



eLearning Software Solutions

in

Technical Education

By



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SoftTech Engineers Pvt. Ltd., Pune, Maharashtra, India an ISO 9001:2008 certified and leading software Development Company developing Engineering Design Software, Enterprise, e-governance Solutions and **Multimedia Based E-learning Software Solutions.**

We have developed Multimedia based E-learning Software Solutions in various subjects of Information Technology, Electronics & Communication, Electrical, Mechanical, and Civil Engineering and Non Engineering subjects like Food Sciences, Fashion Technology, Garment design techniques, Bio-Medical & Management subjects for all four years of Engineering.

There are many segments to which our E-Learning Software Solutions has made its presence. These include Engineering colleges, Polytechnics, Vocational Training Institutes, ITIs, training institutes/training centers and so on.

These E-learning Educational Softwares have been appreciated by all the renowned institutes that are using it.

The contents are with theory, animation, 3D, pictures, and diagrams and block diagrams and in some subjects there is video module and audio as well. There are about 500 to 2000 pages and more in every subject. There are voice recording, highlighting, making notes, and printing facilities that serve well as computer Based teaching and self study material for students

F.Y. Engineering Brief Description of the Subjects

Applied / Engineering Mechanics (FYE01)

Statics and dynamics in mechanics.

Engineering Graphics/Drawing (FYE02)

Engineering drawing basic concepts, orthographic projections, isometric projections, interpretation of views, engineering curves and loci of points, projection of point, lines and planes, projection of solids, development of solids, intersection of solids, computer aided drafting.

Elements of Mechanical Engineering (FYE03)

Fuel and fuel combustion, properties of gases and steam, boilers, air compressors, power transmission devices, lathe, milling, grinding and CNC machines.

Elements of Electronics Engineering (FYE04)

Fundamentals of electronics engineering.

Elements of Electrical Engineering (FYE05)

Fundamentals of electrical engineering.

Elements of Civil Engineering (FYE06)

Fundamentals in civil engineering.

Workshop Technology (FYE07)

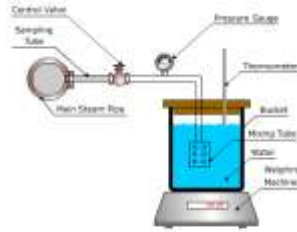
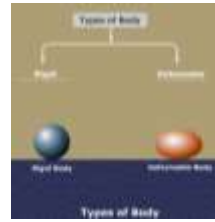
Fundamentals of metals and alloys, their properties, testing and inspection, various processes involved, machine tools, etc.

Applied Chemistry (FYE08)

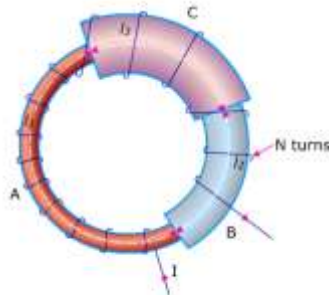
Atomic structure, electronic theory of valency, electro-chemistry, metallurgy, alloys, corrosion, paints and varnishes, lubricants, fuel and combustion, non-metallic materials, pollution and its control.

Applied Physics (FYE09)

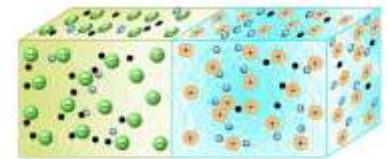
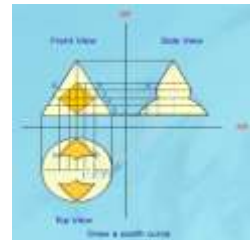
Basic terms involved, physical measurements, electrostatics, electric potential, capacitance and conductance, thermoelectricity, elasticity, surface tension, viscosity, gas laws and specific heat of gases, conduction of heat and expansion, refraction of light, photometry, SHM, sound, photo-electricity.



