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| **STUDENT PROJECTS** |
| Department of Electrical Engineering trains students for practical implementation of their knowledge through Final Year Project which are critically evaluated through their progression from proposal to demonstration phase. Student’s projects belong to vast collection of divisions of Electrical Engineering and are focused on innovative ideas and solutions to societal problems. Students are provided to show-case their projects to representatives of industrial, academic and government organizations through annual Open House day.  **List of Final Year Projects completed by students in year 2016:**   * Equation Solver App For Android Phone * Mimo Antenna Array For Uwb Communication * Internet Service Provider Network Deployment * High Gain And Wide Band L-Shaped Array Antenna * Welcoming And Path Navigator Robot * Remote Gun Control And Precision Firing System For Ground And Aerial Platforms * Compact Antenna Arrays * Design And Fabrication Of Lab Model For Fso * Multi Level Enhanced Security System * Remote Vehicle Control And Monitoring Using 3g And Gps * Design of Compact F-SHAPED Slot TRIPLE BAND ANTENNA for WLANS/Wimax Application * 3rd GENEATION UMTS JAMMER * Automated Quality Control System * Ir Based Traffic Contrl System And Its Integrator On An Ambulance With Advanced Alert System * Automatic Traffic Control Using Digital Signal Processing * A Compact Uwb Frequency Notched Patch Antenna For Wireless Communication * Design And Implementation Of Low Cost Based Wireless Hci System For Disable Person Using Arm7 * Smart Security And Parking System * Oxyhealth Monitoring  System * Dip Based Indoor Guiding System For Blind Person/Handicapped * Gps Jamming System * Compressive Sensing * Secure Electronic Stroage And Transfer Device * Automated Smart Assistance For A Paralysed Person * Locating Individual Through Tracking System * Next Generation Wheel Chair * Connect The Unconnected * Secure Printing * Voice Jammer * Data Acquisition Using Fpgakit * Remote Penetration Testing Toolkit * Stk Based Drive Testing Tool * A Compact Slotted Microscript Multiband Patch Antenna For Wireless Communcation   **List of Final Year Projects completed by students in year 2015:**   * ​Design and Development of an On Board Computer for Android Smart phone Based Small Satellite * Design and Development of Communication and power system of an  Android Smart phone Based Small Satellite * ADD -ON Encryption Module for Wireless Sets * ZigBee based Industrial Monitoring * Smart UGV * Fiber Optics Based Intrusion Detection System * IR Based Automatic Access Control Security System * SEISMIC SENSING * Secure Data Communication Using trivium Encryption * Vehicle Management System * Reconnaissance & Survelliance UGV (RS-UGV) * Quality Control System * Electric Fencing System * Safe Mining * Wide Band MIMO Antenna * Automatic Transfer Switch * SEISMIC Feature Detection * Ultra Wide Band Antenna With Band Notched Characteristics * Real Time Motion Magnification * Multiple Sensing Based Intrusion Detection System * Communication on the move COTM * Aiding System for Visually Impaired People * Development of High Speed Hardware Accelerated Layer 7 Router * GIS based OFC Maintenance System * Car Security System * High Performance OFDM Communication System * Hardware Implementation of Narrow Band SDR Waveform * Unified Threat Management System for MCS * Explosive Threat Responder Robot - ETRR * Hand Gesture Based Artificial Robotic Hand * Driver Aiding System * Security System for monitoring of Remote DEFCOM Sites * Power Line Control * Hardware Implementation of AES 256 using 8051 Microcontroller * Layes 3 Switch Using Open Network Linux (ONL) * Hardware Firewall * Low Cost Wireless System Using Cots Module * Indoor Positioning   **List of Final Year Projects completed by students in year 2014:**   * Wear A Mouse * Development of Prototype Small Satellite and its Attitude Control * Denial of service to a GSM network * Low cost Active Phase Array Antenna-Technology Demonstrator * Remote Vehicle Control and Monitoring using GPRS and GPS * Control of Environmental Variables via GSM * Wireless Source Direction Finder * Improving Oil Exploration Through Tensor Field Interpolation * Voice Scrambler * Security System Against Suicidal Attack * Development of Dual Band GSM Jammer * Inserting the Cells of Battery using Robotic Arm * RF Frontend for C-band Conical Beam Radars * Designing and Development of Wireless Charging