

## **CONTENT OUTLINE**

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### **PROJECT MANAGEMENT**

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Suggested Duration: 60 - 90 hours

## OVERVIEW

This course is designed to provide participants with the knowledge and skills necessary to manage a project.

## PREREQUISITE

It is recommended that participants have successfully completed the following courses:

- Overview of the Construction Industry;
- Construction Safety;
- Communication;
- Law and Contracts for the Construction Industry;
- Management of Human Resources in the Construction Industry;
- Planning and Scheduling.

## LEARNING OBJECTIVES

Upon successful completion of this course, participants will be able to:

- develop a business case
- develop the scope of a project
- manage project procurement
- manage the construction contract process
- manage project risk
- manage the change process
- manage project close-out / commissioning

## CONTENT

### 1. **Develop a business case.**

- feasibility study
- site evaluation (access, soils, zoning)
- land procurement
- environmental impact
- financing

## **2. Develop scope of project.**

- project charter
- project stakeholder requirements
- project definition (work breakdown structure)
- alternative evaluation

## **3. Manage project procurement.**

- selecting designer
  - o pre-qualification
  - o expression of interest
  - o request for proposal
  - o evaluation of submissions
  - o award design contract(s)
- selecting contract strategy
  - o pre-qualification
  - o stipulated price
  - o cost plus
  - o unit price
  - o standing offering
  - o sole sourcing
  - o best value
- selecting project delivery
  - o Engineering-Procurement-Construction-Management (EPCM)
  - o Design Build Operate Transfer (DBOT)
  - o partnerships / joint venture
  - o partnering / contract alliance
  - o construction management
  - o design/build
  - o purchase agreement
  - o public / private partnerships (P3)
  - o standing offering
  - o invitational
  - o unethical bid practices
- managing design process
  - o review and comment on concept, preliminary, substantial, and final design
  - o update cost plan
- selecting contractor
  - o pre-qualification
  - o bid / tender
  - o evaluation
  - o award

#### **4. Manage the construction contract process.**

- pre-construction
  - o permits
  - o safety plan
  - o quality assurance plan
  - o job start-up meeting
  - o schedule
  - o cost plan (budget)
  - o bonding / insurance
  - o site security
  - o temporary facilities
  - o environmental disaster recovery plan
  - o emergencies
  - o mobilization
- construction
  - o quality assurance monitoring
  - o safety monitoring
  - o cost monitoring
  - o progress monitoring
  - o commission monitoring
  - o payment certificates
  - o statutory declaration
  - o shop drawings, product data, samples, mock-ups
  - o diaries
  - o progress reports
  - o defaults (notices, breach, bonding)
  - o request for information / site instructions
  - o back-charges
  - o earned value
  - o labour management
- claims
  - o delays
  - o impact
  - o damages
  - o dispute resolution

#### **5. Manage project risk.**

- developing a risk management plan
- identifying risk
- assessing risk or quantifying risk
- developing the risk response plan
  - o impact of stakeholders' reaction
  - o mitigating
  - o avoiding
  - o transferring

- accepting
- controlling the risk

## **6. Manage the change process.**

- owner versus contractor perspective
- change management plan
  - define the need for the change (source is client, site, design, etc.)
  - prepare a scope for the change
  - produce a preliminary estimate of value and cost benefit / analysis
  - scope / separate contract
  - confirm if within the authority levels of the source / originator / facilitator
  - confirm sufficient funds are available, obtain additional if required
  - obtain quotation for work and produce detailed estimate
  - receive and review quotation and assess impact to cost, schedule, and time to do the work
  - negotiate change quotation for cost, schedule, and time to do the work
  - instruction to proceed
  - analyze the change
- cumulative effect of change
- contract conditions
- documentation

## **7. Manage project close-out / commissioning.**

- substantial completion and total performance
- release of hold-backs
- as built drawings and manuals
- obtain warranties / guarantees
- manage warranties / guarantees
- training
- deficiency list
- lien act
- contract performance evaluation (consultants and contractors)
- client satisfaction
- historical data
- occupancy
- occupancy inspection / requirements
- lessons learned
- final commissioning and start-up

## METHODOLOGY

This course lends itself to lectures by the instructor and guest speakers, and case studies. Instructors may involve the participants in the following specific techniques and activities:

- icebreaker type activity to get students engaged as soon as possible;
- demonstrating examples of:
  - o project charters,
  - o business cases,
  - o requests for proposals (RFP) and their evaluation,
  - o expressions of interest (EOI),
  - o risk analysis,
  - o contracts,
  - o commissioning plan,
  - o safety plan,
  - o environmental plan,
  - o change order process
- developing a work breakdown structure (WBS).

## ASSESSMENT

In order to successfully complete this course, participants will be expected to demonstrate that they have achieved the learning objectives. They will be evaluated through various assignments, projects, and/or tests based on each of these objectives. Final assessment for the course will be determined by the following weighting:

Learning Objective	Weighting (%)
1. Develop business case .....	10
2. Develop scope of project.....	10
3. Manage project procurement.....	15
4. Manage the construction contract process .....	25
5. Manage project risks .....	15
6. Manage the change order process.....	15
7. Manage project close-out / commissioning .....	10
	100

## **RESOURCES**

### **Reports, Manuals, Textbooks, and Documents**

A Guide to the Project Management Body of Knowledge (PMBOK), PMI Standards Committee, Project Management Institute, 1996 [ISBN: 1-880410-12-5 (pbk. : alk. paper) / ISBN: 1-880410-13-3 (hdbk)]

A Guide to the Project Management Body of Knowledge, 2000 Edition (ISBN: 1-880410-23-0)

Canadian Construction Association (CCA) documents  
(<http://www.cca-acc.com/documents/documents.html>)

Canadian Construction Document Committee (CCDC) documents  
(<http://www.ccdc.org/docs/docs.html>); (<http://www.cdbi.org>)

Means Forms for Contractors, R.S. Means Company, Inc., 1990. (ISBN: 0-87629-214-7)

PMP Exam: Practice Test and Study Guide, ESI International, 1998 (ISBN: 1-890367-11-7)

PMP ©: Project Management Professional Study Guide, SYBEX Inc., 2002  
(ISBN: 0-7821-4106-4)

Project Management: Engineering, Technology, and Implementation, Shtub, Avraham, Bard, Jonathan F., Globerson, Shlomo, Prentice-Hall, 1994 (ISBN: 0-13-556458-1)

### **Government / Association Websites**

Defence Canada ([www.dcc-cdc.gc.ca](http://www.dcc-cdc.gc.ca))

Project Management Institute (<http://pmi.org/info/default.asp>)

### **Other Resources**

Applicable local association documentation