Project Title -01

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| Advanced CMOS Device Design |
| Design of High Gain and High Speed Op-amp |
| ALU Design |
| Design of Clock buffers and Clock Inverters for CTS |
| Nanomaterials for electronic applications |
| Design and  Implementation of Arithmetic circuits |
| Fast boolean logic mapped on memristor crossbar |
| Hardware for AI and ML |
| TCAD simulation of semiconductor device |
| Power-on-chip/Self Powered Device for High performance computing System |
| Design of active inductor based VCO for RF transceiverfront end |
| Device Modeling and Analysis |
| Design of multi variable controlled Hybrid Ventilator |
| Design of high speed MDC/SDF FFT processors |
| Buck and Boost Voltage Converters |
| Designing of Tunnel FET and FinFET Using Sentauraus TCAD and finding of their characterstics. |
| Numerical Simulation and Compact modeling of Metal Oxide based semiconductors based TFTs for analog and Digital circu |
| Design and Implementation of Asynchronous FIFO using Intel FPGA |
| A Low-Cost VLSI Implementation for Efficient Removal of Impulse Noise |
| SRAM based on double pocket double gate hetero junctio TFET |
| DC and RF characterization of AlGaN/GaN MOS HEMT for High power applications |
| 2-D material based IR Photodetectors for image sensors applications |

Project Title -02

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| Design and Performance Investigation of Steep-Subthreshold Dev |
| Design of Low Noise Amplifier for biomedical applications |
| MAC design |
| Design of approximate computational elements |
| Vacuum transistors |
| Design and Implementation of Block Cipher Architecture |
| Alternative Architectures Toward Reliable Memristive Crossbar Me |
| Neuromorphic Computing |
| Design and simulation of power MOSFET |
| Memristor Devices for Neuromorphic Application: Devices and SP |
| Drsign of low noise amplifier for RF transceiver front end |
| Biosensor |
| Study of nano materials for fast switching circuits |
| Optimized FFT architectures for real-valued signal processing |
| Applications of Content Addressable Memory |
| Impact on I-V, C-V and RF characteristics in variation of Fin-width |
| Numerical Simulation and Compact modeling of organic Thin film t |
| Design and Implementation of Complex Mathematical Function us |
| Fast Discrete Wavelet Transformation using FPGA |
| SRAM based on vertical TFET |
| Investigation on AlGaN/GaN MOS-HEMT for Biosensor Applicatior |
| 2-D material based Single Photon Sources |

Project Title -03

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| Investigations in Negative Capacitance Field Effect Transistors |
| Design of bandgap reference |
| FPU Design |
| Design of Level Shifters for Multi voltage Integrated Circuits |
| Material modelling |
| Design and Implementation of Digital circuits in QCA |
| Scaling Constraints for Memristor-based Programmable Interconnect in Reconfigurable Computing |
| High speed VLSI architecture design |
| Design of ReRAM for neuromorphic applications |
| Memristor (RRAM) based Gas/Chemical Sensor: Device and Fault Modelling in SPICE |
| Design of active inductor based bandpass filter for RF transceiver front end |
| SRAM Memory Design |
| Deep learning models for face approximations |
| High speed WiFi digital Tx/Rx for 4G+ standards |
| Algorithms for VLSI Physical Design-1 |
| Designing NCFET and studying its characteristics. |
| Modeling and simulation of Sic based MOSFETs/SRAM design for high temperature applications |
| Design and Implementation of AMBA bus protocol |
| VLSI Implementation Using Dwt for Image Compression and Image Fusion for Medical Application |
| Low power CAM circuits |
| Analysis of traps affected Source-gate regions in HEMT |
| Modelling and Simulation of IR Photodetectors |

Project Title -04

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| Design of Low Droput Regulator |
| Image decoding |
| Design of high performance Multipliers for DSP apps |
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| Memristor-Based Neuromorphic Hardware Improvement for Privacy-Preserving ANN |
| Low power Digital system design |
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| FinFET and CMOS based Memory Design and issues at sub nm Technology Node |
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| Physical Design (MSP 430 Micro-controller and its application) |
| aritificial intelligence in gall bladder stone analysis |
| Design of High performance OFDM architecture |
| Algorithms for VLSI Physical Design-2 |
| Studying suitability of MoSi2N4 for 2D semiconductor FETs |
| Numerical simulation and compact modeling of Graphene Field effect transistors/MOS2 base |
| Process variation study on Sub 7nm Stacked Nanosheet Field Effect Transistor using TCAD |
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| Low power approximate multipliers |
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| Modelling and Simulation of Single Photon sources |

Project Title -05

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| Design of DC-DC Converter |
| Image compression or enhancement |
| Design of  Data path elements for considering Noise margin effects |
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| Scaling Constraints for Memristor-based Programmable Interconnect in Reconfigurable Computing Arrays |
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| Emerging Memory Devices and Architectures |
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| Solar Application |
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| Optimization and FPGA implement of DSP algorithms |
| Karatsuba Multiplication Algorithm and Beyond |
| Microscopic Origin of Piezoelectricity in Lead-free halide Perovskite: Application in Nanogenerator Design |
| Numerical simulation and compact modeling  of GaN on Si/GaN on Sapphire based Field effect transistors for high power applications |
| Performance Comparision of Multi Fin FET and Stacked Nanosheet using TCAD |
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| Hardware accelators for Convolutional neural networks |
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| Modelling and Simulation of CMOS IR Image sensors |