System for Mobile Devices using Electromagnetic Radiation Power * IP Network Based Energy Management and Control System * Café Map * LuminAR Bulb * Mobile Video Surveillance * Smart Nose * Viva la Market * GSM Based Traffic Congestion Monitoring System * Car Accident Warning and Protection System * Secure SD Card Reader * One time passwword based lock system * Buried Cable Perimeter Intrusion Detection System * Design and Development of Embedded Hardware Platform for Android Applications * H.264 video Encoder/Decoder Implementation * IP Packet Handling Engine for Secure Communication * Development of NGN- Test Bed * Micro UAV for Aerial Surveillance * Identification of Concealed Weapon (CWD) in a Human Body using IR Images * Localization of GSM Devices in the Intended Area * Wireless Audio Video Transmission and Friend or Enemy Recognition * Design of A Generic Eye Gesture Control Chipset * Hybrid Renewable Energy System * Android based VOIP client over 4G * Design of Prototype for Search and Rescue Applications on UAVs * Design of Prototype for Video Sureveillence Applications on UAVs * Eavesdropping on WiFi Network via UAV * Development of Android based Hotel Automation System * Wireless Aiming and Engaging Module (RF Controlled Gun) * Microcontroller Based Intelligent Solar Powered Chargeable UPS * Wireless Power Transfer   **List of Final Year Projects completed by students in year 2013:**   * Metro Ethernet Rings At MCS * Adaptive Smart Antenna * GSM Land Switch * Switched Beam Antenna Array Using Butler Matrix Phase Shifter * Android based Home automation * A prototype for Eye ball controlled wheelchair * Wireless User Identifier And Azimuthal Location Indicator * SCA Compliant Waveform Development for SDRs * MIMO Based Cognitive Radio * Hardware Implementation of Relays in a Wireless link * Through Wall Imaging Radar * Hardware Implementation of Space time block codes using USRPs * Voice communication over ZigBee * Design and Developemnt of integrated video/audio TX/RX * SCADA Implementation * Smart Cafe * Sensor Network based Platoon Early Engagement System * WSNs based Non-Optical Motion Detection * Eavesdropping System * Access Control Machine based on face recognition using FPGA * Range And Velocity Indicator Using Bistatic Radar * Advanced LTE Modem Design With Interference Cancellation * Wireless Fingerprint Based Attendance Management System * Automated Face Recognition System * 4th Generation LTE 2x2 BICM MIMO OFDM System * Vehicle Accident Detection And Reporting System * Software Defined Radar For Human Movement Characterization * Moving Target Detection And Locking With Moving And Still Camera(Suparco Project) * Navigation System For Emergency Responders In Challenging Environments * Integrated Security System Using Biometric Sources * Commercial Model for Controlling Home Appliances with GSM Support * Automatic Alignment of Microwave Dish Antennas * Multi-Biometric Access Control System * Optimum Powering of bits through Solar Tracking (With Data Logging) * Development Of Data Modem For GSM Voice Channel * Virtual Table Tennis * Portable Ground Penetration Radar (GPR) Prototype * Implementation of AES on FPGA * Trunk conjoined GSM based private network * Hardware implementation of Fog/Haze removal system * Development of GSM remote supervision of Dementia Patients * Beacon Avalanche   **List of Final Year Projects completed by students in year 2012**   * Design and Development of Digital Baseband Processing Module for SDR * GAIT Recognition System * Automated System for classification of commercial products * An FPGA implementation of Hand Veins Recognition System * Abbabeel UAV * Internet controlled Simulation of  Virtual sensors * An Air Interface for LTE Radio * Wireless Transmission of Audio Bluetooth Technology * Broadband Tactical Antenna * Virtual Orthogonal Antenna * LNA assembly for GPS Repeaters * Microwave Beamformer Receiver Front End * Network Controlled Eye * Centralized Environmental Network Management and Reporting System (CENMaRS) * VANET based Convoy / Fleet Management System * Development of Jammer against Centralized Remote Control Car Door Locking System based Remote Control Improvised Explosive Devices * On Move Dynamic Location Detection without GPS in VANET * Implementation of Networking Waveform on SDR for Design and Development of Digital Baseband Processing Module for VHF/UHF SDRs * DDC/DUC Hardware Implementation for SDRs * Development of GSM Sniffer (GSM Inspector) * Hospital Assets, Personnel and Vehicle