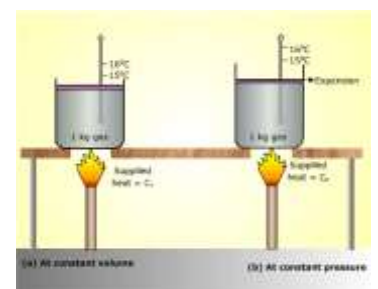
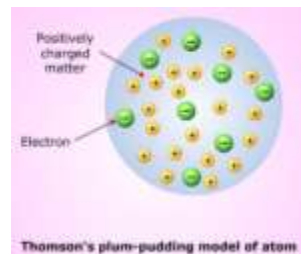
Bucket or Barrel Calorimeter



A composite magnetic circuit having two iron specimens A and B



Properties of P-N Junction



Applied / Material Science- I (FYE10)

Properties of electromagnetic waves, nuclear physics, solid state and crystallography, environmental chemistry, water and polymers.

Applied / Material Science- II (FYE11)

Wave particle duality, wave equations, lasers, Magnetism and Super conductivity, Semiconductor Physics, Modern Physics, Fuels, Combustion, Electrochemistry, Corrosion, Analytical Chemistry.

Basics of Environmental Studies (FYE12)

Basics of Environment, Ecology & Ecosystem, Population and Natural Resources, Environmental Pollution.

Communication Skills (FYE13)

Basics of communication skills, verbal and non-verbal communication, listening skills, Effective Presentation Strategies, Interviews, Group discussion, Writing skills, etc.

Computer Programming & Utilisation (FYE14)

Computer Fundamentals, Programming concepts, C Programming and C++ Programming.

Engineering Mathematics - I (FYE15)

Determinants, Matrices, Differential Calculus, Integral Calculus and Ordinary Differential Equations.

Engineering Mathematics - II (FYE16)

Integral Calculus, Laplace Transforms, Three Dimensional Co-ordinate Geometry, Vector Algebra and Calculus, Numerical Methods.

Engineering Mathematics - III (FYE17)

Infinite and Fourier Series, Application of Partial Differential Equation, Series of Solution of Differential Solution, Complex analysis, Statistics.

Mechanical/Automobile/Production Engineering Brief Description of the Subjects

Automobile Engineering (ME01)

Basic engine principles, fundamentals and constructional features and various systems in engine.

Fluid Mechanics (CE10)

Properties of fluids, fluid pressure and its measurement, forces on surfaces, kinematics and dynamics of fluid flow, types of flow like laminar flow and turbulent flow.

Manufacturing Processes (ME02)

Functions of casting like making of pattern, mould, concept of plastic deformation, various forging processes, extrusion, types of dies, sheet metal operations, welding processes, different turning, milling, grinding machines and their operations.

Machine Design (ME03)

Engineering materials and properties, different stresses in machine parts, joints, brakes, clutches and flywheels, Design of Cotter and Knuckle Joint.

Thermodynamics (ME04)

Various sources of energy, fundamental concepts and definitions, laws of thermodynamics, entropy, various properties of steam, Boilers, heat transfer, fuel combustion.

Thermal Engineering (ME05)

Various sources of energy, fundamental concepts and law of thermodynamics, ideal gases, testing of I. C. engine, turbines, boilers, compressors, refrigeration and power transmission systems.

Theory of Machines (ME06)

Fundamental concepts and definitions, types of mechanisms and their study, velocity and acceleration, power transmission devices.

Quality Management System (ME07)

Quality management till the customer satisfaction, Quality improvement tool, different quality management systems, quality audit and customer driven quality.

Metrology & Quality Control (ME08)

Science of measurement based on units and standards. Metrology is concerned with the establishment, reproduction, conservation and transfer of units of measurements and their standards. It involves precise measurements requiring the use of apparatus and equipments to permit the degree of accuracy.

Refrigeration & Air Conditioning (ME09)

Different refrigeration cycles, vapour absorption and compression systems, different air conditioning and air distribution systems and insulation.

