U_h = - Work done by gravitational force to move the body from surface of earth to height h

$U_h = - (mg).h. \cos 180^\circ$

$\mathbf{U_h = mgh}$

So, gravitational potential energy of a body at height h above ground (reference level) is [provided $h << R_e$]

$$\mathbf{U_h = mgh} \quad \text{.....(14)}$$

2. Elastic Potential Energy :

The amount of energy possessed by a body due to an elastic force acting on it is known as elastic potential energy.

Spring force : Whenever an extension or a compression is produced in a spring, an opposing force is generated in the spring which always tend to restore the spring in its unscratched condition. This force is called spring force.

Spring force is type of **elastic force.**

The direction of the spring force (Fs) is always opposite to the extension or the compression produced in the spring.

According to Hooke the spring force generated in a stretched or compressed spring is directly proportional to the extension or compression produced in it

i.e. $F_s \propto -x$

or $F_s = -Kx$ .....(1) [Hooke's Law of spring]

Where k is a constant for the spring and it is known as spring constant or force constant.

It is a type of **conservative force.**