Lecture 01

Waves and Oscillations

Ref book: Physics for Engineers - Giasuddin Ahmad (Part-1)
University Physics - Sears, Zemansky, Young & Freedman

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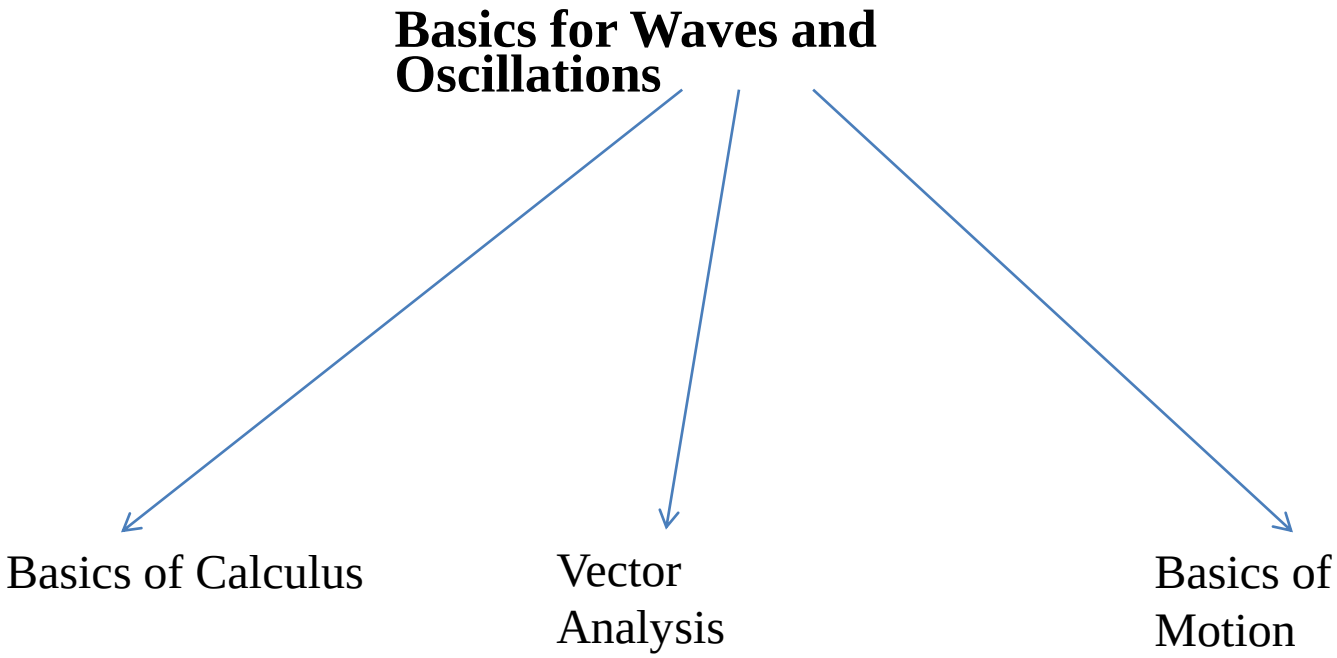
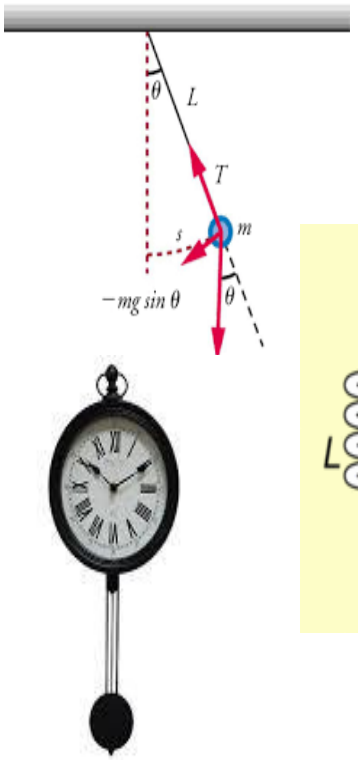
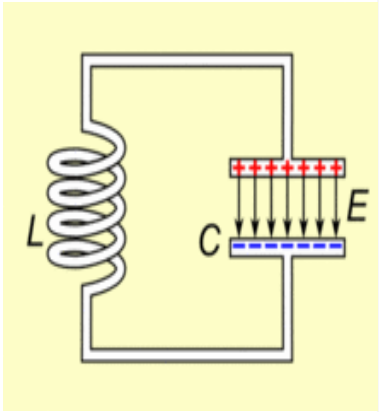
Web ref provided on slides


Basics for Waves and Oscillations
Basics of Calculus
Vector Analysis
Basics of Motion