CNC Machine (ME10)

Key concepts of CNC machines, controllable machine parts, tools, programming, programmable function and NC programming.

Mechatronics (ME11)

Measurement Systems, Electric Circuits and Components, Semiconductor Electronics, System Response, Analog Signal Processing using Amplifiers, Digital Circuits, Microcontroller Processing and Interfacing, Data Acquisition, Sensors, Actuators.

Power Plant Engineering (ME12)

Power plant cycles, Steam, Diesel, Gas Turbine, Hydro Electric, Nuclear Power Plants, conventional and non conventional power generation, Economics of power generation.

CAM & Automation (ME13)

Automation, distributed control system, architecture of process control unit, man machine interface, and industrial automation.

Energy Audit & Managements (ME14)

Various fundamentals of energy, its planning, monitoring, performance, etc.

Renewable Energy Sources (ME15)

Different energy sources like Solar, wind, geothermal, bio energy.

Robotics & Automation (ME16)

Robotics mechanism, actuators for robots, trajectory planning, robot dynamics and control, actuator dynamics and PD, PID control for robot.

Workshop Technology (FYE07)

Fundamentals of metals and alloys their properties, testing and inspection, pattern making, casting, smithy and forging, welding, fitting, machine tools, theory of metal cutting and automated machines.

NDT - Non Destructive Testing (CE20)

Various non destructive testing method like ultrasonic testing, radiographic testing, magnetic particle testing, liquid penetrant testing, eddy current testing, etc.

Energy Conversion Systems (EE11)

Various types of energy conversion systems.

Unconventional Machining (ME17)

Various types of unconventional machining.

Nano Technology (ME18)

Fundamentals of nano technology.

Electrical Engineering Brief Description of the Subjects

Electrical Circuits and Networks (EE01)

Circuit concepts, conventions, network and differential equations, transforms, resonance, networks, etc.

Electrical Machines (EE02)

Various electrical machines like D.C. Generators, D.C. Motor, transformer, alternators, etc.

Electrical Measurement and Instrumentation (EE03)

Fundamentals of instrumentation, units of measurement, various instruments, fault finding tests, etc.

Electrical Engineering Materials (EE04)

Conducting, insulating, magnetic, gaseous and special materials used in electrical engineering.

Numerical Methods and Computational Techniques (EE05)

Various types of numerical methods and computational techniques.

Electrical Power System (EE06)

Fundamentals of electrical power generation, tariff, supply system and mechanical design of power generation.

Energy Conservation System (EE07)

Various forms of energy, electrical system, lighting system, energy efficient technologies, performance assessment of motors and speed drives.

Modern Control System (EE08)

Fundamentals of control system.

Switch Gear & Protection (EE09)

Various types of switchgears and protection systems.

Energy Audit & Management (ME15)

Various fundamentals of energy, its planning, monitoring, performance, etc.

Electrical & Illumination Design (EE10)

Fundamentals of illumination, design considerations and installation of electrical system.

Energy Conversion Systems (EE11)

Various types of energy conversion systems.

Repair of Electrical Machines (EE12)

Basics of split phase motor, capacitor motor, motor winding, rewinding processes for A.C. and D.C. motors, etc.

Industrial Electronics (EE13)

Various electron devices and transducers which are used in industrial electronic systems, Electric circuit, industrial electronic systems, various high power electronic devices, working and control of high power supply systems, etc.

Power Plant Engineering (ME13)

Power plant cycles, Steam, Diesel, Gas Turbine, Hydro Electric, Nuclear Power Plants, conventional and non conventional power generation, Economics of power generation.

Renewable Energy Sources (ME15)

Different energy sources like Solar, wind, geothermal, bio energy.

Microprocessor & Microcontroller (ET11)

Detailed concepts of microprocessor 8085 and microcontroller 8051.

Power Electronics (ET12)

Various electronic devices and transducers, Electric circuit, typical industrial electronic systems, various high power electron devices, working and control of high power supply systems, transformation of power supply to suit the electronic system etc.

