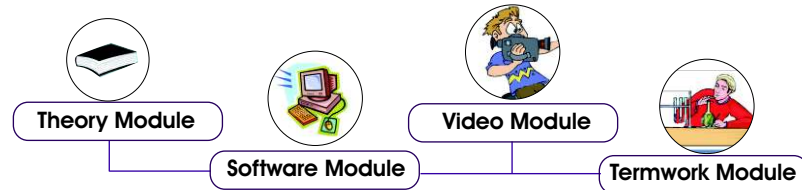


# Machine Design



Introduces, Global e-Learning System in Education & Training in the form of Learning Resources with Computer Aided Instructions



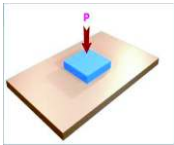
**System Requirement:-** IBM-PC Compatible Min P-III with Window-OS, 128 MB RAM/Multimedia Kit

## Theory module

**Features :** Theory, Figures, Photographs, Animations with controller, Highlighter tool, Note creation Facility, Systematic page navigation, Printing facility Access to Videos at appropriate locations.

## List of Topics

### Introduction



Definition, Classification of Machine Design, Fundamental of Units, Mass and Weight, Laws of Motions, Force, Moment of Force, Torque, Work, Power, Energy.

### Engineering Materials and Their Properties

Classification of engineering materials, Type Cast Iron, Types of Steel, Heat Treatment of Steel, Non Metallic Materials



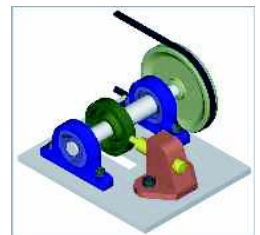
### Manufacturing Considerations



Casting, Forging, Hot working Processes, Cold working Processes, Basis of Limits Systems, Indian Standard System Limits and Fits, Surface roughness and its Measurements

### Simple Stresses in Machine Parts

Introduction, Load, Stress, Strain, Compressive Stresses and Strain, Shear Stress and Strain, Stress Strain Diagram, Factor of Safety, Stresses in Composite Bar, Thermal Stresses, Linear and lateral strain, Bulk Modulus, Relation between Bulk modulus and Young modulus of Rigidity, Impact Stresses, Resilience

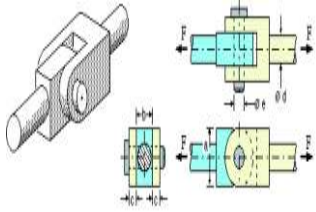


### Torsional and Bending Stresses in Machine Parts



Torsional stresses and Strains, Shafts in series and Parallel, Bending Stresses in Beam, Theory of simple Bending, Assumption in simple theory of bending, Section Modulus of various shapes of Beam of Section, Bending Stresses in Curved Beam, Principal Planes and Stresses, Mohr's Circle method

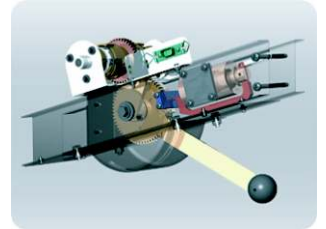
## Variable Stresses In Machine Parts



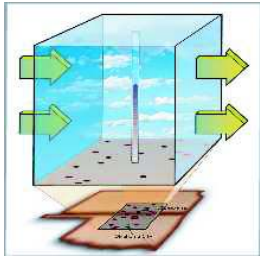
Completely Reversed or Cyclic Stresses, Fatigue and Endurance Limit, Stress Concentration, Methods of Reducing stress Constraction, Combined Stady and Variable Load

## Joints

Types of Rivets and their uses, Failure of Riveted Joints, Steps for Calculating Strength and Efficiency of joint, Steps for Calculating no. of Rivets, Types Of Pins, Design of Beam Colum Connection, Introduction to Weld connection Design of Moment Resisting Connections



## Brakes, Clutches , flywheel



Types of Braks, Basic Mechanism of Braking, Genaral Procedure of Brak Analysis, Internal Expanding Shoe Brak, Double Shoe Brakes, External Contracting Shoe, Pivoted block brake with long shoe, Clutch, Flywheel function and operations, Design Apporch, Stresses in flywheel,

## Design of Cotter and Knuckle Joints

Design of Scket and Spigot Cotter Joint, Design of knuckle Cotter Joint, Sleeve and cotter Joints

