

Advanced Project Management Training

Preface

Hanna Consulting Group is please to provide advanced project management training for your organization. We pledge our utmost effort in serving your needs in an efficient, professional and timely manner. The training is offered over 4 days, eight hour per day workshop-type seminars. We will provide training in productivity and methods improvement, advanced scheduling, managing project risks, and advanced communication and negotiation topics. Detailed outlines on the contents are provided below, however, we will be glad to address any special need suggested by your organization. The training will be conducted by highly qualified instructors lead by Dr. who trained over 10,000 people in the last 15 years.

Courses Content Developer, team leader and Instructor:

Awad S. Hanna

Professor and Chair

Pre-planning, productivity improvement, manpower loading analysis and advanced scheduling

Construction Engineering and Management
Dept. of Civil Engineering
University of Wisconsin-Madison

& President of Hanna Consulting Group Inc.

Leadership Development, Job Management, Negotiation and Organization Productivity

Norm Doll

Adjunct Faculty

Construction Engineering and Management
Dept. of Civil Engineering
University of Wisconsin-Madison

& Chief Operating Officer

Piper Power Group Inc.

Productivity, Project Risks and Tracking

William Edwards

Former Principal, McCullough Subcontracting
Director of Quality, Safety and Productivity

Hanna Consulting Group Inc.

Advanced communication and negotiation topics

Vince Cannistraro

Consultant

Hanna Consulting Group and former director of Scheduling, M.A. Mortenson, Minneapolis, Minnesota

Introduction to Training

Advanced Project Management offers an in-depth exposure to advanced principles and tools of project management, which apply to a broad range of construction projects. The course covers techniques for project planning, scheduling, resource allocation including manpower loading, project tracking, risk management and negotiation and presentation skills. It also addresses the interface between projects and organizations.

Your Main Instructor and Coordinator

Awad S. Hanna, PhD, PE, and P. Eng. (Ontario) is a professor and chair of the construction engineering and management program at the University of Wisconsin-Madison. Dr. Hanna earned MS and Ph.D. degrees from Penn State University, all in civil engineering with a construction management emphasis. His research and teaching interests are in project management and project controls. He has served as Principal Investigator for many research projects for the Construction Industry Institute (CII), Mechanical Contractors Association of America (MCAA), National Electrical Contractors Association (NECA), and Sheet Metal And Air Conditioning Contractors' National Association (SMACNA) where he is spearheading major benchmarking studies of project management practices. In addition, Dr. Hanna has extensive experience in professional engineering positions and is a registered professional Engineer in Ontario, Canada and Wisconsin. He has consulted on a variety of project management issues for companies all over the world. Dr. Hanna has developed many advanced management techniques that carry his name such as manpower loading and Hanna control points, Hanna Total Risk Management System, and Hanna's Simplified Earned Value analysis.

Course Materials

Study Guide

[Advanced Project Management Study Guide](#), Awad S. Hanna

This study guide provides over 300 pages of slides and additional explanation of course content. It also contains references to relevant resources.

Software Packages

Students will be exposed to two software packages developed by Hanna Consulting Group. Hanna's Total Risk Management System @ and Job Tracking Using Earned Value Analysis @.

Introduction

Project Management is the science and the art of organizing and managing resources (e.g. people) in such a way that the project is completed within defined scope, quality, time and cost constraints. Project Managers should acquire both quantitative and qualitative skills. Quantitative skills include development and maintenance of project schedule, job tracking using Earned Value Analysis. Qualitative skills include presentation, communication, and negotiation skills. Studies have shown that inadequate management skills contribute to nearly 50% of poor labor productivity and lack of proper training contribute 30% (Accountemps, Mender Park, CA).

The Problem

1. Poor practical training in project management

There are two types of project managers. One type of project manager has little formal training and has worked his/her way up the company ranks. The second type of project manager is the newly graduated engineer who has years of schooling, but lacks the experience of the project manager who has worked him/herself up the ranks. Mechanical Engineering graduates from Canadian and US universities rarely receive any meaningful training in project management. Current mechanical engineering curriculums do not include any construction management courses such as Productivity Improvement, Project Tracking, Materials Handling, etc. Furthermore, project management courses offered by many universities lack practical, hands-on experience and tend to be more theoretical in nature.

2. Increased construction activities

Despite the current negative trends in the housing market, the total value of construction put in place increased by 4.7% from 2006 to 2007 and is expected to continue to grow at that same rate as result in investing in the energy market (Engineering News Records, August 2007). Clearly there will be need for more project managers in the future.

3. Retirement of baby boomers

Experts predict that in the next 10 to 15 years, 80 million people in US and Canada will retire. Companies will have to look for young graduates to take over many of these jobs.

4. Influx of new immigrants with no or minimum management skills

Many new immigrants who received their educations from outside of Canadian universities or US seem to have more technical expertise than they do practical managing skills. While a technical education is important, without proper managing skills, a construction project will not run efficiently.