NDT- Non Destructive Testing (CE20)

Various non destructive testing method like ultrasonic testing, radiographic testing, magnetic particle testing, liquid penetrant testing, eddy current testing, etc.

E& TC/Industrial Electronics/Instrumentation Engineering Brief Description of the Subjects

Electronics Materials & Components (ET01)

Materials used in construction and fabrication of electronics and electrical components.

Electronics Measuring Instruments (ET02)

Various measuring instruments like oscilloscope, generators, wave analysers, digital instruments.

Digital Techniques & Applications (ET03)

Number system, logic gates, semiconductor theory, combinational logic circuits, electronic counters, converters, zener diode & its applications.

Electronic Devices and Circuits (ET04)

Various types of devices and circuits used in electronics, integrated electronics, and regulated power supply.

Electro Magnetic Field Theory (ET05)

Fundamentals of Electromagnetic wave.

Antenna Engineering & Waves Propagation (ET06)

Fundamental concepts of antenna, arrays and mobile communication, frequency bands, arrays of discrete elements, wave propagation.

Digital Communication & Circuits (ET07)

Fundamental concepts of digital communication systems.

Digital Signal Processing (ET08)

Various digital signal processing techniques, data compression techniques.

Signals & Sensors (ET09)

Fundamentals of signals and sensors.

Microprocessor 8085 Lab (ET10)

Microprocessor 8085 simulation used in laboratory.

Microprocessor & Microcontroller (ET11)

Detailed concepts of microprocessor 8085 and microcontroller 8051.

Power Electronics (ET12)

Various electronic devices and transducers, Electric circuit, typical industrial electronic systems, various high power electron devices, working and control of high power supply systems, transformation of power supply to suit the electronic system etc.

VLSI-Design Techniques (ET13)

Basics concepts of VLSI devices, their fabrication and design of VLSI.

Communication Systems (ET14)

Various types of transmission lines, signal modulation and various types of communication systems like mobile, TV, Satellite, Fiber Optic etc.

Mobile Communication (ET15)

Wireless transmission system, telecommunication system, satellite system, broadcast system and mobile network and transport layer.

Data Communication & Networking (ET16)

Fundamentals of data communication systems and networking.

Digital Image Processing (ET17)

Various digital image processing techniques

Embedded Systems (ET18)

Basic embedded systems, hardware, programming, real time operating systems.

Microwave Engineering (ET19)

Definition, history, generation, applications of microwave.

Optical Fibre Communication (ET20)

Fundamental concepts of optical fiber communication, wavelength division multiplexing, optical amplifiers and optical networks.

RFID System (ET21)

Fundamentals of RFID, transponder, RFID interrogator, RFID antenna, controller and database.

Bio-Medical Electronics Engineering (ET22)

Fundamental concepts of bio medical electronics.

Computerized Process Control System (ET23)

Distributed control systems, architecture of process control units, man machine interface.

Industrial Automation (ET24)

Basics of industrial automation, various types of control, robotic mechanism, etc.

Linear Integrated Circuits (ET25)

Operational amplifiers and their applications, instrumentation amplifiers, analog to digital and digital to analog converters, signal generators, phase locked loop, log and analog operational amplifiers, voltage regulators.

Numerical Methods and Computational Techniques (EE05)

Various types of numerical methods and computational techniques.

Civil /Agricultural Engineering / Architecture Brief Description of the Subjects

Mechanics of Structure (Strength of Materials) (CE01)

Concepts of stress and strain, elastic constants, principle planes and stresses, strain energy, moment of inertia, shear force and bending moments, bending stresses and shear stresses in beams, torsion.

Concrete Technology (CE02)

Properties & testing of materials used in concrete, processes involved in concreting, curing and mix design of the concrete.

Soil Mechanics (CE03)

Physical properties of soils, tests on soil, permeability, strength, bearing capacity, earth pressure, stability of slopes and sub-soil exploration etc.

