Following laboratories are offering the final year projects in the areas given below:

1. **Power Systems Laboratory**
2. **Electric Machines Laboratory**
3. **Basic Electrical Engineering Laboratory**

**Power System Analysis:**
1. Computer aided power flow analysis
2. Incorporation of FACTs devices in load flow analysis
3. Multi machine system stability analysis
4. Fault analysis of power system
5. Enhancement of power system performance using STATCOM
6. Analysis and Optimization of 132kV Grid Using ETAP
7. NTDC network, past, present and future
8. Analysis of RPPs

**Power System Operation and Control:**
1. Frequency control of hydro electric power station
2. Power economic dispatch of given power system using neural network approach
3. Unit commitment of given power system using neural network approach
4. Power system contingency screening and ranking using ANN
5. Communication channels for power systems
6. Governor Control

**State of the Art Methodologies:**
1. Numerical methods for Electrical Engineers for power system analysis, operation and control
2. MATLAB/C++ applications in power systems
3. Heuristic search methods for power system
4. DP/EP/GA/PSO/ANN application to power system
5. Simulation & Analysis using PSCAD

**Power System Planning:**
1. Advance methods of load and energy forecast using AI tools
2. Competitive generation expansion planning
3. Disperse generation design and analysis for UET Taxila
4. Hydro optimal reactive power planning
5. Designing of micro/smart Grid and Integration with National Grid
6. Deregulation of energy sector

**Power Distribution:**
1. Demand side management (DSM) for Islamabad electric power company (IESCO)
2. Reconfiguration of Distribution system by modern tools
3. Size and location of distribution transformer for UET Taxila feeder
4. Analysis of losses in distribution network
6. Loss reduction in distribution network
7. Ways to control electrical energy consumption
8. Load and energy management in large industries
9. The most effective ways for public education towards optimal use of electrical energy
10. Tariff structuring and its effects on electrical energy consumption
11. Power Distribution Control & Automation
12. Distribution Substation Automation
13. Feeder Analysis

Power Transmission:
1. Enhancement of power transmission capability by means of FACTS devices
2. Design and fabrication of transmission line trainer
3. Design, simulation and fabrication of single phase voltage source converter (inverter)

Power Quality:
1. To Investigate the effect of supply harmonics on the performance of induction motor
2. Analysis of Industry based Power Quality Issues
3. Impact of non-linear load on nearby consumers
4. Analysis of Voltage Dip and Harmonics for Single Phase Induction Machine

Power System Simulation:
1. Implementation of Power Systems Lab in Lab View
2. Simulation based comparison of power system analysis and control using ETAP and MATLAB
3. Synchronous & induction Machines simulation using Lab View Software
4. Modeling and simulation of Congestion management in transmission sector of deregulated electricity market
5. Design and simulation of EHV-DC transmission line
6. Design and simulation of EHV-AC transmission line
7. Modeling and simulation of FACTs devices in power systems

Renewable/Alternate Energy Resources:
1. Alternate resources of power generation in Pakistan
2. Exploration of wind energy for power generation in Pakistan
3. Prototype model design, simulation and fabrication of low head hydraulic turbine for power generation
4. Design & Installation of Biomass power plant at UET Taxila
5. Design, simulation and fabrication of prototype model of solar power plant
6. Design, simulation and fabrication of prototype model for Wind power generation
7. Design, simulation and fabrication of prototype model of Thermal Power Plant

Electrical Machines/Transformers:
1. Design and fabrication of transformer trainer
2. Characteristics Evaluation of three phase induction motor & design of filter using MATLAB/SIMULINK.
3. Implementation of Machine Lab in Lab View
4. Design Optimization of Transformer Using Geometric Programming
5. Designing and fabrication of electrical governing system for synchronous generators
6. Measurement of inrush current in transformer
7. DC Motor speed control using radio frequency
8. DC Motor speed control using push switches
9. DC Motor speed control from PC COM port
10. Speed Control of DC Motor using 4 quadrant chopper
11. Designing and fabrication of auto tap changing transformer
12. Sizing of DG sets for industrial power station
13. Optimized Construction and design of 3 phase induction motor
14. Speed control of single phase induction motor using variable frequency

Power System Protection:
1. Relay Coordination of 220KV Grid using ETAP Software
2. Design of Radial feeder protection
3. Design of Ring feeder protection
Instrumentation and Measurement:
1. Inductance, capacitance and Frequency Meter design and fabrication
2. Design of 3 phase analyzer and its fabrication
3. Microprocessor based power factor measurement and control
4. Remote control of energy meters
5. Design of UPS its fabrication and testing