ME370: ADAMS LAB

**Department of Mechanical Engineering,
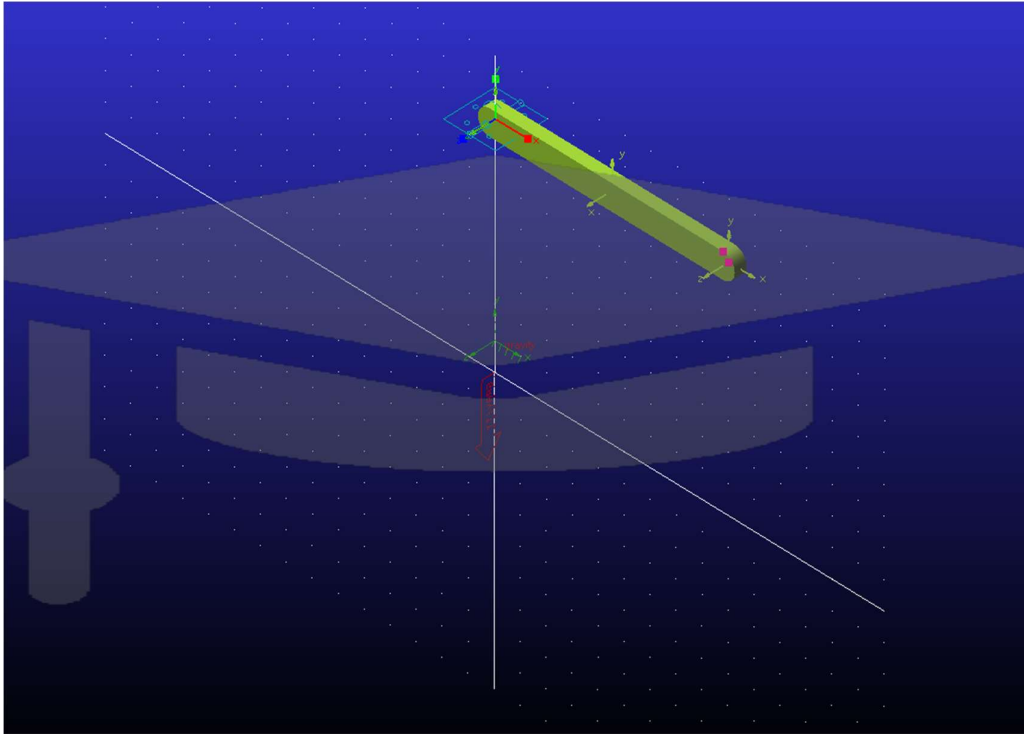IIT Bombay**

`

Session 1 Report

Name: Kavan Vavadiya
Roll Number: 210100166
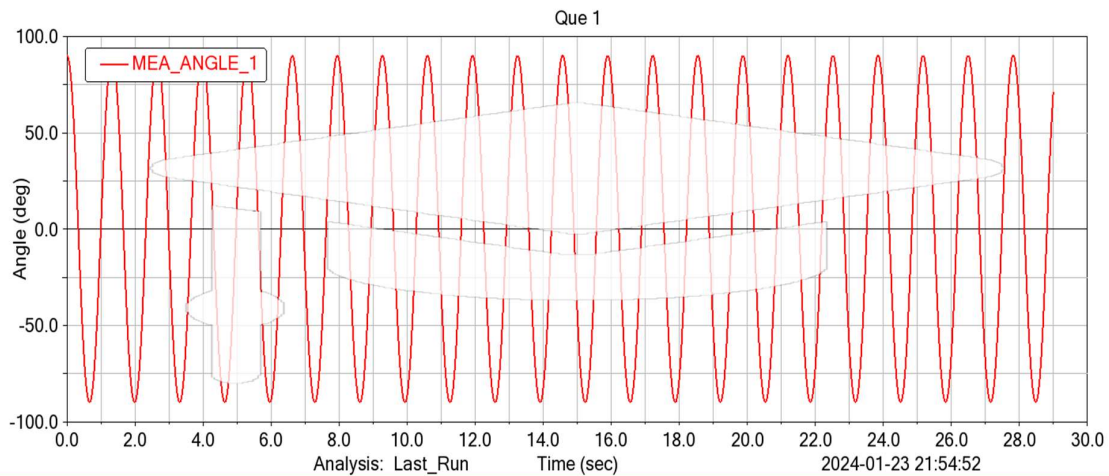
Date: January 24,2024