management Systems * Development of GSM Jammer * Communication System for Small UAV * VHF MIMO SDR * Solar energy systems with load balancing * Speech Scrambling Module * Ground Penetrating Radar * Concealed Weapon Detection * RFID Based Multipurpose System Development * Wirelessly Synchronized Robotic Arm * Wireless Multimedia Sensor Network (WMSN) using MicaZ motes * Ultra Wide Band (UWB), tunable RF front end for multi standard communication * A beam forming Circular Array of Vertical Diapole * Electrical energy harvesting using solar radiation * Decoding of Low-Density Parity Check (LDPC) Codes * VHF band (30-147 MHz) jammer against Remote Control Improvised Explosive Devices being operated by terrorists * Automated Home System Using DAS with GSM Support * Simulation and Design of Hardware Capable of Noise Removal and Echo Cancellation   **List of Final Year Projects completed by students in year 2011:**   * Biologically Inspired Robot * Design & implementation of Telecardiac systems * Design and implementation of Remote Energy Monitoring System * Differential golbal positioning system transmittor * Ground base GPS (Receiver Side) * Self Balancing Human Transporter (Inverted Pendulum) * Voice Encryption for Senao sets * Speaker Recognition System for security applications * Novel UWB-Based Through-the-wall imaging System * Desing and Implementation of microwave Beamformer varactor base phase shifter * Electromagnetic Energy harvesting * Design and Implementation of OFDM transceiver on FPGA Survillence * Computer controlled tunable micro-strip patch antenna * Medical Wireless Sensor Networks * Development of a Manet Testbed * NGN * 3D Through the wall microwave imaging * Object tracking UGV * Image processing * Video Tagging * BCI * IRIS SCAN * Biometric vein identification and authentication system implementation * Face Detection System   **List of Final Year Projects completed by students in year 2010:**   * Design & Implementation of TETRA & FHMA Sys & their Interroperability in P.25 enviroment. * Interoperability between WiFi  and GSM systems * Video Surveillance System * Video Transmission over MIMO based SDR system * Design of a Software Based Platform of an Intelligent Autonomous Multisensor Robocar * Design and Implementation of Software Defined Radio for Surveillance Applications * Timing Synchronization in Multi-Antenna System using Preamble Auto-Correlation * Design and Implementation of a Hardware Platform for Wireless Sensor Networks * Synchronous free digital scrambling sysem for narrowband wireless application. * Speech Recognition * Diploe Segmentation in a T1 Weighted 3D MR Image of Human Head * Through the Wall, Microwave Imaging Radar * Design and Development of a Cooperative MIMO based SDR system * Implementation of IDMA System using Labview on NI PXI-1045 * Interoperability TETRAPOL and EDACS using labview * Smart antenna system for dynamic tracking of active targets * Reconfigurable Anetnna for RF Front End System * Noise Removal and Data Transfer on HF Radio Set PK-786 * Development of a Driver's Drowsiness Detection System * Comparison of Routing Protocols,Multimedia Sensor Networks * Simulation of Advanced Encrypted TETRA Physical Layer for End to End Secured Wireless Comm * Performance Analysis of Routing Protocols of Mobile Adhoc Networks (MANETs) * Security and Surveillance System * Fingerprint Verification System * Performance Enhancement Optical Loop Tester (OLT) * Implementation of Linear Transformation Cryptography and its Key Exchange * Implementation and performance of Space Time Trellis codes in MIMO using Labview Platform * Novel UWB-Based Through-the-wall imaging System * Biologically Inspired Robot   **List of Final Year Projects completed by students in year 2009:**   * Adaptive MIMO-OFDM Communication with CSI at the Transmitter * Performance Analysis  of MIMO detection using the Sphere decoder and its Variants * Implementation of a Cognitive Radio System for Dynamic Spectrum Access * Performance Analysis of Turbo Codes in MIMO Systems * Tactical Packet Radio * Simulation of Diversity, Multiplexing and Switching between them in MIMO-OFDM System * Development of protocol analyzer for signaling * Mosaicing of Orthorectified images taken by UAV * Emulation Of Cooperative Communication Systems On DSP Boards * Implementation of Turbo Encoder and Decoder in Interleave Division Multiple Access using Equal and Unequal Power Allocation * Development of a Cognitive Platform based on Software Defined Radio * Implementation