

OFFICIAL PROGRAM STANDARDS NOTIFICATION

Issued: June 11, 2015

Program: Machinist

To: ITA Training Providers
Machinist Provincial Articulation Chair
System Liaison Person
School Districts

Subject: Updates to the Machinist Program Outline

OPSN No.: OPSN 2015 011

Effective Date: January 1, 2016

Summary of Change: Please be advised that a new Program Outline has been posted to the Industry Training Authority (ITA) website.

Rationale: Employment and Social Development Canada (ESDC) released a new National Occupational Analysis (NOA) in 2013 prompting a review of the BC Program Outline to align the two standards.

Details: A Machinist Program Review was conducted in June, 2014 to align the ITA Machinist Program to the 2013 NOA. The review process validated and revised gaps between the two standards and revised content to a current industry standard.

In addition to the new Program Outline, an exam weighting chart can be found on the ***Machinist*** page of the ITA website under ***Program Updates***.

Attachments: ***Machinist Program Outline Review Details***
This attachment provides details of the revisions made to the Machinist Program Outline during the review process.

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MACHINIST PROGRAM OUTLINE REVIEW DETAILS

**Note – Updated achievement criteria simply means the criteria was reformatted to match the style guidelines of the document*

MACHINIST – Level 1

LINE	COMPETENCY	REVISION/ADDITION/DELETION
LINE A	Use Safe Work Practices	
A1	Describe Occupational Health and Safety Regulations	<ul style="list-style-type: none"> • None
A2	Describe WHMIS and Hazardous Materials Safety	<ul style="list-style-type: none"> • None
A3	Apply safety practice for shop areas	<ul style="list-style-type: none"> • Updated achievement criteria* • Removed workplace criteria
A4	Use Lifting Equipment	<ul style="list-style-type: none"> • Updated achievement criteria • Removed workplace criteria
LINE B	Use Hand Tools	
B1	Use and maintain hand tools	<ul style="list-style-type: none"> • Updated achievement criteria • Removed workplace criteria
B2	Use layout tools	<ul style="list-style-type: none"> • Updated achievement criteria • Removed workplace criteria
B3	Use and maintain handheld power tools	<ul style="list-style-type: none"> • Updated achievement criteria • Removed workplace criteria
B4	Mark work pieces for identification	<ul style="list-style-type: none"> • Updated achievement criteria • Removed workplace criteria

MACHINIST PROGRAM OUTLINE REVIEW DETAILS

MACHINIST – Level 1

LINE	COMPETENCY	REVISION/ADDITION/DELETION
LINE C	Use Applied Mathematics	
C1	Solve problems involving formulas	<ul style="list-style-type: none"> • Removed achievement criteria (no practical assessment) • Removed workplace criteria
C2	Solve problems involving ratios	<ul style="list-style-type: none"> • Removed achievement criteria (no practical assessment) • Removed workplace criteria
C3	Perform metric /imperial conversions	<ul style="list-style-type: none"> • Removed achievement criteria (no practical assessment) • Removed workplace criteria
C4	Solve problems involving geometry	<ul style="list-style-type: none"> • Removed achievement criteria (no practical assessment) • Removed workplace criteria
C5	Solve problems involving algebra	<ul style="list-style-type: none"> • Removed achievement criteria (no practical assessment) • Removed workplace criteria
C6	Solve problems involving mass, area and volume	<ul style="list-style-type: none"> • Removed achievement criteria (no practical assessment) • Removed workplace criteria
C7	Solve problems involving trigonometry	<ul style="list-style-type: none"> • Removed achievement criteria (no practical assessment) • Removed workplace criteria
LINE D	Use Measuring Tools	
D1	Use linear and vernier scales	<ul style="list-style-type: none"> • Updated achievement criteria • Removed workplace criteria
D2	Use micrometers	<ul style="list-style-type: none"> • Updated achievement criteria • Removed workplace criteria
D3	Use callipers and gauges	<ul style="list-style-type: none"> • Updated achievement criteria • Removed workplace criteria
D4	Use dial indicators and digital readouts	<ul style="list-style-type: none"> • Updated achievement criteria • Removed workplace criteria
LINE E	Interpret Drawings and Reference Materials	

