

Electrical CE – Business and Project Management (4 Hours) Outline

- I. Contract Management Part 1 (21:21)
 - a. Where to Begin?
 - i. Contract
 1. Written Binding Agreement
 2. Prevent Disagreements
 3. Define Obligations
 4. Outline Payment Terms
 5. Limit Liability of Parties
 - ii. Negotiation
 1. Price and Terms of Contract
 2. Bid
 3. Offer
 - b. Contract Bidding
 - i. Offer and Acceptance
 - ii. Consideration
 1. Value of Contract
 - iii. Competent Parties
 - iv. Legal Purposes
 - v. Time Frame of Offer
 - vi. Items to be Included in a Contract
 - vii. Bid Documents
 - viii. Standard Form of Agreement
 1. Summary of Documents
 2. Assignment of Responsibility
 3. Bonding and Insurance Requirements
 4. Price and Payment Details
 - c. Contract Provisions
 - i. Terms of Contract
 1. Contract Price and Payment Terms
 2. Obligation of Parties
 3. Supplemental Conditions
 4. Breach of Contract
 - ii. Progress Payments
 1. Partial Payments
 2. Requirements
 - a. Number of Payments
 - b. Amount of Payment
 - c. Stage of Process
 - d. Due Date or Stage
 3. Protect Owner
 4. Allow Contractor to Pay
 - iii. Retainage
 1. Withheld Portion of Contract Price

- iv. Final Payment
 - 1. Unpaid Balance
 - 2. Required Documents
 - a. Certificates of Completion
 - b. Inspection Certificates
 - c. Guarantees and Warranties
 - d. Affidavits
 - e. Operation Manuals
 - f. Lien Releases or Waivers
 - g. Final Project Drawings
 - h. Other Required Documents
- d. Obligations of the Parties
 - i. Owner's Obligations
 - ii. Contractor's Obligations
- e. Supplemental Conditions
 - i. Additional Provisions
 - ii. Specific Insurance Requirement
 - iii. Project Procedures
 - iv. Local Law Requirements
- f. Breach of Contract
 - i. Failure to Perform Duties
 - 1. Party Refuses to Perform Contract
 - 2. Party Performs Prohibited Act
 - 3. Party Prevents Other Party's Obligations
 - ii. Legal Consequences
 - iii. Material Breach
 - iv. Immaterial or Partial Breach
- g. Construction Contract Types
 - i. Contract Negotiations and Financing
 - ii. Differences in Contracts
 - 1. Who Takes Risk
 - 2. Who Pays for Cost Overruns
 - 3. Who Keeps Cost Savings
- h. Lump-Sum Contract
 - i. Detailed Survey
 - ii. Careful Estimate
 - iii. Fixed Cost
 - iv. Owner Advantages
 - 1. Predictability
 - 2. Limits Exposure and Liability
 - 3. Easily Managed
 - v. Contractor Advantages
 - 1. Less Intensive Accounting
 - 2. Steady Cash Flow
- i. Unit Price Contract
 - i. Fixed Price Contract

- ii. Price Per Unit Calculated
- j. Cost-Plus Contract
 - i. Overhead and Profit Markup Fee
 - ii. Cost Plus Fee Contract
 - iii. Cost Plus Percentage Contract
 - iv. Advantages
 - 1. Easier Contractor Selection
 - 2. Speed of Project Increased
 - 3. Cost of Project is Related to Real Results
 - v. Disadvantages
 - 1. Limitless Cost of Project
 - 2. Suffering Quality of Work
 - 3. Misleading Bidding
- II. Contract Management Part 2 (17:49)
 - a. Contracting Methods
 - i. Design/Build
 - ii. Turnkey
 - iii. Construction Management
 - iv. Fast-Track Construction
 - v. Multiple Prime Contractors
 - vi. Partnering
 - b. Standard Contract Forms
 - i. Readily Available
 - ii. Provide Necessary Information
 - c. Change Orders
 - i. Written Agreement to Change Contract
 - ii. Causes
 - 1. Incorrectly Estimated Work
 - 2. Obstacles or Possible Deficiencies Discovered
 - 3. Inefficient Customer or Project Team
 - 4. Additional Features or Options Requested
 - 5. Extreme Weather Conditions
 - iii. Addenda
 - iv. Modifications
 - d. Claims
 - i. Additional Compensation Request
 - 1. Mediation
 - 2. Arbitration
 - ii. Types
 - 1. Acceleration
 - 2. Cardinal Change
 - 3. Constructive Change
 - 4. Contract Termination
 - 5. Schedule Delay
 - 6. Differing site Conditions
 - 7. Directed Change

