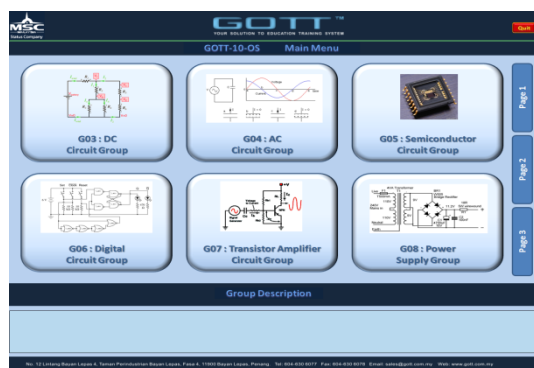


# PC BASED ELECTRICITY AND ELECTRONICS TRAINER

Model Number : GOTT-PCBASE-EE



## DESCRIPTION

An understanding of Electricity and Electronics is a primary requirement in all branches of engineering and science education. A challenging and interesting medium is required to hold the attention of students in such a multi-discipline area of study.

GOTT-PCBASE-EE is a multimedia e-learning system with integrated, mobile electronics lab for general education and advanced training in electrical engineering and electronics.

Students can learn to log the real time data through DAQ card and outputs can be observed on the PC by connecting trainer to a PC through DAQ CARD.

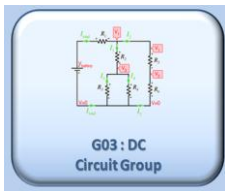
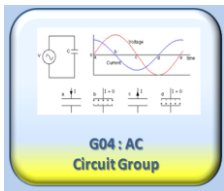

## FEATURES

- Computer-based training in the areas of electrical engineering and electronics.
- Huge selection of courses
- Encourages practical experiments using the PC-based measuring instrument
- Built-in, removable connectors for easier and more cost-effective connectivity
- Provides the inputs, outputs, relays and measuring equipment necessary for experiments.
- Transferring measured data to the computer and adjustment data to the interface.
- Intuitive graphic interface for easy use
- Learning and experiment software
- Integrated measuring instruments and power supply
- Multimedia courses
- High-tech measurement and control interface

## SYSTEM REQUIREMENTS

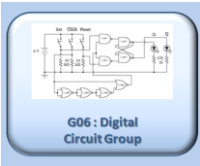

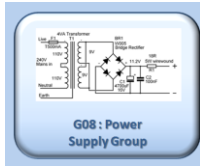
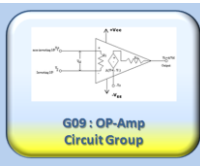
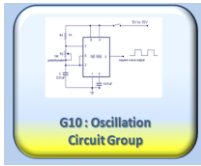
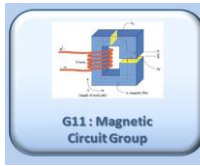


COMPONENTS	REQUIRED	COMPONENTS	REQUIRED
• Operating System	Windows XP Home Edition Service Pack 2 (SP2), Windows XP Professional SP2, Windows XP Tablet PC Edition SP2	• Free Hard Disk Space	1 gigabytes (GB) or higher
• Processor	1.5 gigahertz (GHz) or faster	• Optical Drive	CD drive or DVD drive
• Random Access Memory	256 MB or higher	• Sound Card	16-bit sound card or higher
		• Sound Output Device	Speakers or headset
		• Monitor	Super VGA (800 x 600) resolution or higher

