

## ABSTRACT

Synthesizer is an electronic music instrument that can be functioned as a sound generator and also as a signal processor. Synthesizer makes direct manipulating in voltage and current through some process like additive, subtractive, frequency modulation, and physics modeling.

Simple synthesizer circuit contains some circuits like *VCO*, *VCA*, *VCF*, *A/R Envelope Generator*. Input signal of synthesizer goes through *VCF* and then through filter. Function of *VCF* is for initialising signal cut-off frequency. To produce frequency modulating signal, the output of *VCF* can be distributed to *LFO*. *LFO* signal acts as a carrier signal and then modulates the input.

Synthesizer can also produce sound by itself. *VCO* in the synthesizer will produce an oscillated signal. *A/R Generator* is used for initializing time for signal from a minimal level of amplitude till it reaches the maximum level of amplitude.

Output signal from synthesizer is too small to hear, so an amplifier circuit is needed.

*STTELKOM*

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