Corporate Trainings
For Electrical & Structure Design Engineers

- Training for Engineers of Africa Government
- Structure Design of Industrial Structures
- Lighting Design
- Open STAAD
- Substation Design Training
- Steel Structures
- Software Trainings: STAAD | ETAP | TEKLA
- Power System Protection Training
- Power System Stability
- Power System Safety

www.ohmencon.com / www.ezengineers.in
www.ezengineers.in/engineering-excellence-program
Engineering Excellence Program – An improvement Initiation by EZ Engineers Pvt. Ltd. & OHM Encon Pvt. Ltd – is the only Training Establishment in Gujarat for Professional Corporate Trainings in the field of Electrical & Structure Design Engineering.

Here, We have experts with minimum 15 years of Industrial Experience in various fields.


We have already conducted trainings in India as well as abroad for different MNCs and Government Establishments like Transmission Company of Nigeria, L&T, Chemie-Tech, GEA, Crompton Greeves, PHCN, Woodward etc, Sphere Infracon LLP, ABB, Ceylon Electricity Board.

In the field of Education also, We have achieved Highest placement numbers among all Engineering Institutes. We have authorised STAAD Pro Training & Tekla Training Institute with most-experienced Expert Trainers (25+ years). We already have conducted many workshops in universities like GSFC, Parul, DJMIT, VIT, BITS, ITM, Charusat, SVIT, Neo Tech, SVMIT , ADIT etc.

Apart from conducting workshops at different locations, we also conduct various trainings at our own institutes in Vadodara where Engineers of Multinational Companies, Executives of Government Sectors, Site officers, University Professors and Students participates on regular basis..
Our satisfied Clients
Training Portfolio

Transmission Tower Design Training at Africa for Structure Engineers

Transmission Tower Design Training at Africa for Electrical Engineers

Structure Design Training at L&T Power Training Institute

Conducted Power System Protection Training at Crompton Greeves

Substation Design Training PHCN Engineers (Nigeria) at Vadodara

Structure Design Training at L&T – Technology Services
Training Portfolio

Training on Power System Protection at Woodward, Gurgaon

Training on Power System Protection at Woodward, Gurgaon

Training on Construction Concepts at Sphericon Infrastructure Pvt. Ltd.

Training on TEKLA Software to Indore participants.

Internship Training of GSFC College Students

Industrial Structure concept Training at Chemie Tech
Conducted Power System Protection Training at Crompton Greeves
Site Visit at Profine, GSFC Manjusar
Training on Power System Harmonics at Hotel Royal Orchid
Open STAAD Workshop at Bentley
Training on Power System Protection at Hotel Royal Orchid
Training on Power System Protection at Woodward, Gurgaon
Mr. Satish Jethwani

Director & Training Head at EZ Engineers Pvt. Ltd.

Engineering - Civil (Gold Medalist), QPMP Level D Qualified by Certified Project Management - Switzerland, Registered VUDA Structural Engineer - SEOR-01-194

• 15 Years of Experience in Structure Design of Power Plant, Material Handling, Oil & Gas Structures
• 8 Years at Larsen & Toubro
• 6 Years at Linde Engineering
• 3 Years of Engg Coaching
• Worked at India, Germany, Saudi Arabia.
• Member of I.E.I.
• Chartered Engineer

Mr. Tarang Thakkar

Director at Ohm Encon Pvt. Ltd

2 Decades of Experience of Engineering, Testing & Commissioning, Maintenance and Manufacturing Panels
• Proprietor, Ohmkar Engineer
• B.E. Electrical (1994) B.V.M, Vidhyanagar
• Life Member of CBIP
• Life Member of SPE
• Chartered Engineer
• Certified ETAP User (from OTI Inc, USA)
• Areas of Interest – Electrical Automation including Power System Protection and Trouble Shooting of Power Networks
• Transient Stability and Harmonic Studies

