



Release Of Updated Apprenticeship Curriculum Standard	
Trade Name(s) and Code(s)	<ul style="list-style-type: none"> • 437A – Metal Fabricator (Fitter)
Implementation Date of New Standard	<ul style="list-style-type: none"> • September 1, 2017 - released as version 300
Implementation Plan	<ul style="list-style-type: none"> • The Ontario College of Trades (the ‘College’) is implementing a new curriculum standard for three levels of in-school training for 437A – Metal Fabricator (Fitter) • The College advises an Implementation Date for all three levels of 437A – Metal Fabricator (Fitter) by September 1, 2017 • It is expected that apprentices will advance through training without having to repeat any areas. • The EOIS-APPR has been updated to reflect the new curriculum standard • Apprentices who began their apprenticeship on the former 2008 Curriculum Standard can complete their program using that standard
Impact on Training Standard	<ul style="list-style-type: none"> • The skills and competencies in the upcoming Training Standard will be aligned to the learning outcomes in the new curriculum standard
Curriculum Standard Access	<ul style="list-style-type: none"> • The new Curriculum Standard will be made available on the Ontario College of Trades website
Content Changes	<p style="text-align: center;">Level 1 Reportable Subject changes:</p> <hr/> <p style="text-align: center;">N/A</p> <hr/> <p style="text-align: center;">Level 1 Learning Outcomes Content Changes:</p> <hr/> <ul style="list-style-type: none"> • Equipment for Training Delivery Agents <p>The below content has been added to this section: work clothing, boots, coveralls, welding jacket, welding, helmets and prescription (safety) glasses.</p>



	<p>Items such as hard hats, eye and hearing protection, and all other tools and equipment are frequently the responsibility of the employer.</p> <p>Resource materials, charts, regulations, specifications, service bulletins, manufacturer’s manuals, and logbooks are supplied by the employer or equipment owner.</p> <ul style="list-style-type: none">• General Learning Outcome <p>The following sentence has been added at the beginning of the initial paragraph on each skill set:</p> <p>Upon successful completion the apprentice is able to describe.....</p> <p>The above mentioned changes are to be implemented to reflect a terminology that is currently used by the industry.</p>
	Level 2 Reportable Subject Changes
	N/A
	Level 2 Learning Outcome Content Changes
	<ul style="list-style-type: none">• S3230.1 Blueprint Advanced <p>1.1 The terms “welding procedures and specifications, notes” and “testing methods” were identified as content of welding symbols and not individual bullet points.</p> <p>1.2 The definition of this learning outcome was updated to “Produce detail item sketches from engineered structural and plate fabrication drawings in preparation for fabrication”. Nowadays, there is no need to do detail drawings when the operation is mostly computerized. The term “machine allowance” was changed to “machine surfaces”. The new term encompasses all aspects of machine components.</p> <p>1.3 The term “threads per inch” has been removed. This content is already covered in the metric and imperial subject.</p>



The terms “welding procedures and specifications, notes” and “testing methods” were identified as content of welding symbols and not individual bullet points.

- **S3231.1 Fabrication I**

1.1 The term “for the duration of the project” has been added. The Fabricator has to be cognizant of the job planning.

1.2 The term “stud attachments” has been added. Not all construction materials fall within bolts and nuts.

1.3 The terms “stainless steel”, “aluminum and their alloys”, “2F”, “3F”, “2G and 3G positions with/without backing”, “single vee in 1G, 2G, and 3G positions with/without backing”, “post-weld operations to specifications”, “prepare completed welds to specifications” and “visual inspection of finished welds” have been removed. They are not applicable to Fabricators.

1.4 The term “around tool” has been added and the term “from layout and pattern development” has been removed to better reflect industry standards.

The term “tee” has been changed to “T” to better reflect industry standards.

The following content has been added:

- storage tank
 - layout
 - cut
 - fit parts
 - tack parts

The term “safe retrieval of drops and marking piece/part number” has been identified as content of band saws and not as an individual bullet point.

The term “applicable codes” has been removed. There is no such thing as applicable codes.

- **S3232.1 Gas Tungsten Arc Welding (GTAW) Practical**

1.2 The term “the operation and” has been added. A Fabricator has to know how to operate a machine in order to know the functions.



