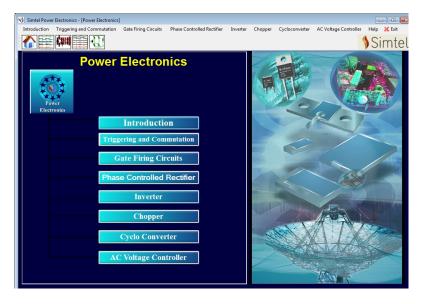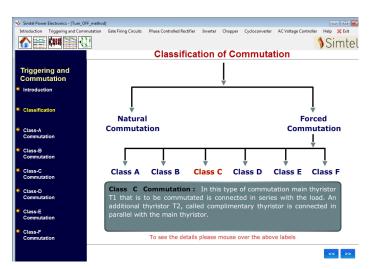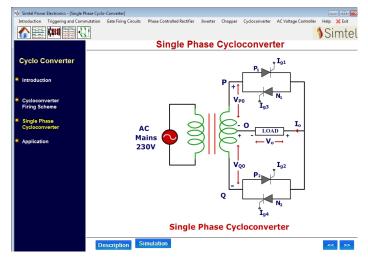Simtel Power Electronics is interactive learning and simulation software, a very powerful tool to understand core concept of the subject. Power electronics is the combination of the Power, Electronics and Control. Power electronics system work as an application of solid-state electronics for the control and conversion of electric power. With the help of SimTEL Power Electronics we have tried to develop a teaching tool which covers all topics of the subject, explained virtually through high quality simulation, rich theoretical content and attractive animated diagrams.

Topics covered:

- **Introduction:** Definition, Insulators, Semiconductors and Conductors, Types of Semiconductors, PN Junction Diode, Transistor PNP and NPN, Power Electronics Devices

- **Triggering and Commutation:** Turn-ON Method of a Thyristor, Gate Triggering Methods, Turn-OFF Method

- **Gate Firing Circuits:** General Firing Circuit, Resistance Firing Circuit, Resistance-Capacitance Firing Circuit for Half and Full Wave, UJT Oscillator, Synchronized UJT Triggering (Ramp Triggering), Ramp and Pedestal Triggering

- **Phase Controlled Rectifier:** Introduction, Classification, Uncontrolled Rectifiers (Half Wave, Full Wave and Bridge), Firing Circuits for Controlled Rectifiers (using Triangular Comparator, Ramp Comparator, Cosine Firing Scheme, IC-TCA785), Controlled Rectifiers (Single Phase Half, Full, Semiconvertor and Bridge Rectifiers with R-Load and RL-Load), Applications

- **Chopper:** Introduction, Classification, DC-DC Chopper (Introduction, Step-Down Chopper, Step-Up Chopper), AC Chopper, Applications

- **Cycloconvertor:** Introduction, Cycloconvertor Firing Scheme, Single Phase Cycloconvertor, Applications

- **AC Voltage Controller:** Introduction, Classification, AC Voltage Controller Half and Full Wave with R-Load and RL-Load, Application

Software program windows:

Subject to Change