Mr. Prakash Makhijani

Director at Ohm Encon Pvt. Ltd

25 Years of Hard Core Engineering experience in Analysis of Electrical Network including Protection Co-ordination, Load Flow Analysis, Fault Analysis, Transient Stability and Harmonic Studies
• B.E. Electrical (1996) M.S.University, Baroda
• Diploma Electrical (1992) M.S. University, Baroda – (Gold Medalist)
• PGD - Industrial Relations
• Life Member of CBIP
• Life Member of SPE
• Member of I.E.E.E
• Member of I.E.I.
• Chartered Engineer
• Certified ETAP User (from OTI Inc, USA)
• Certified ISO 9001 Auditor
Electrical Trainings
ETAP Training

Initiation Course

- Basic Fundamentals of Modeling, Per Unit and Percentage Impedance Method, ETAP GUI and ETAP Library, Modelling of Equipment / Components.
- Fundamentals of Load Flow in interconnected system and in Radial System
- Hands-On: Load Flow Analysis, Report Generation and Interpretation
- Fault Analysis based on ANSI and IEC Standards.
- Hands-On: Fault Analysis, Report Generation and Interpretation
- Scenarios Wizard, Study Wizards & Data Blocks
- Hands-On: Protection Co-ordination

Advance Course (ETAP Initiation Course is a pre-requisite)

- Electrical Systems Modeling, Fundamentals of Fault Analysis based on ANSI and IEC Standards. ETAP Wizards & their application
- Motor Starting Fundamentals, Static Motor Starting and Dynamic Motor Starting Fundamentals of Harmonics, Overview of IEEE-519
- Harmonic Load Flow & Harmonic Frequency Scan, Mitigation techniques and Harmonic Filter Design, Case Studies for Harmonic Analysis
- Power System Stability fundamentals, Improving Transient Stability of system
- Case Studies for Transient Disturbances
- Basics of Arc Flash, Overview of IEEE-1584, Arc Flash Analysis and determination of AFB, Mitigation techniques for reducing Arc Flash Energies
- Case Studies for Arc Flash Analysis
Industrial System Distribution Engineering

- Fundamentals of Electrical Systems
- Switchgear and Wiring Basics.
- Application of Hazardous Area Classification in Industries and equipment selection.
- Grounding design and Introduction to IS-3043.
- Lightning Protection design and Introduction to IS-2309
- Lighting Design using software programs and introduction to IS-6665. Practical approach to lighting distribution and wiring
- Introduction to Electrical Transient Analyzer Program. Basic ETAP Modeling. Load Flow Analysis, Fault Analysis on Practical Systems
- Basics of Power System Protection and approach to over current and earth fault coordination.
- Introduction to Computer Aided Design. Preparation of design drawings and documents.

Power System Protection

- History & Evolution of Numerical Relays, Relaying Philosophy
- Faults & Abnormalities in a power system, PU Systems & Fault Calculation Basics
- Current Transformers & Potential Transformers, Transformer & Motor Protection.
- Feeder Over Current and Earth Fault Protection
- Generator Protection, Bus-zone Protection & Line Protection.
- Development of IEC 61850 Protocol and basics
- Operation and Maintenance of relays, Secondary Injection & Testing
- Workshop using ETAP for Plotting O/C & Earth Faults
Substation Design

- How a substation becomes reality – concept to commissioning
- Various Busbar Configurations, Primary Equipment Specification
- Preparing Single Line Diagram
- Fundamentals of Layout and Section. Electrical Clearances
- Interface with civil and structural design
- Grounding and Lightning System
- Illumination and wiring
- Substation Protection
- Cabling Philosophy
- Auxiliary Systems in substation
- Substation Automation and IEC 61850

Power System Basics

- Modelling of Equipment / Components
- Per Unit and Percentage Impedance Method
- Load Modeling Fundamentals
- Load Factor, Load Diversity and Global Diversity
- Fundamentals of Load Flow in interconnected system and in Radial System
- Hands-On: Load Flow Analysis using ETAP
- Faults & Abnormalities in a power system.
- Fault Calculation Basics
- Fault Analysis based on ANSI and IEC Standards.
- Hands-On: Fault Analysis using ETAP
- Motor Starting Fundamentals
- Static Motor Starting and Hands-On ETAP
Power System Harmonics  (Power System Basics is a pre-requisite)

