M. Mansoor Ahammed	Environmental Engineering Household water treatment Anaerobic waste treatment Health-related water microbiology	 Greywater treatment and reuse Anaerobic treatment of organic fraction of municipal solid waste Household water treatment Reuse of water treatment residual
9.	DR. P. G. Agnihotri	Application of Geospatial Technology Flood Mitigation Water Resources Engineering	 Preparation of flood mitigation plan for flood prone zone Disaster Management under GIS Environment Ground Water recharge and exploration

10.	Dr. Rakesh Kumar	Utilization of Slags, Geo synthetic, Chemical Stabilizers, Cement, Fly ash, lime and Others Non-Conventional Materials for Subgrade, Subbase and Base Engineering Use of LWD, FWD, and others NDT instruments for QA & QC of Pavement. Planning, design, and implementation of Public Bus Transit (BRTS) Pavement Engineering (Design, Construction, Evaluation, Maintenance, and Rehabilitation) Highway Economics Analysis using HDM-IV and others Softwares	 Application of NSV for functional evaluation of pavement FWD for structural evaluation of pavement.
11.	Dr. R. A. Christian	Air pollution Fuzzy Logic application to environmental engineering	 Air Pollution control and mitigation CEMS and ETS for industries Waste water treatment especially sewage STP design Environmental Audit Work
12.	Dr. Sandip A. Vasanwala	Computer aided structural analysis Engineering mechanics Structural analysis Computer applications in civil engineering Neural network application in structural engineering Earthquake resistance design of structures Performance evaluation & capacity based design of concrete structures Preliminary design of structures Neural application for preliminary design of space structures	 Vetting of Structural Design and Drawing of High rise residential Concrete Building Structures Structural Proof checking of Tensile structures Proof checking for Design of foundations of High mast tower Condition assessment of Over Head water tank and High rise / Medium rise concrete residential / commercial building structures Proof checking of structural design of concrete bridges - Proof checking of Box Culvert structures
13.	Dr. S. M. Yadav	Hydraulics of Alluvial Rivers Application of Soft Computing Techniques in WRE Surface Hydrology Hydrodynamics of Natural River Irrigation Planning & Management Reservoir Operation, Sediments & Sediment Yield Sea Water Intrusion & Ground Water Quality Modeling Construction Management	 Design and executed long distance pipeline successfully. Part of design and execution of world's biggest water supply network. Analyzing flood mitigation measures for the central Indian Rivers like Ganga, Gandak and Ghaghara. Interested in the collaborative research and consultancy work in the area of hydrodynamic modelling of floods and advanced flood forecasting techniques.
14.	Dr. V. L. Manekar	Sediment Laden Flow Modelling and Simulation Ago-Climatic Modelling Hydrodynamic Flood Modelling Impact of LULC &Climate Change on Water Resources	 Presently working on the estimation of the factors contributing runoff which is essential component of the hydrological processes for its efficient management.
15.	Dr. Ashish Dhamaniya	Dynamic Traffic Flow Modeling Highway Capacity and Level of Service GIS and GPS applications in Transportation Engineering Pedestrian Flow Modelling and Facility Design Road Safety, Pedestrians and Motorists	 Automation of Toll Plaza Operations Dynamic Toll Pricing Framework Data extraction and evaluation using Artificial Intelligence Road Safety Implementation Framework Transport integration tools for supply chain management
16.	Dr. Dilip A. Patel	Construction project management Dispute Management Risk management in construction Trenchless Technology Application of intelligent in construction project Financial management Public Private Partnership Feasibility Study Quality management	 Asset management by developing building information modeling. Developing construction safety and quality audit manual for construction. Application of latest demolition and non dig techniques. Preparation of construction demolition waste management plan. Enhancement of bridge resilience and its asset management. Enhancement of water infrastructure resilience and its asset management. Digitalization of intangible and tangible heritage structures and their conditions assessment. Application of information technology in construction project management.