Harmonic Motion





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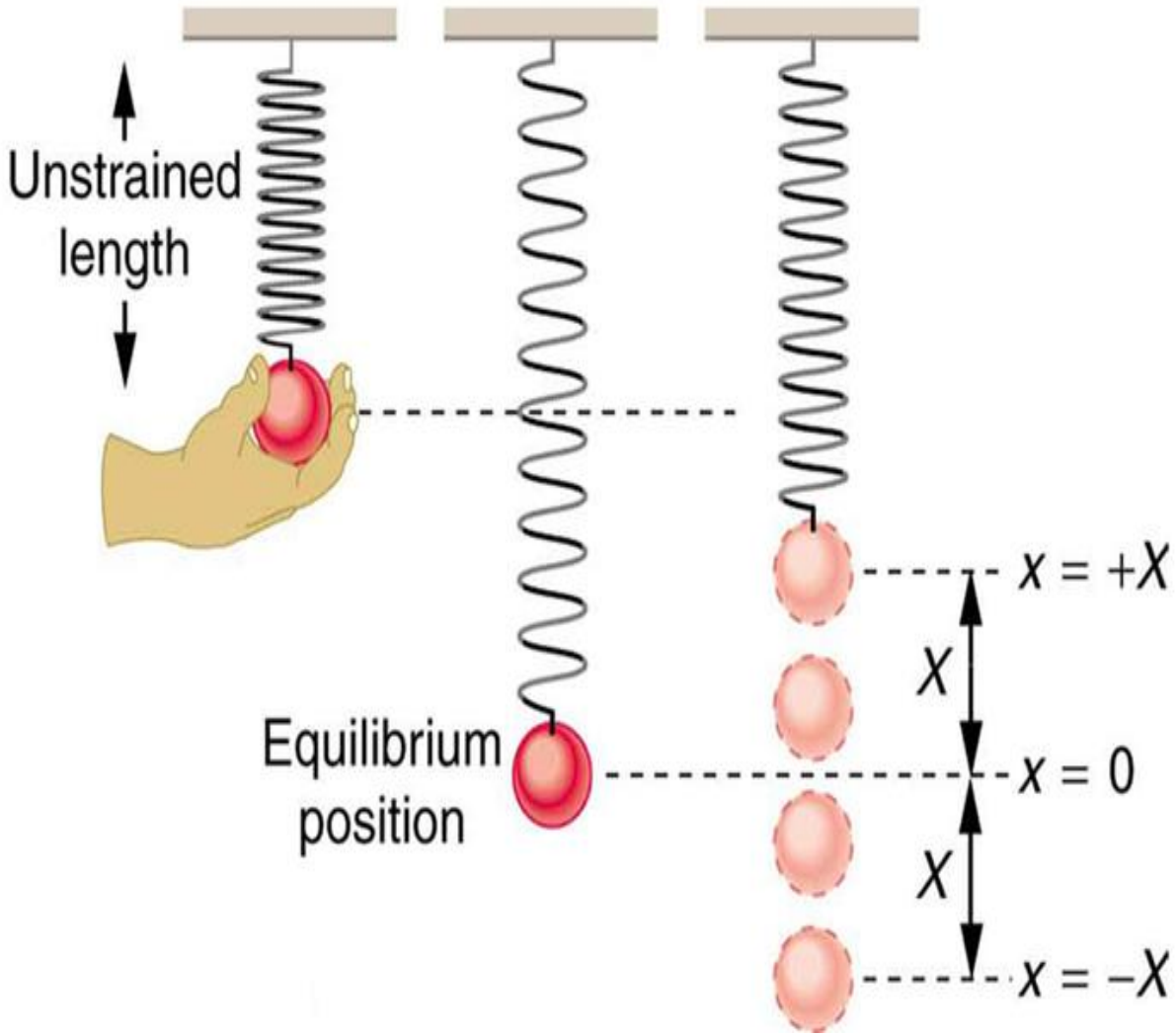
Simple Harmonic Motion

Periodic Motion: A motion which repeats itself in equal intervals of time is periodic motion. For example, the motion of the hands of a clock, the motion of the wheels of a car and the motion of a merry-go-round.

Oscillatory Motion: An oscillatory motion is a periodic motion in which an object moves to and fro about its equilibrium position. The object performs the same set of movements again and again after a fixed time. One such set of movements is an Oscillation. The motion of a simple pendulum, the motion of leaves vibrating in a breeze and the motion of a cradle are all examples of oscillatory motion.

SHM: To-and-fro motion under the action of a restoring force. Simple harmonic motion is the simplest example of oscillatory motion.

Simple Harmonic Motion: Graphs



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Simple Harmonic Motion