- Basics of harmonics in electrical system, Synthesis of harmonic components.
- Fourier analysis, Fast Fourier transforms in Excel- Plotting the wave shapes and determination of harmonic components for simple rectifier and other circuits, Illustrative problems- THD calculations.
- Sources of Harmonics-How harmonics are produced in common electrical equipment.
- Disadvantages of Harmonics.
- Power factor correction and Concepts of Passive and Active filter, Filter Design.
- IEEE 519 guidelines and other applicable standards.
- Hands-On: Using ETAP for Harmonic Analysis and Filter design

Power System Stability  (Power System Basics is a pre-requisite ETAP Initiation Course is a pre-requisite)

- Improving Transient Stability of system. Various Transient Conditions and dF/dt, dV/dt, dj/dt under transient conditions
- Concepts and setting of Grid Islanding and Load Shedding Relays
- Hands-On: Using ETAP

Power System Safety

- Types of Electrical Hazards
- Electrical Shock: Causes, Consequences, Severity, Shock treatment, Measures for prevention and Safety equipment
- Potential Gradients: Causes, Effects & Measures
- Electrical Facilities in Hazardous and Explosive Areas, Hazardous Zones, Gas Groups, Selection of Electrical Equipment in hazardous areas
- Arc Flash Hazard: Causes, Severity, Measures for prevention, Arc Flash Analysis.
- Electrical Fire: Causes, Effects & Measures.
- OHSAS Requirements
Industrial System Distribution Engineering

- Fundamentals of Electrical Systems

Advanced Industrial System Distribution Protection

- History & Evolution of Numerical Relays, Relaying Philosophy
- Feeder Over Current and Earth Fault Protection
- Transformer Protection.
- Motor Protection.
- Bus-zone Protection.
- Workshop of Plotting O/C & Earth Faults curves using ETAP

EHV Substation Protection System

- Feeder Over Current and Earth Fault Protection
- Transformer Protection.
- Generator Protection.
- Bus-zone Protection.
- Line Protection.
- Development of IEC 61850 Protocol and basics
- Workshop using ETAP for Plotting O/C & Earth Faults

Lighting Design

- Illumination basics and terminology
- Various Light Sources and Recent trends and use of LED
- Understanding Polar Curves
- Indoor Lighting Design and aesthetics
- Lamberts Law and Outdoor Lighting Design
- Lighting and Small Power Distribution.
- Introduction to computer aided design
Industrial Grounding Design

- Grounded System v/S Ungrounded Systems
- Soil Survey and Soil Characteristics
- Materials of Grounding & their economics
- Important Clauses and review of IS-3043
- Grounding Measurements
- Earthing Design Calculations
- Earthing Design Drawings using computer aided design

Industrial Cabling Practices and Design

- Introduction to Computer Aided Design.
- Cabling Philosophy and sizing of cables, laying of cables
- Cable Routing Design, preparation of Substation Cable Routing and plant Cable routing
- Preparation of design drawings and documents

Power System Grounding

- Need for Grounding and Types of Groundings
- Grounded System v/S Ungrounded Systems and Hazards of ineffective grounding
- Soil Characteristics & Soil Survey
- Materials of Grounding & their economics
- Ground Fault Calculations
- Review of IEEE-80 and IS-3043
- Plant Grounding & Substation Grounding Design and Grounding Considerations for GIS
- Typical Case Studies for Grounding
- Grounding design using ETAP
- Grounding Measurements
Civil / Structure Trainings
STEEL STRUCTURE CONCEPTS

- Shear Connection and Moment Connection Concepts
- Fixed and Pinned Supports Concepts
- Stability of the Structure
- Compression & Tension
- Resonance Basics
- Bending, Buckling, Minor Axis Buckling
- Vertical Bracing & Plan Bracing - Location, Numbers, Direction, Distance, Behaviour, Tension/Compression, Effect, Reactions, Temperature Effects
- Force Transfer Mechanism in Vertical Plane & Horizontal Plane
- Direction of Bracing in Truss
- Short cuts to calculate Value of forces in Truss members
- 3D force Transfer Mechanism for Bridges, Pipe racks, Sheds, Technological Structures
- Axial Stiffness & Bending Stiffness
- Orientation of the Member (Minor axis & Major axis), Orientation of Column, Beam, Bracing, Orientation of different Cross section, Location of Shear connections and Moment Connections, Direction of Support Fixidity
- Calculate CG of different c/s, Ixx, Iyy, Z-top, Z-Bottom
- Interacting ratio for Single force and Combined forces
- Code IS:800, Design of Axial Member (Compression & Tension), Design of Flexural Member, Design of Member with Combined Axial & Bending forces
- Project Drawings, Standard Drawings, Project Reports, Project EXCEL Templates
- Qualitative Analysis for Beams
- Qualitative Analysis for Frames (Rectangular & Triangular)
- EZ Assignments
- Site Visit
ENGINEERING EXCELLENCE PROGRAM