## EXPERIMENT TOPICS

DC CIRCUIT GROUP	AC CIRCUIT GROUP	SEMICONDUCTOR CIRCUIT GROUP
 <p>G03: DC Circuit Group</p> <p>GOTT-10-M01/M02/M03/M04</p> <ul style="list-style-type: none"> <li>• Electric Circuit</li> <li>• Ohm's Law</li> <li>• Series Connection</li> <li>• Parallel Connection</li> <li>• Series &amp; Parallel 1</li> <li>• Series &amp; Parallel 2</li> <li>• Series &amp; Parallel 3</li> <li>• Series &amp; Parallel 4</li> <li>• Power Series Connection</li> <li>• Power Parallel Connection</li> <li>• Multiplier</li> <li>• Switch Contact</li> <li>• Relay Contact</li> <li>• Y Network</li> <li>• Network</li> <li>• Kirchhoffs Current Law</li> <li>• Kirchhoffs Voltage Law</li> <li>• Kirchhoffs Law</li> <li>• Wheatstone Bridge</li> <li>• Principle of Superposition</li> <li>• Thevenin's theorem</li> <li>• Millmans's theorem</li> <li>• Reciprocity theorem</li> <li>• Reciprocity theorem</li> <li>• Impedance matching</li> </ul>	 <p>G04: AC Circuit Group</p> <p>GOTT-10-M05/M06/M07</p> <ul style="list-style-type: none"> <li>• R.L.C. Circuit</li> <li>• R.L.C. Series Circuit</li> <li>• R.L.C. Parallel Circuit</li> <li>• Band Pass Filter</li> <li>• Low Pass Filter</li> <li>• High Pass Filter</li> <li>• Inductance Measure</li> <li>• L Series Circuit</li> <li>• L Parallel Circuit</li> <li>• Parallel Resonance Circuit</li> <li>• Capacitance Measure</li> <li>• C Series Circuit</li> <li>• C Parallel Circuit</li> <li>• Series Resonance Circuit</li> <li>• Wye Connection of Voltage and Current</li> <li>• Delta Connection Voltage and Current</li> <li>• Wye &amp; Delta Connection of Current</li> </ul>	 <p>G05: Semiconductor Circuit Group</p> <p>GOTT-10-M08/M09/M10/M11</p> <ul style="list-style-type: none"> <li>• Diode Characteristic</li> <li>• Zener Diode Characteristic</li> <li>• Diode Limiter</li> <li>• Bridge Diode</li> <li>• Diode Clamper</li> <li>• Zener Diode Limiter</li> <li>• Light Emitting Diode</li> <li>• Infrared LED &amp; Photo TR</li> <li>• Photo Diode</li> <li>• JFET Characteristic</li> <li>• MOSFET Characteristic</li> <li>• UJT Characteristic</li> <li>• SCR Characteristic</li> <li>• NPN Transistor</li> <li>• PNP Transistor</li> <li>• Diac Characteristic</li> <li>• PUT Characteristic</li> <li>• Triac Characteristic</li> <li>• IGBT Characteristic</li> </ul>

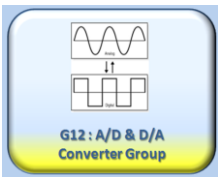
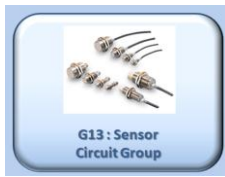

