Projacs
an egis company
بروجاكس للتدريب والتطوير
Projacs Training and Development

Value Engineering –
Cost Reduction and Quality Improvement

الهندسة القيمية –
تقنيات تخفيض التكلفة ورفع الجودة والأداء

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A Member of:
PROJACS ACADEMY

ProjacsAcademy.com

Introduction

Increasing demands for capital projects are placing greater stress on available funding resources. In this period of belt-tightening and reduced budgets, it is imperative to find ways of doing more with less. Value Engineering (VE) has proved to be a valuable tool in stretching capital, construction, operation and maintenance dollars to achieve the required goals for reduced costs, both in the public and private sector. Use of VE techniques also typically results in improvements in facility performance, even at these lesser costs.
The Value Engineering Technology is a problem-solving system designed to accomplish essential functions of products and services at the lowest cost without sacrifice of quality or delivery requirements. A Value Management Program manages costs and manages change through the deliberate use of the technology. A successful program requires management support, proper planning and organization, and an understanding of the technology. The Training Course and Its Workshops deal primarily with the learning and application of the technology.

VALUE MANAGEMENT CONCEPT
Value Engineering (synonymous with the terms value management and value analysis) is a professionally applied, function-oriented, systematic team approach used to analyze and improve value in a product, facility design, system or service -a powerful methodology for solving problems and/or reducing costs while improving performance/quality requirements. By enhancing value characteristics, Value Engineering increases customer satisfaction and adds value to your investment. Value Engineering can be applied to any business or economic sector, including industry, government, construction and service. Using Value Engineering is a very successful long-term business strategy.

$$\text{Value} = \frac{\text{Function}}{\text{Cost}}$$

Value engineering (VE) is a methodology that is know, accepted and has an impressive history of improving value through customizing Quality and optimizing Life Cycle Cost (LCC). VE is an organized process that has been effectively used by a wide range of companies and establishments to achieve their continuous goals. The success of the VE process is due to its ability to identify opportunities to remove unnecessary costs while assuring quality, reliability, performance, and other critical factors that meet or exceed customers' expectation. The improvements are the result of recommendations made by multi-disciplined teams from all concerned parties.

Objectives

Upon completion of this training course, participants will know:

- Mitigation of risk by selection of the most suitable project design type
- Methods of selection of the most suitable building systems
- Terms and conditions - examples of commercial terms
- Reducing total cost of project without any changes of functions and quality
- Developing better building functions
- How to determine fair and reasonable prices and times
- Structuring economic price adjustments
- Negotiation planning and strategies
- Value Engineering management techniques

The organization will benefit by:

- Greater strategic focus of those involved in Value Engineering
- Higher productivity of design and costing personnel
- Reduced cost of contracts for materials & services
- Better outcomes in design methods evaluation
- Improved building performance

Attendees will gain by participation in this program as a result of:

- Increased skill sets in Value Engineering processes
- A greater sense of Professionalism in design process evaluation
- Knowledge of evaluating prices and times
- Greater ability to lead successful negotiations with suppliers and contractors
- Increased recognition by the organization due to improved performance.

Who Should Attend?

This course is recommended for anyone involved with the design stage of construction, maintenance and repair projects:

- Architectural engineers
- Structural design engineers
- Construction engineers
- Mechanical engineers
- Electrical engineers
- Process / operation engineers.

Course Outline

Day One

- INTRODUCTION
  - Course Objectives
- VALUE ENGINEERING BRIEFING
  - Definition of Value Analysis/ Engineering
  - Results of VA/ VE Programs
  - History of Value Analysis/ Engineering
  - Reasons for Unnecessary Cost
  - All Cost is for Function
  - Value Methodology
  - Case Studies
- INFORMATION PHASE
  - Project Selection, VE Objectives, VE Team Selection
  - Information Requirements for VE
  - Workshop Logistics
  - Workshop Information Phase
- PROJECT WORKSHOP – INFORMATION PHASE
  - Organize Into Project Teams (4-6 People Each)
  - Select Team Leader & Recorder
  - Project Overview, Design Documents, Cost Estimate
  - VE Objectives

Day Two

- FUNCTION ANALYSIS PHASE
  - Function Models:
  - Cost, Quality, Risk, LEED (Sustainability)
  - Function Analysis Process
  - Function, Cost, Worth Worksheet
  - FAST Diagramming
  - Level of Abstraction
  - Development of Worth
  - Function, Cost, Worth Worksheet
  - FAST Diagramming
- PROJECT WORKSHOP - FUNCTION ANALYSIS PHASE
  - Function Cost Model
  - Quality, Risk and Other Function Models

Day Three

- CREATIVE PHASE
  - In-Depth Brainstorming
  - Delphi Technique
  - Force Field Analysis
  - Other Creativity Techniques
- PROJECT WORKSHOP - CREATIVE PHASE
  - Idea Generation for Basic Function(s)
  - Force Field Analysis
  - Other Creativity Techniques
- EVALUATION PHASE
  - Idea Generation - Advantages/Disadvantages
  - Cost Estimating
  - Matrix Evaluation Techniques
  - Sample Projects
  - Class Exercise

