

Introduction to Foremanship for Craft Workers

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COURSE TITLE: Introduction to Foremanship for Craft Workers

New course: Journeyman and 5th Level Apprentices. Department: JATC

Credit Hours: 24 CEUs Lecture Hours Per Week: 8 Lab Hours Per Week: 0

Is this course required for a Degree or Certificate? – no

COURSE DESCRIPTION:

For a Craft Worker whether an Electrician, Pipe Fitter or Carpenter the first step into jobsite management begins with the transition from Journeyman to Forman. This can be a very exciting opportunity in ones career path unfortunately; it can also be a very frightening and nerve racking experience for those who have not be given some simple tools and training. This 24-clock hour class is designed to aid the Journeyman through the jungle of jobsite documentation, interpersonal communication, jobsite scheduling, jobsite safety, equal employment laws and manpower management to name some.

PREREQUISITES:

Required:

- Journeyman Craft worker or 5th level Apprentice having completed 7000hrs OJT

Recommended:

- Basic Computer skills including word processing and spreadsheet development

RESOURCES USED TO PREPARE THIS COURSE:

Material and concepts from:

- Construction Supervision by Dr. Jerald Rounds and Professor Robert O. Segner, JR.
- Alliance Project Management Manual developed by The Mechanical/Electrical/Sheet Metal Alliance.

TEXTBOOKS USED BY STUDENTS

- Reference materials will be distributed during the class

GENERAL COURSE GOAL:

The course will prepare craft workers for the rigors of frontline job site management.

COURSE OUTCOMES:

At the conclusion of this course, students will be able to:

- **Manage man-power, tools, and materials through the construction process**
- **Understand the importance of scheduling and how to use it properly**
- **Understand the Forman's responsibility in Jobsite safety.**
- **Be introduced to the contract between a Prime and Sub Contractor**
- **Awareness of jobsite diversity and EEO laws**
- **Proper use and the importance of jobsite documentation**

METHODS OF ASSESSMENT:

- **Course will include short section quizzes to check for retention.**
- **Group activities will report their findings.**

METHODS OF INSTRUCTION MAY INCLUDE:

- **Lecture/Presentation**
- **Group activities**
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TOPICAL OUTLINE:

INSTRUCTIONS: In the spaces below, develop instructional units and show the topics that support each unit. Note: For each topic, indicate which industry-derived skills are addressed by the topic. To do this, you must first choose which skill set you are using. The choices are below. Please place an “x” by the skill set you will use. (Choose only one.)

X Energy Project/Program Management

Commercial Building Analyst

Cite the code number for each skill from the Skill sheet. Put it AFTER each topic description.

Unit 1: The Real Cost of Construction (2.5hr)

Introduction:

This section will bring focus to the real costs associated with construction and the importance of the Foreman in keeping those costs inline with the original budget. This can be in contrast to the Craft Workers priorities and understanding. As a Craft Worker the importance of a job done right is paramount. The job must be done to meet code and jobsite specifications in a safe, neat, and workman like manner. Not always on the Craft Workers radar however, is the understanding that the job must be done efficiently and with minimal losses.

This section will also review the players who make up the jobsite team and introduced the hierarchy of responsibility. The Foreman must know who to turn to for answers when questions arise as well as who is responsible for work.

Learning Objectives:

1. Understand what the job of a Foreman is and how it differs from a Craft Worker
2. Recognize the costs associated with a job and how the proper management of these costs is critical.
3. Introduce job costs concepts including the difference between direct job cost and overhead as well as profit and loss
4. Identify the many ways in which a Foreman’s management of a project costs can mean the difference between profits and loss.
5. Review who makes up the jobsite team and who is responsible for what work.