# PC BASED ELECTRICITY AND ELECTRONICS TRAINER

Model Number : GOTT-PCBASE-EE

EXPERIMENT TOPICS		
DIGITAL CIRCUIT GROUP	TRANSISTOR AMPLIFIER CIRCUIT GROUP	POWER SUPPLY GROUP
 <p>G06: Digital Circuit Group</p> <p>GOTT-10-M12/M13/M14/M15/M16/M17/M18</p> <ul style="list-style-type: none"> <li>• AND / NAND</li> <li>• OR / NOR</li> <li>• NOT</li> <li>• XOR / XNOR</li> <li>• De Morgan XOR</li> <li>• De Morgan XNOR</li> <li>• Open Collector</li> <li>• De Morgan's Law 1</li> <li>• De Morgan's Law 2</li> <li>• Boolean Algebra 1</li> <li>• Boolean Algebra 2</li> <li>• RS Flip Flop</li> <li>• JK Flip Flop</li> <li>• Half Adder &amp; Full Adder</li> <li>• Half &amp; Full Subtractor</li> <li>• D Flip Flop</li> <li>• Johnson Counter</li> <li>• Up/Down Counter</li> <li>• Synchronous Decade Counter</li> <li>• 2 to 4 Decoder &amp; 4 to 2 Encoder</li> <li>• 2 to 4 Line Decoder</li> <li>• 8 to 3 Line Priority Encoder</li> <li>• BCD to Seven Segment Decoder</li> <li>• 4 to 1 Multiplexer</li> <li>• 4 Bit Decade Counter</li> <li>• 8 Bit Shift Register</li> <li>• Decade Counter</li> <li>• SRAM 6264</li> <li>• EEPROM 28 C64</li> </ul>	 <p>G07: Transistor Amplifier Circuit Group</p> <p>GOTT-10-M19/M20/M21/M22</p> <ul style="list-style-type: none"> <li>• Base Bias</li> <li>• Emitter Bias</li> <li>• Voltage Division Bias</li> <li>• Collector Feedback Bias</li> <li>• DC Load Line Bias</li> <li>• Frequency Response Bias</li> <li>• Common Base</li> <li>• Common Emitter</li> <li>• Common Collector</li> <li>• Heat Stability 1</li> <li>• Heat Stability 2</li> <li>• Darlington Pair</li> <li>• Common Source Amp JFET</li> <li>• Common Drain Amp JFET</li> <li>• Common Gate Amp JFET</li> <li>• Common Source MOSFET</li> <li>• Multistage FET Amplifier</li> <li>• B Class Push-Pull Amp</li> <li>• Syntonic C Class Amp</li> <li>• Differential Amp</li> <li>• Multistage Amplifier</li> <li>• Complementary Amp</li> </ul>	 <p>G08: Power Supply Group</p> <p>GOTT-10-M23/M24/M25/M26</p> <ul style="list-style-type: none"> <li>• Half / Full Rectifier</li> <li>• Bridge Rectifier 1</li> <li>• Bridge Rectifier 2</li> <li>• Voltage Booster</li> <li>• IC Voltage Regulator 1</li> <li>• IC Voltage Regulator 2</li> <li>• Constant Voltage Circuit</li> <li>• Series Voltage Regulator</li> <li>• Constant Current Limit</li> <li>• TR Voltage Regulator</li> <li>• Parallel Voltage Regulator</li> <li>• Fold-Back Current Limit</li> <li>• 5V Output Shunt Regulator</li> <li>• Current Boost (PNP TR)</li> <li>• Current Boost (NPN TR)</li> <li>• TL431 Variable Supply</li> <li>• TL431 Application 1</li> <li>• TL431 Application 2</li> <li>• IC Constant Voltage Circuit</li> <li>• Current Limit Constant Voltage Circuit</li> <li>• Constant Current Limit</li> <li>• Switching Voltage Regulator (Step Down)</li> <li>• Switching Voltage Regulator (Step Up)</li> </ul>
EXPERIMENTAL TOPICS		
OP-Amp CIRCUIT GROUP	OSCILLATION CIRCUIT GROUP	MAGNETIC CIRCUIT GROUP
 <p>G09: OP-Amp Circuit Group</p> <p>GOTT-10-M27/M28/M29/M30</p> <ul style="list-style-type: none"> <li>• Input offset</li> <li>• 741 Slew rate</li> <li>• 356 Slew rate</li> <li>• 741 CMRR</li> <li>• Characteristic</li> <li>• Gain Band Width Product</li> <li>• OP-AMP Power Coupling</li> <li>• Zero Crossing Detector</li> <li>• Hysteresis Comparator</li> <li>• Output Limit</li> <li>• Inverting Amplifier</li> <li>• Non-Inverting Amplifier</li> <li>• Voltage Follower</li> <li>• Inverting Summer Amplifier</li> <li>• Non-Inverting Summer Amplifier</li> <li>• Comparator</li> <li>• Window Comparator</li> <li>• Difference Amplifier 1</li> <li>• Difference Amplifier 2</li> <li>• Differentiator</li> <li>• Integrator</li> <li>• Voltage to Current</li> <li>• Current to Voltage</li> <li>• Half Rectified</li> <li>• Wave Convert</li> <li>• Low Pass Filter</li> <li>• Band Pass Filter</li> <li>• High Pass Filter</li> <li>• Phase Shifter</li> <li>• Adder Amp 1</li> <li>• Adder Amp 2</li> <li>• Adder Amp 3</li> <li>• OP- Amp Rectifier</li> <li>• Peak Detector</li> </ul>	 <p>G10: Oscillation Circuit Group</p> <p>GOTT-10-M31/M32</p> <ul style="list-style-type: none"> <li>• Tank Circuit</li> <li>• Lamp Generator</li> <li>• Astable Multivibrator</li> <li>• Monostable Multivibrator</li> <li>• Bistable Multivibrator</li> <li>• Two Phase Oscillator</li> <li>• Oscillator</li> <li>• Phase Shift Oscillator</li> <li>• Wien Bridge Oscillator</li> <li>• Colpitts Oscillator</li> <li>• Hartley Oscillator</li> <li>• Crystal Oscillator</li> <li>• Triangular Oscillator</li> <li>• Voltage Controlled Oscillator</li> <li>• Rectangular Wave Oscillator</li> </ul>	 <p>G11: Magnetic Circuit Group</p> <p>GOTT-10-M33/M34/M35</p> <ul style="list-style-type: none"> <li>• Electricity and Magnetism</li> <li>• Coil of Polarity</li> <li>• Reverse Electromotive Force</li> <li>• DC &amp; AC Relay</li> <li>• Electromagnetic Induction</li> <li>• Motor &amp; Generator</li> <li>• Rotary Magnetic Field</li> <li>• Magnetic Mutual Induction</li> <li>• Transformation Ratio</li> <li>• Transformer Polarity</li> <li>• Transformer load</li> </ul>
 <p>G14: Photo Electronics (Device) Circuit Group</p> <p>GOTT-10-M42</p> <ul style="list-style-type: none"> <li>• Photo Transistor TLP521-1</li> <li>• Photo IC TLP520</li> <li>• AC Power Coupler TLP560</li> <li>• Photo Interrupter</li> <li>• Isolation Amplifier A7840</li> </ul>		<p><b>DC SERVO GROUP</b></p>  <p>G15: DC Servo Group</p> <p>GOTT-10-M43</p> <ul style="list-style-type: none"> <li>• Summing Amp</li> <li>• Proportion Amp</li> <li>• Potentiometer</li> <li>• F/V Converter</li> <li>• Motor Driver &amp; Encoder</li> </ul>