	<ul style="list-style-type: none">• S3233.1 Machine Operation<ol style="list-style-type: none">1.2 The term “collect” has been changed to “collet”. Proper industry terminology.1.4 The term “safe retrieval of drops and marking piece/part number” has been identified as content of band saws and not as an individual bullet point.• S3234.1 Metallurgy<ol style="list-style-type: none">1.1 The term “mechanical properties” has been removed. All of these properties are being described individually in the specific content of this Learning Outcome.1.2 The term “stainless steel” has been removed. It is not a process.1.6 The terms “aluminum” and “designation system” have been removed. The content of these two terms has already been addressed in the identification of metals.1.7 The term “restraint” has been removed”. This content belongs to distortion.• S3234.2 Distortion<ol style="list-style-type: none">2.1 The terms “selection of corrective methods”, “heat wedges”, “heat spots” have been removed. Both processes are covered under a new term added “application of localized heat”. The term “back welding” has been removed. This is not a preventative method.• S3234.3 Inspection and Codes<ol style="list-style-type: none">3.1 The terms “reduced section transverse test”, “longitudinal tensile test”, “all weld metal tensile test”, “ultimate tensile strength”, “yield strength”, “elongation” and “reduction of
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area” have been removed. They are results of tensile testing and not methods.

The terms “Charpy” and “izod” have been removed. They are results of impact testing and not methods.

The terms “face”, “root” and “side” have been removed. They are results of bend testing and not methods.

3.2 The terms “gauges”, “pre-weld” and “completed weld specifications” have been removed. They are results of visual inspection methods.

The terms “fluorescent”, “visible dye” and “leak through technique” have been removed. They are results of penetrant testing and not methods.

The terms “prod method” and “yoke method” have been removed. They are results of magnetic particle testing and not methods.

The terms “x-ray method”, “gamma ray method” and “interpretation of weld radiographs” have been removed. They are results of radiography testing and not methods.

The terms “instrument calibration”, “straight and angle beam methods” and “scanning techniques and defect location” have been removed. They are results of ultrasonic testing and not methods.

5.3.3 The skill “Describe inspection and testing methods” has been removed. This content is already covered under skills 3.1 and 3.2.

3.3 The term “assessment of welding personnel” has been removed. It is not clear the use of this content in this skill.

3.5 The terms “content of welding procedure documents”, “material preparation and fit-up” “consumables selection”, “recommended pass sequence”, “electrical parameters” and “technique parameters” have been removed. All terms have already been covered under welding procedures.



	<p>3.6 The term “-03” has been removed. This was done to avoid individuals from learning a single section of CSA W47.1 and W59.</p> <p>The term “material test reports” has been removed. It is not part of codes and standards.</p> <ul style="list-style-type: none">• S3234.3 Inspection and Codes
	<p>3.4 The term “Welding Procedure Data Sheet (WPDS) has been added. Missing content that is specific to CSA.</p> <ul style="list-style-type: none">• S3235.1 Patterns and Templates Development
	<p>1.1 The term “computer based pattern development” has been removed. This content is seen on Level 3.</p>
	<p>1.2 The term “computer aided” has been removed. This content is seen in Level 3.</p>
	<p>1.6 The term “including but not limited” has been added. There are more material used for templates by industry.</p>
	<p>1.8 The term “offsets” has been added. This is a missing step prior to dimensions.</p>
	<p style="text-align: center;">Level 3 Reportable Subject Changes</p>
	<p>N/A</p>
	<p style="text-align: center;">Level 3 Learning Outcome Content Changes</p>
	<ul style="list-style-type: none">• S3240.2 Lifting, Rigging and Working at Heights <p>The name “Lifting, Rigging and Fall Protection” has been changed to “Lifting, Rigging and Working at Heights”. This was to adopt proper industry terminology.</p>



- **S3236.1 Patterns and Templates Development II**

1.4 The terms “trigonometry”, “ration and proportion” and “Pythagorean theorem” have been added to the skill definition. These are mathematical methods used to solve problems and not techniques.

- **S3237.1 Fabrication II**

1.3 The term “pre-weld dimensional check” has been added. This is an important step needed prior to fabrication and it was previously missing.

- **S3239.1 Preparation for Shipping**

1.1 The term “machining” has been added. This is an important step within preparation of surfaces.

1.4 The term “tagging” has been added. Tagging is an identification process that was missing in this content.

- **S3240.1 Site Installation Planning**

1.1 The term “machining” has been added. This is an important step within preparation of surfaces.

1.5 The term “estimating work progress” has been added. It is a necessary step prior to expediting the work progress to determine if there is a deficiency.

1.6 The term “define process of quality control” has been added. This addition is to reflect current industry practices.



- **S3240.2 Lifting, Rigging and Working at Heights**

2.2 The terms “cables”, “slings” and “chokers” have been grouped under a single term. The new term added is “wire rope”. The terms “nylon web slings” and “hoists” have been added. Important lifting and rigging equipment that is used nowadays, but it was previously missing.

2.3 The terms “identify the WLL” and ensure the WLL is equal or greater than the project load” have been added. These are steps needed when evaluating WLL for lifting and hoisting.