of DS CDMA * Think Done! A Brain Computer Interface (BCI) * Design and Implementation of an Optical loop Tester (OLT) * MIMO RADAR: SIMULATION AND ANALYSIS * Multiclass Optical Orthogonal Codes for Optical CDMA * Analysis of error correction code in OFDM Transciever * Enhancing the security features of WiMAX (IEEE 802.16d) using Channelized and layered encryption algorithm. * Implementation of Reconfigurable Audio Filter Using FPGA * Telemtry Using GSM Systems * Data Transmission through Sound Waves using Code Division Multiple Access Technique * GSM Intercepter * Audio Test Bed * Wireless Display System   **List of Final Year Projects completed by students in year 2008:**   * Developing A Semantic Scene Model for Automated Tracking And Surveillance Applications * Distributed Wireless Surveillance Image Processing Network * Designing of GSM Receiver using Software Defined Radio Platform * Interferance Reduction in FDD-TDD Co-existence Senerio of WiMAX Systems Using Smart Antennas * Spectrum Sensing and Monitoring in Cognitive Radios * Real-Time Implementation of Advanced Audio Coder (AAC) on DSP Processor * Integrated Services Over Packet Network * Microcontroller Based Mine Detector Via GSM Network * Implementation of Genetic Algorithm for Beamforming in Smart Antenna * Mitigation of Denial of Service (DoS) Attack using IP Traceback * Advanced Customer Call Center * Global Access and Device Control System * Channel Quality Indicator (CQI) Estimation over the Downlink of OFDMA. * Real - Time Detection of Human Body Parts * World Wide Interpretability for Microwave Access (WiMAX) IEEE 802.16 * Channel Estimation of MIMO OFDM Systems. * Analysis of the Security Issue of WI-MAX   **List of Final Year Projects completed by students in year 2007:**   * Real time Transmission of ECG Signals using GPRS Network for Supervision of Cardiac Patients  (The Care Throgh Air) * Simulation and Implementation of multicarrier CDMA on DSP Kit * Ethernet Modem * Design and Implementation  of Adaptive Coded Modulation Over Fading channels * Multifacilities Subscriber  Device * WCDMA Based UMTS Radio Network Planning Software * MCS Security System (using RIFD Technology) * Cyclic Redundancy Check (CRC) Codes Implementation on Field Programmable Gate Array (FPGA) * Real Time Variable Rate OFDM Modem * Decoding and Analysis for STANG 5066 and STANG 4538 Data Waveforms FPGA/DSP * Adaptive Beam Forming for OFDM * Simulator of CDMA 2000 / Reverse CDMA 2000 * Design an Indoor Propagation Model Using  Ray Tracing Techniques * Implementation of RAKE Receiver on FPGA /DSP Card * Wireless Registration for Vehicles * IP based PBX with PSTN Connectivity * Design, Comparison and Complexity Analysis of Various Design and Simulate Multiple Input Multiple Output OFDM Receiver Detection Techniques for MIMO OFDM Systems. * PAPR detection of OFDM symbol. * Design and Implementation of Cellular Jammer * VOIP OVER GPRS * Design, Simulation and Implementation of a Network Protocol Analyzer for a GPRS/EDGE Based System * Design and Implementation of MIL-STD-188-110B Data Waveforms * Equalization Signals Carrier QAM Modem * Vehicular security system using short messaging service. * Controlling Access of Mobile Devices using Bluetooth * VR ENVO (Virtually Real Environment) * Implementation of Encryption Algorithm on a Microcontroller for a Secure Telephone System (Secure Telephone) * Simulation Analysis and Optimization of Interleave Division Multiple Access (IDMA) * Design and implementation of real-time CDMA based voice and data communication link   **List of Final Year Projects completed by students in year 2006:**   * FPGA Based, Mode Convertor, Intelligent Traffic Control System * Design and Simulation of QAM Modem * Remote Monitoring and Control Through SMS * Design, Generation and Implementation of a  Network Analysis Tool * To Design a  Simulate and Implement a Communication System Based on Multi Carries CDMA * To Design a Tool for  Optimization and Troubleshooting GSM Networks * Universal Intellegent Source Coding Detector * Detection and Tracking of a Target in Received Signal Pattern of a Pulse Doppler Radar * Pakistan Army Radio Frequency Analysis and Management System (PARFAMS) * Bandwidth Efficient OFDM Communication System * Design, Development and Implementation of Computer Virus Weapon (CVW) Technology Based on Distributed Electronic Warfare (EW) Agents * PC Based Broadcast Receiver * Implementation of Turbo Encoder and Decoder * Frequency Hopping Spread Spectrum using Direct