Question 1:

Construct a simple pendulum (a link swinging from a revolute joint). Start swinging it from the horizontal position. What is the angle made by the link with the vertical at the end of 20 cycles?
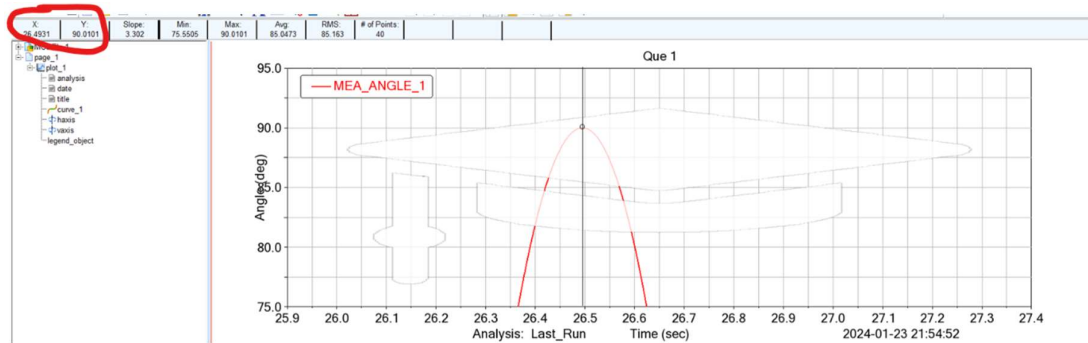
Isomeric view:

VARIATION OF ANGLE BETWEEN PENDULUM AND AXIS WITH TIME:

**ZOOMED IMAGE OF 20TH CYCLE**

RESULT:

Angle made by the link with the vertical at the end of 20 cycles is **90.0101** Degrees

Question 2 (Compound Pendulum)