# PC BASED ELECTRICITY AND ELECTRONICS TRAINER

Model Number : GOTT-PCBASE-EE

EXPERIMENTAL TOPICS		
AD & DA CONVERTER GROUP	SENSOR CIRCUIT GROUP	POWER ELECTRONICS CIRCUIT GROUP
 <p>G12: A/D &amp; D/A Converter Group</p> <p>GOTT-10-M36/M37</p> <ul style="list-style-type: none"> <li>4 Bit Weight Resistance Type D/A</li> <li>Current Add Type D/A</li> <li>Voltage Add Type D/A</li> <li>4 Bit Resistance Voltage Division Type D/A</li> <li>DAC 0800D/A Converter</li> <li>Parallel Comparison A/D</li> <li>VR Continuance Comparison Type A/D</li> <li>Feedback Type Sample &amp; Hold</li> <li>Basic Voltage Circuit</li> <li>ADC0804 A/D Converter</li> </ul>	 <p>G13: Sensor Circuit Group</p> <p>GOTT-10-M38/M39/M40/M41</p> <ul style="list-style-type: none"> <li>Thermocouple</li> <li>Resistance Temperature Detector (RTD)</li> <li>Thermistor NTC</li> <li>Thermistor PTC</li> <li>Infrared Sensor</li> <li>Cadmium Sulphide Cell (CDS)</li> <li>Gas Sensor</li> <li>Humidity Sensor</li> <li>Pressure Sensor</li> <li>Load Cell</li> <li>Photo Sensor</li> <li>Solar Cell</li> <li>Current Sensor</li> <li>Voice Control Sensor</li> <li>Supersonic Sensor</li> <li>Inductance Meter</li> <li>Capacitance Meter</li> <li>Distance Measure Meter</li> </ul>	 <p>G16: Power Electronics Circuit Group</p> <p>GOTT-10-M44/M45/M46/M47/M48/M49/M50</p> <ul style="list-style-type: none"> <li>SCR DC Gate</li> <li>Diode Half Rectifier</li> <li>Diode Full Rectifier</li> <li>Single Phase Inverter</li> <li>Half Phase Control</li> <li>Full Phase Control</li> <li>AC Phase Control</li> <li>Phase Controller</li> <li>Buck Chopper</li> <li>Boost Chopper</li> <li>DC Power Controller</li> <li>SCR AC Control</li> <li>Triac AC Control</li> <li>SCR Ring Counter</li> <li>GTO Gate Trigger</li> <li>Single Phase Cycle Converter</li> <li>Three Phase Diode Half Rectifier</li> <li>Three Phase Diode Full Rectifier</li> <li>Three Phase Voltage Type Inverter</li> <li>Three Phase Controller</li> <li>Three Phase Half-Wave Control Rectifier</li> <li>Three phase AC Control</li> <li>Three Phase Full-Wave Control Rectifier</li> </ul>