MACHINIST PROGRAM OUTLINE REVIEW DETAILS

MACHINIST – Level 1

LINE	COMPETENCY	REVISION/ADDITION/DELETION
E1	Interpret information found on drawings	<ul style="list-style-type: none"> • Updated achievement criteria • Removed workplace criteria
E2	Sketch machined parts	<ul style="list-style-type: none"> • Updated achievement criteria • Removed workplace criteria
E3	Use Machinery's Handbook and other reference materials	<ul style="list-style-type: none"> • Revised content in Learning Task 3 • Added achievement criteria (practical assessment) • Removed workplace criteria
E4	Describe fits and tolerances	<ul style="list-style-type: none"> • Updated achievement criteria • Removed workplace criteria
LINE G	Plan Sequence of Operation	
G1	Determine project requirements	<ul style="list-style-type: none"> • Updated achievement criteria • Removed workplace criteria
G2	Describe work holding devices	<ul style="list-style-type: none"> • Re-phrased Objective 1 • Re-phrased Learning Task 1 • Updated achievement criteria • Added new objective to coincide with achievement criteria
G3	Perform roughing and finishing	<ul style="list-style-type: none"> • Added achievement criteria (practical assessment) • Removed workplace criteria
LINE H	Describe Fabrication and Assembly	
H1	Identify Fasteners	<ul style="list-style-type: none"> • Removed achievement criteria (no practical assessment)
H2	Identify lubricants and sealants	<ul style="list-style-type: none"> • Removed achievement criteria (no practical assessment)

MACHINIST PROGRAM OUTLINE REVIEW DETAILS

MACHINIST – Level 1

LINE	COMPETENCY	REVISION/ADDITION/DELETION
LINE I	Use Drilling Machines	
I1	Describe drilling machines	<ul style="list-style-type: none"> Removed achievement criteria (no practical assessment)
I2	Select and maintain cutting tools	<ul style="list-style-type: none"> Updated achievement criteria Removed workplace criteria
I3	Operate and maintain drilling machines	<ul style="list-style-type: none"> Added achievement criteria (practical assessment) Removed workplace criteria
LINE J	Use Power Saws	
J1	Describe power saws	<ul style="list-style-type: none"> Removed achievement criteria (no practical assessment)
J2	Select and maintain band saw blades	<ul style="list-style-type: none"> Updated achievement criteria Removed workplace criteria
J3	Operate and maintain band saws	<ul style="list-style-type: none"> Added achievement criteria (practical assessment) Removed workplace criteria
J4	Operate and maintain other saws	<ul style="list-style-type: none"> Removed workplace criteria
LINE K	Use Lathes	
K1	Describe Lathes	<ul style="list-style-type: none"> Removed achievement criteria (no practical assessment)
K2	Operate and maintain lathes	<ul style="list-style-type: none"> Added achievement criteria (practical assessment) Removed workplace criteria
K3	Cut tapers	<ul style="list-style-type: none"> Updated achievement criteria Removed workplace criteria
LINE M	Use Support Machines	
M1	Operate and maintain hydraulic and arbour presses	<ul style="list-style-type: none"> Updated achievement criteria Removed workplace criteria
LINE N	Use Grinders and Abrasives	

MACHINIST PROGRAM OUTLINE REVIEW DETAILS

MACHINIST – Level 1

LINE	COMPETENCY	REVISION/ADDITION/DELETION
N1	Describe types of grinders	<ul style="list-style-type: none"> • Removed achievement criteria (no practical assessment)
N2	Select abrasives	<ul style="list-style-type: none"> • Removed achievement criteria (no practical assessment)
N3	Operate and maintain grinders	<ul style="list-style-type: none"> • Added achievement criteria (practical assessment) • Remove workplace criteria
N4	Operate and maintain sanders and polishers	<ul style="list-style-type: none"> • Added achievement criteria (practical assessment) • Removed workplace criteria

MACHINIST PROGRAM OUTLINE REVIEW DETAILS

MACHINIST – Level 2

LINE	COMPETENCY	REVISION/ADDITION/DELETION
LINE C	Use Applied Mathematics	
C1	Solve problems involving formulas	<ul style="list-style-type: none"> Removed achievement criteria (no practical assessment) Removed workplace criteria
C7	Solve problems involving trigonometry	<ul style="list-style-type: none"> Removed achievement criteria (no practical assessment) Removed workplace criteria
LINE D	Use Measuring Tools	
D3	Use callipers and gauges	<ul style="list-style-type: none"> Updated achievement criteria Removed workplace criteria
D4	Use dial indicators and digital readouts	<ul style="list-style-type: none"> Updated achievement criteria Removed workplace criteria
LINE E	Interpret Drawings and Reference Materials	
E3	Use Machinery's Handbook and other reference materials	<ul style="list-style-type: none"> Revised content in Learning Task 3 Removed achievement criteria (no practical assessment) Removed workplace criteria
E4	Describe fits and tolerances	<ul style="list-style-type: none"> Removed achievement criteria (no practical assessment) Removed workplace criteria