Digital Synthesis. * Implementation of a Real Time Smart Antenna System * Modification of Network Fillgun Adapter of 9600 Series Radio Set * Communication Between Two PCs Through Cordless Telephone System * Ascertaining Whether Data is Scrambled and Establishing the Type of Scrambling used * Network Intrusion Detection using Wavelet Neural Network * Simulation and Implementation of GSM Speech CODEC using Matlab and TMS 320C6711 DSK * Implementation/Simulation of a Universal Modulation Identifier with Frequency Extraction and Demodulation System   **List of Final Year Projects completed by students in year 2005:**   * RF Based Moving Target Chaser * Digital Design of Data Acquisition Card for IBM PC using UART-232 * RF Propagation Characteristics and Model Tunning/Customization * Trellis Coded Modulation Implementation on FPGA * Design and Implementation of Campus Wide Paging System. * Performance Analysis Of Adaptive Equalizers Using MATLAB And Their Implementation on DSP Processors * Real Time OFDM Modem * Extension of the Pange of PATCOMS Analog Number upto 25-30 KMs * Design And Implementation Of Wireless Subscriber Link * Design and Implementatoin of A Soft PABX-Call Switching From PSTN Exch to PC using VolP. * Design And Development of Direct Sequence CDMA Based Secure Comm OVER VOICE. * Intelligent Error Correction Communication (COMMINT) System * Melp Vocoder and its real time implementation on DSP boards. * RF Based Wireless Digital Data Link * A real Time "Universal Demodulator" Using DSP Based Platform System For Communication Intelligent (COMMINT) System. * I/O Parallel Port Interface Card for IBM PC. * Wireless Message  Communicator * SMS on DEFCOM * Optimal Communication Design   **List of Final Year Projects completed by students in year 2004:**   * Image matching and retrieval system using object shape & structure * Design and implementation (simulation) of QPSK. * Finger Recognition using neural networks. * Implementation of AES for secure data transmission through FSK modem using PRC 113. * Video mosaicing & digital elevated models for extracting 3D information. * Design & construction of a 3D object profile scanner. * Real time implementation of software, radio. (SDR) * Interface of CPX 200/1 using line driver modem on WD-1/TT Wires * Real time implementation of block ciphering (AES) on DSP (TMS 320 C31) * Video compression using MPEG-4 video codec and transmitting the compressed video over the Network. * Interface ANTPQ-36 radar with computer and calculating FAN angle, displaying on digital map * GPS based personal location system (PLS) using PRC-77 as comm system. * Simulation in MATLAB & Implementation in ‘C’ language of an OFDM * Speech compression and implementation / analysing using MATLAB. * Design and implementation of GPS receiver. * Development of robust, text independent speaker recognition system. * Design and implementation of a CDMA based communication link, employing  DSP Board for receiver’s baseband processing. * Location prediction in mobile network using neural network * Optimizing and porting of H.284 (ITU-T video standard) video decoder for DSP processor * Turbo equalization (channel coding and equalization all jointly optimized) * Implementation of IEEE 802-16 "Wireless MAN", standard  (Air Interface for broadband wireless access systems on LINUX OS) * Design & implementation of Freq Hopping modem for wireless personal communication   **List of Final Year Projects completed by students in year 2003:**   * Electronic private automatic branch exchange (PABX) * Wireless Laser Link * Intelligent surveillance system * Development of an image based automatic target recognition system. * Channel estimation and aqualization of asymmetric digital subscriber * Understanding of Dual Rate Coding of Speech at 5.3 Kbps and 6.3 Kbps and its simulation in Matlab * Development of automatic speaker recognition system using neural networks * Software Radio Implementation of TDMA Transceiver * Microcontroller based home security system * Remote Radio Monitoring System using DTMF * Speech coding at 8 K bit/sec using conjugate structure. Algebraic - Code-Exited Linear- Prediction (CS-ACELP) * Real time implementation of PC based echo cancelation system * HDSL Modem * Software simulation of Discrete multitone modem * Target tracking through image processing * Encrypted data transmission through PCs on HF/VHF link   **List of Final Year Projects completed by students in year 2002:**   * Speech compression using MBE and interfacing with