PM013:
Project Management Detailed Engineering for Capital Projects
Training Description:

Large capital-intensive projects require substantial – and often risky – investments in the acquisition and subsequent operation and maintenance of new organizational assets.

Of paramount importance is the systematic and comprehensive appraisal of potential alternatives, and the development of detailed cash-flow analyses to determine as accurately as possible, the expected returns to the organization under varying conditions of uncertainty over the expected productive life of the project.

This requires the development of a sound, realistic, and carefully structured financing plan, reflecting both the initial capital expenditures required for the acquisition of the asset, as well as the operational expenditures required for successful operation and maintenance of the asset over its anticipated productive life.

World-wide an alarming number of large capital projects fail to meet the overrun their planned budgets, failing to realize both the financial and strategic goals of the organization – the very reason for their being undertaken in the first place - often with sizable increases in capital and operational expenditures, and with substantial financial losses to the organization.

Training Objective:

By the end of the training, participants will be able to:

- Perform detailed appraisals of potential capital projects to ensure project success
- Understand and apply the principles and methods of modern financial engineering
- Protect the investment of the organization in capital-intensive assets
- Apply discounted cash flow analysis to project evaluations
- Perform Present and Annual Value calculations
- Determine the Internal Required Rate of Return of the project as the basis for sensitivity analyses to establish the risk exposure to the organization
- Evaluate and rank various project alternatives using tools such as NPV, IRR, BCR, and Equivalent Annual Value/Cost
- Develop a comprehensive spreadsheet model (Excel) of project cash flow projections and requirements
- Prepare a detailed and realistic Financing Plan
- Determine the borrowing capacity of the organization in terms of the anticipated project
- Manage project cash flows

Training Designed for:

This course is intended for program and project professionals, Project Leaders, Project Engineers, Cost Engineers, and other middle - senior project control and business services professionals who are responsible for or involved in securing project financing and managing cash flow on projects.
Training Program:

**DAY ONE:**

PRE-TEST

- Introduction
- Fundamentals of Asset-Based Financial Engineering
- Introduction to Project Financing
- Project Financing versus Direct Financing
- Analysis of Project Viability
- Risk and uncertainty
- Implications of Risk for Project Financing
- Aligning Projects with Corporate Strategy
- Security arrangements
- Legal structures
- Basic Tools for Economic Appraisal
- Simple Project Payback Period
- Time Value of Money
- Simple and Compound Interest
- Nominal and Effective Interest Rates
- Appraisal Methods – Discounted Cash Flow Projections
- Net Present Value Analysis (NPV)
- Internal Rate of Return Analysis (IRR)
- Comparing NPV and IRR Analyses
- Interpolation and Non-linearity
- Time Equivalence
- Comparing Projects with Equal Lives
- Comparing Projects with Unequal Lives

**DAY TWO:**

- Project Risk Exposure and the Cost of Capital
- Rate of Return Computations (IRR)
- Determining the Internal Rate of Return (IRR)
- IRR for a Single Project
- IRR for a Single Project Using Present Worth
- IRR for a Single Project Using Annual Worth
- Incremental Analysis
- Mutually Exclusive Projects
- Using IRR to Analyze Options with Different Lives
- Benefit-Cost Ratio (BCR)
- Costs, Benefits, and Non-benefits
- Estimating the Benefit-Cost Ratio for a Single Project
- Comparing Mutually Exclusive Projects Using Incremental Benefit-Cost Ratios
Cost of Capital Computations
Estimating the Cost of Capital for a Project
The Cost of Debt Capital
The Cost of Equity Capital
Weighted Average Cost of Capital (WACC)
Financial Gearing (Structuring)
Capital Asset Pricing Model (CAPM)
Determining the Project Risk Beta
Cost of Capital with All-Equity Financing

**DAY THREE:**
Financial Modeling and Project Evaluation
Preparing Cash Flow Projections
Accounting Years and Tax Years
Incremental Costs and Benefits
Working Capital Requirements and Operating Costs
Forecasting Cash Flows
How to Deal with Inflation
How to Deal with Uncertainty and Risk
Risk Premiums
Pessimistic and Optimistic Forecasts
Decision Tree Analysis
Opportunity Costs and Sunk Costs
Determining the Economic Life of a Project
Quantifying the Effects of Inflation
Effects of Inflation on Working Capital
Effects of Inflation on Taxation
Effects of Inflation of Cost of Capital
Estimating Future Rates of Inflation
Variable Inflation Rates over the Life of the Project
Relevant Cash Flows over Differing Time Horizons
Depreciation
Straight-Line Method
Declining Balance Method
Depreciation versus Amortization
Interest, Insurance and Tax Costs
Taxation
Corporation Tax Rates
Taxable Profit
Capital Allowances
Tax Payments
Incorporating Tax in Cash Flow Models
DAY FOUR:
- Assessing the Terminal (Salvage) Value of a Project
- Perpetuity (Annuity) Method
- Price/Earnings Ratio Method
- Book Value Method
- Cash Flows for a Replacement Project
- Preparing Projected Financial Statements
- Sensitivity Analysis

DAY FIVE:
- Project Ranking and Comparison of Alternative Solutions
- Equivalent Annual Worth (Value) Computations
- Pattern of Capital Recovery
- Including Salvage Value
- Evaluating a Single Project
- The Comparison Process
- Equal Life Projects
- Lease or Buy
- Projects with Different Lives
- Replacement Analysis
- Reasons for replacement analysis
- Factors to be considered in replacement analysis
- Determining the economic life of a new asset
- Determining the economic life of an existing asset
- Comparisons in which the economic life of the new and the existing asset differs
- Retirement without replacement (Abandonment)

Course Conclusion
POST-TEST and EVALUATION

Training Requirements:

“Hands-on practical sessions, equipment and software will be applied during the course if required and as per the client’s request.”
Training Methodology:

This interactive training course includes the following training methodologies as a percentage of the total tuition hours:

- 30% Lectures, Concepts, Role Play
- 30% Workshops & Work Presentations, Techniques
- 20% Based on Case Studies & Practical Exercises
- 20% Videos, Software & General Discussions
- Pre and Post Test

Training Certificate(s):

Internationally recognized certificate(s) will be issued to each participant who completed the course.

Training Fees:

As per the course location - This rate includes participant’s manual, hand-outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Note: The 5% VAT (Value Added Tax), will be effective starting 01st of January 2018 as per the new regulation from the UAE Government. The VAT applies for all quotation both for local and abroad.

Training Timings:

Daily Timings:
- 07:45 - 08:00 Morning Coffee / Tea
- 08:00 - 10:00 First Session
- 10:00 - 10:20 Recess (Coffee/Tea/Snacks)
- 10:20 - 12:20 Second Session
- 12:20 - 13:30 Recess (Prayer Break & Lunch)
- 13:30 - 15:00 Last Session

For training registrations or in-house enquiries, please contact:
Aisha Relativo: aisha@cmc-me.com
Tel.: +971 2 665 3945 or +971 2 643 6653 | Mob.: +971 52 2954615
Training & Career Development Department