RCC STRUCTURE CONCEPTS

- Basic Fundamentals
- Location of Main reinforcement, anchor bars, stirrups, hooks
- One way & Two way
- Under & Over Reinforcement, Balanced Section
- Singly & Doubly Beams
- RCC Foundation
- Stability Checks
- Base Pressure including Direct & Bending Theory
- Net SBC, Gross SBC
- Soil and Water Pressure
- Active & Passive Pressure, Pressure at Rest
- Hydro Static Pressure
- Calculation of Force and Moments due to above pressures
- Retaining Wall (Preliminary
- Governing cases of different types of footings
- Development Length
- Pile Group Analysis
- Footing Excel Sheets
- Shear key in Footing
- Limit State Theory
- Basic Parameters
- Design of RCC Beam
- Reinforcement Percentage : ptact, ptlim, prequired
- Shear Design
- Design of Column (Preliminary)
- Design of Footing including Shear Checks
- Loads & load combination
- Excel Design Templates, Codes IS 456, Tables from SP 16, SP-34, IS 1904, RCC Standard Drawings and Project Drawings
- Rebar location for all type of structures (inside/outside, Main/Distribution)
- Tang Chart & Moody’s Chart
- Miscellaneous
- Base Plate, Anchor bolt & Shear key
- Suspended and Grade Slab
- Limit State & Working Stress
- Items Which need to be Finalize before Foundation Design (Common)
- Type of Company/owner/EPC/PMC/Vendors, Work philosophy for Steel & RCC structure (Common)
- Visit
STAAD Pro Training

- Coordinates, Nodes, Beams, Translation Repeat, Labels, Full Section & Outline Command, Help, STAAD GUI
- Views from different sides, Rotate, Zoom in-out
- Dimension command, Input unit, Text, Member Property, Unit systems, Grid System
- Select Menu, View Selected, Mirror, Renumbering, Circular Repeat Command
- Member Property- Steel & RCC, Beta Angle, Assigning Methods, Different Pallets, Toolbar buttons
- Create Groups, Select by Group Name, Other Select Commands
- Cut section, Redefine Incidence, Intersect Selected members/ Intersect split beams
- View Options, Tables, 3D Rendering, Set Structure Colours
- View Management, Keyboard shortcuts
- Loading – Point loads, Nodal Load, Member Load, UDL, UVL, Floor Loads
- Structure wizard, User tables, Section Wizard,
- Offset
- STAAD Editor in Details
- Concepts of Global Axis, Local Axis
- Support & Member specifications, Releases for Shear connections, Moment Connections, Bracings etc.
- Checks for duplicate, orphan, multiple, warped plates etc.
- Load combinations, Run analysis, Errors, Warnings, Notes
- Output file, Post Processing mode, View value command
- Results, Reports, Capture Images etc.
- Steel Design Parameters - MAIN, LY, LZ, DJ1, DJ2, TRACK, UNL, KY, KZ etc.
- RCC Design parameters- CLEAR, ELY, ELZ, FYMAIN, FYSEC, TRACK etc.
- Interaction Ratios, Beam & Column Design Plate modelling, orientation of plate, generate plate mesh, Plate Loading, Hydrostatic loading, Pressure loading, Plate supports, Plate stresses, Base Pressure Diagrams, Reinforcement provision as per Moment & Shear Values
- Wind and Seismic Loading – Preliminary
- Cell Names
- Precedents/dependents
- Drop down
- Radio button
- Goal seek
- Drag- double click
- Lookup
- Hyperlink
- Macros - record
- Table function
- Pivot table
- Short cuts
- Cell lock
- Nested IF loops : If( if( if
- Vlookup (vlookup( vlookup
- Customized functions
- Camera – picture chance
- Freeze panes
- Text to column
- Chart
- Sumif
- Excel files to practice
- Filter
- Concatenate
- Conditional formatting
- Text Commands
ENGINEERING EXCELLENCE PROGRAM