VSAT. * Digital interface for PATCOMS. * Infrared sensing remote surveillance system. * Designing, modeling and simulation computer modeler and implementation mac sublayer protocols. * Automatic of inquiry of PBX in exchange. * Coding of speech at 8kbits/s using conjugate-structure algebraic-code-excited linear-prediction (CS-ACELP) and implementation in MATLAB. * Integration of Voice, Video and data. * Call automation at MD-110. * Laser levelling system. * HDSL Code Converter. * Computer controlled tracking System. * Cmda BASED communication system core design using forward channel of TIA 15-95. * Design & Implementation of mobile network using cordless phones. * Echo cancellation and double talk detection for VOIP. * Simulation of 3G mobile system. * Design and simulation of 3G, AMR speech codec. * Real time processing of ADSL modem. * Implementation of convolution encoding and viterbi decoding. * Spread spectrum transceiver. * Short range laser communication. * Voice / Data transmission on PSTN of PC- Interfaced sensors Notification Server   **List of Final Year Projects completed by students in year 2001:**   * Digital wireless Xmn & reception using multiplexing & de-multiplexing * Wireless sound ranging sys * Micro controller based fire alarm system. * 2.048 MbPS HDB/AMI line code converter * Sign language decoder * Noise source cryptographic key generator * Optical Tracking System * Polarization Controller in Optical Comm Sys * Development of a verification and debugging tool for PTL codes in Verilog HDL using co-simulation with C language model. * Implementation of V-32 Modem standard using the Texas instrument DSP TMS320C5X. * Line Echo cancellation in VOIP system. * Designing of a prototype using ADPCM * Design and demonstration of a multichannel speech compression system as per ET standard. * Motion and sound detection security system using lazer. * PRC-77 interfacing with line exchange (E-DAP) * Polarization state analysis of an optical signal * Optimization software BSS network dimensioning and link   **List of Final Year Projects completed by students in year 2000:**   * HF Interface Modem * PC Based infra red remote control * High Resolution Analog to Digital Conversion System * Battery Charger * Free Space point to point Optical Communication. * Development of Digital Signal practicalExperiments using Matlab. * Telephonic Control of Home Appliances * Image Compression using Fractals * Antenna Design  with MATLAB * Electronic security system * Intelligent Robotic Arm. * Programming of PCI bus interface DSP TMS 320C50 * Miss Distance Indicator * Multiplexing and de-multiplexing of speech channels and establishing a free space optical link between TX and RX * Design and development a micro controller based signal processing and alarm monitoring unit. * Design Fabrication and test of a Microstrip Patch Antenna. * Implementation of V.21 Modem using TMS320C5X DSP. * Caller Name Identifier. * Speech Compression. * Encrypted Data Transmission   **List of Final Year Projects completed by students in year 1999:**   * Frequency shift keying modem (4800 BAUDST) * 4 Speech channels PAM-IDM on fibre optic link. * Extension of 2MB stream on RL421 * Design and development of UPS-500VA * PC Based digital IC tester * 10HZ – 35MHz PC Based digital freq counter * PC Based oscilloscope * Design and dev of Radio LAN * Full duplex video communication through optical fiber. * Simulation of PCM-DPCM-LDM-ADM * Power line data communication * PC Based spectrum analyzer * Laser Link * Design simulation and testing of ANB-Bit processor using VHDL coding for CPLDs. * Design of a PC based PABX with voice mail. * To Design a video audio (TV) transmitter   **List of Final Year Projects completed by students in year 1998:**   * DC motor controller * Data acquisition systems * AD PCM Emulato * CAT and fault finding of radio set PRC-77 * Wireless computer interface. * Design project FDM Multiplexer * Computer based multimedia Video phone system. * Microcontroller based single-board PABX * Design project data comm thourgh AN/PRC-77 * Design and develop a speech vocoder sub-assembly for secure telephone * Microcontroller  based spectrum analyzer with a  frequency of 1 to  20 KHz. * To develop a FM Transmitter and Receiver capable of transmitting/ receiving a covert (spy) signal. * EMC evaluation for conducted and radiated emission using HP-84110 EM system * Voice scrambler * Design and develop a single-board Computer * To design and develop ISDN basic rate access on twisted pair |