## SOFTWARES

### MAIN INSTALLATION SCREEN



GOTT-10-OS-CBT

- Double-click the "GOTT-10-OS (CBT Main)" icon from the desktop to access the CBT system.



GOTT-10-05 (CBT Main)

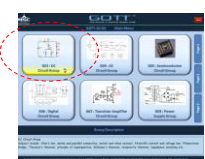
CBT system can also be started from Windows Start Menu. Follow this sequence "Start → All Programs → GOTT CBT → GOTT-10-OS (CBT Main)"

### CBT MAIN MENU



CBT Main Menu will prompt on the screen

### GROUP DESCRIPTION 1



Browsing CBT Main Menu (Page 1)

Among the menu that can be select is by the boxes that provide in the Group Description 1:-

- DC Circuit Group
- AC Circuit Group
- Semiconductor Circuit Group
- Digital Circuit Group
- Transistor Amplifier Circuit Group
- Power Supply Group

### GROUP DESCRIPTION 2

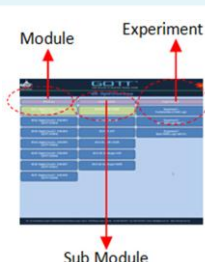


Browsing CBT Main Menu (Page 2)

Among the menu that can be select is by the boxes that provide in the Group Description 2 :-

- OP-Amp Circuit Group
- Oscillation Circuit Group
- Magnetic Circuit Group
- AD & DA Converter Group
- Sensor Circuit Group
- Photo Electronics (Device) Circuit Group

### GROUP MODULE MENU



Sub Module

- By default, the first module and the first sub module will be selected. Example, this figure showing that module number "06-01. Digital Circuit 1 S-50-M12 (GOTT-10-M12)" and sub module number "06-01-01.

AND / NAND" were selected. The experiments available are total three (3) experiments.

- Different module will have different number of experiments.

### EXPERIMENTAL MENU




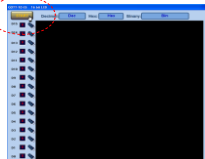
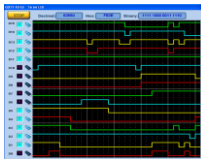


Starting Experiment

- The experimental menu will prompt out as shown in above figure.
- By default, the experiment objectives will be shown first. Simply point the mouse cursor to any other tab, the colour of the tab will be highlighted.
- Next, click on the tab button. It will then change to purple colour. The document shown will be changed. Example, figure 2.3.3 showing that the document had been changed from "Objectives" to "Components and Equipment".


