This document explains which units are to be used in Cougs in Space and how to write numbers in the appropriate metric prefixes

Units

Standard Units and Metric Prefixes

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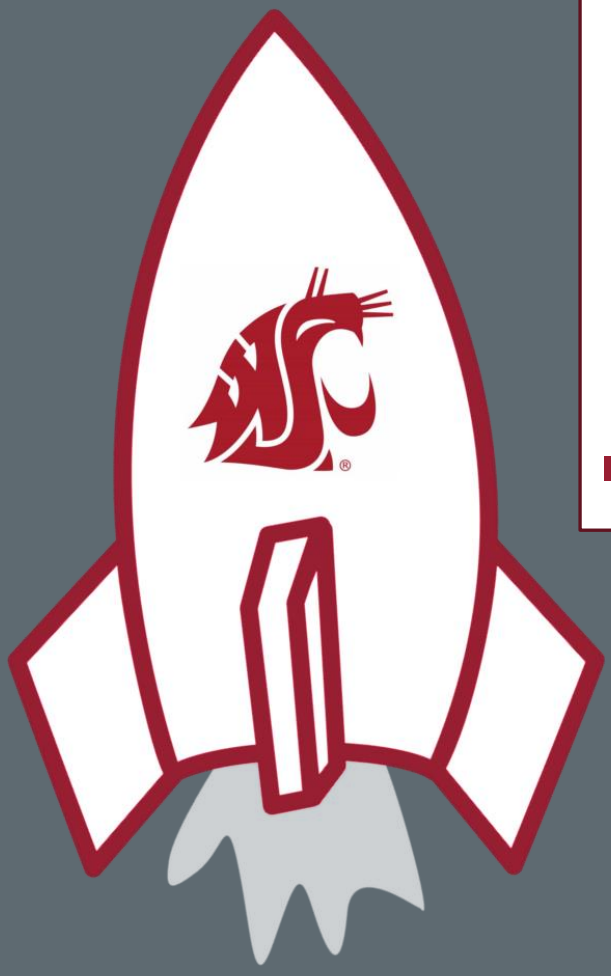

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1 International System of Units (SI)

The International System of Units is a set of seven units of measurement from which all other units can be derived from. Where possible, Cougs in Space will be using SI units. It is also called the metric system.

1.1 List of Units in CIS

Derived units, such as velocity, are not listed. Their units should be derived from the list below, such as metre per second

1.1.1 Mechanical Measurements

Axial Angle – radian (rad) – when used to describe rotational objects, such as angular velocity is radians per second

Force – newton (N)

Frequency – hertz (Hz)

Length – metre (m)

Mass – gram (g)

Plane Angle – degree (°) – when used to describe the angle between objects

Pressure – pascal (pa)

Strain – pascal (pa)

Stress – unitless

Weight – newton (N)

1.1.2 Electromagnetic Measurements

Capacitance – farad (F)

Electric Charge – coulomb (C)

Electric Current – ampere (A)

Electric Potential – volt (V)

Electrical Conductance – siemens (S)

Electrical Resistance – ohm (Ω)

Equivalent Does of Ionizing Radiation – sievert (Sv)

Frequency – hertz (Hz)

Illuminance – lux (lx)

Impedance – ohm (Ω)

Inductance – henry (H)

Luminous Flux – lumen (lm)

Luminous Intensity – candela (cd)

Magnetic Flux – weber (Wb)

Magnetic Flux Density – tesla (T)

Wavelength – metre (m)

1.1.3 Energy Measurements

Energy – joule (J)

Power – watt (W)

Temperature – kelvin (K)

2 Metric Prefixes

Metric prefixes are a unit prefix that precedes a unit of measure to indicate a multiple or a fraction of the unit. They allow large or small quantities to be written in shorter form. 1,000,000 Hz becomes 1 MHz.

All quantities in Cougs in Space shall include appropriate metric prefixes to place the written number in the range [1, 1000). For example, 1,000,000Hz becomes 1Mhz not 1000 kHz even though both are equivalent.

2.1 List of Metric Prefixes

The following metric prefixes shall be used in Cougs in Space, other prefixes are discouraged

2.1.1 Larger Order of Magnitude

yotta (Y-) – 10^{24}

zetta (Z-) – 10^{21}

exa (E-) - 10^{18}

peta (P-) – 10^{15}

tera (T-) - 10^{12}

giga (G-) – 10^{9}

mega (M-) – 10^{6}

kilo (k-) – 10^{3}

2.1.2 Smaller Order of Magnitude

milli (m-) – 10^{-3}

micro (μ-) – 10^{-6}

nano (n-) – 10^{-9}

pico (ρ-) – 10^{-12}

femto (f-) – 10^{-15}

atto (a-) – 10^{-18}

zepto (z-) – 10^{-21}

yocto (y-) – 10^{-24}

2.1.3 Binary Prefixes

gibi (Gi-) – 2^{30}

mebi (Mi-) – 2^{20}

kibi (Ki-) – 2^{10}