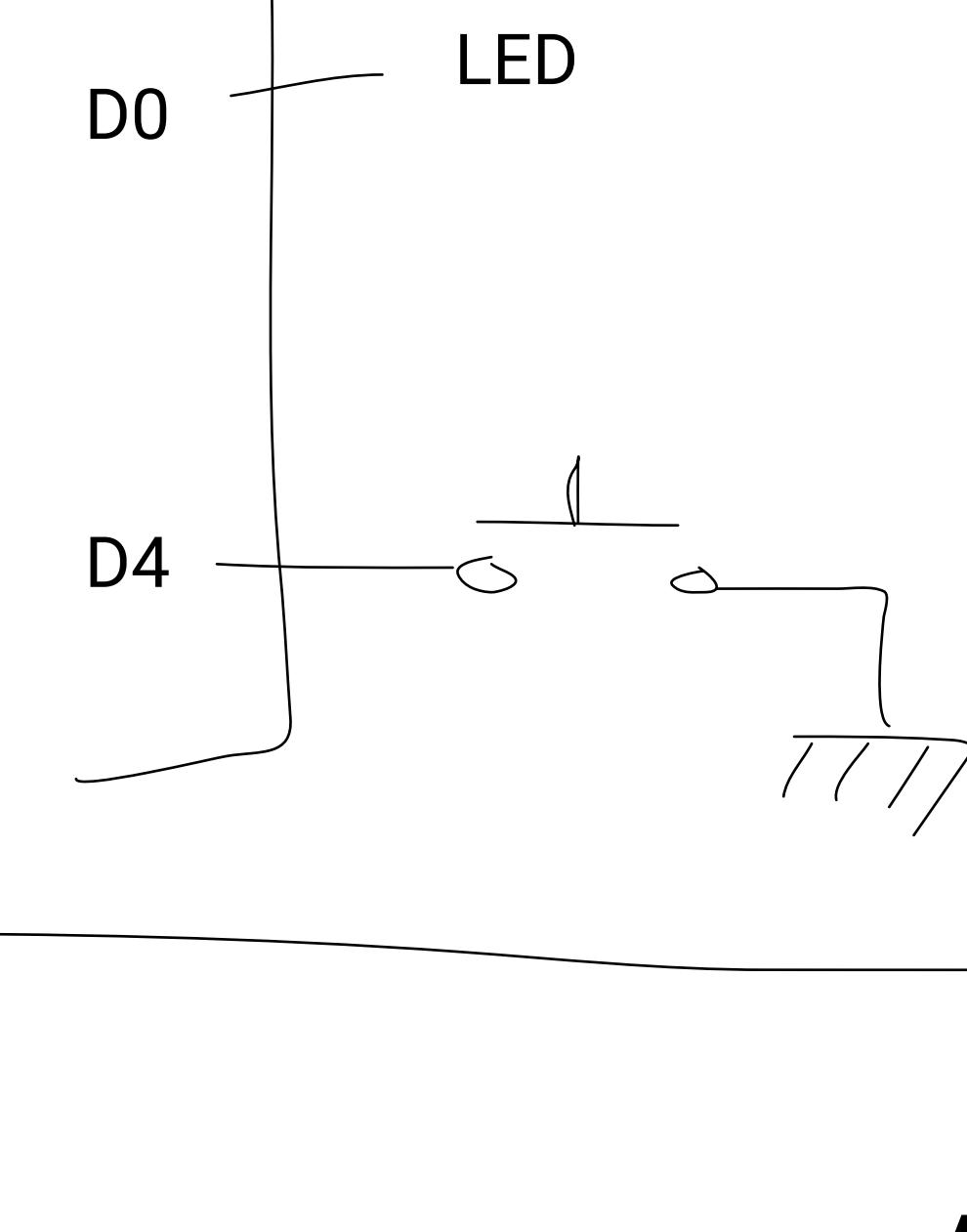
