



COURSE OUTLINE

IRN730

Prepared: Corey Meunier Approved: Corey Meunier

Course Code: Title	IRN730: STRUCTURAL STEEL AND PLATEWORK - LEVEL 2
Program Number: Name	6171: IRONWORKER - LEVEL 2
Department:	IRONWKR APPR./WELDING RELATED
Semester/Term:	18W
Course Description:	Upon successful completion, the apprentice will be able to perform structural steel and platework in accordance with government safety regulations, manufacturers recommendations and accepted industry standards. This includes performing the layout and fabrication of structural steel and platework members, and explaining the drawings and blueprints. As well, the apprentice will be able to describe the structural steel and platework material erection methods, and perform installation and fastening, and alignment and inspection procedures for structural steel and platework.
Total Credits:	11
Hours/Week:	10
Total Hours:	78
Course Evaluation:	Passing Grade: 50%, D
Other Course Evaluation & Assessment Requirements:	<p>Grade Definition Grade Point Equivalent A+ 90 - 100% 4.00 A 80 - 89% B 70 - 79% 3.00 C 60 - 69% 2.00 D 50 - 59% 1.00 F (Fail)49% and below 0.00</p> <p>CR (Credit) Credit for diploma requirements has been awarded. S Satisfactory achievement in field /clinical placement or non-graded subject area. U Unsatisfactory achievement in field/clinical placement or non-graded subject area. X A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course. NR Grade not reported to Registrar's office. W Student has withdrawn from the course without academic penalty.</p>

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Practical	30%
Theory	70%

Course Outcomes and Learning Objectives:

Course Outcome 1.

Blueprints and Drawings:

Upon successful completion, the apprentice is able to explain blueprints and drawings for structural steel and platework, in accordance with manufacturer recommendations and accepted industry standards.

Learning Objectives 1.

Explain terms, symbols types and definitions of structural steel and platework blueprints:

- identify and explain abbreviations, lines and symbols
- define trade related terms for layout and drafting work
- identify blueprint types and applications
- explains structural steel and platework drawings and specifications

Identify materials used for structural steel and platework operations:

- identify structural steel and platework materials
- select the specified structural steel materials
- perform measurements of structural steel materials

Describe the planning and calculations required to determine the specified structural steel and platework procedures for an assigned project:

- outline planning and coordinating techniques
- describe estimating requirements for time, manpower, tools and equipment
- calculate elevations
- calculate loads
- calculate dimensions
- calculate reinforcing locations

Explain drawings for specified structural steel and platework operations:

- structural steel layouts and drawings
- platework layouts and drawings

Apply knowledge and usage of blueprints to structural steel erection:

- interpret notes and revisions to drawings
- relate erection drawings with appropriate fabrication drawings
- explain structural steel work activities to drawings and specifications

Course Outcome 2.

Fabrication of Members:

Upon successful completion, the apprentice is able to perform the fabrication of structural steel and platework members, in accordance with manufacturer recommendations and accepted industry standards.

Learning Objectives 2.

Explain drawings related to the fabrication of members for structural steel and platework:

- identify and explain abbreviations, lines and symbols
- define trade related terms for drawings
- identify blueprint types and applications
- explain member fabrication drawings and specifications

Identify selection criteria for materials used for structural steel and platework members:

- identify materials
- select the specified materials
- perform measurements of structural steel and platework members

Identify the correct procedures to layout for the fabrication of structural steel and platework members:

- perform layout of materials to fabricate structural steel members
- inspect and verify that the layout compares to specifications

Describe best practices to fabricate and assemble the specified members for structural steel and platework:

- identify the required cutting and assembly tools
- use tools to fabricate structural steel and platework members
- use tools to assemble structural steel and platework members

Course Outcome 3.

Layout:

Upon successful completion, the apprentice is able to perform layout of structural steel and platework members, in accordance with manufacturer recommendations and accepted industry standards.

Learning Objectives 3.

Determine layout locations, benchmarks and reference points of structural steel or platework members:

- set up and adjust digital theodolites or levelling devices
- use digital theodolites or levelling devices to locate layout locations
- determine the location of specified lines, points and benchmarks

Describe the sequence in performing inspection of anchorage points for structural steel or platework members:

- inspect placement of anchorage points
- inspect orientation of anchorage points
- inspect projection of anchorage points
- identify the condition of anchorage points

Describe the procedures to perform layout for the fabrication of structural steel or platework members:

- perform layout and measuring the position of members
- record anchorage points

- calculate distances and elevations
- perform adjustments based on calculations to conform to specifications

Course Outcome 4.

Erection Methods:

Upon successful completion, the apprentice is able to describe structural steel and platework material erection methods, in accordance with drawings and specifications of the assigned trade related tasks.

Learning Objectives 4.

Describe the required installation sequence for structural steel and platework materials:

- identify the safe sequence to install and assemble materials
- installation sequence to erect materials

Identify the required safety practices for structural steel and platework:

- identify potential hazardous conditions
- identify specified protective equipment
- describe the safe working practices
- determine equipment and material requirements
- apply specified safe working practices
- apply accepted industry standard practices for erection

Describe the installation of required falsework for specified structural steel and platework:

- define principles of falsework
- identify structural steel and platework projects that require falsework
- determine the required falsework
- erect falsework
- perform the removal procedures for falsework

Describe the procedures to erect structural steel and platework materials:

- identify erection methods
- position erection equipment in accordance with the industry standards
- position working platforms
- outline installation procedures for required fall-arrest systems

Describe the procedures to erect wind turbines:

- identify types and components of wind turbines
- identify erection methods for wind turbines
- position erection equipment in accordance with the industry standards

Course Outcome 5.

Installation and Securing:

Upon successful completion, the apprentice is able to perform installation and fastening procedures for structural steel and platework, in accordance with manufacturer recommendations and accepted industry standards.

Learning Objectives 5.

Identify the steps required to perform safe methods to rig and hoist structural steel and platework members:

- identifying structural steel and platework members
- identifying the specified methods for rigging and hoisting procedures
- perform rigging and hoisting procedures for structural steel and platework

Describe the methods used to setup and connect structural steel and platework members:

- explain the OSHA requirements for safe connection procedures
- perform the required setup procedures
- perform specified connection of members

Identify safe methods to secure structural steel and platework members:

- explain techniques to perform fastener tensioning
- perform the specified fastener securing procedures

Course Outcome 6.

Alignment and Inspection:

Upon successful completion, the apprentice is able to perform alignment and inspection procedures for structural steel and platework, in accordance with drawings and specifications of the assigned trade related task.

Learning Objectives 6.

Describe the required alignment procedures for structural steel and platework members:

- identify the equipment required to align members
- select and place alignment equipment
- turnbuckles
- guy lines
- lashing
- cable clamps
- tirfor
- wedges
- perform adjustments using the aligning equipment
- perform permanent securing procedures when components are aligned to specifications

Describe the required inspection and documentation procedures for structural steel and platework:

- inspect the structural steel and platework and compare to drawings and specifications
- document deficiencies noted during the erection process

Date:

Thursday, March 1, 2018

Please refer to the course outline addendum on the Learning Management System for further information.