MVSR Engineering College, Nadergul.

Department of Mechanical Engineering

COURSE OUTCOMES

Class: B. E. 2nd Year I Semester
Name of the course: **Kinematics of Machines**
Course Name (Code): **ME 251**

At the end of the course student is able to

CO no.	Course Outcomes	PO & PSO
M251.1	Define link, kinematic pair, kinematic chain and mechanism and determine degrees of freedom of kinematic chains using Grubler's criterion. Understand single and double slider crank chains and their inversions. Study exact and approximate straight line motion mechanisms- Pantograph, Peaucerlier,Hart mechanisms etc. Explore the steering gear mechanisms-Davis and Ackerman.Analyse Hooke's Joint Mechanism.	PO1, PO2,PO12
M251.2	Locate instantaneous centers for the given mechanisms using Arnold Kennedy's theorem. Draw velocity polygons and acceleration polygons for different mechanisms using instantaneous center method and relative methods. Determine Coriolis Component of acceleration using graphical methods. Find velocity and acceleration of four bar mechanism with turning parts using Analytical methods. Understand the Synthesis of four bar linkage using Freudenstein's method.	PO1,PO2,PO3,PO4,PO12, PSO2
M251.3	Understand the concept of friction and apply friction concepts in screw thread mechanism, pivots, collars and clutches. Understand friction axis of a link on a four bar link mechanism and friction circle on shaft and bearing component. Study the mechanisms of belts and ropes and calculate the maximum power transmission. Understand the working principle brake and dynamometer and learn the different types of brake mechanisms.	PO1, PO2,PO3,PSO2
M251.4	Appreciate the Cam terminology, types of motions for various application and draw the cam profile to transmit the required motion for distinct followers under various displacement conditions. Calculate the velocity and acceleration of the cam at any point and the corresponding maximum velocity and acceleration. Recognize the types of motion, Cam and follower required for a particular engineering application.	PO1, PO2,PSO2
M251.5	Summarize the gear terminology, law of gearing and various tooth profiles. Estimate the path of contact and arc of contact, contact ratio and the minimum number of teeth on wheel and pinion to avoid interference for a spur gear.	PO1, PO2,PO3,PSO2
M251.6	Determine the velocity ratio between two gears and in different types of gear trains. Determine torque capacities, power transmission on different gear trains. Study the kinematics of helical gear teeth.	PO1, PO2,PO3,PSO2