Structure Expert Training

STUDY OF PROJECT DOCUMENTS
- Study of Project Specifications
- Study of Geotechnical Report
- Preparation of Design Basis Document
- Standard Drawings
- Understanding Project Schedules

ANALYSIS AND DESIGN OF STEEL STRUCTURE OF ACTUAL PROJECT
(1. TECHNOLOGICAL STRUCTURE & 2. PIPE RACK)

- Study of Inputs
- Layout of Structure
- Location of Column, Primary Beams, Secondary Beams, Plan and Bracings, Stub Columns orientation, Brackets
- Interference Issues with other Disciplines
- Location of Shear and Moment Connections
- Orientation of Structural Members
- Support Conditions
- Load application – Dead Load, Live Load, Empty Load, Operating Load, Test Load, Crane & Monorail Loads Load, Equipment Loads, Wind load, Seismic Load, Uplift Load, Contingency Loads, Temperature Loads
- Load Combinations
- Analysis and Results
- Design of Primary Members
- Optimization
- Effective Length & λ – Value
- Design of Base Plate and Anchor Bolts
- Pedestal and Tie Beam Design
- Design of Secondary Steel Members
- Design of Connections
- Input for Draftsman
- IS-800-2007 Basics
ENGINEERING EXCELLENCE PROGRAM

ANALYSIS AND DESIGN OF CONCRETE STRUCTURE OF ACTUAL PROJECT

(1. ADMINISTRATION BUILDING & 2. PUMP HOUSE WITH TRUSS AND METAL DECK ROOFING)

- Study of Inputs
- Layout of Structure
- Location of Columns, Primary Beams, Secondary Beams, Stub Columns, Brackets, Shear walls
- Orientation of Structural Members
- Load application – Dead Load, Live Load, Empty Load, Operating Load, Test Load, Crane & Monorail Loads Load, Equipment Loads, Wind load, Seismic Load, Uplift Load, Contingency Loads
- Load Combinations
- Analysis and Results
- Design of Primary Members
- Optimization
- Foundation Design
- Pedestal and Tie Beam Design
- Design of Secondary Members
- Rebar Detailing
- Ductile Detailing
- Input for Draftsman
• Introduction and Applications
• Create 3D Model from Excel
• Get Geometry in Excel
• Get Reactions from STAAD
• Get Member Forces from STAAD
• Get Displacements in Excel in one click
• Overall Input/Output from/to Visual Basics

Benefits
• Get OPENSTAAD Training & Set Higher level of Excellence in your career
• Be First at your Workplace to learn OPENSTAAD
• Perform STAAD Activities in Seconds instead of Days
Tekla Basic

• Introduction to Tekla Structures
• Basic 3D Modelling
• System Components
• Interactive Modelling & Building Custom Components
• Modelling Techniques
• Structural Profiles and Materials
• Numbering and reports
• Principles of working with drawings
• Creating General Arrangement Drawings
• Creating Assembly Drawings
• Creating Single Part Drawings
• Creating Anchor Bolt Plans

Tekla Advance

• Multi Drawings and multi numbering
• Revision Control and Drawing Management
• Modelling Stairs and handrails
• Extracting Bill Of Material
• Auto Defaults & Auto Connections
• Profile sketching / Symbol editor
• Working with Catalogs
• Master Drawing Catalog
• Drawing Classifier
• Template Editor, Reports, Layouts
• Importing attributes
• Customization (‘ini’ files, Objects.inp, privilages.inp)
• CNC file creation
• 4D Tool (Time Management)

Tekla Expert

• Introduction to Template Editor 3.3.
• Reports in .csv format.
• Template Rules.
• Creating graphical Templates.
• Upgrading V2.2 Templates.
• Creating textual templates.