

Circuits II

EE221

Unit 3

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Instantaneous, Average, RMS, and
Apparent Power, and, Maximum Power
Transfer, and Power Factors

Power Definitions/Units:

- Work is in units of *newton-meters* or *joules* same as energy.
- 1 joule is work done for 1 ampere passed through 1 ohm for 1 second, or work done by a force of 1 Newton applied over 1 meter.
- Power is a measure of the rate at which work is done and is in units of *joules per seconds*, 746 Watts in one horsepower.

Power Conversion

- Electric motors and generators convert electrical power to mechanical power and vice versa.
- Other devices exist that convert electric power to light, heat, sound, ... and vice versa