- 8. Weather
 - iii. Work Suspension
- e. Contract Documents and Project Manual
 - i. Bid Documents
 - ii. Contract Provisions
 - iii. Supplemental Forms
 - 1. CSI MasterFormat
 - iv. Construction Drawings
- f. Oral Agreements
 - i. Enforceable
 - ii. Written Agreements Take Precedence
- g. Legal Interpretation
 - i. Contract Lawyer
 - ii. Plain Language
 - iii. Technical Terminology
 - iv. State Specific Requirements
- III. Employee Management Part 1 (27:04)
 - a. Where to Begin?
 - i. Qualified Applicants
 - 1. Hardworking Employees
 - 2. Sources
 - 3. Fundamental Qualities
 - b. Interviewing and Hiring Employees
 - i. Interviews
 - 1. Wrong Questions Could Lead to Legal Action
 - 2. Questions to Cover During an Interview
 - c. New Hire Reporting
 - i. Information for Mandatory Records/Forms
 - ii. Purpose
 - 1. Establishes Child Support Orders
 - 2. Detects Unemployment Benefits Fraud
 - 3. Detects Workers' Compensation Fraud
 - 4. Detects Other Government Programs Fraud
 - d. Hiring Minors
 - i. Federal and State Laws
 - 1. Child Labor Laws
 - ii. Hazardous Construction Work
 - iii. Regulations for 14 and 15 Year Old Construction Workers
 - iv. Prohibited Tasks for 16 and 17 Year Old Construction Workers
 - e. Employee Documentation
 - i. I-9
 - 1. Employee Information
 - 2. Attestation
 - 3. Preparer and/or Translator
 - 4. Employer Review and Verification
 - 5. Certification

- ii. W-4
 - 1. Personal Allowances
 - 2. Employee's Withholding Allowance Certificate
 - iii. State Tax Form
 - 1. State Tax Withholding
 - iv. Employment Application
 - 1. Employee Information
 - v. Policy Signoffs
 - 1. Written Company Policies
 - vi. Emergency Notification Form
 - vii. Emergency Contact
 - f. Key Employment Laws
 - i. Equal Employment Opportunities Laws
 - g. Fair Labor Standards Act (FLSA)
 - i. Minimum Wage
 - ii. Overtime Pay
 - iii. Recordkeeping
 - iv. Youth Employment Standards
 - v. Employees Exempt from Minimum Wage and Overtime Pay Requirements
 - vi. Employment Practices Not Covered
 - vii. State Labor Departments
 - h. Recordkeeping Under the FLSA
 - i. Covered, Non-Exempt Worker Records
 - ii. Basic Payroll Records
 - i. Penalties
 - i. Wage and Hour Division Investigators
 - ii. Willful Violators
 - j. Immigration and Nationality Act
 - i. Employment Eligibility and Verification
 - 1. Form I-9
 - k. Americans with Disabilities Act (ADA)
 - i. Disability Job Discrimination Protection
 - 1. Reasonable Accommodations
- III. Employee Management Part 2 (21:58)
- a. Other Labor Laws
 - i. Walsh-Healy Public Contract Act
 - ii. Davis-Bacon Act
 - iii. Service Contract Act
 - iv. Contract Work Hours and Safety Standards Act
 - v. Family and Medical Leave Act
 - vi. Wage Garnishment and the Consumer Protection Act
 - vii. Employee Polygraph Protection Act
 - viii. Title VII of the Civil Rights Act of 1964
 - ix. Equal Pay Act
 - x. Age Discrimination in Employment Act (ADEA)