Day Four

- PROJECT WORKSHOP - EVALUATION PHASE
  - Idea Comparison
  - Idea Ranking
  - Initial Criteria Evaluation
  - Cost Estimating
  - Initial Matrix Evaluation
- SPECIAL TOPIC: “VE IN DESIGN BUILD”
- DEVELOPMENT PHASE
  - Life Cycle Costing Techniques
  - Manual Method Using Short Format
    - Annualized & Present Worth Methods
    - Inflation & Escalation
  - Computer Spreadsheet Approach to LCC
  - Exercise – Life Cycle Cost Analysis
- PROJECT WORKSHOP - DEVELOPMENT PHASE
  - Life Cycle Cost of Alternates
  - Evaluation Matrix
  - Life Cycle Cost of Alternates
  - Weighted Evaluation
  - Proposal Sketches, Narratives, etc.

Day Five

- PRESENTATION PHASE
  - Salesmanship, Overcoming Resistance to Change
  - Oral Presentation
  - Written Proposal
  - Sample Projects
- PROJECT WORKSHOP - PRESENTATION PHASE
  - Individual Counseling Sessions - Optional
  - Complete Written Proposals
  - Prepare Oral Presentations
  - Instructor Review of Proposals
  - Team Oral Presentations
- CERTIFICATES/ CLOSING REMARKS

Training Method

- Pre-assessment
- Live group instruction
- Use of real-world examples, case studies and exercises
- Interactive participation and discussion
- Power point presentation, LCD and flip chart
- Group activities and tests
- Each participant receives a binder containing a copy of the presentation
- slides and handouts
- Post-assessment

Program Support

This program is supported by interactive discussions, role-play, case studies and highlight the techniques available to the participants.

Schedule

The course agenda will be as follows:

- Technical Session 08.30-10.00 am
- Coffee Break 10.00-10.15 am
- Technical Session 10.15-12.15 noon
- Coffee Break 12.15-12.45 pm
- Technical Session 12.45-02.30 pm
- Course Ends 02.30 pm

Course Fees*

- **2,950USD**
  **VAT is Excluded If Applicable*

مقدمة

إن زيادة الطلب على المشاريع الرأسمالية ووضع مزيد من الضغط على موارد التمويل المتاحة. في هذه الفترة من التقشف وخفض الميزانيات، لا بد من إيجاد سبل لبذل المزيد من الجهد مع أقل ميزانية تصرف. وقد أثبتت الهندسة القيمية (VE) ليكون أداة قيمة في البناء والتشغيل والصيانة لتحقيق الأهداف المطلوبة لخفض التكاليف، سواء في القطاع العام أو الخاص. استخدام تقنيات VE عادة تثمر نتائج في تحسينات أداء المنشأة ، حتى في أقل التكاليف.

تكنولوجيا الهندسة القيمية هي نظام مصمم على حل المشاكل لتحقيق المهام الأساسية للمنتجات والخدمات بأقل التكاليف دون التضحية بالجودة أو متطلبات التسليم. وهناك برنامج لإدارة القيمة تدير التكاليف ويدير التغيير من خلال الاستخدام المتعمد للتكنولوجيا.وهو برنامج ناجح يتطلب دعم الإدارة، والتخطيط السليم والتنظيم ، وفهم هذه التكنولوجيا.

الاهداف

عند الانتهاء من هذه الدورة التدريبية، سيتمكن المشاركون من معرفة:

- تخفيف المخاطر عن طريق اختيار التصميم الأنسب لنوع المشروع
- أساليب اختيار أنسب أنظمة البناء
- الشروط -- أمثلة من المصطلحات التجارية
- خفض التكلفة الإجمالية للمشروع دون أي تغيير في الوظائف
- تطوير وظائف أفضل بناء
- كيفية تحديد أسعار عادلة ومعقولة
- هيكلة تعديلات الأسعار الاقتصادية
- التخطيط واستراتيجيات التفاوض
- تقنيات إدارة الهندسة القيمية

وسوف تستفيد المنظمة من قبل:

- زيادة التركيز الاستراتيجي للمتورطين في الهندسة القيمية
- الإنتاجية العاليه للتصميم والموظفين
- خفض تكلفة العقود للمواد والخدمات
- أفضل النتائج في تقييم أساليب التصميم
- تحسين أداء البناء

سوف يكسب الحضور من المشاركة في هذا البرنامج نتيجة ل:

- زيادة المهارات في العمليات الهندسة القيمية
- شعور أكبر من الاحتراف في تقييم عملية التصميم
- معرفة الأسعار وأوقات التقييم
- زيادة القدرة على قيادة مفاوضات ناجحة مع الموردين والمقاولين
- زيادة الاعتراف من قبل المنظمة بتحسين الأداء.

الحضور

ويوصى هذا البرنامج الدراسي من أجل أي شخص متورط في مرحلة تصميم المشاريع الإنشائية والصيانة والإصلاح:

- المهندسين المعماريين
- مهندسي التصميم الإنشائي
- مهندسي البناء
- المهندسين الميكانيكيين
- المهندسين الكهربائيين
- مهندسي التشغيل والعمليات