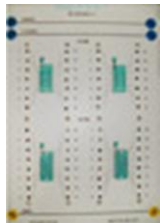


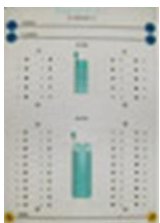







## PC BASED ELECTRICITY AND ELECTRONICS TRAINER

Model Number : GOTT-PCBASE-EE

ANSWERING RELATED QUESTION / INFO		SUMMARY TAB	
	<ul style="list-style-type: none"> <li>Answering related question/info in experimental procedures</li> </ul>		<ul style="list-style-type: none"> <li>When finished the experimental procedures, browse through the "Summary" tab.</li> </ul>
EXERCISES		INSTRUMENTS (1)	INSTRUMENT (2)
	<ul style="list-style-type: none"> <li>When finished, browse to "Exercises" tab and try answering all those questions.</li> </ul>	 <p><b>16 bit LEDs display</b></p> <ul style="list-style-type: none"> <li>The "16 bit LEDs" will display on the second screen as shown in figure as above.</li> </ul>	 <p><b>16 bit LEDs status</b></p> <p>As shown in next to figure, click the "START" button, then the LEDs will be turned on or off. A graphical LED status will be shown in time domain where the sampling time is 0.5 seconds.</p> <ul style="list-style-type: none"> <li>Throughout the 16 LEDs, the LED status will be shown in Decimal, Hexadecimal and Binary format.</li> <li>To stop collecting the LEDs status, click the "STOP" button</li> </ul>

The optional hardware modules incorporated in this GOTT-PSBASE-EE are:-

## PRODUCT MODULES

AC/DC POWER SUPPLY	CODE 102-977	IC SOCKET 1	CODE 102-989	FUSE	CODE 102-979	SPEAKER	CODE 102-980
<ul style="list-style-type: none"> <li>Input Voltage : 240VAC</li> <li>Output Voltage : <math>\pm 18</math>VDC and 5VDC</li> </ul> 		<ul style="list-style-type: none"> <li>Input Voltage : 5VDC and 12VDC</li> <li>IC Socket Type : 14 pin x 2 units and 16 pin x 2 units</li> </ul> 		<ul style="list-style-type: none"> <li>Input Voltage : 240VAC</li> <li>AC Fuse : 3A x 2 units</li> <li>DC Fuse : 3A x 3 units</li> </ul> 		<ul style="list-style-type: none"> <li>Input Voltage : 5VDC or 12VDC</li> </ul> 	
IC SOCKET 2	CODE 102-990	INVERTER	CODE 102-993	ADAPTER	CODE 102-981	TOGGLE SWITCH	CODE 102-982
<ul style="list-style-type: none"> <li>Input Voltage : 5VDC and 12VDC</li> <li>IC Socket Type : 20 pin and 40 pin</li> </ul> 		<ul style="list-style-type: none"> <li>Input Voltage : 240VAC</li> <li>Output : U,V,W</li> <li>Built-in with 18 Control Signals</li> </ul> 		<ul style="list-style-type: none"> <li>Input Voltage : 5VDC or 12VDC</li> <li>Panel Socket : 4mm, 2mm and BNC sockets</li> </ul> 		<ul style="list-style-type: none"> <li>Input Voltage : 5VDC or 12VDC</li> <li>Switch Type : SPDT and DPDT</li> </ul> 	
MAIN SUPPLY UNIT	CODE 102-978	SENSOR CIRCUIT 2	CODE 102-986	VARIABLE AC	CODE 102-983	POTENTIOMETER	CODE 102-984
<ul style="list-style-type: none"> <li>Input Voltage : 240VAC</li> <li>Single Phase : 6VAC and 12VAC</li> <li>Three Phase: 12VAC and 24VAC</li> </ul> 		<ul style="list-style-type: none"> <li>Input Voltage : 5VDC and 12VDC</li> <li>Sensor Type : Solar Cell, Load Cell, Current Sensor, Voice Control Sensor</li> </ul> 		<ul style="list-style-type: none"> <li>Input Voltage : 240VAC</li> <li>Output Voltage : 0 - 40 VAC</li> </ul> 		<ul style="list-style-type: none"> <li>Input Voltage : 5VDC or 12VDC</li> <li>Potentiometer Resistance</li> <li>Range : 1k<math>\Omega</math>, 100k<math>\Omega</math>, 500k<math>\Omega</math> and 1M<math>\Omega</math></li> </ul> 	



Model Number : GOTT-PCBASE-EE

### Manuals:

- (1) All manuals are written in English
- (2) Model Answer
- (3) Teaching Manuals

### General Terms:

- (1) Accessories will be provided where applicable.
- (2) Manual & Training will be provided where applicable.
- (3) Design & specifications are subject to change without notice.
- (4) We reserve the right to discontinue the manufacturing of any product.

### Warranty:

2 Years

### ORDERING INFORMATION :

\* Proposed design only, subject to changes without any notice.