Advanced Dynamics
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Module No # 10
Lecture No # 49
Hamilton's Principle and Lagrange's Equation of Motion - II

We will continue with the topic of Lagrange's equation Hamilton's principle to application of Hamilton's principle and deriving Lagrange's equation of motion.

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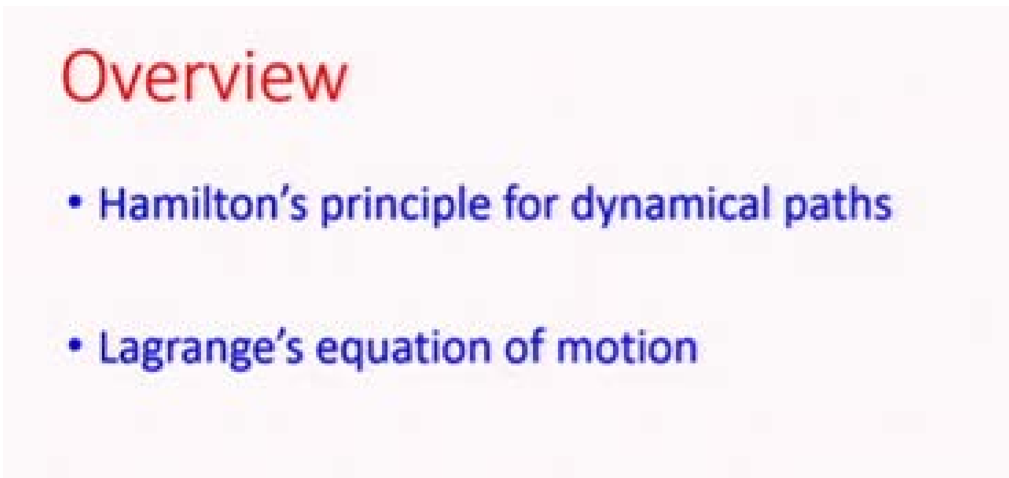

We consider an example as shown in the slide below, and derive the equations of motion.

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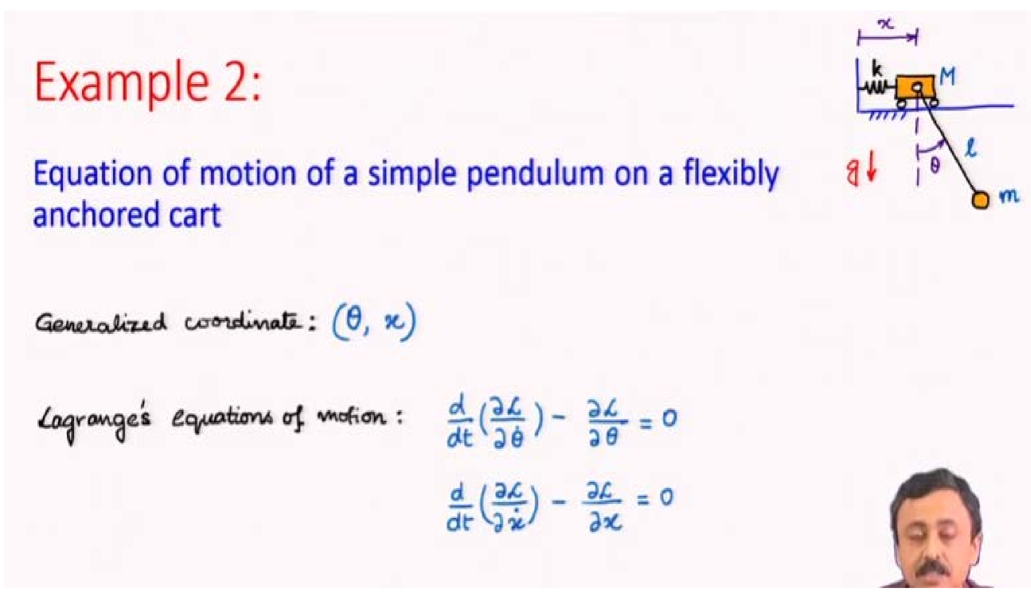

