

Focus Area of Research

Manufacturing and Industrial Engg.



PANDIT
DEENDAYAL
PETROLEUM
UNIVERSITY

- ADDITIVE MANUFACTURING,
- WIRE ARC ADDITIVE MANUFACTURING,
- ULTRASONIC ADDITIVE MANUFACTURING AND SOLID STATE ADDITIVE MANUFACTURING.,
- EDM WIRE CUT,
- EDM; SURFACING AND ELECTROCHEMICAL MACHINING; ,
- ELECTRO-CHEMICAL DISCHARGE MACHINING (ECDM),
- WIRE-ECDM,
- ELECTRO-CHEMICAL DEBURRING,
- FRICTION STIR WELDING AND PROCESSING OF MATERIALS,

Focus Area of Research

Manufacturing and Industrial Engg.



PANDIT
DEENDAYAL
PETROLEUM
UNIVERSITY

- NUMERICAL MODELLING AND SIMULATION OF MANUFACTURING PROCESSES,
- LITHIUM ION BATTERIES,
- TOOLS AND COATINGS,
- MICROWAVE PROCESSING OF MATERIALS,
- LASER PROCESSING OF MATERIALS,
- CORROSION AND COATINGS,
- ELECTROCHEMICAL MACHINING AND 3D PRINTING,
- MICRO MACHINING,
- SURFACE TEXTURING AND METROLOGY,

Focus Area of Research

Manufacturing and Industrial Engg.



PANDIT
DEENDAYAL
PETROLEUM
UNIVERSITY

- WEAR, FRICTION & TRIBOLOGY,
- SUPER PLASTICITY,
- WEAR BEHAVIOR OF SURFACE COMPOSITES,
- FRICTION SURFACING,
- HYBRID WELDING,
- METAL CORED AND FLUX CORED ARC WELDING,
- FLUX ASSISTED TIG WELDING,
- LASER WELDING & ULTRASONIC WELDING.
- ADVANCED PRODUCT INSPECTION USING IMAGE PROCESSING,
- INDUSTRY 4.0 APPLICATIONS IN MANUFACTURING.

Focus Area of Research

Industrial Management:



PANDIT
DEENDAYAL
PETROLEUM
UNIVERSITY

- PROJECT MANAGEMENT;
- OPERATION & SUPPLY CHAIN MANAGEMENT;
- MATERIALS & PROCUREMENT MANAGEMENT;
- QUALITY & RELIABILITY MANAGEMENT.

Focus Area of Research

Entrepreneurship:



PANDIT
DEENDAYAL
PETROLEUM
UNIVERSITY

- MICRO SMALL & MEDIUM ENTERPRISE;
- ENTREPRENEURSHIP;
- INNOVATION.

Focus Area of Research

Design Engg.



PANDIT
DEENDAYAL
PETROLEUM
UNIVERSITY

- FINITE ELEMENT ANALYSIS,
- ADDITIVE MANUFACTURING/RAPID PROTOTYPING,
- INNOVATIVE AND CREATIVE MATERIALS FOR RAPID PROTOTYPING PROCESSES,
- NUMERICAL AND EXPERIMENTAL INVESTIGATIONS OF FUSED FILAMENT EXTRUSION TECHNIQUES.
- COMPOSITE MATERIALS,
- COMPUTATIONAL MECHANICS OF MATERIALS: STRESS ANALYSIS AND OPTIMIZATION,
- COMPOSITE MATERIALS,
- COMPUTATIONAL MECHANICS OF MATERIALS: STRESS ANALYSIS AND OPTIMIZATION,

Focus Area of Research

Design Engg.



PANDIT
DEENDAYAL
PETROLEUM
UNIVERSITY

- MATHEMATICAL MODELLING OF ADVANCED MATERIALS, OPTIMIZATION,
- CONTINUUM DAMAGE MECHANICS,
- STRESS ANALYSIS,
- VIBRATION BASED FAULT DIAGNOSIS AND CONDITION MONITORING,
- SIGNAL AND IMAGE PROCESSING FOR STATE IDENTIFICATION OF COMPONENTS,
- MACHINE LEARNING AND ARTIFICIAL INTELLIGENCE APPLICATION IN DESIGN OF COMPONENTS,
- OPTIMIZATION TECHNIQUES.

Focus Area of Research

Design Engg.



PANDIT
DEENDAYAL
PETROLEUM
UNIVERSITY

- TRIBOLOGY,
- FLUID FILM LUBRICATION,
- SURFACE TEXTURING,
- SMART LUBRICANTS.
- NONLINEAR DYNAMICS,
- SANDWICH STRUCTURES,
- SMART MATERIALS.
- FAILURE ANALYSIS AND MECHANICAL BEHAVIOUR OF MATERIALS,
- SMALL SCALE SPECIMEN TESTING TECHNIQUE

Focus Area of Research

Thermal Engg.



PANDIT
DEENDAYAL
PETROLEUM
UNIVERSITY

- RENEWABLE ENERGY:

- BIODIESEL,
- WIND ENERGY,
- SOLAR HYBRID TECHNOLOGY,
- SOLAR THERMAL APPLICATIONS,
- MARINE RENEWABLE ENERGY,
- HYDROGEN ENERGY,
- CO₂ CAPTURE AND RECYCLING,
- RECYCLING OF E-WASTE,
- INDUSTRIAL WASTE,
- LI-ION BATTERIES.

Focus Area of Research

Thermal and Fluid Engg.



PANDIT
DEENDAYAL
PETROLEUM
UNIVERSITY

- WATER DESALINIZATION,
- THERMAL COMFORT,
- ADVANCE REFRIGERATION SYSTEM,
- TRI-GENERATION,
- INDUSTRIAL EFFLUENT TREATMENTS
- COMPUTATIONAL FLUID DYNAMICS (CFD)
- FLUID FLOW CONTROL
- CONTROL THEORY,
- FLUID FLOW INSTABILITY AND HYDRODYNAMICS,

Focus Area of Research

Thermal and Fluid Engg.



PANDIT
DEENDAYAL
PETROLEUM
UNIVERSITY

- TRANSITION AND TURBULENT FLOWS,
- CFD APPLICATIONS: IC ENGINES AND ALTERNATIVE FUELS,
- MATERIAL PROCESSING,
- HEAT AND FLUID FLOW,
- MELTING AND SOLIDIFICATION,
- MICROSTRUCTURE MODELLING,
- NATURAL CONVECTION,
- RAYLEIGH-BERNARD CONVECTION,
- DIRECT NUMERICAL SIMULATIONS,
- CAVITATION STUDIES.

Focus Area of Research

Thermal and Fluid Engg.



PANDIT
DEENDAYAL
PETROLEUM
UNIVERSITY

- ENERGY STORAGE:-
 - LI ION BATTERIES,
 - NA ION BATTERIES,
 - BATTERY CHEMISTRY,
 - THERMAL MANAGEMENT,
 - AUTOMOTIVE APPLICATIONS.
- NANO MATERIALS:
 - SYNTHESIS,
 - CHEMISTRY, AND
 - PERFORMANCE CORRELATION STUDIES

Focus Area of Research

Thermal System Design



PANDIT
DEENDAYAL
PETROLEUM
UNIVERSITY

- THERMAL SYSTEM DESIGN AND OPTIMIZATION,
- EXERGY ANALYSIS OF THERMAL SYSTEM,
- WASTE HEAT RECOVERY,
- THERMAL SYSTEM DESIGN FOR ENHANCING HEAT TRANSFER RATES FOR EXTREMELY HIGH HEAT FLUX APPLICATIONS