

### SKU-Basic Electronics

The goal of SKU-Basic Electronic is to provide basic information about electronic circuits. It develops the basic concept for a full understanding of analog and digital electronics in a manner that is clearer, interesting, and easier to understand through innovative graphical user interface which is easy to learn and extremely efficient to use. The course is developed as a self-study package with easy-to-navigate interface, explaining difficult electronics concepts by analogies, flash animations and examples.

The screenshot shows a presentation slide titled "Bridge Rectifier". At the top left is the Scientech Knowledge Universe logo and at the top right is the URL www.sku.bz. The main content features a circuit diagram of a bridge rectifier with four diodes labeled D1, D2, D3, and D4, and a load resistor R. An AC input voltage  $V_{in}$  is applied to the bridge. A legend on the right indicates that green arrows represent "Forward bias" and red arrows represent "Reverse bias". Below the circuit are two graphs: "Input" showing a red sine wave  $V_{in}$  versus time  $t$ , and "Output" showing a green full-wave rectified sine wave  $V_{out}$  versus time  $t$ . At the bottom of the slide is a red control bar with a play button and a speaker icon.

### Topics covered in SKU-Basic Electronics:

#### Electronic Components

**Topics Covered:** Resistors, Inductors, and Capacitors, Color coding, Semiconductors, Diodes, Bipolar junction transistors and their working, Introduction to CC, CB & CE Transistors configurations.

#### Basic Electronic Circuits

**Topics Covered:** Half wave and full wave diode rectifiers, BJT amplifiers, Filters: low pass, high pass, band pass and band stop filters. Filter implementation: RC-filters, LC-filters.

**Measuring Instruments**

**Topics Covered:** Cathode ray oscilloscope and its applications, Multimeter and its application, LCR-Q meter and its application.

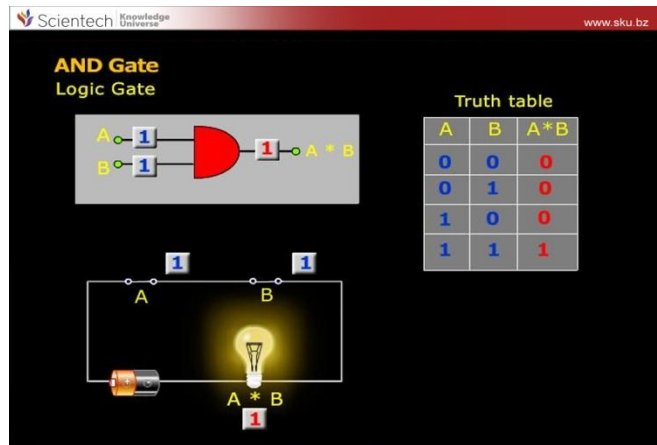
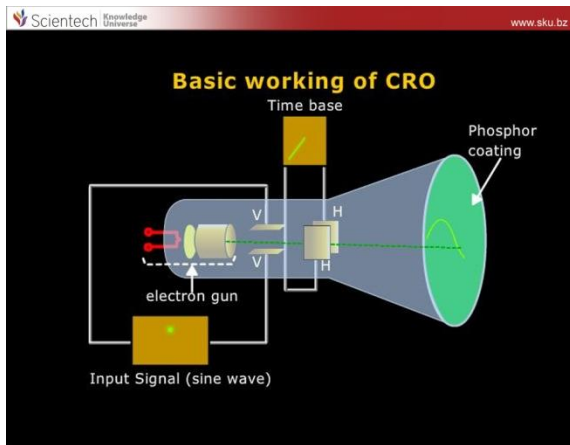
**Digital Electronics**

**Topics Covered:** Number systems: Decimal, Binary, Octal and Hexadecimal, Complements, Operation and Conversion, Floating point and signed numbers, De Morgan's theorem, logic gates: AND, OR, NOT, NOR, NAND, EXNOR, EX-OR, their representation & truth-table, Half and Full adder circuits, Flip-Flops: R-S and J-K.

**Integrated Circuits**

**Topics Covered:** Integrated Circuits(IC's) and their advantages over analogue circuits, Classification of IC's based on density levels, introduction to monolithic and hybrid IC's, OPAMP, Applications of OPAMP like inverting and non-inverting amplifiers, Integrator and Differentiator, 555-Timer and its application.

**Print Shots of SKU-Basic Electronics:**



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### Op Amp as Summing Amplifier

**Input**

$V_{in}$  4V, 3V, 1V

**Output**

$V_{o}$  8V

**Final Output**

$V_{o}$  8V, 4V, 3V, 1V

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### Clampers

$V_{in} = 3V$

$V_{out}$

$2V$

**Charging Capacitor**  $V_{out} = -(V_c + V_{in} + 2)$

**Discharging Capacitor**  $V_c = 3V$