

Integrated Project Controls

Course Brochure and Competency Matrix

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1. Company Introduction

Project Controls Institute (PCI) is World's first and most unique Project Controls learning platform offering blended education alongside a flexible framework of global accreditations and qualifications. PCI combines unique content with blended learning methods, mapped to major global frameworks that allows candidates to gain accreditations/certifications with AACE, PMI, APM, APMG, ECITB and Engineering Council UK. PCI is also supported by globally recognised professional bodies such as Engineers Australia and ACostE.

Through a simulated classroom experience, you'll be taught by industry experts to not only understand the Project Controls theory that's essential to your career development but how to use software systems in a real-world, operational setting. What's more, you'll also get access to the PCI Handbook for free. Learn with us and wherever you are in the world, we will help you achieve the qualifications that will set you apart.

2. Training Programme Description

Course Name: Integrated Project Controls

Dedicated online training module in a structured and professional manner allows candidates to demonstrate knowledge of all elements of project controls. Candidates will be able to demonstrate an understanding of how these elements interact and implement integrated project controls for effective decision making and improved transparency of the project performance.

This training course is prepared for fresher's or early-career professionals and course develops competency (knowledge and skills) in project management, planning, scheduling, cost engineering, cost estimating, integrated performance measurement and forecasting, risk management, change management, contracts management, forensic and dispute analysis and BIM skills.

3. Course Development

Our course is prepared by the industry experts who helped Governmental and professional bodies to draft their national standards and certifications. This course is mapped to the following standards or guides:

1. AACE's Total Cost Management Framework
2. AACE's Skills & Knowledge of Cost Engineering, 6th Edition
3. AACE's Planning and Scheduling Certification Study Guide
4. ECITB – Level 2 Diploma in Project Control, Estimating, Planning and Cost Engineering
5. APM Body of Knowledge, 6th Edition
6. APM Planning, Scheduling, Monitoring and Control: The Practical Project Management of Time, Cost and Risk

A Guide to the Project Management Body of Knowledge (PMBOK® Guide)

4. Certifications Offered

This course leads to the Project Controls Institute's certification in Integrated Project Controls.

5. Eligibility Requirements

No prior knowledge or experience is required for this course.

6. Syllabus

Module#	Module Description
0	Introduction to the Course
0.1	Course Navigation
0.2	Course Overview
1	Project Management
1.1	Project Management Principles
1.2	Project Management Concepts
1.3	Project Integration Management
1.4	Relationship between Portfolio, Programme, and Project Management
2	Introduction to Project Controls
2.1	Introduction to Project Controls
2.2	Project Controls Framework
3	Planning
3.1	Introduction to Planning
3.2	Planning Inputs and considerations
3.3	Scope of work, goals and phase
3.4	Breakdown Structures and Control Accounts
3.5	Baseline Plan
4	Scheduling
4.1	Scheduling Overview
4.2	Schedule Levels and Types
4.3	Pert and CPM
4.4	CPM Schedule Calculations
4.5	Schedule Development
4.6	Resource Scheduling and Levelling
4.7	Updating and Tracking Progress
5	Cost Estimation and Budgeting
5.1	Cost Estimation and Budgeting
6	Risk Management
6.1	Overview of Risk Management
6.2	Introduction to Risk Management
6.3	Risk Management process
6.4	Risk Analysis Technique
6.5	Monitor and Control Risk

7	Performance Measurement and Forecasting
7.1	Performance Measurement
7.2	Earned Value Management
7.3	Forecasting
7.4	Management Reporting
7.5	Change Management
8	Overview of Contract Management (FIDIC AND NEC)
8.1	FIDIC Contracts
8.2	Introduction to NEC Contracts
9	Overview of Information Management
9.1	Data, Information and Knowledge
9.2	Data and Database Management
9.3	Information System
10	Overview of Building Information Modelling (BIM)
10.1	What is BIM?
10.2	The Role of BIM in Project

