Research Practice Projects Available for Semester II (2017-2018)
(ME Microelectronics/ ME Embedded Systems/ ME Communication Engineering)

Name of Faculty	Topics	Area: Comm/micro/embedded	Expected outcome
Prof. Navneet Gupta	Design and Analysis of Meta material based Antennas for RF devices	ME Communication	Publication in a standard IEEE conference/SCOPUS indexed journal
	Modelling and Simulation of carbon nanotube field effect transistors (CNT-FET)	ME Microelectronics	
Prof. Chandra Shekhar	VLSI Architectures and VLSI testing	ME Microelectronics/ ME Embedded System	Strong understanding of architectures
Prof. V. K. Chaubey	Communication link / Network modeling & Design	ME Communication	To identify a research problem
Prof. Anu Gupta	Implementation Of ANN	ME Microelectronics/ Embedded System/ Communication	
	Radiation Hardened Circuits		
	Dynamic Voltage Frequency Scaling		
	Clock Generation And Recovery		
Prof. Hari Om Bansal	FPGA-Based Control for Electric Vehicle and Hybrid Electric Vehicle	ME Embedded	Validation of control algorithm for HEVs to improve fuel efficiency. Publication in a reputed journal
	Development of Control Technique for Shunt Active Power Filter using Xilinx tool box		Validation of control algorithm for SAPF to Reduce THD. Publication in a reputed journal
Prof. H.D.Mathur	IoT applications in Smart Grid Scenario	ME Embedded System	Development of prototype for some application
Prof. Dheerendra Singh	FPGA implementation of Various speed Control Tech.	ME Microelectronics/ Embedded/ Communication	Real time learning + Publication in good Journal
	Developememt of Deep Learning Based crowed estimation,/ feature extraction.		
	FPGA implementation of ANN based Active filtering		
Dr. Abhijit Asati	Study of clock domain crossing in VLSI circuits	Microelectronics	(i) Understating CDC issues (ii) Simulating CDC (ii) Writing and communicating Research paper
Dr. K K Gupta	Structural Health Monitoring based on Cyber Physical System	ME Embedded / Communication / Micro	Publication in a standard IEEE conference/SCOPUS indexed journal (based on quality of research and knowledge advancement)
	Smart Water Grid		
	Integrated Multi Sensor Array for Water Quality Assessment		
	Compressed Domain Video Analysis		
	Multimodal Biometric Techniques using thermal and visible Facial Images		
	Bearing Health Monitoring based on vibration and		

	acoustics		
Dr. Rahul Singhal	Design of Optical Communication Networks	ME Communication	National/ International conference
	Planar Antenna Design & Development		
	Design Optical Waveguide Based Devices		
Dr. Praveen Kumar A.V.	Dual-feed RF coupler designs		Minimum Outcome to submit a conference paper
	Characterization of edible oil using microwaves		
	FDTD analysis of slot antenna		
Dr. Anantha Krishna Chintanpalli	Concurrent vowel identification using the neural networks.	ME Communication	Journal (Scopus/SCI)/IEEE conference
	EEG signal analysis using time-frequency representation.		
Dr. Sainath Bitragunta	Energy efficient and delay constrained cognitive radio network: design, analysis, and, simulation	ME Communication	Journal (Scopus/SCI)/IEEE conference
	Cooperative and cognitive satellite systems: efficient protocol design and analysis		
	Energy harvesting Millimeter wave communication system design and performance analysis		
	Application of stochastic geometry for efficient wireless network modeling and design		
Dr. Nitin Chaturvedi	Design of Nonvolatile SRAM cell for storing multiple bits for runtime context switching for IoT	ME Microelectronics	Good quality conference/journal paper (SCOPUS indexed)
	Design of Self-Resetting Latches for Asynchronous Micro-Pipelines		
	Study/Design and analysis of high speed asynchronous write circuit for non-volatile memory and logic		
	Study and analysis on the potentials of FinFETs for Asynchronous Circuit Design		
	Design and analysis of reconfigurable cache architecture and cache coherence protocols		
	Study/Design of GaN HEMT Device for biosensing applications		
	Study/Design of GaN HEMT Device for high voltage applications		
Dr. Arnab Hazra	Self-doped TiO_2 Nanotube	ME Microelectronics	Good Publication

	Sensor for Low Temperature Vapour Detection		
	Fabrication and Characterizations of Cu_2O/TiO_2 Heterojunction for Vapor Sensing Application		
Dr. Mahesh Angira	RF MEMS technology based phase shifter.	ME Microelectronics	Good quality journal paper (SCOPUS indexed)/ Knowledge of a new technology
	Design of Reconfigurable antenna using RF-MEMS Switches.		
Dr. Ashutosh Kar	Adaptive filtering and its applications	ME Communication	SCI index journal paper
	Feedback cancellation in hearing-aids		
	Communication channel equalization		
	Hybrid Active Noise Control		
Dr. Vinay Chamola	Developing real-time applications for the Internet of Things.	Embedded	Working models implementing IOT
	Fog computing for Internet of Things.	Embedded	Good quality Journal/Conference paper (+ hardware implementation)
	Research Frontiers in the Internet of Things.	Embedded/Communications	Good quality survey paper/ Literature review
	Applications connecting Smartphone to the IOT and Cloud.	Embedded	Working models implementing IOT
	Energy and Delay aware resource management for solar powered cellular networks	Communications	Good quality Journal/Conference paper
Mr. G S Sesha Chalapathi	Integrated Time Synchronization and ranging algorithm implementation	ME Embedded/ Communication	Scopus index Journal paper
	Survey of existing Time Synchronization protocols in Wireless Sensor Networks		
	Implementation of time synchronization algorithm of Wireless Sensor Nodes on hardware platform		
Mr. Kavindra Kandpal	Design of Wide Tuning Range gm–C Filter for CMOS Wireless Receivers	ME microelectronics	SCOPUS index journal/ IEEE conferences/ Learning outcome: Strong understanding of CMOS Analog Design, Expertise in EDA tool: Cadence
	Design of MOS only band gap reference (BGR) circuit in UMC 90 nm technology		
	Design of high speed dynamic comparator in UMC 90 nm technology		
Mr. Devesh Samaiya	Development of Low Power, Small size, Embedded Anti Theft Device	ME Embedded System	Research paper
	Study of background		

	subtraction methods in videos with highly dynamic background content		
	Study of camera motion estimation and compensation techniques in video sequences.		
Mr. K. Babu Ravi Teja	1.ASIC Implementation of Video compression techniques (optimization at submodule level)	Knowledge of HDL, image processing, Xilinx Tools	Publication in a good conference
	2.Investigation of Design strategies for multi-gate-transistors	Good understanding of Digital VLSI Design, SPICE	Publication in a good conference
	3.FPGA based implementation of RNS based DSP systems	Knowledge of HDL, Digital Design	Publication in a good conference
	4.ASIC Implementation of Turbo Decoders	knowledge of HDL, digital design and communication systems	Publication in a good conference
Mr. Ashish Patel	1.FPGA based control of power converters and its validation using hardware in loop simulation	Embedded	Scopus/SCI indexed publication