17.	Dr. Gaurang R. Vesmawala	Earthquake Engineering, Structural Health Monitoring, Optimum design of space structures, Neural network applications in structural engineering and computer analysis & design of structures,	 Neural network applications in Structural Engineering Digital image correlation techniques in Structural Engineering Seismic design of steel-beam column joint with fuse details Concrete with waste utilization
18.	Dr. K. D. Yadav	Human Excreta Management Solid Waste Management Organic Waste Management by Composting Vermicomposting	 Composting of organic waste generated from temples/ cemetery Treatment of greywater for agriculture /other potable purpose
19.	Dr. P. V. Timbadiya	 Surface water hydrology River analysis system Hydrodynamic (Flood) modeling Morphological Study of River Fluvial Hydraulics Dam Break Analysis Water Distribution Network Design and Analysis Design of Storm water drainage system and its analysis Design of Sewerage Network and its analysis Design of Canal Climate Change Impact Study Surface water hydrology River analysis system Hydrodynamic modeling 	 Study on Climate Change impact on Water Resources of basin Local Scour around tandem and staggered bridge piers Urban Flood modelling using 2D hydrodynamic modeling and quantification of Hazard, Vulnerability and Risk
20.	Dr. Satyajit Patel	Utilization of Industrial solid wastes in Civil Engineering Constructions, Geo- environmental Issues, Soil stabilization, Ground improvement, Geo-synthetics for road pavements	 Technology development for manufacturing angular shaped high strength fly ash aggregates for use in construction activities as a replacement of natural stone aggregates. Ground improvement using non-conventional materials for road pavements on clayey subgrade.
21.	Dr. S. R. Suryawanshi	Computational Mechanics, Analytical Modelling of Structural Concrete, Flexural and Non-Flexural Behaviour of Concrete Structures.	 Utilization of C & D Waste as per UN agenda of Holistic Sustainable Development and NITI Ayog (GOI) Targets Structural Health Monitoring Through IoT (Internet of Things) Fire Performance of the Structures Analysis and Design of Special Structures such as High Rise Buildings, Bridges, Bunkers, Silos, Oil and Water Tanks etc. Repair, Rehabilitation and Retrofitting of concrete structures Design and Numerical Analysis of Concrete Structures for Other than Gravity Forces Mix Proportions of Special Concretes
22.	Dr. Shriniwas S. Arkatkar	Heterogeneous Traffic Flow Modeling and Simulation Traffic Operation and Management Transportation Systems Planning, Design and Operation Public Transportation and Sustainable Transportation Road Safety and Simulation	 Intelligent Transportation Systems Advanced Data collection methods for crash risk estimation Human factors and implications in the design
23.	Dr. Yogesh D. Patil	Earthquake engineeringFiber reinforced concreteSteel & reinforced concrete beam-column joint and design of steel structures	 Polymer Modified Concrete using various additives and fillers. Utilization of waste plastic like PET, Polypropylene, PVC, Agricultural Waste like CNSL, POFA, etc. Industrial Waste like FlyAsh, Red mud, Glass Powder, GGBS, etc. Behavior of different studs in shear and tension (Composite Beam/ Bridges)
24.	Dr. Anant Parghi	Seismic analysis and design smart materials and their structural application (Shape memory alloys, Nano materials) seismic retrofitting of steel and masonry structures	 Use of suitable 3-D printing concrete; Use of recycled aggregate concrete in the road construction. Use of advanced composites Fiber reinforced (FRP), and superelastic shape memory alloys (SMA) rebar in the infrastructures

		recycle/reuse of industrial wastes for structural applications, finite element analysis structural dynamics, constitutive relationship application of advanced composites materials-fiber reinforced polymer(FRP) and sprayed-Fiber reinforced polymer multi-criteria optimization and statistics.	 Forensic investigation structures Application of sprayed-fiber reinforced polymer for the retrofitting of existing deficient infrastructures Testing of large-scale structural elements under seismic loads Seismic risk and hazard analysis of existing infrastructures Destructive and nondestructive testing of structural elements
25.	Dr. Bhaven N. Tandel	Noise pollution modelling and mapping Health impact of noise pollution Air quality modelling and mapping Indoor air quality Odour pollution EIA & Environmental legislation	 Integrated road traffic noise mapping in urban Indian context. Evolutionary computation based modelling of human work efficiency in a traffic noise environment. Mitigation strategies for urban road traffic noise with special emphasis on silence zones. Modelling of vehicle driver behaviour and road traffic noise correlation. Modelling of cognitive task learning of school / college children exposed to traffic noise environments. Mapping PM 2.5 and PM 10 for Indian urban cities using real time data from low cost sensor networks. Indoor environmental quality of naturally ventilated classrooms. Development and comparison of ambient air quality prediction models using multiple linear regression and artificial neural networks.
