Department	Research domain
Biosciences and Bioengineering	Nanobiotechnology, Biosensors, Nanomaterials, Theranostics.
Biosciences and Bioengineering	GPCR Signaling in Diabetes
Chemical Engineering	Nucleate pool boiling study in multicomponent solutions
Chemical Engineering	Heterogeneous Catalysis
Chemical Engineering	Carbon dioxide capture and conversion
Chemical Engineering	Energy Storage System
Chemical Engineering	Microfluidics and Energy Systems
Chemistry	Enzyme-Inspired Metal Catalysis, Application of transition-metal catalysis in the field of Renewable Energy, Organometallic Catalysis for Drug Discovery, Artificial Intelligence in Chemistry
Chemistry	Asymmetric Synthesis, Photochemical and Electrochemical Organic Reactions
Chemistry	Asymmetric Synthesis, Alkynyl hydrazones and Donor-Acceptor Diazo Chemistry
Chemistry	Inorganic and Materials Chemistry (CO2 Reduction, Nitrogen Reduction, Water Purification)
Chemistry	Inorganic, electro, and materials chemistry (mainly CO2 Reduction)
Chemistry	Enzyme-Inspired Metal Catalysis
Chemistry	Application of transition-metal catalysis in the field of Renewable Energy
Chemistry	Organometallic Catalysis for Drug Discovery, Artificial Intelligence in Chemistry, Photochemical organic synthesis: Carbene Transfer Reaction and Photoredox Catalysis
Chemistry	Electro Organic Synthesis
Chemistry	Organometallics and organometallic transition metal catalysis,
Chemistry	Bio-inspired transition metal catalysis,
Chemistry	Chemical and electrochemical conversion of small molecules,
Chemistry	Synthetic transformations involving carbene and nitrene intermediates
Civil Engineering	Study on discontinuity present in rock mass present around himalayan areas, Behaviour on Intermediate Geomaterials around Siwalik region
Civil Engineering	Geotechnics for Mountain Infrastructure, Geosynthetic Solutions for Cold Weather Climate Infrastructure
Civil Engineering	Microwave InSAR, Polarimetry, AI/deep learning in RS, Remote Sensing and GIS Applications in Cryosphere/Hydrology/Earth Sciences
Civil Engineering	Ultrasonic sensor characterization and novel fabrication techniques for nondestructive evaluation
Civil Engineering	Geosynthetic application based geotechnology for foundation and road infrastructures
Civil Engineering	Cyclic analysis and retrofitting of reinforced concrete elements
Civil Engineering	Wastewater Engineering and Solid Waste Valorization
Civil Engineering	Influence of subbase courses in performance of rigid pavements; Functional and structural evaluation of rigid pavements; Pavement surface characteristics and distress mitigation

Civil Engineering	Seismic Performance, Cyclic Behavior, Aluminum and Steel, Passive Energy Dissipation Dampers
Civil Engineering	Assessment of flaws in concrete using microwave tomography
Computer Science and Engineering	Network Security/ Web Security/ Authentication/ PKI
Computer Science and Engineering	Blockchain/ Computer Vision/ AI and Data privacy
Computer Science and Engineering	Computer Vision, Image/Video Quality Assessment, Perceptual Modelling, AI/ML
Computer Science and Engineering	Database + Data Management
Computer Science and Engineering	Graph & Geometric algorithms / Distributed Algorithm
Computer Science and Engineering	Systems and Networking: SDN, NFV, 5G and beyond networks, IoT networks
Computer Science and Engineering	Cloud computing, federated learning, machine learning, deep learning, user privacy, cyber security
Computer Science and Engineering	Cryptography, Cryptanalysis, Quantum Computation and Quantum Cryptography, Post Quantum Cryptography
Computer Science and Engineering	Cryptography, Functional Cryptography
Computer Science and Engineering	System-on-Chip design using RISC V for Computational Genomics pipelines and Big Data, Computer Architecture, VLSI System Design, Bioinformatics, Embedded Systems
Electrical Engineering	Design and Development of On/OFF Board Chargers for Electric Vehicles (EVs), Power Converters for Electric Vehicles, and Renewable Energy. Design and Development of EV Infrastructure.
Electrical Engineering	Internet of things and controller design for autonomous electric vehicle operation, Energy harvesting Communication networks, Cooperative communication networks, Cognitive radio networks, communication system performance analysis using probability theory concepts
Electrical Engineering	Drone Technologies and Communications Engineering
Electrical Engineering	Power supply design for Hydrogen energy
Electrical Engineering	III-Nitride based UV LED and Photo=detectors
Electrical Engineering	RF and Microwave, Antennas
Electrical Engineering	RF Energy Harvesting , Microwave Passive Circuits
Electrical Engineering	Speaker Verification Using Machine Learning
Electrical Engineering	AI/ML, Design and Devlopment of RF & Microwave Devices (Antennas, Filters) for 6G and Space Technologies using AI/ML, Integration & Simulation of various active devices (Diode, BJT, MoSFET, etc.) using Finite-Difference Time-Domain (FDTD) Method, Error Estimation in Computational Electromagnetics
Electrical Engineering	VLSI Design
Electrical Engineering	Communication Engineering
Electrical engineering	NOMA, IRS, Terahertz communication
Electrical engineering	Deep Learning for Computer Vision
Humanities and Social Sciences	Higher Education (from any field of social sc.) + should be UGC JRF/ Externally funded.
Materials Engineering	Materials for energy, biomaterials
Materials Engineering	Mechanical behaviour of composite Materials under complex stress states
Materials Engineering	Microwave Based Meta Materials, Phase Change Memory Materials, Pseudo-elastic Shape Memory Alloys, Transmission Electron Microscopy, Thermodynamic Modeling, Optically Induced Smart Actuators

