Chapter 1 : Introduction of Mechanisms and Machines 1-1 to 1-57

Syllabus :

Concepts of Kinematics and Dynamics, Mechanisms and Machines, Planar and Spatial Mechanisms, Kinematic Pairs, Kinematic Chains, Kinematic Diagrams, Kinematic Inversion, Four Bar Chain and Slider Crank Mechanisms and their Inversions, Degrees of Freedom, Mobility and range of movement - Kutzbach and Grubler's criterion, Number Synthesis, Grashof's criterion , Straight Line Mechanisms

Chapter 2 : Graphical & Analytical Linkage Synthesis 2-1 to 2-27

Syllabus :

Synthesis, Function, Path, and Motion Generation, Dimensional synthesis (Graphical): Two position synthesis, Three Position synthesis, Coupler curves, Position Analysis : Graphical position analysis of linkages, Algebraic position analysis of linkages, Four bar slider crank position solution, Two position motion generated by analytical synthesis, Three position motion generated by analytical synthesis.

Chapter 3 : Velocity and Acceleration Analysis 3-1 to 3-81

Syllabus :

Graphical and analytical velocity analysis of four bar pin jointed linkages and four bar slider crank linkages, Instant centers of velocity, Graphical and analytical acceleration analysis of four bar pin jointed linkages and four bar slider crank linkages, Graphical velocity and acceleration analysis of quick return mechanisms.

Chapter 4 : Cams 4-1 to 4-38

Syllabus :

Types of cams, Types of followers, Follower displacement programming, Derivatives of follower Motion, Motions of follower, Layout of cam profiles.

Chapter 7 : Gears and Gear Trains 7-1 to 7- 103

Syllabus :

Terminology, Law of Gearing, Characteristics of involute and cycloidal action, Interference and undercutting, centre distance variation, minimum number of teeth, contact ratio, spur, helical, spiral bevel and worm gears, problems.

Gear Trains: Synthesis of simple, compound & reverted gear trains, Analysis of epicyclic gear trains.

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