Construct a pendulum with two links attached with a revolute joint. The second link should be longer than the first link. Start swinging both the links from the horizontal position. Plot the location of the tip of the pendulum through 5 cycles of the link which is attached to the ground.
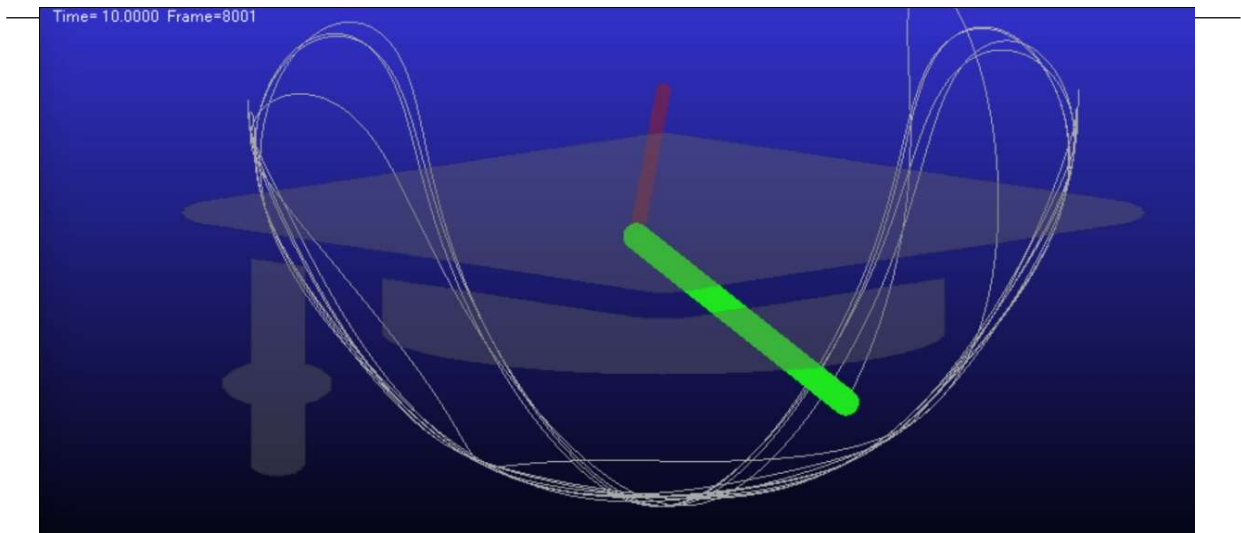
Isometric View:
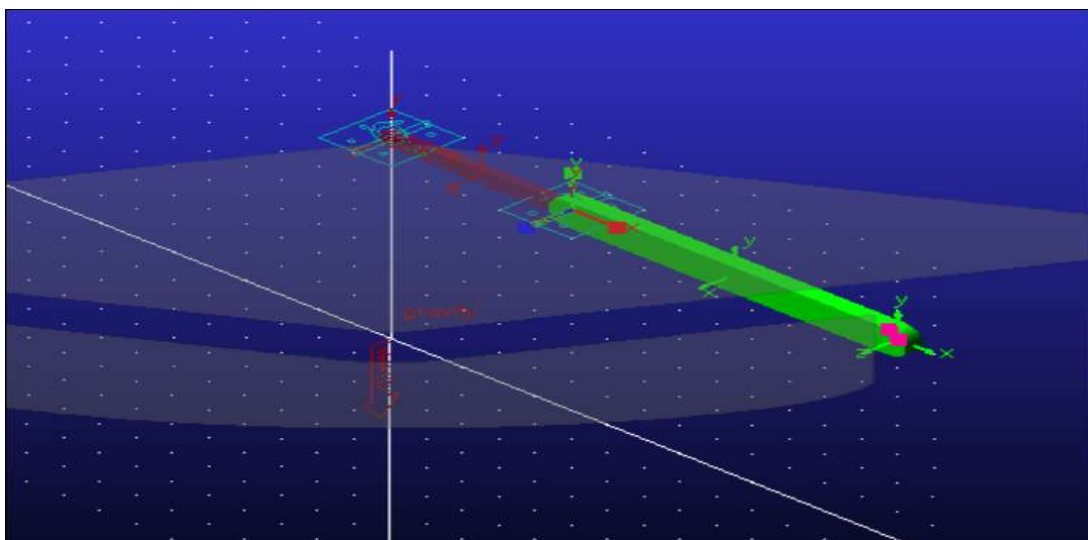
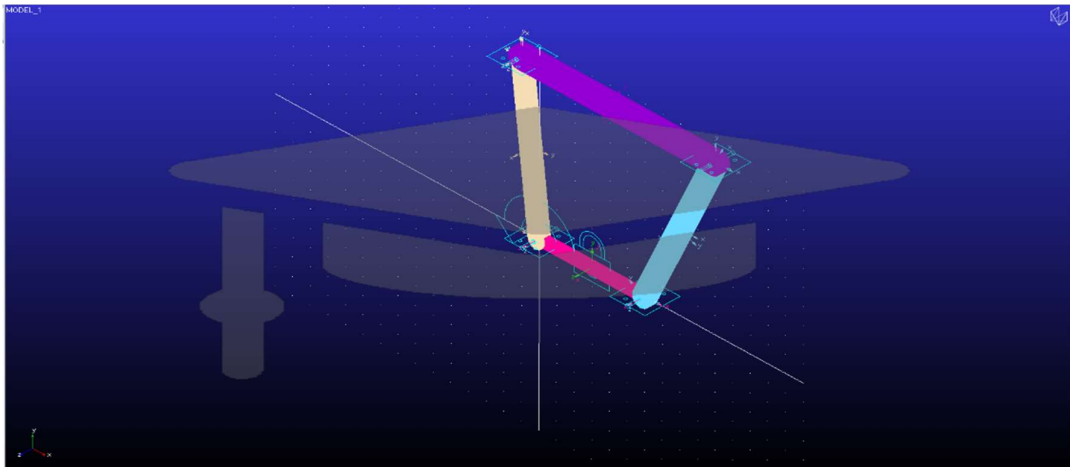**Displacement Of Tip Of Pendulum Through 5 Cycles:**
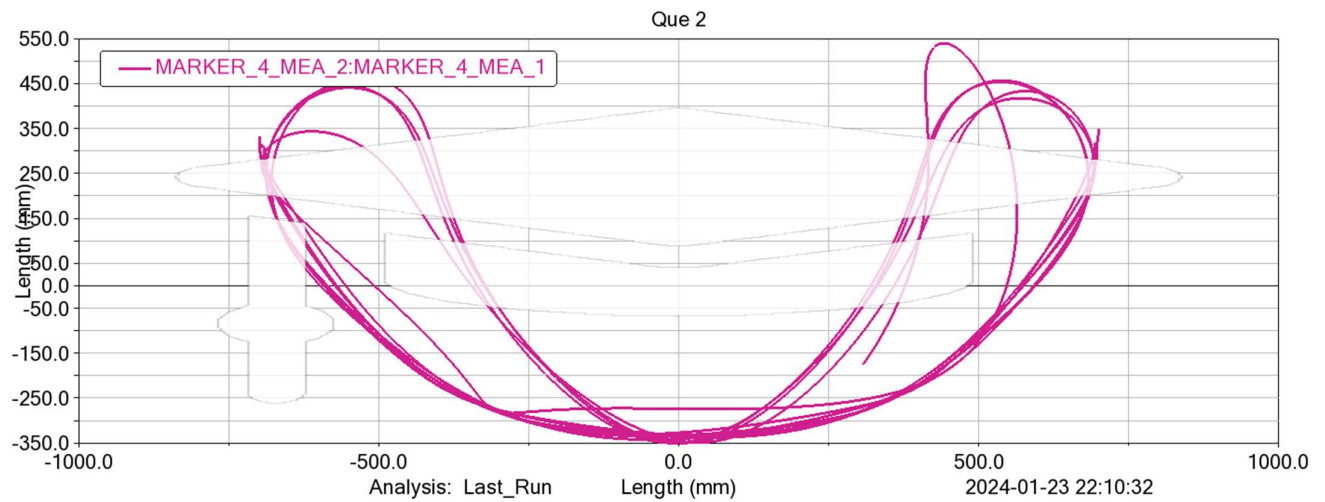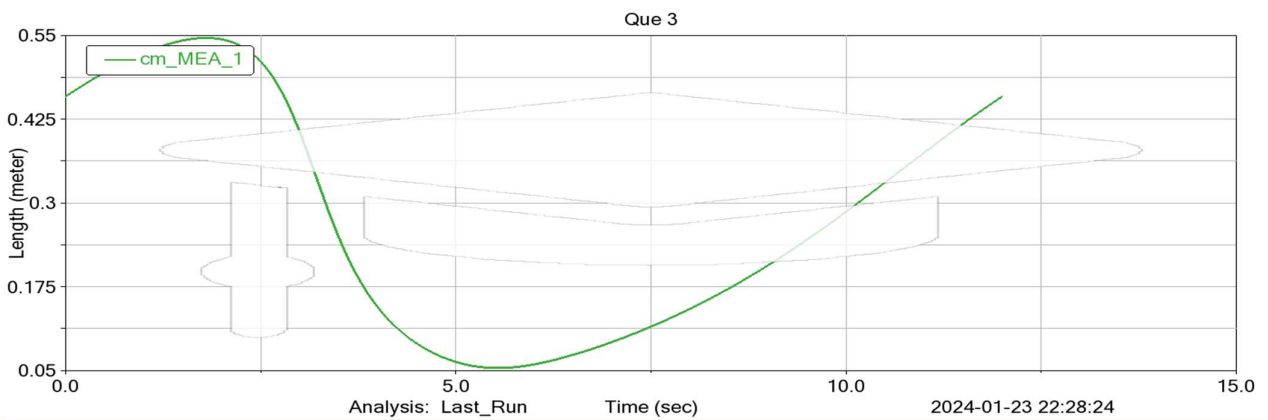

