Energy Graphs

\[ F(x) = -\frac{dU(x)}{dx} \]

Fig. 8-10 (a) A plot of \( U(x) \), the potential energy function of a system containing a particle confined to move along the \( x \) axis. There is no friction, so mechanical energy is conserved. (b) A plot of the force \( F(x) \) acting on the particle, derived from the potential energy plot by taking its slope at various points. (c) The \( U(x) \) plot of (a) with three different possible values of \( E_{\text{mec}} \) shown.
Block-Spring System

(a) Conservative potential energy:

\[ U_s = \frac{1}{2} kx^2 \]

(b) Frictional force acting on the block:

\[ x = 0 \]

\[ x_{\text{max}} \]
Homework Set 13 - Due Mon. Oct. 11

- Read Sections 7.3-7.4 & 7.7
- Answer Questions 7.7 & 7.10
- Do Problems 7.13, 7.16, 7.21 7.27 & 7.36