KRISS Sejong Exhibition Hall

Korea Research Institute of Standards and Science

Sejong Exhibition Hall, named after King Sejong the Great, who left a significant cultural and scientific heritage, is an open space for visitors to understand and experience measurement science. In the demonstrations displayed in the hall, you will be able to get to know about the history of measurement and about KRISS, SI base units, and recent research outcomes at KRISS. An experience zone for measurement science has also been prepared, so that children can learn measurement science by experience.

The history of Measurement Science in Korea

Yucheok

This is called 'Yucheok', and is a traditional ruler used in Korea during the Joseon Dynasty. A long time ago, people paid taxes with goods such as grain and silk. When government officers needed to collect tax, they required certain types of tools for measurement. Therefore, they had a standard ruler and various standard tools with which to measure things.

Cheugugi

This is the 'Cheugugi', which is the standardized rain gauge. For the first time in Korea, King Sejong the Great ordered the creation of a rainfall measure. The king decreed the design of a standardized system to measure and record rainfall. He also ordered his provincial governors to install the same Cheugugi in the courtyard of each provincial office, where the governors would measure and record the rainfall.

Angbu Ilgu

The Angbu Ilgu is Korea's first sundial; it's name means "pot-shaped sun clock staring at the sky." Angbu Ilgu was bronze in composition and consisted of a bowl marked with thirteen indicators to show the time, along with four legs jointed by a cross at the base. Seven lines crossed the thirteen indicators at different curves to compensate for seasonal changes in the course of the sun.

SI Base Units

The SI base units are the seven well-defined units that by convention are regarded as dimensionally independent.

m metre
The metre(meter) is the length of the path travelled by light in a vacuum during a time interval of 1/299 792 458 of a second.

kg kilogram
The kilogram is a unit of mass; it is equal to the mass of the international prototype of the kilogram.

s second
The second is the duration of 9 192 631 770 periods of radiation corresponding to the transition between the two hyperfine levels of the ground state of the caesium 133 atom.

A ampere
The ampere is a constant current which, if maintained in two straight parallel conductors of infinite length, of negligible circular cross-section, and placed 1 m apart in a vacuum, would produce between these conductors a force equal to 2x10 newton per metre of length.

K kelvin
The kelvin, a unit of thermodynamic temperature, is the fraction 1/273.16 of the thermodynamic temperature of the triple point of water.

mol mole
1. The mole is the amount of a substance of a system which contains as many elementary entities as there are atoms in 0.012 kilogram of carbon 12.
2. When the mole is used, the elementary entities must be specified and may be atoms, molecules, ions, electrons, other particles, or specified groups of such particles.

cd candela
The candela is the luminous intensity, in a given direction, of a source that emits monochromatic radiation of frequency 540x1012 hertz and that has a radiant intensity in that direction of 1/683 watt per steradian. All other SI units can be derived by multiplying together different powers of the base units.

On the future revision of SI
In the "New SI" four of the SI base units – namely the kilogram, the ampere, the kelvin, and the mole – will be redefined in terms of constants; the new definitions will be based on fixed numerical values of the Planck constant (h), the elementary charge (e), the Boltzmann constant (kB), and the Avogadro constant (NA), respectively.

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