Project Management for EPC Contracts
5-Day Training Program

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INTRODUCTION:

Project Management for Engineering and Construction presents the principles and techniques of managing engineering and construction projects from the owner's study, through design and construction to completion it emphasizes project management during the early stages of project development because the ability to influence the quality, cost, and schedule of a project can best be achieved during the early stages of development.

This workshop integrates the basics steps that are used to manage a project: Project Scope Definition, Budgeting, Planning and Scheduling, Project Tracking, and Project Close Out Checklists are provided in each day to ensure that all participants in a project are informed of their responsibilities. The current industry practice of Partnering and Alternate Dispute Resolutions are also presented.

Numerous exercises are included and discussed throughout this workshop to provide guidelines for management of the three basics components of a project, scope, budget, and schedule, With the discussions and illustrations, Participant is lead, through the process of linking the components of a project into a comprehensive work plan to guide the entire project to successful completion.

This workshop presents the principles and techniques of managing engineering and construction projects from the original plan, through design and construction, to completion. It emphasizes project management during the early stages of project development because the ability to influence the quality, cost, and schedule of a project can best be achieved during the early stages of development, Most courses discuss project management during construction, after the scope of work is fully defined, the budget Is fixed, and the completion date is firm. It is then too late to make any significant adjustments to the project to improve quality, cost, or schedule to benefit the owner.

Although each project is unique, there is certain information that must be identified and organized at the beginning of a project, before any work is started, numerous tables and graphs are presented and discussed throughout this to provide guide lines for management of the three basic components of a projects: scope, budget, and schedule. The importance of

achieving project quality to meet the owners satisfaction is an integral part of project management, an entire section is devoted to the topic of total quality management.

Measurable Learning Objectives:

- **Identify** the purpose of Project Management.
- **Define** the work that must be accomplished.
- **Identify** the tasks required to accomplish the work

Upon the completion of this course, participants will;

Measurable Learning Outcomes:

- **Understand** the principles and techniques of managing engineering and construction Projects from the original plan through design and construction of completion.

- **LEARN** and Understand the Project Planning, Budgeting, Scheduling, Tracking and Project close out.

- **KNOW** Work Breakdown Structure.

Objectives

A discussion of project managements is difficult because there are many ways a project can be handled. The design and/or construction of a project can be performed by one or more parties. Regardless of the method that is used to handle a project, the management of a project generally follows these steps:

Step 1 . Project Definition (to meet the needs of the end user)

- Intended use by the owner after completion of construction
- Conceptual configurations and components to meet the intended use

Step 2 .Project Scope (to meet the project definition)

- Define the work that must be accomplished
- Identify the quantity, quality, and tasks that must be performed

Step 3 .Project budgeting (to match the project definition and scope)

- Define the owner's permissible budget
- Determine direct and indirect costs plus contingencies

Step 4 .Project planning *(*the strategy to accomplish the work)

- Select and assign project staffing
- Identify the tasks required to accomplish the work

Step 5 .Project scheduling (the product of scope, budgeting and planning)

- Arrange and schedule activities in a logical sequence
- Link the costs and resources to the scheduled activities

Step 6 .Project tracking (to ensure the project is progressing as planned)

- Measure work, time, and costs that are expended
- Compare "actual" to "planned" work, time, and cost

Step 7 Project Close-out (final completion to ensure owner satisfaction)

- Final testing, inspection, and payment
- Turn over the project to the owner

COURSE CONTENTS

DAY 1

1. **INTRODUCTION**
   - Responsibilities of Parties
   - Who does the Project Manager Work for?
   - Purpose of Project Management
   - Types of Management
   - Key concepts of Project Management
   - Role of the Project Manager
   - Professional and Technical Organizations

2. **PROJECT INITIATION/PROJECT SCOPE**
   - Contractual Arrangements
   - Phases of a Project
   - Owner's Study
   - Owner's Needs and Project Objectives
   - Project Scope Definition
   - Project Strategy
   - Partnering

3. **PROJECT BUDGETING**
   - Development of Project Estimates
   - Levels of Accuracy
   - Owner's Estimate for Budgeting
   - Economic Feasibility Study
   - Design Budget
   - Contractor's Bid

DAY 2

4. **DEVELOPMENT OF WORK PLAN/PROJECT PLANNING**
   - Project Manager's initial review
   - Organizational Structures
   - Work Breakdown Structure
   - Forming the Project Team
   - Project Work Plan
   - Work Packages

5. PROJECT SCHEDULING

- Desired results of Planning
- Principles of Planning and Scheduling
- Responsibilities of Parties
- Planning for Multiple Projects
- Techniques for Scheduling
- Network Analysis Systems
- Development of CPM Diagram from the WBS
- Assigning Realistic Durations
- Computer Applications
- Schedule Coding System
- Cost Distribution

DAY 3

6. PROJECT TRACKING

- Control Systems
- Linking the WBS and CPM
- Coding systems for Project Reports
- Control Schedules for Time and Cost
- Relationships between time and work
- Integrated cost/schedule/work graphs
- Percent complete matrix method
- Progress measurement of design
- Measurement of construction work
- Trend analysis and forecasting

7. DESIGN COORDINATION

- Project Team Meetings
- Weekly / Monthly Reports
- Drawing and Equipment Index
- Distribution of Documents
- Authority/Responsibility check list
- Check list of duties for Design
- Team Management
- Evaluation of Design effectiveness
- Constructability
- Post Design Review

DAY 4

8. CONSTRUCTION PHASE

- Importance of Construction
- Assumptions for Construction Phase
- Contract Pricing Formats
- Prospective Bidders and Bidding
- Check List for Bidding
- Keys to a Successful Project
- Relations with contractors
- Check List of Duties
- Quality Control
- Dispute Resolutions
- Job Site Safety
- Management of Changes
- Resources Management

DAY 5

9. PROJECT CLOSE OUT

- System testing and Start-up
- Final Inspection
- Guarantees and Warranties
- Record and As-Built Drawings
- Check List of duties
- Disposition of Project Files
- Post Project critique
- Owner Feed-Back
- Lessons Learned

10. TIPS OF MAKING THINGS HAPPEN

- Human Aspects
- Motivation
- Decision Making
- Time Management
- Communications
- Presentations
- Meetings
- Reports and Letters