Hour Changes

Level 1 hours allocation

There has been a re-allocation of 4 hours from Practical to Theory components and hours were re-allocated in between learning outcomes to encompass the content taught in-school components as showing below:

2008

Number	Reportable Subjects	Hours		
		Total	Theory	Practical
S3190	Trade Practices	33	28	5
S3191	Applied Blueprint Reading	60	39	21
S3192	Welding Theory I	30	30	0
S3193	Material and Process Quality I	27	27	0
S3194	SMAW Practical I	69	3	66
S3195	Gas Shielded Semi-Automatic Welding Practical I	54	2	52
S3196	Thermal Cutting	27	9	18
		300	138	162

2016

Number	Reportable Subjects	Hours		
		Total	Theory	Practical
S3190	Trade Practices	45	40	5
S3191	Applied Blueprint Reading	48	36	12
S3192	Welding Theory I	39	39	0
S3193	Material and Process Quality I	27	27	0
S3194	SMAW Practical I	69	0	69
S3195	Gas Shielded Semi-Automatic Welding Practical I	54	0	54
S3196	Thermal Cutting	18	0	18
		300	142	158



Level 2 hours allocation

There has been a re-allocation of 6 hours from Theory to Practical and hours were re-allocated in between learning outcomes to encompass the content taught in-school components as showing below:

2008				
Number	Reportable Subjects	Hours		
		Total	Theory	Practical
S3230	Blueprint Advanced	60	30	30
S3231	Fabrication I	48	9	39
S3232	GTAW Practical	21	1	20
S3233	Machine Operation	24	12	12
S3234	Material and Process Quality II	24	24	0
S3235	Patterns and Templates Development I	33	8	25
		210	84	126
2016				
Number	Reportable Subjects	Hours		
		Total	Theory	Practical
S3230	Blueprint Advanced	60	30	30
S3231	Fabrication I	48	9	39
S3232	GTAW Practical	21	1	20
S3233	Machine Operation	24	6	18
S3234	Material and Process Quality II	24	24	0
S3235	Patterns and Templates Development I	33	8	25
		210	78	132



Level 3 hours allocation

There has been a re-allocation of 15 hours from Theory to Practical and hours were re-allocated in between learning outcomes to encompass the content taught in-school components as showing below:

2008

Number	Reportable Subjects	Hours		
		Total	Theory	Practical
S3236	Patterns and Templates Development II	48	8	40
S3237	Fabrication II	96	10	86
S3238	Project Planning	15	15	0
S3239	Preparation for Shipping	21	21	0
S3240	Installation	30	20	10
		210	74	136

2016

Number	Reportable Subjects	Hours		
		Total	Theory	Practical
S3236	Patterns and Templates Development II	48	8	40
S3237	Fabrication II	111	10	101
S3238	Project Planning	15	15	0
S3239	Preparation for Shipping	6	6	0
S3240	Installation	30	20	10
		210	59	151



General Notes

Rationale:

- Curriculums for Level 1, Level 2 and Level 3 were last updated in 2008 and are outdated.
- Keep current with the growing needs of the industry and Apprentices.
- To expand on trade knowledge to increase Apprentice competency and completion rates.
- Use of appropriate trade terminology to coincide with the National Occupational Analysis (NOA), which clarifies terms used on exams and enhances completion rates.
- New set of unit numbers have been assigned throughout this document. These new set of unit numbers align with current EOIS implementation standards and were assigned to OCOT by MAESD.
- Introductory page has been added at the beginning of all units, identifying all content to be reviewed including: duration, content, evaluation and testing.
- An evaluation and testing hours, and a disclaimer sections have been added to Levels 2&3.
- New innovations in metal fabrication.
- The expansion of trade specific concepts to enhance apprenticeship knowledge and completion rates.
- The total hours in Curriculum have not changed, but there has been a slight movement of hours in between theory and practical hours. A total of 21 hours have been moved from Theory to Practical hours to accomplish the Apprenticeship goals,
- There has been changes to all below terms throughout Levels 2&3 as follows:
- The term “approved industry standards” has been changed to “accepted industry standards”.
- The Evaluation and Testing Disclaimer has been changed to “Grade distribution proportionate to theory and practical hours. Specific evaluation of theory and practical components of training varies due to the resource material and training aides utilized” to allow all TDA’s to develop their own marking and testing processes according to their needs.
- The above mentioned changes are to be implemented to reflect a terminology that is currently used by the industry.
- The Metal Fabricator Training Standard was last updated in 2008 and was no longer reflective of industry needs. All of the changes reflect the evolution of the trade and industry’s needs.