COMPUTER AIDED INSTRUCTIONS

TEACHING/ LEARNING PROGRAM
FOR SUBJECTS OF
CIVIL / STRUCTURAL / ARCHITECT ENGINEERING

SoftTech ENGINEERS PVT . LTD.

INNOVATIVE eLearning IN ENGINEERING EDUCATION & TRAINING

Best Way of Learning With Multimedia Lessons

- Effective Learning/Training Aids in the form of software packages developed with latest Multimedia tools and techniques offering the necessary ease of operation with easy installation with low cost.
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SoftTech Engineers Pvt. Ltd. Pune India is an ISO 9001:2000 certified eminent and leading software development enterprise developing Softwares for A/E/C domain, Enterprise solutions and Multimedia Based Learning/Teaching Aids with Computer Aided Instructions in various subjects of IT/ Electronics/Electrical/Mechanical/Civil Engineering/Non Engg subjects like Food Sciences, Fashion Technology, Bio-Medical & Management subjects . Our Customer base is several engineering and other institutes all over the country and Overseas .

Applied / Engineering / Mechanics

Statics
- Introduction
- Pin Jointed Plane Frames
- Centre of Gravity
- Friction
- Forces in Space

Dynamics
- Kinematics of Particles
- Kinetics of Particles
- Kinematics of Rigid Bodies
- S. H. M. and Compound Pendulum
- Kinetics of Rigid Bodies

Civil Engineering Drawing

- Principles of Planning
- Rules & Regulations
- Methods of Drawing
- CivilCAD Module

Concrete Technology

- Concrete technology
- Ingredients of concrete
- Concrete
- Concrete mix design
- Special concretes & special concreting techniques
- Admixture & testing of concrete
- Deterioration and repairs

Design of Structure

Design of Structure (STEEL)
- Introduction
- Joints
- Tension & Compression
- Beams
- Timbers

Design of Structure (RCC)
- Methods of Design of Concrete Structures
- Limit State Design for Flexure
- Limit State Design for Shear
- Torsion Bond and Anchorage
- Limit State Design of Columns
- Limit State Design of Footings & Masonry Structures

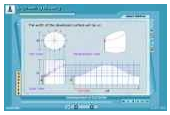
Earth Quake Engineering

- What causes earrhquakes
- How the ground shakes
- What are magnitude and intensity
- Where are the seismic zones in india
- The problem, objective and scope
- What are the seismic effects on structures
- Structural performance during earthquakes
- How buildings twist during earthquackes
- What is the seismic design philosophy for buildings
- How flexibility of buildings affects their earthquake response
- General concepts of earthquake resistant design
- Buildings in fired-brick and other masonry units
- Stone buildings
- Wooden buildings
- Earthen buildings
- How do earthquake affect reinforced concrete buildings
- Non engineered reinforced concrete buildings
- How do beams in rc buildings resist earthquakes
- How do columns in rc buildings resist earthquakes
- How do beam-column joints in rc buildings resist earthquakes
- Why are open-ground storey buildings vulenerable in earthquakes
- Why are short columns more damaged during earthquakes
- Why are building with shear walls preferred in seismic regions
- How to reduce earthquake effects on buildings
- Repair, restoration and strengthening of buildings

Estimation & Costing

- Introduction
- Modes of Measurement
- Procedure for Preparing Detailed Estimate
- Specification
- Rate Analysis
- Valuation,
- Contract
- Tender & Tender Notice
- Tender Documents
- Procedure of Execution of Work by P.W.D.
- Accounting In P.W.D.
- Payment of Contractor

Engineering Drawing



- Introduction
- Orthographic Projections
- Isometric Projections
- Interpretation of Views
- Engineering Curves & Loci of Points
- Projection of Points, Lines & Planes
- Projection of Solid, Development of Solid
- Intersection of Solids, Computer Aided Drawing

Elements of Civil Engineering

- Introduction to Civil Engineering
- Linear measurement
- Angular Measurements
- Vertical Measurements
- Contouring
- Area
- Modern surveying equipments
- Basic materials
- Building planning and acts
- Energy and Environment

Environmental Engineering

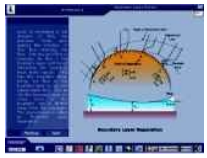
Water Supply Engineering
- Introduction
- Estimation of Demand of Water
- Sources of Water, Quality of Water
- Treatment of Water, Conveyance of Water
- Distribution of Water
- Water Supply Arrangements in Building

Sanitary Engineering
- Introduction
- Building Sanitation
- Solid Waste & its Disposal
- Conservancy System / Rural Sanitation
- Types of Sewerage Systems
- Sewer Appurtenances, Analysis of Sewage
- Sewage Treatment, Industrial Waste, Air Pollution

Energy Efficient Building in India

- Climatic zone: cold and cloudy
- Climatic zone: cold and sunny
- Climatic zone: composite
- Climatic zone: hot and dry
- Climatic zone: moderate
- Climatic zone: warm and humid
- Appendices