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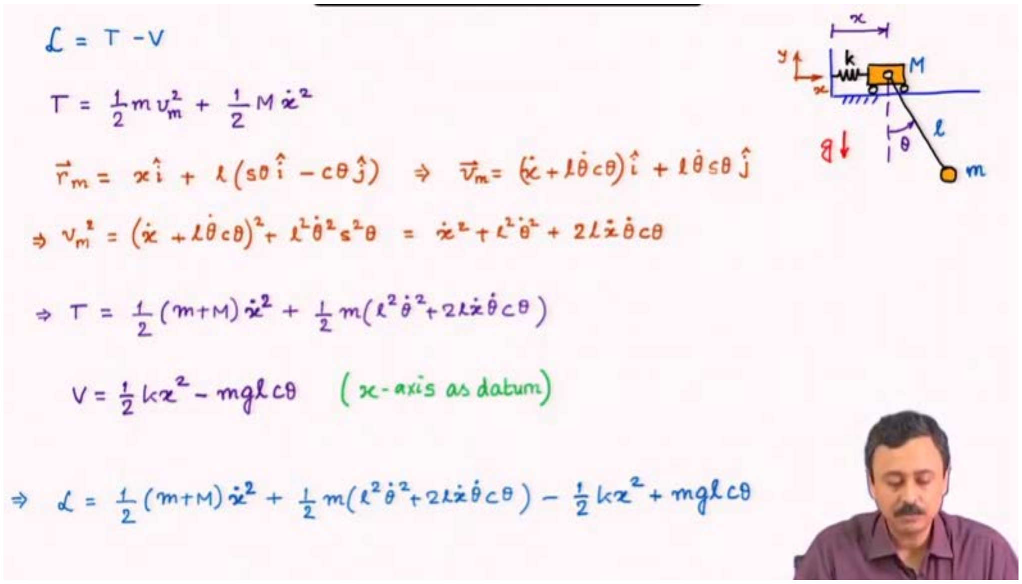

The Lagrangian of the system is derived in the slide above.

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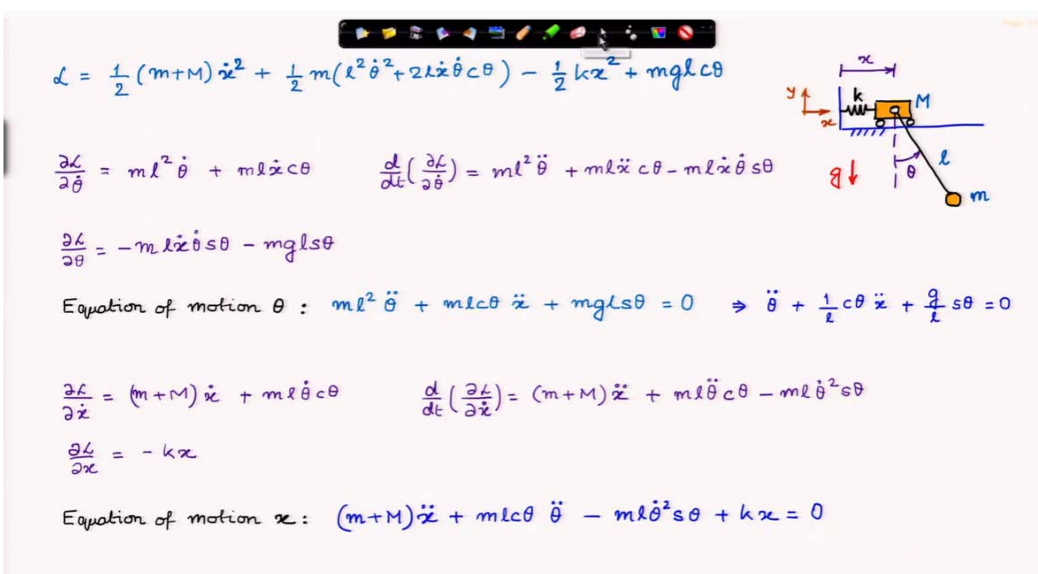

The equations of motion of the pendulum on a spring anchored cart is presented in the slide above.