- xi. Worker Adjustment and Reading Notification Act
- xii. Employee Retirement Income Security Act
- xiii. Uniformed Services Employment and Reemployment Rights Act
- xiv. Right-to-Work Laws
- b. Workplace Posters
 - i. Job Safety and Health Protection
 - ii. Equal Employment Opportunity is the Law
 - iii. Fair Labor Standards Act
 - iv. Your Rights Under the Family and Medical Leave Act
 - v. Notice to All Employees Working on Federal or Federally Financed Construction Projects
 - vi. Notice: Employee Polygraph Protection Act
- c. Employee Handbook and Policies
 - i. Communication Tool
 - ii. Legal Obligations
 - iii. Sections in the Handbook
- d. Employee Satisfaction
 - i. Increasing Employee Satisfaction
 - 1. Employee Orientation
 - 2. Positive Work Environment
 - 3. Competitive Benefits
 - 4. Engagement
 - 5. Recognition and Rewards
- e. Providing Benefits
 - i. Maximizing Productivity
 - ii. Retirement Plans
 - iii. Health Plans
 - iv. Dental or Vision Plans
 - v. Life Insurance Plans
 - vi. Paid Vacations
- f. Disciplining and Terminating Employees
 - i. Termination
 - 1. Legal Consequences
 - ii. Discipline
 - 1. Inform Employee
 - 2. Opportunity to Correct Problem
 - iii. Contractual Employees
 - iv. At-Will Employees
- IV. Customer Relations (15:31)
 - a. Where to Begin?
 - i. Good Customer Relations/Service
 - 1. Loyal Base of Customers
 - ii. Social and Mobile Media
 - iii. Long-Term Customers
 - iv. Strong Customer-Employee Relationships
 - 1. Advertise Honestly

2. Tell Truth
 3. Be Transparent
 4. Honor Promises
 5. Be Responsive
 6. Safeguard Privacy
 - v. Consumer Motivation
 - vi. Acting as a Resource for Clients
 - vii. Mechanisms for Customer Feedback
 - b. Communication Opportunities
 - i. Effective Communication
 1. Contract Negotiations
 2. Punch List/Final Walkthrough
 3. Post-Job Follow Up
 4. Contract Acceptance
 5. Weekly Meeting
 - c. Change Orders
 - i. Correctly Handling Customer's Change Order
 1. Obtain Signed Change Order for Significant Changes
 2. Follow Up Verbal Approval with a Signed Change Order
 3. Promptly Invoice for Change Order Work
 4. Include Any Complimentary Work on Invoice
 5. Show Labor and Quantity Details
 - d. Negotiation Basics
 - i. Beneficial Negotiation Skills
 - ii. Compromising Your Reputation
 - iii. Prompt and Effective Customer Service
 1. Personalized Service
- V. Safety Part 1 (20:18)
- a. Where to Begin?
 - i. Safe Working Environment
 - ii. Safety Training for Work Activities
 - iii. Safety Program
 1. Management Commitment
 2. Hazard Assessment and Control
 3. Safety Planning, Rules, and Work Procedures
 4. Safety and Health Training
 - iv. OSHA Poster
 - v. OSHA Construction Safety Act
 1. Safer Work Environment
 2. Strengthened Employee Protection
 3. Two Categories
 - a. Unsafe Actions by People
 - b. Unsafe Conditions Left Uncorrected
 - vi. Thorough Screening of Potential Employees
 - vii. Safety and Health Regulations
 1. Employer Benefits

2. Company Benefits
- viii. Designating and Training Employees
 1. Safety Practices
 2. Workers' Tasks
 3. Work Practices, Tools, and Equipment
- b. Emergency Action Plan
 - i. Organize Employer and Employee Actions in Emergencies
 - ii. Review Emergency Plan
 - iii. Content of Emergency Action Plan
 1. Fire/Emergency Reporting Procedures
 2. Emergency Evacuation Procedures
 3. Operating Critical Plant Operations Procedures
 4. Employee Count Procedures
 5. Designated Employees Information
- c. Protection of the General Public
 - i. Construction Site Hazards Warnings
 - ii. Safeguards
 1. Barriers
 2. Overhead Protection
 3. Signage-Hazard
 4. Traffic Controls
 5. Surveillance
 6. Walkway Protection
 7. Solid Walls
- d. Personal Safety Equipment
 - i. Eye and Face Protection
 1. Safety Glasses
 2. Goggles
 3. Moulded Goggles
 4. Face Shields
 5. Welding Goggles
 - ii. Head Protection
 1. Type 1
 2. Type 2
 - iii. Hand Protection
 1. Gloves
 2. Guards
 3. Braces
 - iv. Foot and Leg Protection
 1. Hazard Suits
 2. Boots
 3. Long Pants
 4. Shin Guards
 - v. Respirator
 1. Tight-Fitting
 2. Loose-Fitting