26.	Dr. Patel Chetankumar Ramanlal	Transportation Planning Town Planning Traffic Planning Geospatial Solutions	 Application of GIS, Big Data and IoT in Urban Planning. Freight Transportation and its Impact on urban mobility E-Mobility and Autonomous vehicles for developing nation Land Management Policy for Mega Project at peri urban areas. Women Empowerment in Urban Planning Climate change mitigation strategies for compact urban areas Dron and BIM to manage urban infrastructure
27.	Dr. Ganesh D. Kale	Effect of Climate Change on Hydrology Rainfall Runoff Modelling Application of GIS and Remote Sensing in Water Resources Engineering Application of GA Fuzzy-Logic and ANN in Water Resources Engineering Optimization in Water Resources Engineering	 Hydrologic and hydraulic modelling of the Panchganga River basin (Water Resources Engineering). Prioritization of divisions, districts and blocks of the Rajasthan state for groundwater management and investigation of factors affecting significant trends in Groundwater levels of blocks of the Rajasthan state (Water Resources Engineering). Analysis of stormwater drainage system of Southwest Zone of the Surat city in the context of climate change (Water Resources Engineering). Estimation of future streamflow of the Upper Godavari River Basin by using the SWAT model (Water Resources Engineering).
28.	Mr. J. B. Patel	Ground Improvement	 Reliability assessment of Reinforced soil wall for flood hazards Hybrid retaining wall Tiered Reinforced soil wall Pseudo static, pseudo dynamic and dynamic analysis of earthen dam
29.	Dr. B. Kondraivendhan	Pore structure characterization and modeling of pore size distribution of cement based materials. Effect of pozzolanic materials addition/replacement in cement based system. Strength and durability studies on cement based material. Studies on reinforced concrete corrosion. Repair and rehabilitation of concrete structures	 Chloride, sulfate and carbon-di-oxide induced rebar corrosion in concrete Alkali Activated Concrete LC³- an alternative binder in Cement based materials Limestone concrete Determination of ITZ of cement based materials Utilization of EAF slag in concrete Geo-ferrocement confinement

30.	Dr. Namrata D. Jariwala	Helth related issues in solid waste mangement practice Environmetal Education Environmet and health Air pollution	 comparison of indoor air quality and outdoor air quality in industrial environment Source apportionment study Heavy metal analysis of air borne particles Aerosols and particulate matter measurements using remote sensing data Correlation of particulate matter concentration with temperature profile of area Monitoring of surface water quality using remote sensing data Assessing health risk of workers using poor indoor air quality
31.	Dr. Tailor Ravin Maheshkumar	Urban Infrastructure Planning Pavement Design and Assessment	 Preparing Town Planning Scheme for optimize land utilization Preparing redevelopment plan for old city areas to balance various impacts of urbanization through Local Area Planning Performing social impact assessment of various projects Accessing city's future growth opportunities considering most influential factors through Geospatial Techniques Urban Infrastructure planning and monitoring Heritage area conservation planning Redefining Green space Index evaluation for different climatic and geographical conditions Predicting optimum carrying capacity for city development considering available natural resources and city resilient capacity, Accessing city security through IoT and Geospatial Technologies Accessing quality of life of city residents through measurement of various indices like QLI, Poverty Index etc., Applying different approaches to optimize value capture for various urban infrastructure projects
32.	Dr. Shailendra kumar	Ground Improvement Techniques, Soil Stabilization, Reinforced Earth & Geosynthetics and Geotechnical Earthquake Engineering	 Pullout capacity of granular pile Liquefaction remedial measures Remedial measures for contaminated soil