Topics covered: and specific industry-derived skill(s) codes

- Difference between a Craft Worker and Foreman – PM-A2, A19
- Importance of leadership – PM-A4, A5

- Jobsite costs identifying – PM-B3, B7
- Jobsite costs controlling – PM-B2, B6, B11

Major activities:

1. Instructor Lecture
 - What it means to be a Foreman vs Craft Worker
 - New responsibilities, what do you think a Forman is responsible for?
 - How the Forman is critical to the Contractor profitability
 - Job Cost: direct and indirect costs
 - The jobsite team: Owner, Designers, General Contractor, Specialty Contractor, Inspectors, and material and equipment Suppliers.
 - Discuss the Prime and Sub contractor concept and introduce the contractually language of each.
2. Group Discussion
 - What do you think of the Forman you have worked with past?
 - What do you anticipated to be the most difficult part of being a Foreman?
 - Who make us the jobsite team?
3. Small group task/s
 - none for this unit

Assessment:

- Quick Quiz – 10 questions in a multiple choice format to check for understanding of lessons high points.

Necessary equipment and materials:

- none for this unit

Unit 2: Jobsite Communications (3hr)

Introduction:

Improper jobsite communication can lead costly mistakes in time and materials. Modern construction calls for concise and efficient communication through various forms. Forman on today's jobsites must be prepared to communicate in various ways from a quick gang box chat to preparing a formal request for information to an Architect or Engineer. This section will focus on the importance of both written and oral communication on the jobsite. Review the common pitfalls of communication and methods of reducing them. Finishing up with a short discussion on non-verbal communication and people sense.

Learning Objectives:

- Introduce and define the various forms of communication and their effectiveness.
- Understand the sheer amount of time spent communicating by jobsite mangers.
- Emphasize the importance of electronic communication including phone/CC, email, text/SMS, and various document formats.
- Have a clear understanding of the importance of listening and being accessible.
- Review the basic needs of people and how to meet those through good communication.

- Discuss the outcomes of communication including motivating others, sharing of information, conflict resolution, and delegating tasks.

Topics covered: and specific industry-derived skill(s) codes

- Communication skills both written and oral – PM – A1, G1, G2,
- Effective electronic communication – PM – G4, G6
- The Importance of good communication and peoples needs – PM – A14, G7, G3, G9
- The desired outcomes of communication – PM – A4, A5, A10, A11

Major activities:

1. Instructor Lecture
 - Review the importance of proper jobsite communication
 - Define the various forms of communication
2. Group Discussion
 - Why do we communicate? What outcomes are we looking for?
 - How much time is spent communicating on a jobsite by: Journeyman, Forman, and Project manager?
3. Small group tasks
 - Break up into group of 3 or 4 and discuss examples of poor jobsite communication. Have a reporter record the example stories. When completed each team will share what they deem the best example of communication pitfalls.

Assessment:

- Quick Quiz – 10 questions in a multiple choice format to check for understanding of lessons high points.

Necessary equipment and materials:

- None for this unit
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Unit 3: Tools and Materials (4hr)

Introduction:

A large majority of any jobs overall costs to a Contractor come from materials and tools. The proper handling of these materials and tools can mean the difference between profit and loss for a Contractor. Forman are responsible to have the correct tools and materials available when they are needed. Further they must assure that they are properly handled and secured on the jobsite avoiding damage or loss. Lastly they must track the location and quantity of each ensuring efficient use company wide. A staggering industry statistic states that most material will be moved 8 times on a jobsite before it is installed. No part of the responsibilities of Forman is more paramount and yet often this is an area where many falter.

Learning Objectives:

- Instill the importance of proper tool and material management by the Forman and ensure they understand this to be a prime responsibility of the position.

- Discuss the costs associated with tools and materials and how they affect the projects bottom line.
- Understand effective methods of proper management of tools and materials including the development of spreadsheets and site documents.