Trace Of Locus Of Tip Of Pendulum:

Question 3 (4-Bar Linkage)

Construct a four bar linkage satisfying the Grashof criterion.Rotate the crank exactly once.
Plot the displacement of the middle point of the rocker vs time.
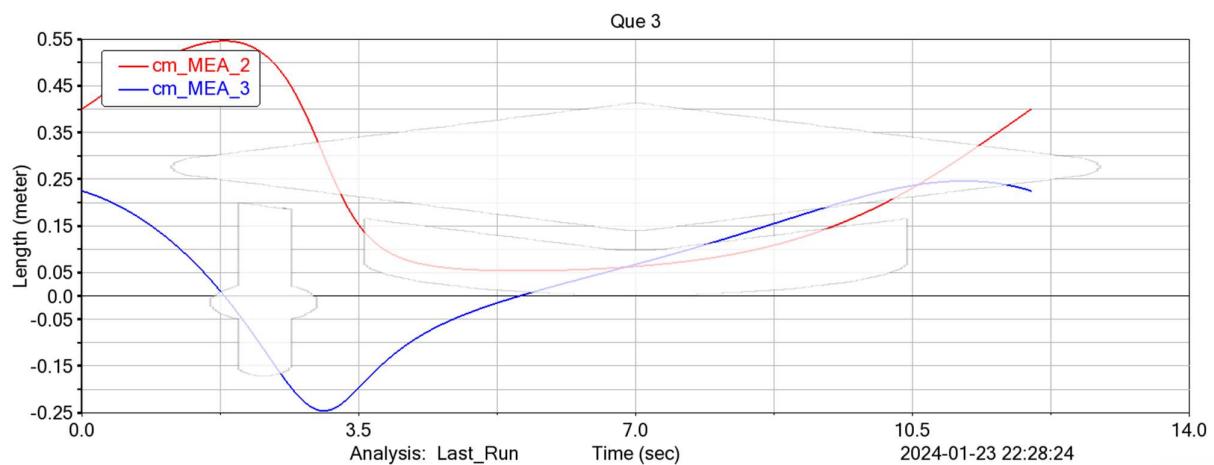Plot the angle between the rocker and the ground link vs time.
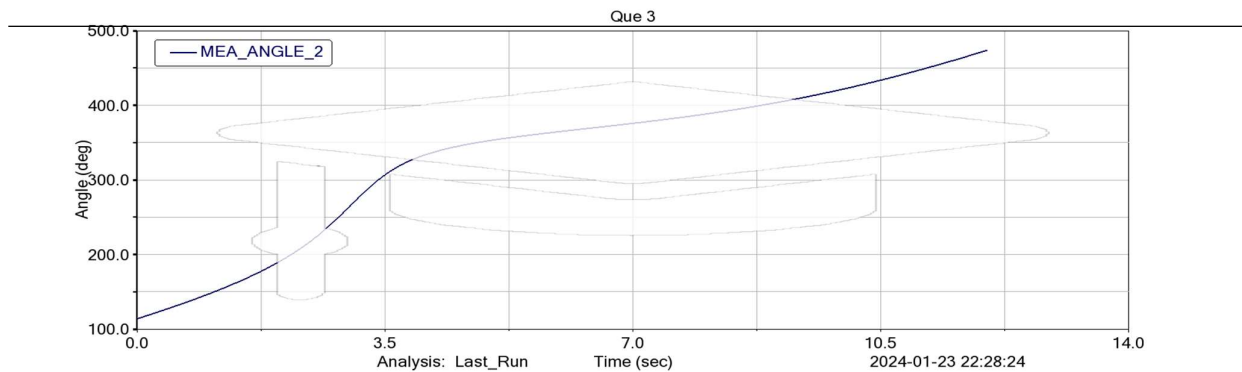
Isometric View:

MAGNITUDE OF DISPLACEMENT OF MIDPOINT OF ROCKER VS TIME

X & Y DISPLACEMENT OF MIDPOINT OF ROCKER VS TIME

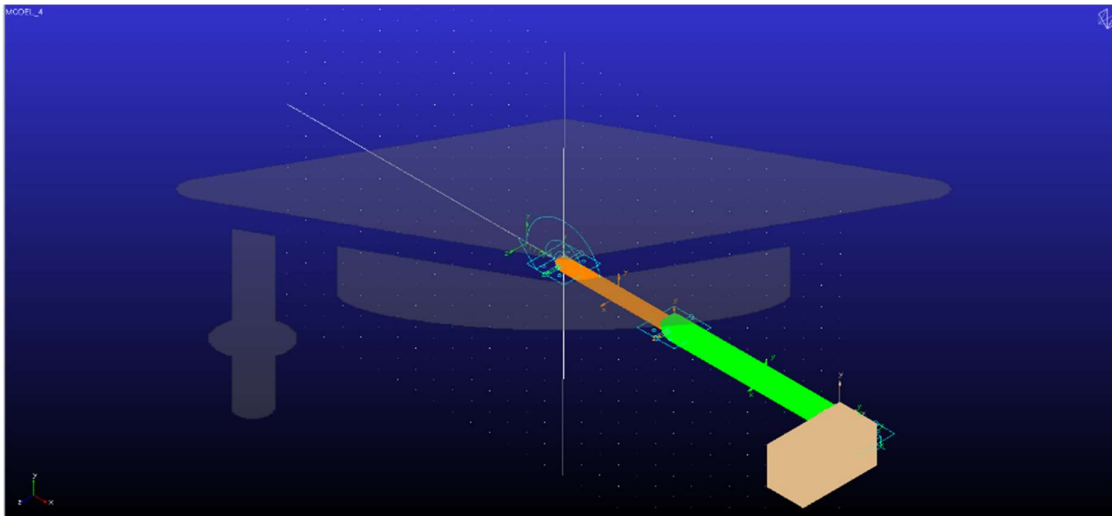**ANGLE BETWEEN ROCKER & GROUND LINK VS TIM**

Question 4 (Slider Crank)