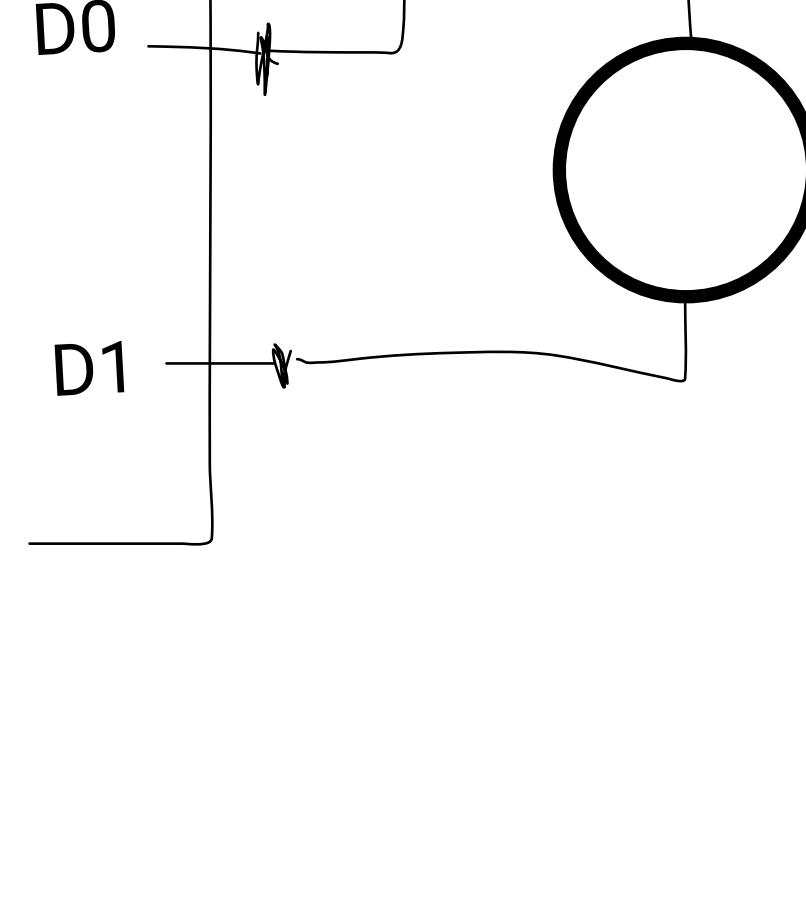