Topics covered: and specific industry-derived skill(s) codes

- Proper tool and material management – PM – C5, G8, E12
- Costs of materials and tools – PM – C4, B4
- Development of materials and tool management documents – PM – E2, E5, E10, E14

Major activities:

1. Instructor Lecture
 - Review the importance of proper management of tools and materials and make the case ranking high among a priority list of a Forman's responsibilities.
 - Introduce methods and documents for managing tools and materials then hand out examples to students.
 - Instill the importance of proper planning!
2. Group Discussion
 - Instructor will have a prepared list of common tool and materials in the electrical trade and their current pricing. Class will be asked to estimate what each of the items costs is.
3. Small group tasks
 - Students will break up into group of 3-4 and develop a list of materials and tools to order to install a 500' run of 500 Kcmil Cu in 3" EMT from an MCC to a 125 HP motor. The run includes (2) 90's and is otherwise straight. Once they have developed the list they will be asked to estimate the costs of each. Once the list and estimated costs are complete, each team will report their findings and the Instructor will record them on the board. Instructor will have a prepared list of items with actual costs to compare with after.

Assessment:

- Quick Quiz – 10 questions in a multiple choice format to check for understanding of lessons high points.

Necessary equipment and materials:

- Example tool and materials document
- PC with internet connection to check current material pricing

Unit 4: Managing Manpower (3hr)

Introduction:

Labor on a construction project accounts for around 50% of the projects overall costs making the management of manpower a high priority. The proper assignment of tasks in a logical order is critical to a project being profitable and completed within the scheduled time line. The Forman must understand what portions of their work is included in the schedules critical path and man them appropriately. Additionally the Forman is responsible for motivating employees to perform tasks efficiently. Forman must be sure to have the proper crew mix between Apprentices and Journey level Craft Workers to maximize

profitability. Lastly reviewed is Murphy's Law and the Forman's responsibility to be prepared with alternative tasks should problems arise.

Learning Objectives:

- Instill the importance of managing labor cost on a project.
- Introduce the idea of the schedules critical path and the part it plays in delegating jobsite tasks.
- Review concepts for motivating people to perform work effectively and efficiently.
- Discuss proper crew mixing to maximize efficiency and reduce job costs and increase profitability.
- Review tasks delegating by identify worker strengths and work styles that best match the work to be done.
- Introduce the concept of team building as a means of management.
- Review how critical good planning is and how a back up plan should always be in place.

Topics covered: and specific industry-derived skill(s) codes

- Time management – PM – A3, A17
- Motivating employees – PM – A6, A7, A10
- Delegating work effectively – PM – A11, A12, A14, A16
- Team building – PM – A8, A9

Major activities:

1. Instructor Lecture
 - Review the costs of labor and the importance of managing manpower effectively
 - Introduce the concept of the critical path tasks on a schedule and how these relate directly to a project completing on time.
 - Overview of motivating people by meeting their basic needs. A paycheck is not a Craft Worker only motivation for working effectively.
 - Introduce the concept of team building and discuss what are the characteristics of a great team and team leader.
 - Review how teams are built and how they will often go through predictable cycles during their development: Forming, Storming, Norming and Performing.
2. Group Discussion
 - What motivates you to work hard everyday?
 - How do Forman identify a Craft Workers strengths and weaknesses?
 - Have you ever been a part of an effective team?
3. Small group tasks
 - Break out into small groups of 3-4 and have the member of the group imagine an effective leader they have worked with in the past. Then record the attributes they feel made the manger effective. Secondly, imagine an ineffective leader they have worked with and record the attributes they believe made them non-effective.

Assessment:

- Quick Quiz – 10 questions in a multiple choice format to check for understanding of lessons high points.

Necessary equipment and materials:

- no materials required

Unit 5: Scheduling (3hr)

Introduction:

All construction projects have a schedule that is developed by the General Contractor. Despite the schedules often-haphazard appearance to a person new to management a schedule is logical sequence of events. The schedule lays out all the tasks on a job in a logical order of completion allowing the project to be finished on time. Forman must plan their work around this schedule paying special attention to the critical path. Lastly this unit will introduce the concept of a short period schedules which reviews a project in a 3-5 day window. Sometimes referred to as short interval schedules are developed and used in planning manpower, material, and equipment needs in short term.

Learning Objectives:

- Introduce and define a schedule to the new user of this management tool.
- Understand the concept of the critical path and its part in the creation of the schedule.
- Review the various types of schedules and their specific benefits.
- Overview the principal of short-term schedule and its effectiveness in managing materials and manpower.