- 3. Air-Purifying
- 4. Atmosphere-Supplying
- vi. Hearing Protection
 - 1. Ear Plugs
 - 2. Semi-Insert Ear Plugs
 - 3. Ear Muffs
- vii. Body Protection
- viii. Protective Clothing
 - 1. Fiber
 - 2. Wool and Cotton
 - 3. Duck
 - 4. Leather
 - 5. Rubber/Plastics
- ix. Fall Protection
 - 1. Harnesses
 - 2. Lanyards
 - 3. Self-Retracting Devices
 - 4. Anchorage Connectors
 - 5. Lifeline Systems
- VI. Safety Part 2 (17:46)
 - a. OSHA Recordkeeping
 - i. Reporting Accidents, Illnesses, and Deaths
 - ii. Prevention of Accidents and Illnesses
 - iii. Safety Poster Requirements
 - iv. OSHA 300 Form
 - 1. Identify Employee
 - 2. Describe Case
 - 3. Classify Case
 - v. OSHA 300A
 - 1. Summary
 - vi. OSHA Recordkeeping Regulation
 - 1. Work-Related Fatalities
 - 2. Work-Related Injuries and Illnesses
 - vii. Reporting the Hospitalization of Three or More Employees
 - viii. Accessing OSHA Injury and Illness Records
 - b. Material Safety Data Sheets (MSDS)
 - i. Potential Hazards Information
 - ii. Use, Storage, Handling, and Emergency Procedures
 - c. Employee Rights
 - i. Right to Complain to OSHA Regarding Safety and Health Conditions
 - ii. Right to Contest Time to Correct Violations
 - iii. Right to Participate in OSHA Inspections
 - d. OSHA Act
 - i. Safe and Healthful Workplace
 - ii. OSHA Inspections
 - iii. OSHA Compliance Officer

- e. Penalties and Violations
 - i. Other Than Serious Violation
 - ii. Serious Violation
 - iii. Willful Violation
 - iv. Repeated Violation
 - v. Failure to Abate Prior Violation
 - vi. De Minimis Violation
 - vii. Additional Violations
 - 1. Falsifying Records
 - 2. Posting Requirements Violations
 - 3. Assaulting Compliance Officer
- VII. Risk Part 1 (16:59)
 - a. Risk Management
 - i. Possibility of Incurring a Loss
 - ii. Long Term Effects
 - iii. Short Term Effects
 - iv. Identify Potential Risk
 - b. Types of Risks
 - i. Economic Risk
 - 1. Economically Unsustainable
 - 2. Costs of Production
 - ii. Personal Risk
 - 1. Directly Affects Individual Employees
 - 2. Indirectly Impacts Business
 - 3. Insufficient Retirement Income
 - iii. Property Risk
 - 1. Real Property
 - 2. Personal Property
 - iv. Liability Risk
 - 1. Worker's Compensation Legislation
 - v. Pure Risk
 - vi. Controllable Risk
 - vii. Insurable and Uninsurable Risk
 - 1. Uncommon Risk
 - 2. Predictable Risk
 - c. Risk Management
 - i. Dealing with Risks
 - 1. Avoid Risk
 - 2. Transfer Risk
 - 3. Insure Risk
 - 4. Assume Risk
 - ii. Steps to Risk Management
 - 1. Identify and Understand Risks
 - 2. Evaluate Risks
 - a. Critical
 - b. Extremely