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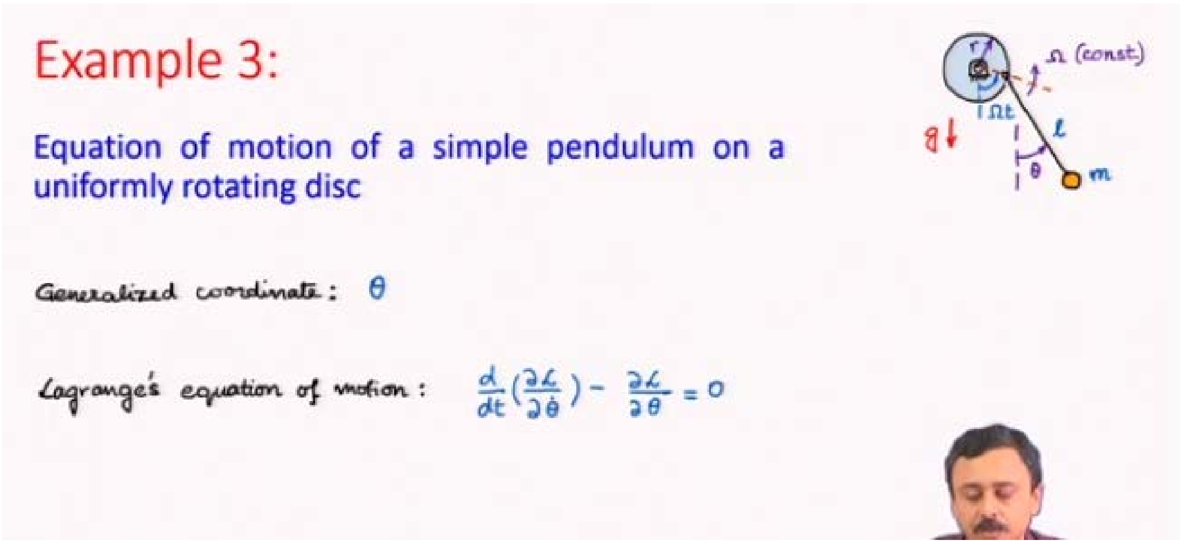

We move to the next example of a simple pendulum on a uniformly rotating disk as shown above.

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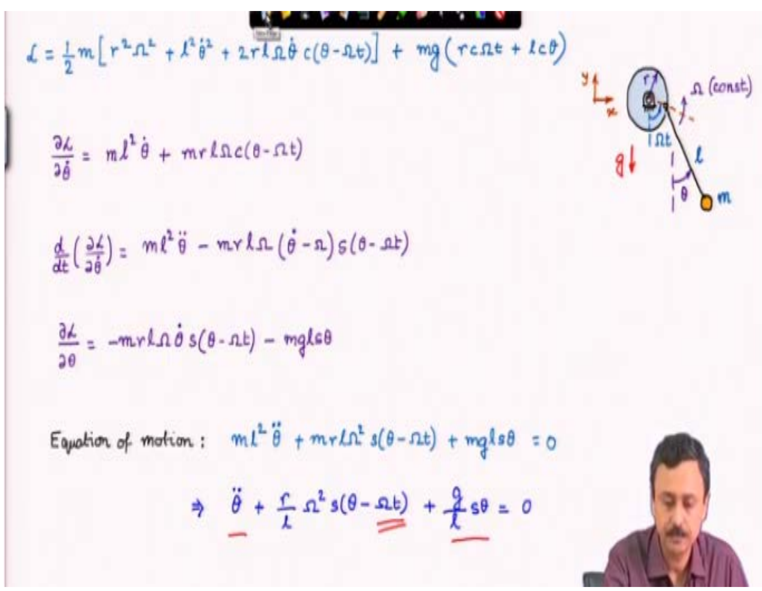

The equation of motion of the system is derived in the slide above.