Topics covered: and specific industry-derived skill(s) codes

- Planning and scheduling a project – PM – A3, A18, B2,
- Short term scheduling – PM – A2, B6

Major activities:

1. Instructor Lecture
 - Define a schedule and explain how they are built around a projects critical path. Discuss who is responsible for generating and maintaining the schedule and how the Forman uses it.
 - Schedules can be developed in various formats including: The Network Diagram, Bar Chart and Short-term schedules.
2. Group Discussion
 - What experiences have you had with a project schedule?
 - Do jobs generally follow a schedule as it was originally designed or does it change? – Is the schedule static or every changing with jobsite developments?
3. Small group tasks
 - Break class into groups of 3-4 students. Have the group develop a short-term schedule of 3 days describing what each Craft Workers tasks will be based on the following parameters:
Currently working under your responsibility are two Journeymen and one Apprentice Electrician. On the schedule given to you by the General contractor you are to complete pulling wire and trimming out (including drop in light fixtures) in two identical classrooms. The classrooms have been completely roughed in and the walls are finished with t-bar hanging. You will need to pull in branch circuits and terminate all receptacles and switches as well as drop in troffer light fixtures.

Assessment:

- Quick Quiz – 10 questions in a multiple choice format to check for understanding of lessons high points.

Necessary equipment and materials:

- Handout including the jobsite scenario and short-term schedule format.

Unit 6: Safety responsibilities of a Foreman (3hr)

Introduction:

Long before OSHA's inception in 1972 jobsite safety was a concern however, today a Contractor's profitability maybe determined by their jobsite safety plan. Driven by ever raising insurance costs and the fact that many customers will not work with a Contractor holding a poor safety record. Today Contractors are taking safety very seriously meaning the Forman running the project is also. The direct and indirect cost of jobsite accident can be staggering leading to the closing of many Contractors doors in recent years. This section will briefly introduce the safety policies, standards and codes that in many cases have relevance and even jurisdiction over a project. Lastly, Forman are called on to assess the safety of the jobsite and when deficiencies are found require training.

Learning Objectives:

- Instill the importance of managing a safe job site from a moral and financial viewpoint.
- Review the direct and indirect cost of a jobsite accident and the benefits of a safety program.
- Prepared the Forman to review a Contractors specific safety program and policies and enforce it.
- Understand the concept of a Contractor EMR (Experience Modification Rate)
- Introduce the concept of jobsite safety assessment and scheduling training if deficiencies are found.

Topics covered: and specific industry-derived skill(s) codes

- Knowledge of specific regulations, code, and standards regarding safety – PM – H1, H2, H3, H12
- Promote safety awareness and enforcement of safety requirements – PM – H7, H9
- Assess the jobsite for safety deficiencies – PM – D9, D13
- Address safety deficiencies with training – PM – D2, D3, D5, D8,

Major activities:

1. Instructor Lecture

- Why safety is important to the Craft Worker – want to go home at the end of the day.
- Discuss the importance of Safety from a financial stand point what is the cost of an accident directly and indirectly to the contractor
- Review the concept of EMR and how many customers have requirement for a low ratio just to do business with a Contractor.

- Discuss Contractor specific safety plans and company policies.
 - Overview the creation of a safety plans from design to training and finally enforcement.
 - Discuss OSHA, State, customer specific, and site-specific safety requirements that a jobsite may fall under.
2. Group Discussion
 - What do you think of safety requirements on your jobsite today?
 - Who is responsible for the enforcement of those requirements?
 3. Small group tasks
 - Break class into groups of 3-4 students and have them create a list of the top five common safety violations they see on a jobsite, compare each group's findings.

Assessment:

- Quick Quiz – 5 questions in a multiple choice format to check for understanding of lessons high points.

Necessary equipment and materials:

- no materials or equipment required

Unit 7: Contracts (2hr)

Introduction:

It is not uncommon to meet a seasoned Forman who has never seen a contract nor understands the power it has over jobsite decisions. This section is designed to give the Forman a very basic introduction to contracts. It is intended only to explain to the Forman what the contract between the Prime and Sub contractor is and how it gives rights to certain parties under that contract. Contract language and contract dispute resolution will not be handled here.