lecture 16

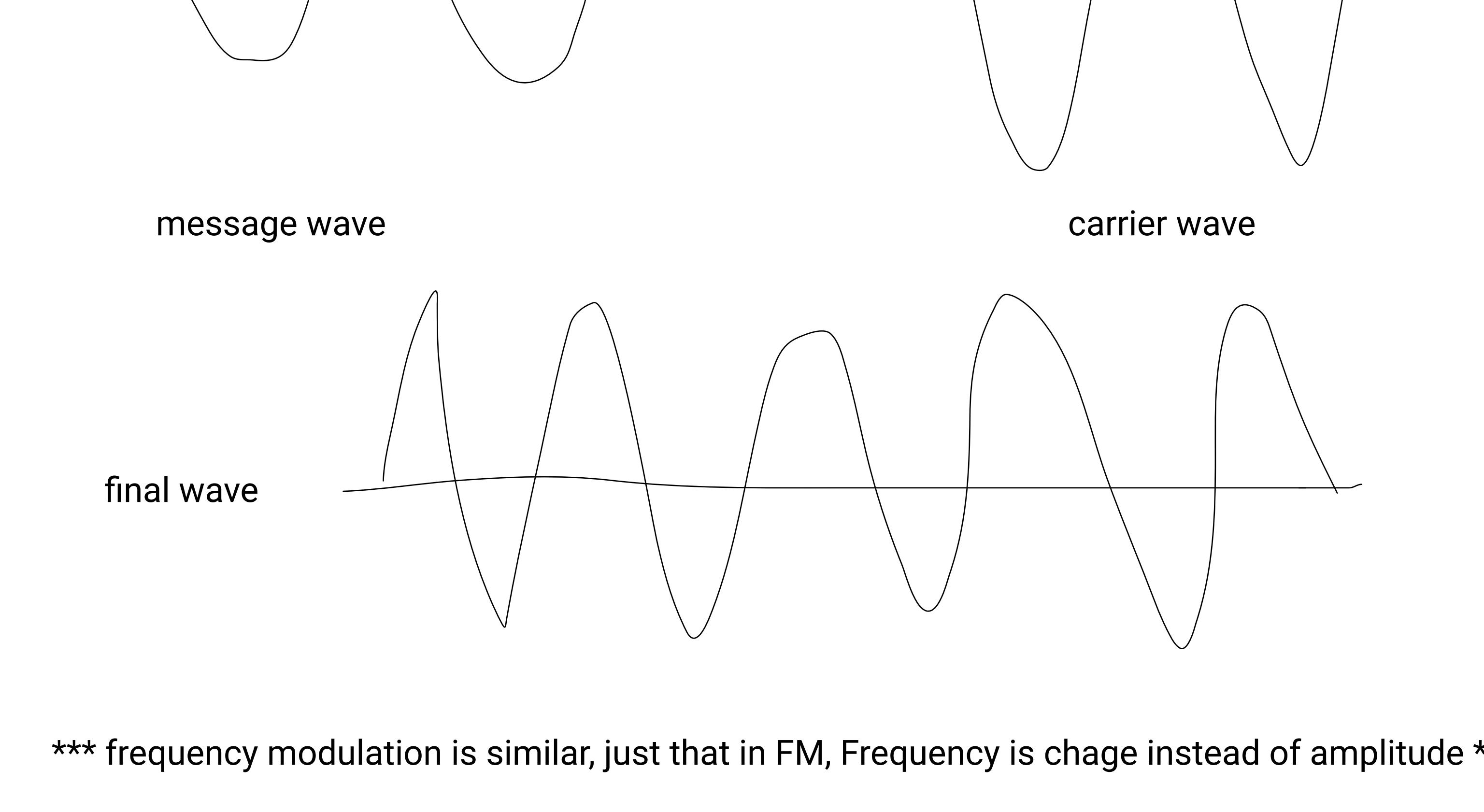
SWITCH



MOTOR



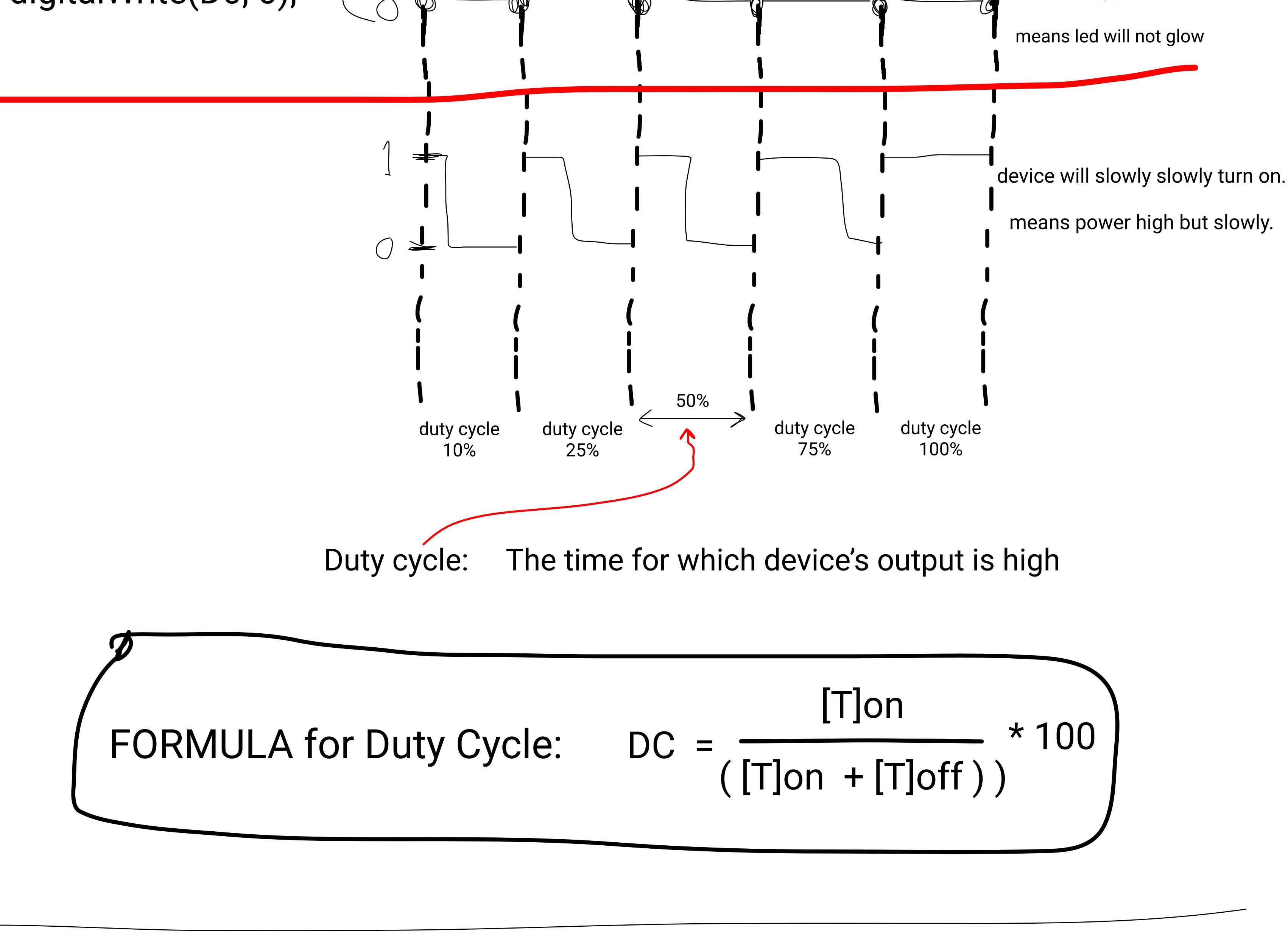
Amplitude modulation



*** frequency modulation is similar, just that in FM, Frequency is change instead of amplitude ***

PWM Pulse Width Modulation

imp. topic



Duty cycle: The time for which device's output is high

$$\text{FORMULA for Duty Cycle: } \text{DC} = \frac{[\text{T}]_{\text{on}}}{([\text{T}]_{\text{on}} + [\text{T}]_{\text{off}})} * 100$$

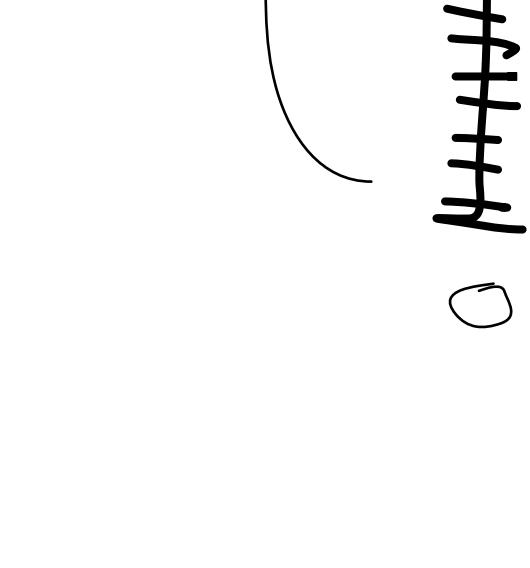
analogWrite(D2, duty_cycle)

D2 LED

```
p = 0;
while (p < 1024) {
    analogWrite(D2, p);
    p++;
    delay_ms(100);
}
```

resolution is the minimum value that we can agree on.
the minimum measurable value

nodeMCU is 10 bit → $2^{10} = 1024$



\sim By K.S.

$R = \frac{3.3v}{1024}$