Goals of the Training

The objective of this Training is to teach project managers advanced project management skills on how to plan, schedule, control, improve productivity, and acquire negotiations and presentation skills. Participant will learn:

- I. How to define, break down, and plan projects
- II. How to construct a Critical Path schedule, maintain it and deals with delays
- III. The role of labor productivity in defining project success and how to improve labor productivity.
- IV. How to apply earned value analysis in project control.
- V. How to allocate labor resources and build manpower loading charts
- VI. How to use manpower loading charts to recognize early warning signs for project distress
- VII. How to monitor progress via manpower loading and earned value analysis
- VIII. How to identify, recognize, quantify, and mitigate project general and risks.
- IX. How to communicate clearly and succinctly in a project management environment

The Curriculum

We propose a 4 day, 8 hours per day, program. The curriculum for the four days will be as follows:

Day 1 – Productivity and Methods Improvement

I. Productivity Definition

II. Productivity problems (no improvement in for 40 years)

III. Methods of identifying inefficiencies

- Work sampling
- Crew-balance charts and flow charts
- Foreman delay surveys
- Manpower loading chart and benchmarking productivity indicators

IV. Productivity tracking through manpower loading diagram

- Work breakdown structure
- How to develop manpower loading charts
- Hanna's control points
- Trapezoidal techniques
- Normal project duration
- Peak manpower
- The rate of manpower consumption

V. Best practices for material handling

- Ordering material best practices
- Delivering material best practices
- Storage of materials
- Moving of materials
- Materials surplus
- Integration of materials suppliers in material handling

VI. Tools, how to improve tools availability and conditions

VII. Information availability and distribution (RFI process)

VIII. 30 causes of poor labor productivity and best practices in reducing its impact (Examples are overtime, overmanning, staking of trades, absenteeism, shifting manpower and leadership from on location to another, etc.)

IX. 18 methods to improve labor productivity such as pre-construction planning, prefabrication, incentive plans, crew scheduling the use of set up crew

Day 2 – Advanced Scheduling

I. Introduction

II. Work Breakdown Structure (WBS)

- What is Work Breakdown Structure and how to develop one
- How to divide the project into functional elements
- Scope definition and verification
- Example WBS including HVAC, Plumbing and fire protection

III. Project schedule and what to look for in GC/CM schedule

- Activity definition from the WBS
- Activity sequencing/logic and relationships
- Duration time estimating
- Schedule development
- Schedule calculation/verification
- Start/finish alternatives
- Critical paths and critical activities
- Significance and use and ownership of float
- Creation, Presentation, and Maintenance of schedule

IV. Schedule organization best practices

- Coding
- Activity numbering
- Activity description

V. Schedule calculation and analysis

- Milestones (when to use and how to use)
- Constraint usage
- Float usage and analysis

VI. Multiple calendars

VII. Delay analysis and Time Impact Analysis

VIII. Stacking of trades

- Calculations of labor density
- Acceptable density levels
- Impact of stacking of trades
- Sequencing principles
- Anticipating stacking of trades
- Reducing the impact of stacking of trades

IX. Job Tracking Software Demonstration

Day 3 – Managing Project Risk

- I. Introduction and definitions
- II. Comprehend the general sources of risk on projects
- III. Identify specific areas of risk on a project
- IV. Identify the tolerance level for risk on a project
- V. Quantify risk on given activities.
- VI. Quantify overall project risk levels
- VII. Develop alternative strategies for dealing with project risks
 - Threats – *Avoid, Transfer, Mitigate, buy insurance, conduct more investigation and Accept*
 - Opportunities – *Facilitate, Involve, Increase likelihood and consequence*
- VIII. Risk identification (list of 107 potential risks)
- IX. Risk assessment
 - Risk frequency
 - Risk severity
 - Risk rating
 - Risk agreement and disagreement
- X. Hanna’s Total Risk Management Plan (HTRMP)
 - a. Risk Assessment Worksheets (Single-Party, Two-Party)
 - b. Spreadsheets allow single and multiple parties to assess risks and achieve internal and external risk alignment
 - c. Assist in defining internal risk actions
 - d. Risk Rating Matrix
 - e. Identifies the internal, single-party relative importance of each risk
 - f. Risk Rating Disagreement Matrix
 - g. Identifies gaps in two-party assessments
 - h. Identifies mutual concerns in two-party assessments
 - i. Risk Allocation Principles
 - j. Guidelines for appropriate allocation of risk among parties
 - k. Legal Perspective References for “Hot-Button” Risks
 - l. Contract Language Tables
- XI. Risk Assessment Software demonstration

Day 4 – Advanced Communication and Negotiation Topics

- I. Strategies for effective negotiations (soft, hard, principled negotiation)
- II. General rules for presentation and negotiation
 - Authority
 - The eighty-twenty rule
 - Be prepared
 - Acceptance time
- III. Negotiation work sheet (interest, options, standards, best alternatives)
- IV. Establishing goal and measurement criteria
- V. Contents of successful presentation (title page, table of contents, preface, summary, introduction to participants, etc.)
- VI. What kind of person do you need?
- VII. People, Placement and Development
 - Who's good at what, how do you know – Performance appraisal.
- VI. Case study: negotiating loss of productivity claims
 - Case description
 - Facts and claims
 - As bid conditions
 - As build conditions
 - Owner's position (it's contract stupid)
 - Documentation
 - Cause-effect relationship
 - Settlement criteria