33.	Dr. (Mrs.) Shruti J. Shukla	Geo-technical engineering and soil improvement techniques Pursuing research in the field of piled raft foundation	 Durability of Commercial Waste Bagasse Ash and Ground Granulated Blast Furnace Slag Stabilized High Plastic Clay Reduction of Lateral Earth Pressure on Retaining Wall By Expanded Polystyrene (EPS) Geofoam Inclusions Behaviour of Cohesive Soil Reinforced With Waste Tyre Fibres Experimental Investigations on the Mechanical Properties of Sand stabilized With Colloidal Silica Detailed Study of Different Types of Backfill Material Used In Geotechnical Engineering
34.	Mr. Amit J. Solanki	Pavement Materials Pavement Design and Analysis Pavement Evaluation and Maintenance	 Design of bituminous mixes in order to achieve superior performance with advanced characterization techniques. Design of pavements using non-conventional materials
35.	Dr. Ankesh Kumar	Machine Foundation Soil Dynamics Rock Mechanics Analysis of Underground Structures Physical and Numerical Modelling Numerical Methods in Geotechnical Engineering Slope Stability (rock/soil) Blast/Impact Loading in Geo- Materials.	 Dynamic response of machine foundation resting on weathered and highly fractured rockmass Support design for tunnels in squeezing ground condition A novel approach for the prediction of the strength of anisotropic rock under true triaxial stress condition Creep behaviour of soft rocks Effect of extreme environmental conditions on the strength of rock and rockmass

36.	Dr. Jitesh T. Chavda	Computational Geomechanics Deep Foundations Deep Excavations Use of PIV Technique in Geotechnical Engineering Physical Modelling in Geotechnical Engineering Seismic Hazard Analysis Dynamic Soil Properties Constitutive Modelling in Geotechnics Conservation of Heritage Structures	 Site Specific Seismic Hazard Analysis for Gujarat state for Heritage Conservation Heritage Impact Analysis Finite element analysis of Geotechnical problems Numerical simulations of Large Deformation problems in Geotechnical Engineering Experimental and Numerical Evaluation of 3D arching in Soil Development of Transparent soil for PIV analysis Advancement in Image processing for Geotechnical Applications Experimental geotechnics, Geophysical tests, MASW and Microtremor test
37.	Dr. Kashyap A. Patel	Structural Engineering, Steel-concrete Composite Structures, Reinforced Concrete Structures, Bridge Engineering, Structural Health Monitoring, Rehabilitation and Retrofitting	 Concrete cracking modeling using smeared crack approach Tension stiffening modeling Time dependent (creep and shrinkage) analysis Effect of flexibility of shear connectors on composite structures Finite element modeling using commercial software Artificial neural network application in structural engineering Fire performance of structures Application of FRP composites in construction Blast engineering Metro rail construction and management
38.	Dr. Smaranika Panda	Air Quality Management , Air Quality Modelling, ,Urban and Industrial Air Quality Monitoring, Carrying Capacity Studies, Chemical characterization of Particulates, Indoor Air Pollution, Exposure Analysis, Health Risk Assessment, Source Apportionment, Receptor Modelling	 Air quality monitoring using low cost sensors: performance evaluation in various environmental scenarios Quantification of pollutant concentrations using remote sensing and GIS Designing Carrying Capacity based Air Quality Management framework for industrial clusters Personal exposure & health risk assessment of street vendors in contrasting land uses of Surat Emission inventory of exhaust and non-exhaust air pollutant emissions for Surat city
39.	Dr. Tamizharasi G	Earthquake Engineering Structural Dynamics	 Structural Analysis: Static and Dynamic (Linear and Nonlinear) Structural Design: Earthquake Engineering (Reinforced Concrete Structures) Behaviour of buildings under earthquake shaking Checking the compliances given in building code provisions.
40.	Dr. Vishisht Bhaiya	Seismic Vibration Control and Anti- Seismic Devices Probabilistic Framework for Seismic Design and Performance Assessment Uncertainty Modelling in Dynamical System Discrete Element Modelling Rehabilitation & Retrofitting Disaster Mitigation and Management with respect to Multihazard events	 Bending, Buckling and free vibration analysis of composite plates Wind Vibration Control of Tall Structures Performance Assessment of Structures using Artificial Intelligence