7. Course Competency Matrix

Module 1	Project Management
End state vision - This module is designed to develop the ability of the learner to understand the project management concepts and its implementation to improve the return on investment.	
Knowledge	Skills
<ul style="list-style-type: none"> ▶ What is the project ▶ Project life cycle and phases ▶ Relationship between time and cost, quality and risk ▶ Overview of Project Management ▶ Business case, Project governance, assurance and decision making ▶ Relationship between project management and project controls 	<ul style="list-style-type: none"> ▶ Implementation of strategic project management and control to optimise the return on investment ▶ Implement integrated project management to achieve the project success
Module 2	Introduction to Project Controls
End state vision - This module is designed to develop the ability of the learner to understand the concepts of project controls, elements of project controls and its implementation to improve transparency of the project performance.	
Knowledge	Skills
<ul style="list-style-type: none"> ▶ Introduction to Project controls ▶ Difference between project management and project controls ▶ Project controls fundamentals, key terminologies and techniques ▶ Integrated project controls ▶ Project controls framework ▶ Project assurance and control relationship 	<ul style="list-style-type: none"> ▶ Implement integrated project controls for effective decision-making and improved transparency of the project performance ▶ Select project controls techniques based on the project risk and complexity
Module 3	Planning
End state vision - This module is designed to develop the ability of the learner to understand concepts of planning, develop project execution strategy and plan for project controls.	
Knowledge	Skills
<ul style="list-style-type: none"> ▶ Introduction to planning and its key terminologies ▶ Difference between planning and scheduling ▶ Contract requirements and stakeholder needs ▶ How to organize a project for execution ▶ Breakdown structures (WBS, CBS, OBS and RAM): their purpose, how to create, use and interpret them to enable accurate control and the need for flexibility ▶ Control Accounts (CA), Work packages (WP), Planning Package (PP) and RACI ▶ Scope management 	<ul style="list-style-type: none"> ▶ Scaling of the planning appropriate for the project complexity and risk ▶ Organise the project for project controls ▶ Develop breakdown and coding structures (WBS, OBS CBS, and RAM) based on project complexity and risk ▶ Develop CA, WP, PP and RACI ▶ Establish a baseline/Performance Measurement Baseline (PMB) ▶ Develop the project controls plan ▶ Planning for periodic updates and forecasts ▶ Scope management ▶ Requirement management

Module 4	Scheduling
<p>End State Vision - This module is designed to develop the ability of the learner to understand concepts of scheduling, types of schedules, building the schedule, schedule quality check, schedule maintenance and reporting</p>	
<p>Knowledge</p>	<p>Skills</p>
<ul style="list-style-type: none"> ▶ Introduction to scheduling and its key terminologies ▶ Scheduling process, inputs and considerations ▶ Schedule levels, types, specifications and methodologies ▶ Schedule development/building ▶ Control schedules ▶ Resource management ▶ Resource levelling and smoothing ▶ Impact of uncertainty and risk ▶ Schedule maintenance and controlling ▶ Schedule change management ▶ Schedule acceleration techniques ▶ Recovery schedule 	<ul style="list-style-type: none"> ▶ Select the schedule type that best fits the size, scope, and complexity of the project ▶ Model schedule (Identify activities, estimate durations, logic links, resources, constraints, calendars and milestones) ▶ Resource levelling/optimization ▶ Analyse total float and critical path ▶ Document schedule basis ▶ Schedule quality analysis ▶ Schedule maintenance and control (gather accurate progress data, update, forecasting & analysis) and reporting ▶ Perform schedule change management ▶ Prepare accelerated schedules ▶ Prepare recovery schedules
Module 5	Cost Estimating and Budgeting
<p>End state vision - This module is designed to develop the ability of the learner to understand concepts of cost estimating and budgeting.</p>	
<p>Knowledge</p>	<p>Skills</p>
<p>Understand concepts and fundamental principles of the following:</p> <ul style="list-style-type: none"> ▶ Cost Elements ▶ Pricing and Costing ▶ Activity based cost management ▶ Project and Cost Control ▶ Financial cash flow analysis ▶ Investment Decision making Guide ▶ Optimization ▶ Total Cost of Ownership ▶ Cost Engineering principles applied for EPC Projects ▶ Cost Engineering principles applied for Manufacturing Projects 	<ul style="list-style-type: none"> ▶ Relate the cost elements to the life cycle of the asset ▶ Acquisition, use and disposal ▶ Calculate financial ratios related to the costing and pricing of projects ▶ Identify types of project materials ▶ Develop labor rates for estimating ▶ Develop and use weighted average rates/composite crew rates ▶ Establish an equipment valuation database ▶ Research equipment price and cost information ▶ Evaluate, on an economic analysis basis, the differences between two or more alternative courses of action ▶ Identify how cost drivers cause costs to occur ▶ Prepare cash flow for the project ▶ Apply cost engineering principles to EPC or manufacturing projects

