

SHANTILAL SHAH ENGINEERING COLLEGE, BHAVNAGAR

PRODUCTION ENGINEERING DEPARTMENT

ASSIGNMENT-1 (Based on Chapter-3 of GTU Syllabus)

THEORY OF MACHINE SUBJECT CODE: 2142504

BE SEM –IV PROD. ENGG.

Example 1 The Crank of a slider crank mechanism rotates clockwise at a constant speed of 300 rpm. The crank is 150 mm and connecting rod is 600 mm long. Determine: 1. linear velocity and acceleration of midpoint of connecting rod and 2. Angular velocity and angular acceleration of connecting rod, at a crank angle of 45° from inner dead centre position. (Solve above problem graphically)

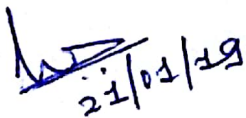
Example 2 In a four bar chain ABCD, AD is fixed and 150 mm long. The crank AB is 40 mm long and rotates at 120 rpm clockwise, while the link CD = 80 mm oscillates about D. BC and AD are of equal length. Find the angular velocity of link CD when angle BAD = 60° . (Solve above problem graphically)

Example 3 In a pin jointed four bar mechanism AB= 300 mm, BC = CD= 360 mm, and AD= 600 mm. The angle BAD = 60° . The crank AB rotates uniformly at 100 rpm. Locate all the instantaneous centre and find the angular velocity of the link BC.

Example 4 The crank and connecting rod of a reciprocating engine are 200 mm and 700 mm respectively. The crank is rotating in clockwise direction at 120 rad/s. Find with the help of Klein's construction: 1. Velocity and acceleration of the piston, 2. Velocity and acceleration of the midpoint of the connecting rod, and 3. Angular velocity and angular acceleration of the connecting rod , at the instant when the crank is at 30° to I.D.C. (inner dead centre)

Instruction for above Assignment:

1. This assignment carries 10 marks.
2. Last date for the submission of this assignment is 16/02/19.
3. Assignment must be carried out in Sketch-Book.


21/01/19

(Prof. V.A.Parikh)

Subject Coordinator TOM