Materials Engineering	Mechanical behavior of advance materials
Materials Engineering	Process Metallurgy, Extractive Metallurgy, Computationla Modelling
Materials Engineering	Synthesis of novel biopolymer, study of polymer degradation
Materials Engineering	Alloy development and structure-property correlations -- with a focus on metallic glasses & high entropy alloys.
Mathematics	Commutative Algebra
Mathematics	Combinatorial Commutative algebra
Mathematics	Number Theory
Mathematics	Algebraic Coding Theory
Mathematics	Applied Probability, Stochastic Modeling
Mathematics	PDE and Numerical Analysis
Mathematics	Group Theory, Representation Theory
Mathematics	Finite Fields and Their Application in Cryptography
Mathematics	Applied Probability/Stochastic Modelling
Mathematics	Combinatorial Commutative Algebra
Mathematics	Partial Differential Equations and Numerics
Mathematics	Number Theory
Mathematics	Algebraic Geometric Codes
Mechanical Engineering	Laser-based additive manufacturing
Mechanical Engineering	Laser additive manufacturing of polymer science for biomedical applications
Mechanical Engineering	Solar Energy
Mechanical Engineering	Nonlinear dynamical systems with hysteresis
Mechanical Engineering	Investigation of the atomization and combustion processes in reusable liquid rocket engine combustors, Development of lean-burn injectors for micro gas turbine engine applications.
Mechanical Engineering	Additive Manufacturing of functional prototypes for biomedical applications.
Mechanical Engineering	Solar Energy, Hydrogen Energy
Mechanical Engineering	Investigation of the atomization and combustion processes in reusable liquid rocket engine combustors, Development of lean-burn injectors for fuel flexible micro gas turbine engine applications.
Mechanical Engineering	Thermal analysis of laser-based 3D printing / additive manufacturing process
Mechanical Engineering	Modeling of dispersed phse flow dynamics in nuclear reactor applications
Mechanical Engineering	Design and analysis of self lubricating composite material for bearing application
Mechanical Engineering	ML enabled analysis of Conical journal bearing.

Mechanical Engineering	Processing and Machining of Ultra high temperature ceramics
Mechanical Engineering	Ultrasonic and RF Imaging for NDT, Waste Management and Segmentation
Mechanical Engineering	Heat transfer: Passive cooling of electronic devices
Mechanical Engineering	Heat transfer: Salt deposition dynamics in porous media
Mechanical Engineering	Heat transfer: Precision agricultural practices : Aeroponics, Hydroponics, and their contamination
Mechanical Engineering	Multifunctional composites for SHM
Mechanical Engineering	Smart Ankle foot design and synthesis of mechanisms for Prosthetics
Mechanical Engineering	Phase Field modeling for composite failure analysis
Physics	Solid state battery
Physics	Hybrid-perovskite solar cells
Physics	sodium superionic conductors, solid state bateries
Physics	Experimental plasma physics, strongly coupled plasma
Physics	Sodium Superionic Conductors & Solid State Batteries
Physics	Experimental dusty Plasma & Experimental Atmospheric Plasma
Physics	All inorganic perovskite solar cells
Physics	Non equilibrium statistical mechanics & Biophysics

Department	Research domain (PhD Admission under Visvesvaraya Ph.D)
Electrical Engineering	VLSI Design
Electrical Engineering	Cyber Security and CPS
Computer Science and Engineering	Artificial Intelligence