Module 6	Risk Management
<p>End State Vision - This module is designed to develop the ability of the learner to understand the fundamental concepts of cost estimating and its integral importance to the quality of the cost and scheduling program on any project.</p>	
<p>Knowledge</p>	<p>Skills</p>
<ul style="list-style-type: none"> ▶ Risk management process (Standard ISO 31000:2009) ▶ Introduction to risk management and its key terminologies ▶ Risk analysis (qualitative, semi quantitative and quantitative) ▶ Risk evaluation ▶ Risk treatment 	<ul style="list-style-type: none"> ▶ Perform risk management for the project <ul style="list-style-type: none"> • Establish context • Risk identification • Risk analysis <ul style="list-style-type: none"> ○ Qualitative ○ Semi-Qualitative ○ Quantitative (Schedule and Cost risk analysis) • Evaluate risk • Risk treatment • Risk monitoring and control • Risk consultation and documentation
Module 7	Performance Measurement and Forecasting
<p>End state vision - This module is designed to develop the ability of the learner to understand the concepts of Integrated Performance Measurement and Forecasting.</p>	
<p>Knowledge</p>	<p>Skills</p>
<p>Review and understand the following concepts:</p> <ul style="list-style-type: none"> ▶ Earned Management Overview ▶ Performance Measurement Baseline (PMB) ▶ Performance and Productivity Measurement ▶ Forecasting at Earned Value Management ▶ Communication and Reporting ▶ Earned Value Maturity Process 	<ul style="list-style-type: none"> ▶ Establish Performance Measurement Baseline (PMB) ▶ Implementation of earned value management system for cost control ▶ Analyse productivity and performance ▶ Identify ways to increase productivity and improve performance ▶ Forecast estimate to complete and estimate complete ▶ Prepare cost performance report, analyse deviations and reporting
Module 8	Overview of Contracts Management (FIDIC & NEC)
<p>End state vision - This module is designed to develop the ability of the learner to understand the concepts of Contracts Management (FIDIC & NEC)</p>	
<p>Knowledge</p>	<p>Skills</p>
<ul style="list-style-type: none"> ▶ Introduction to NEC contracts and FIDIC contracts ▶ Understand key contractual terms and conditions. 	<ul style="list-style-type: none"> ▶ Implementation of sound project management principles within the requirements specified in the contract ▶ Use contracts management in a wide variety of contractual situations.

Module 9		Overview of Information management	
End state vision - This module is designed to develop the ability of the learner to understand concepts of information management system.			
Knowledge		Skills	
<ul style="list-style-type: none"> ▶ Record keeping ▶ Data, Information, and Knowledge ▶ How to gather and process the data ▶ How to convert the data into information 		<ul style="list-style-type: none"> ▶ Data gathering, Convert data to information ▶ Present or report data for decision making ▶ Manage data/Maintain data base ▶ Document management ▶ Generate key benchmarks and outturns including lessons learnt 	
Module 10		Overview of Building Information Modelling (BIM)	
End state vision - This module is designed to develop the ability of the learner to understand concepts of Building Information Modelling.			
Knowledge		Skills	
<ul style="list-style-type: none"> ▶ Definition of BIM ▶ Purpose of BIM ▶ BIM Technology ▶ The BIM culture 		<ul style="list-style-type: none"> ▶ Use BIM to save time and money throughout the building lifecycle from initial planning through ongoing operations and maintenance 	

8. Programme Format

This programme will be delivered in an interactive, practical, E-learning video format along with knowledge check questions and assessment. Theory will be supported and illustrated through a combination of real-world examples.

The USP of our courses is that these are developed by experts working on real life projects and hence the course content reflects the practical aspects and challenges faced by the professionals and industry during the project delivery.

9. Expected Audience Profile/ Background

This course is suitable for everyone who is part of any team that executes industrial projects. If possible, groups will be composed of organizations that are supplementing each other to allow all participants to learn as much as possible. This course is primarily aimed at:

- ▶ Project Managers
- ▶ Project Accountants
- ▶ Project Planners
- ▶ Schedulers
- ▶ Project Engineers
- ▶ Cost Engineer/Estimator
- ▶ Risk Manager
- ▶ Project Controls Engineer