Surveying – I (CE04)

Basics of surveying, various surveying instruments, their use and methods used in surveying.

Building Construction (CE05)

Methods and processes involved in construction of various building components.

Building Materials (CE06)

Various building materials, their properties and uses.

Civil Engg Drawing (CE07)

Principles of planning, rules and regulations and methods of drawing.

Theory of Structure (CE08)

Basic concepts of structural analysis, various theorems and methods used in structural analysis.

Estimation & Costing (Quantity Survey & Estimation) (CE09)

Basic concepts and methods of measurement, detailed estimate, specifications, rate analysis, valuation, contract, tendering, etc.

Hydraulics/Fluid Mechanics (CE10)

Properties of fluids, fluid pressure and its measurement, forces on surfaces, kinematics and dynamics of fluid flow, types of flow like laminar flow and turbulent flow.

Irrigation Engineering (CE11)

Various methods of irrigation, national water policy, hydrology, various hydraulic structures and their design, etc.

Sanitary Engineering (CE12)

Systems of sanitation, collection of sewage –their properties and testing , treatment of sewage, estimation of sewage, design of sewer, sewer appurtenances, construction-testing and maintenance of sewers.

Surveying-II (CE13)

Geodetic surveying, triangulation, photogrammatry, remote sensing, and modern surveying instruments.

Transportation Engineering (CE14)

Various types of transportation systems, their parts, geometric design, etc.

Foundation Engineering (CE15)

Various types of foundations, design of raft and combined footing, failure of foundation, bearing capacity determination, various tests like plate load test, penetration test, static cone tests, deep foundations ,etc.

Environmental Engineering (Water Supply Engg.) (CE16)

Estimation of demand for water, sources of water, quality-treatment-conveyance-distribution of water, water supply arrangements in building, etc.

GIS & Remote Sensing (CE17)

Basics of geographical information system and remote sensing.

Design of Structure (CE18)

Basic concepts in designing and detailing of RCC structures based on IS 456-2000 and basics of steel structures based on IS 800-1984.

Earth Quake Engineering (CE19)

Basic information about the earthquake, requirement of structures from the viewpoint of earthquake forces, behavior of various types of structures under earthquake effect.

NDT- Non Destructive Testing (CE20)

Various non destructive testing method like ultrasonic testing, radiographic testing, magnetic particle testing, liquid penetrant testing, eddy current testing, etc.

Information Technology / Computer Science Brief Description of Subjects

Computer Fundamentals (IT01)

Basics of Windows98/2000/XP, MS Office

Desktop Publishing (IT02)

Basics of PageMaker and CorelDraw software.

Database (IT03)

DBMS/RDBMS, MS Access, MY SQL, Oracle etc.

Internet Technology (IT04)

Java, Core Java, Advanced Java.

Microsoft .NET (IT05)

Basic of .net Essential, ASP .net, VB.Net, c#.

Operating System (IT06)

Basic commands of unix and working of linux.

Programming (IT07)

Basic of Programming concepts, C, C++, Visual Basic, Developer 2000

Scripting Language (IT08)

ASP, XML, WAP, WML.

Web Designing (IT09)

Basics of HTML, DHTML, Dreamweaver, Flash, Photoshop.

PC Hardware Maintenance & Troubleshooting (IT10)

Basics of microcomputer system, peripheral devices, pc hardware overview, microprocessor in pc, installation & preventive maintenance, troubleshooting, computer viruses & security.

Computer Organisation (IT11)

Basics of computer fundamental, processor & memory organisation, devices and buses for device networks, memory interface, I/O data transfer technique & peripherals, etc.

Artificial Intelligence & Expert System (IT12)

Basics topics introduction artificial intelligence, heuristic search technique, game playing, knowledge presentation using predicate logic, knowledge presentation using non-monotonic logic, learning & planning.

Computer Graphics (IT13)

Basics of introduction, raster graphics, clipping, geometric transformation, curves, fractals, computer animation, rendering.