- c. Moderately Important
 - 3. Manage Risks
 - a. Risk Control
 - b. Risk Financing
 - 4. Implement Decisions
 - 5. Review and Evaluate
 - d. Uninsurable Risks
 - i. Costly Business Risk Factors
 - 1. Economic Conditions
 - 2. Consumer Demand
 - 3. Competitor's Actions
 - 4. Technology Changes
 - 5. Business Operations
- VIII. Risk Part 2 (21:03)
 - a. Insurance
 - i. Agent Who Works For Only One Company
 - ii. Independent Agent
 - iii. Three Categories for Insurance
 - 1. Personnel
 - 2. Property
 - 3. Business Operations
 - b. Types of Business Insurance
 - i. Property Insurance
 - 1. Specific Risks
 - 2. Broad-Based Policy
 - ii. Commercial General Liability Insurance
 - 1. Premises Liability
 - 2. Operations Liability
 - 3. Product Liability
 - 4. Competed Operations Liability
 - iii. Automobile Insurance
 - iv. Worker's Compensation Insurance
 - v. Crime Inspection
 - 1. Employee Dishonesty Coverage
 - vi. Package Policies
 - 1. Business owner's Policy (BOP)
 - vii. All-Risk Builders' Risk Insurance
 - viii. Named Peril Builders' Risk Insurance
 - ix. Equipment Floater Policy
 - x. Equipment Theft Insurance
 - xi. Unemployment Insurance
 - xii. Health Insurance
 - 1. Group Insurance
 - xiii. Key-Person Life Insurance
 - 1. Individual or Group Basis
 - xiv. Disability Insurance

1. Protects Disabled Insurance
- c. Coverage Gaps and Overlaps
 - i. Claim Settlement
 - ii. Reasonably Matched Reimbursement Levels
- d. Bonds
 - i. Third Party Security
 - ii. Surety Bond
 1. Statutory Bonds
 - iii. Common Law Bonds
 - iv. Four Basic Requirements
 1. Total Amount Required for Bond
 2. Length of Bond
 3. Notice of Defect Requirements
 4. Bond Enforcement
- e. Types of Bonds
 - i. Bid Bonds
 - ii. Performance Bonds
 - iii. Payment Bonds/Lien Bond
 - iv. Statutory Bonds
- f. Qualifying for a Bond
 - i. Evaluation of Business
 1. Good References
 2. Meets Current and Future Obligations
 3. Matching Contract Requirements
 4. Necessary Equipment
 5. Financial Stability
 6. Good Credit
 7. Established Bank Relationship
 8. Established Line of Credit
 - ii. Percentage of the Contract Amount
 1. Set by Market Conditions and Industry Practices
 - iii. Bond Premiums
- g. Bond Claims
 - i. Common-Law Bonds
 - ii. Government Statutes
 - iii. Bond Agreement
 - iv. Default
 1. Additional Financing
 2. New Contractor/Subcontractor
 3. Pay Out Bond
- h. Miller Act
 - i. Public Construction Projects High Failure Rate
 - ii. Heard Act
 - iii. Payment and Performance Bonds
- i. Little Miller Act
 - i. U.S. State Statute

- ii. Payment and Performance Bonds
- j. Construction Industry Payment Protection Act
 - i. Post Alteration/Repair Bond
 - ii. Written Third Party Verification of Delivery
 - iii. Waivers of the Right to Sue
- IX. Scheduling and Project Management Part 1 (17:55)
 - a. Where to Begin?
 - i. Scheduling Method
 - 1. Well Thought Out and Planned
 - ii. Project Success
 - b. Scheduling
 - i. Assigns Order of Completion
 - ii. Regularly Reviewed and Revised
 - iii. Vision to Time-Based Plan
 - iv. Benefits
 - 1. Improved Cash Flow
 - 2. Increased Attention
 - 3. Minimized Need for Overtime
 - 4. Consistent Use of Resources
 - 5. Reduced Time To Complete Project
 - 6. Control Project Activities
 - 7. Allocate Resources
 - 8. Assess Time Delays
 - 9. Excess Resources
 - 10. Track Project Progress
 - c. Project Planning
 - i. Time Sequence of Work Schedule
 - ii. Relationship of Job Tasks
 - iii. Inputs
 - 1. Personal and Project Calendars
 - 2. Description of Project scope
 - 3. Project Risks
 - 4. Lists of Activities and Resources
 - d. Methods
 - i. Calendar Scheduling
 - ii. Bar Chart
 - iii. Critical Path Method
 - e. Calendar Scheduling
 - i. Link Certain Task With Specific Date
 - ii. Task Sequence and Activity Duration
 - f. Bar Chart Scheduling
 - i. Formation
 - 1. List of Activities
 - 2. Specify Start Date
 - 3. Duration of Activity and Completion Date
 - 4. Plotting Activities Into Project Time Scale