Construct a slider-crank mechanism.
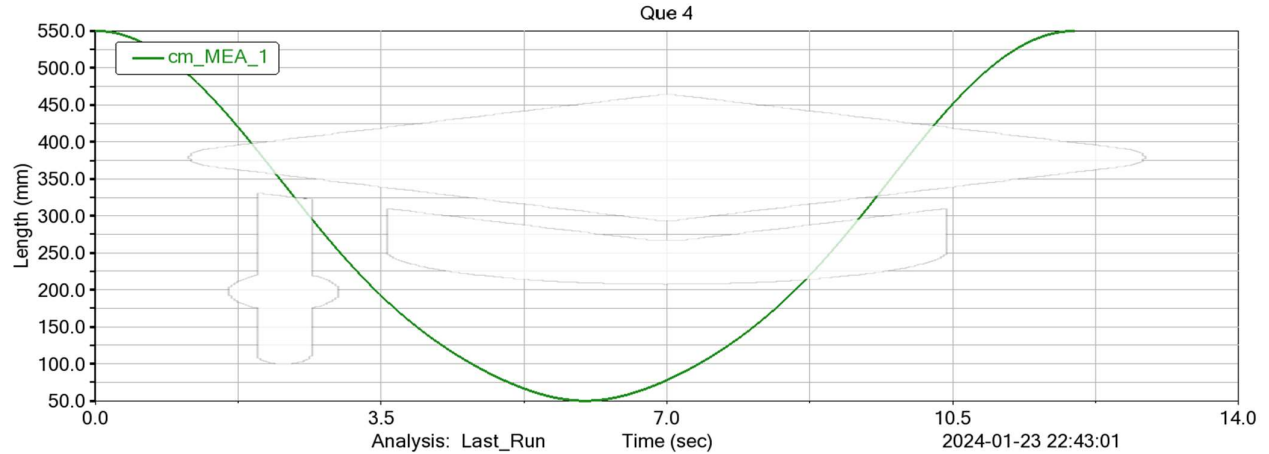Rotate the crank exactly once.
Plot the displacement of the middle point of the connecting rod vs time.
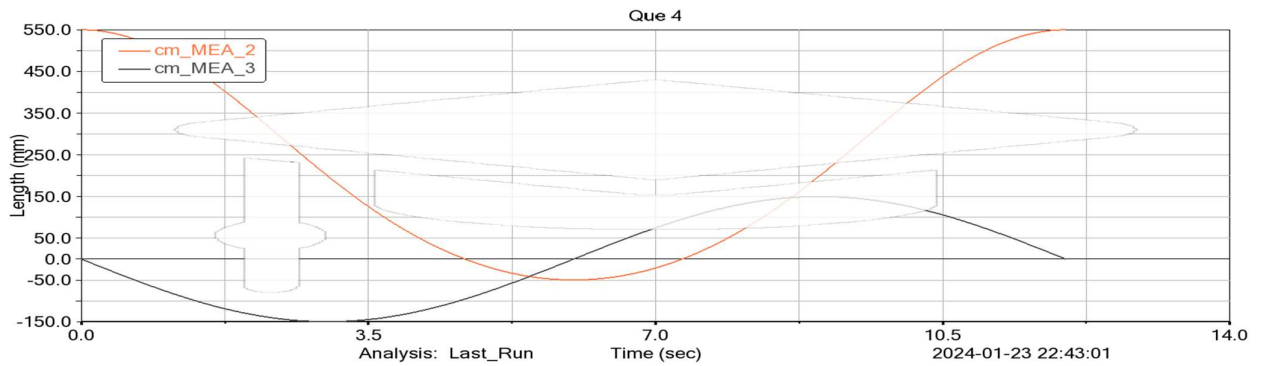Plot the angle between the connecting rod and the horizontal vs time.
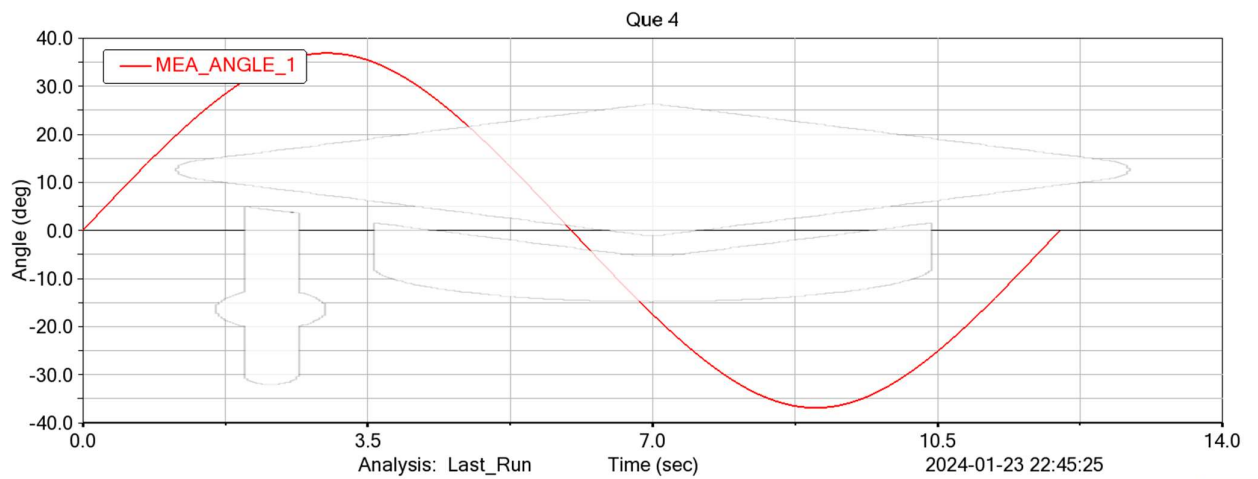
Isometric View:

MAGNITUDE OF DISPLACEMENT OF MIDPOINT OF CONNECTING ROD VS TIME

X & Y DISPLACEMENT OF MIDPOINT OF CONNECTING ROD VS TIME

ANGLE BETWEEN CONNECTING ROD & HORIZONTAL VS TIME

—X—X—X—X— X—X—X — X—**END**— X—X— X—X— X—X— X—X—

7