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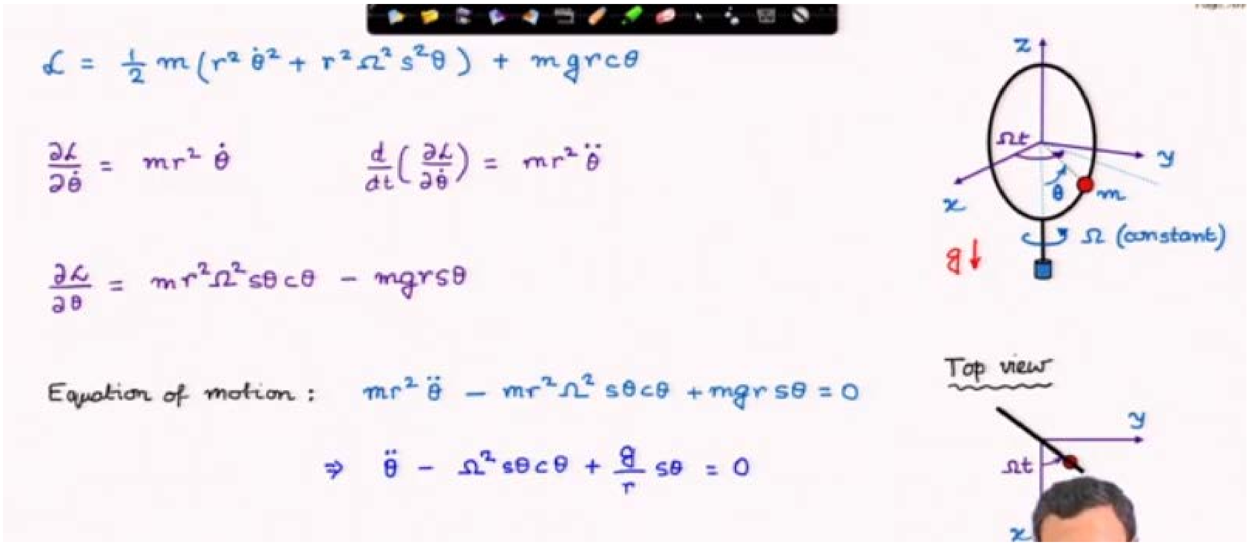

We move to the next example of motion of a bead sliding on a uniformly rotating circular hoop as shown above. The equation of motion of the bead is presented.

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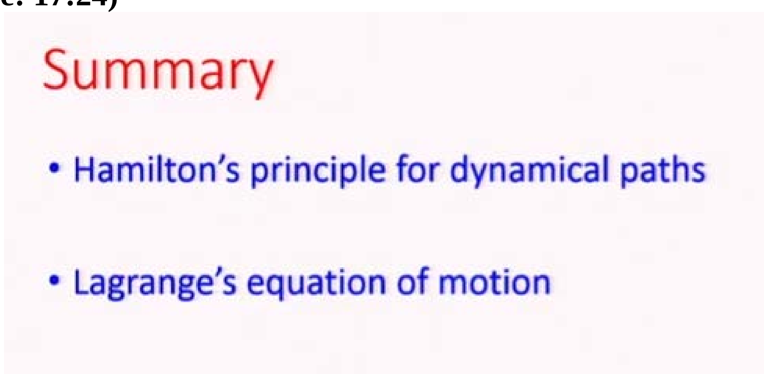

We have considered some examples to demonstrate the application of Lagrange's equation of motion to mechanical systems.