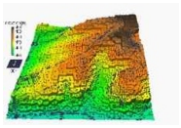
Fluid Mechanics



- Introduction & Properties of Fluids
- Fluid Pressure & it's Measurement.
- Hydrostatic Forces on Surfaces
- Buoyancy & Floatation
- Kinematics of Fluid Flow
- Dynamics of Fluid Flow
- Dimensional Analysis
- Flow over Notches & Weirs
- Laminar Flow
- Boundary Layer Theory
- Turbulent Flow
- Flow through Pipes

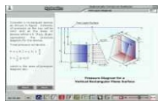
Geographical Information System

- What is GIS
- Introduction to GIS & Overview
- GIS Affine & Curvilinear
- CAD vs GIS
- GIS Co-ordinate System
- GIS Data Input
- GIS Data Source Evaluation
- GIS Database
- GIS Raster
- GIS Sampling
- GIS Spatial Database
- GIS Vector
- GIS Accuracy
- GIS Database Design
- GIS Tools
- GIS Relational
- GIS Software
- GIS Spatial Interpolation
- GIS Temporal
- GIS Functional Requirement Studies
- GIS Implementations
- GIS Pilot Project
- GIS Issues
- GIS Risk Management
- GIS Request for Proposal
- GIS Personnel
- GIS Database Concepts
- GIS DB Design
- GIS Planning & Management



Hydraulics

- Introduction
- Fluid pressure and its measurement
- Hydrostatic forces on surfaces
- Buoyancy and Floatation
- Kinematics of fluid flow
- Dynamics of fluid flow
- Dimensional analysis
- Laminar Flow
- Boundary Layer Theory
- Introduction to Turbulent flow
- Flow through pipes



Irrigation Engineering

Introduction

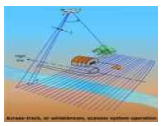
- National Water Policy
- Surveys
- Hydrology
- Water Requirement for Crop
- Water Planning
- Dams & Spillways
- Bandhara
- Lift and Micro Irrigation
- Diversion Head Work
- Canal and Canal Construction
- Canal Cross Drainage Work, Canal Lining
- Water Logging, Water Assessment

Mechanics of Structure

- Stress & Strain
- Elastic Constants
- Principle Planes & Stresses
- Strain Energy
- Moment of Inertia
- Shear Force & Bending Moment
- Bending Stresses in Beams
- Shear Stresses in Beam
- Torsion

Remote Sensing

- Principal of remote sensing
- Electro magnetic spectrum
- Interaction mechanism
- Remote Sensing System
- Sensors : MSS, RBV, TM, SLAR, Thermal Infrared scanner
- Platforms : Satellites
- Data products : Photographs, mosaics, digital images
- Ground truth
- Analysis and interpretation techniques
- Application for Land use & Land cover
- Investigation of construction material
- Site Investigation
- Watershed management
- Enviornmental Impact Assessments



Soil Mechanics

Introduction of Soil Mechanics

- Engineering & Index Properties of Soil
- Permeability & Seepage
- Compaction
- Shear Strength Parameter of Soil

Stress Distribution in Soils

- Lateral Earth Pressure
- Stability of Slopes
- Soil Stabilization & Geosynthetics

Survey- I

- Linear Measurements
- Chain & Cross Staff Surveying
- Chain & Compass Survey
- Levelling
- Contouring
- Plane Table Surveying
- Angular Measurement
- Tacheometry
- Measurement of Area
- Simple Curves

Survey- II

- Geodetic Surveying
- Triangulation Adjustment
- Aerial Photogrammetry
- Remote Sensing
- Hydrographic Surveying
- Modern Surveying Equipments

Strength of Material

- Stress And Strain
- Elastic Constants
- Principle Planes And Stresses
- Strain Energy
- Moment Of Inertia
- Shear Force And Bending Moment
- Bending Stresses In Beams
- Shear Stresses In Beam
- Torsion

Theory of Structures - I

- Basic concept of structural Analysis
- Strain Energy
- Deflection of Beams and Frames
- Indeterminate Beams
- Energy Method for Displacement
- Deflection of Trusses
- Slope Deflection Method
- Moment Distribution Method
- Influence Lines
- Rolling Loads
- Influence Line Diagrams for Plane Trusses
- Three Hinged Arches
- Two Hinged Arches

Transportation Engineering

Road Engineering

- Introduction
- Geometrical Design of Roads
- Road Material & Construction
- Bridge Engineering
- Types of Bridges and Components
- Inspection and Maintenance

Railway Engineering

- Component Parts of Railway
- Geometric Design of Railway
- Station and yards

Tunnel Engineering

- Tunneling
- Construction of Tunnels

Dock and Harbour

- Introduction
- Elements of Harbour
- Port facilities

Airport Engineering

- Planning & Layout
- Terminal Area & Airport Layout
- Taxiway Design, Visual Aids,

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