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المكتب الهندسي لخدمات التكنولوجيا و البرمجيات

Engineering office for Technology and Software Services

Structural Column Design Using SP Column

🧱 Course: Structural Column Design Using SP Column

🎯 Course Introduction

This course aims to empower structural engineers with the ability to use **SP Column software** for analyzing and designing reinforced concrete columns in compliance with various international codes (ACI, BS, etc.). The course will enhance design accuracy, minimize errors, and improve execution quality in structural projects.

📚 Course Content

🧩 Module 1: Introduction to SP Column

- 🖥️ Overview of SP Column and its structural applications
- 📐 Importance of SP Column in the design process
- ⚖️ Comparison between SP Column and other structural design software (e.g., ETABS, SAFE)

🖱️ Module 2: User Interface and Basic Operations

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- ⚛ Exploring the program interface and toolbars
- ⚙ Setting up project defaults and preferences
- 📏 Input of material properties, geometry, and reinforcement data

📐 Module 3: Column Analysis and Design

- 💡 Understanding axial and eccentric loads on columns
- 🔢 Load case creation and data input
- 📐 Structural analysis of column behavior
- 📘 Section design based on selected code standards

🔍 Module 4: Special Design Cases

- 📊 Design of columns subjected to unsymmetrical loads
- 🌀 Design of circular and rectangular columns
- ✏ Manual design vs. SP Column software results comparison

📄 Module 5: Results Verification and Reporting

- 📌 Reviewing and interpreting design results
- 📝 Generating professional technical reports
- 🧠 Optimizing design based on output insights

🧪 Module 6: Practical Projects and Advanced Applications

- 🏢 Full case study of a multi-story building column system
- 💼 Identifying and solving common design challenges
- ⚛ Applying best practices in real-world column design scenarios

👷 Target Audience

- 👷 Structural engineers and civil designers
- 👨‍🎓 Advanced civil engineering students
- 🏢 Professionals in consulting offices and construction companies

⏱ Course Duration

- 🕐 30–40 training hours
- 🧑‍🏫 Includes theory sessions – 💻 hands-on applications – 🛠 guided exercises

🏁 Expected Learning Outcomes

By the end of this course, participants will be able to:

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المكتب الهندسي لخدمات التكنولوجيا و البرمجيات

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- ✅ Use SP Column software proficiently
- ✅ Analyze columns under various loads based on codes
- ✅ Generate safe and accurate structural designs
- ✅ Extract certified engineering reports
- ✅ Provide effective structural solutions for real-life projects

💼 Supportive Materials

- 📘 Detailed PDF handouts per module
- 🎥 Recorded instructional video lectures
- 📑 Ready-made design templates
- 🧪 Real-world project files for practice and simulation

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