- ii. No Interdependencies of Activities
- g. Critical Path Method
 - i. Step-by-Step Technique
 - ii. Critical and Non-Critical Tasks
 - iii. Prevents Time-Frame Problems
 - iv. Steps
 - 1. Define Ordered Sequenced List
 - 2. Create Flowchart
 - 3. Identify Paths Among Tasks
 - 4. Determine Expected Completion Time
 - 5. Locate Backups
- h. Cash Flow Schedule
 - i. Costs of Each Portion of Project
 - ii. Anticipated Revenues from Each Progress Payment
 - iii. Balancing Incoming Progress Payments and Outgoing Expenditures
 - iv. Accounting Program
- i. Project Manager
 - i. Planning, Execution, and Closing of Project
 - ii. Responsibilities:
 - 1. Prepare Budget/Schedule
 - 2. Keep Records
 - 3. Pay Invoices
 - 4. Determine Labor Requirements
 - 5. Monitor Building and Safety Codes
 - 6. Give Updates
 - iii. Qualities
 - 1. Good Communication Skills
 - 2. Honest
 - 3. Positive Attitude
 - 4. Team and Morale Building Skill
 - 5. Effective Delegation Skill
- j. Project Supervision
 - i. Superintendent
 - 1. Direct Workers and Subcontractors
 - 2. Coordinate with Code Officials and Inspectors
 - 3. Schedule Material Deliveries
 - 4. Prepare Daily Reports
 - ii. Foreman
 - 1. Quality of Work
 - 2. Assigns Workers to Different Tasks
 - 3. Write Reports to Superintendent
 - iii. Material Expediter
 - 1. Order Materials
 - 2. Set Delivery Schedules
 - 3. Monitor Ordering Process
 - 4. Report Delivery Status

- iv. Owner's Representative
 - 1. Act on Owner's Behalf
 - 2. Access to Site and Production Records
 - 3. Contribute to Quality Control on Project
- X. Scheduling and Project Management Part 2 (14:42)
 - a. Tracking the Progress of the Project
 - i. Monitoring
 - 1. Overseeing Work
 - 2. Overcoming Obstacles
 - ii. Daily Log
 - 1. Project Name and Location
 - 2. Date
 - 3. Weather Conditions
 - 4. Job Personnel
 - 5. Work Description
 - 6. Hours Worked on Each Task
 - 7. Change Orders
 - 8. Job Progress
 - 9. Other Information
 - iii. Photos
 - b. Status Reports
 - i. Show Project Process
 - ii. Address Completed, In Progress, and Outstanding Items
 - iii. Works Records
 - 1. Daily Reports
 - 2. Project Photographs
 - 3. Previous Status Reports
 - 4. Safety and Accident Reports
 - 5. Change Orders
 - 6. Shop Drawings
 - 7. Purchase Orders
 - 8. Receiving Documentation
 - 9. Relevant Written Correspondence
 - iv. Feedback
 - c. Budget and Cost Controls
 - i. Monitoring Cost and Budget
 - ii. Compare Estimated Costs and Actual Costs
 - d. Materials
 - i. Just-in-Time
 - ii. Purchase Orders
 - iii. Receiving
 - e. Quality Assurance
 - i. Ensure Specific Product is Correctly Installed
 - ii. Well Developed Incorporated Design Changes
 - iii. Development of Plans and Specifications
 - iv. Minimize Construction Cost

- v. Closely Monitor Actual Construction Activities
- f. Project Closeout
 - i. Return Rental Equipment
 - ii. Clean Up Site
 - iii. Resolve Code Violations
 - iv. Completed Certificates
 - v. Pay Subcontractors and Material Suppliers
 - vi. Develop Punch List
 - vii. Complete Punch List
 - viii. Schedule Another Walk Through
 - ix. Obtain Signed and Dated Release
 - x. Collect Retainage
 - xi. Settle Bonding issues
 - xii. Take Pictures
 - xiii. Give Owner Construction Documents
 - xiv. Get Recommendation Letter
 - xv. Complete Project Accounting
 - xvi. Compare Cost Estimate and Actual Job Costs
 - xvii. Make Digital Copy of Documents
 - xviii. Label and File Hard Copy Documents
 - xix. Evaluate