Learning Objectives:

- A basic understanding of just what a contact is and whom it is between.
- Introduction to how contract language affects jobsite decisions everyday.
- Overview the concept of risk and how contracts manage it.

Topics covered: and specific industry-derived skill(s) codes

- Knowledge of regulations and policies – PM – H1,H2

Major activities:

1. Instructor Lecture
 - Disclaimer – I am not a lawyer
 - The Contract sets up the relationship between the Prime and Sub Contractor. It is not to determine who is right or wrong in most disputes, rather who has the stronger position.
 - A basic understanding of the contract by a Forman can help in some ways to level the playing field.
 - Define key terms in contract language
 - Review what the contract covers
 - Overview a basic AIA 401 contract with class highlighting specific language.

2. Group Discussion
 - None for this section
3. Small group tasks
 - None for this section

Assessment:

- Quick Quiz – 5 questions in a multiple choice format to check for understanding of lessons high points.

Necessary equipment and materials:

- Example copy of AIA Document 401

Unit 8: Employee Relations (2hr)

Introduction:

Today's jobsite is becoming increasingly diverse in gender, religion, language, and ethnicity. Today's Foreman is working in this environment and must learn how to manage issues as they arise. Stereotypes, bias and prejudice are all recognized behaviors that must be dealt with appropriately and in a consistent manner. Additionally there many equal employment laws in place Foreman must understand these laws to know when to ask for professional help in dealing with diversity on the jobsite.

Learning Objectives:

- Review diversity and what that means in the workplace.
- Introduce what categories of employees are protected from discrimination under EEO laws.
- Discuss EEO laws and when to request professional council.
- Overview of laws in place to protect those with disabilities from discrimination as well as reasonable accommodation.

Topics covered: and specific industry-derived skill(s) codes

- Multicultural understanding PM – D10
- Knowledge of regulations PM – H1, H2, H9

Major activities:

1. Instructor Lecture
 - Diversity in the workplace is increasing, today's Foreman must be aware of issues that may arise from racial, ethnic, and religious stereotypes.
 - Review issues that can arise from diversity and a lack of sensitivity of differences.
 - Equal Employment Opportunity laws are in place to protect people from discrimination
 - It is paramount that Foreman be aware of EEO laws and knows when to seek professional guidance.
2. Group Discussion
 - Is diversity an issue on the jobsite?
3. Small group tasks
 - None for this section

Assessment:

- Quick Quiz – 5 questions in a multiple choice format to check for understanding of lessons high points.

Necessary equipment and materials:

- None for this section

Unit 10: Jobsite Documentation (1.5hr)

Introduction:

Most Contractors have developed their own specific documents to be used by Forman on the jobsite. Though the documents may look different, most all fall into some category of tracking job costs and quantities. This section is not intended to instruct the Forman in how to complete the forms properly but rather the importance of doing so. The documentation of manpower through cost coding is one example of a very common practice completed by Forman in the field that often is done improperly.

Learning Objectives:

- Review common types of jobsite documents including: cost coding time sheets, material orders, equipment tracking, daily job progress, RFI's(request for information), and change orders.
- Review documents that the Forman will have others complete including: new hire and injured worker documentation.
- Instill the importance of completing these forms properly from a budgeting and estimating standpoint as well as legal one.

Topics covered: and specific industry-derived skill(s) codes

- Tracking and documenting work – PM – G1, G2
- Meeting Contractor policies – PM – H6, H7

Major activities:

1. Instructor Lecture
 - Proper documentation is critical to the development of job budgets and cost estimating.
 - Documents can often find their way into court.
 - Review several sample documents and discuss.
 - Setting aside time to complete documents
2. Group Discussion
 - Can you make proper documentation a priority? What would help to keep you on track?
3. Small group tasks
 - None for this section

Assessment:

- Quick Quiz – 5 questions in a multiple choice format to check for understanding of lessons high points.

Necessary equipment and materials:

- Sample documents

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