MACHINIST PROGRAM OUTLINE REVIEW DETAILS

MACHINIST – Level 2

LINE	COMPETENCY	REVISION/ADDITION/DELETION
LINE F	Select Materials	
F1	Describe principles of metallurgy	<ul style="list-style-type: none"> • Removed achievement criteria (no practical assessment) • Removed workplace criteria
F2	Describe characteristics of ferrous metals	<ul style="list-style-type: none"> • Removed achievement criteria (no practical assessment) • Removed workplace criteria
F3	Describe characteristics of non-ferrous metals	<ul style="list-style-type: none"> • Removed content from Learning Task 1 (heat treatment) • Removed achievement criteria (no practical assessment) • Removed workplace criteria
F4	Describe characteristics of non-metals	<ul style="list-style-type: none"> • Removed content from Learning Task 2 (Physical properties) • Removed content from Learning Task 3 (Physical properties) • Removed achievement criteria (no practical assessment) • Removed workplace criteria
F8	Describe the use and maintenance of fuel gas equipment	<ul style="list-style-type: none"> • Removed achievement criteria (no practical assessment) • Removed workplace criteria
LINE G	Plan Sequence of Operation	
G1	Determine project requirements	<ul style="list-style-type: none"> • Updated achievement criteria • Removed workplace criteria
LINE K	Use Lathes	
K4	Cut threads	<ul style="list-style-type: none"> • Updated achievement criteria • Removed workplace criteria
K5	Describe the use of advanced cutting tools	<ul style="list-style-type: none"> • Removed achievement criteria (no practical assessment) • Removed workplace criteria

MACHINIST PROGRAM OUTLINE REVIEW DETAILS

MACHINIST – Level 2

LINE	COMPETENCY	REVISION/ADDITION/DELETION
LINE L	Use Milling Machines	
L1	Describe milling machines	<ul style="list-style-type: none"> Removed achievement criteria (no practical assessment) Removed workplace criteria
L2	Describe cutting tools and holders	<ul style="list-style-type: none"> Removed achievement criteria (no practical assessment) Removed workplace criteria
L3	Use dividing heads and rotary tables	<ul style="list-style-type: none"> Updated achievement criteria Removed workplace criteria
L4	Operate and maintain milling machines	<ul style="list-style-type: none"> Updated achievement criteria Removed workplace criteria
LINE N	Use Grinders and Abrasives	
N2	Select abrasives	<ul style="list-style-type: none"> Removed achievement criteria (no practical assessment) Removed workplace criteria

MACHINIST PROGRAM OUTLINE REVIEW DETAILS

MACHINIST– Level 3

LINE	COMPETENCY	REVISION/ADDITION/DELETION
LINE C	Use Applied Mathematics	
C2	Solve problems involving ratios	<ul style="list-style-type: none"> • Removed achievement criteria (no practical assessment) • Removed workplace criteria
C7	Solve problems involving trigonometry	<ul style="list-style-type: none"> • Removed achievement criteria (no practical assessment) • Removed workplace criteria
LINE D	Use Measuring Tools	
D3	Use callipers and gauges	<ul style="list-style-type: none"> • Updated achievement criteria • Removed workplace criteria
D4	Use dial indicators and digital readouts	<ul style="list-style-type: none"> • Updated achievement criteria • Removed workplace criteria
LINE E	Interpret Drawings and Reference Materials	
E3	Use Machinery's Handbook and other reference materials	<ul style="list-style-type: none"> • Updated achievement criteria • Removed workplace criteria
LINE F	Select Materials	
F2	Describe characteristics of ferrous metals	<ul style="list-style-type: none"> • Removed achievement criteria (no practical assessment) • Removed workplace criteria
F3	Describe characteristics of non-ferrous metals	<ul style="list-style-type: none"> • Revised content in Learning Task 3 • Removed achievement criteria (no practical assessment) • Removed workplace criteria
F4	Describe characteristics of non-metals	<ul style="list-style-type: none"> • Removed content from Learning Task 2 (Physical properties) • Removed content from Learning Task 3 (Physical properties) • Removed achievement criteria (no practical assessment) • Removed workplace criteria
F5	Select materials for applications	<ul style="list-style-type: none"> • Updated achievement criteria • Removed workplace criteria
F6	Describe and perform heat treating	<ul style="list-style-type: none"> • Competency name change from:

MACHINIST PROGRAM OUTLINE REVIEW DETAILS

MACHINIST– Level 3

LINE	COMPETENCY	REVISION/ADDITION/DELETION
		<ul style="list-style-type: none"> <i>Describe heat treating and surface treatment</i> • Add Learning Task and applicable content: <i>Perform heat treating process</i> • Updated achievement criteria
F7	Describe materials testing	<ul style="list-style-type: none"> • Add Learning Task and applicable content: <i>Describe non-destructive testing</i> • Updated achievement criteria • Removed workplace criteria
LINE G	Plan Sequence of Operation	
G1	Determine project requirements	<ul style="list-style-type: none"> • Updated achievement criteria • Removed workplace criteria
LINE H	Describe Fabrication and Assembly	
H3	Describe bearings, seals and bearing materials	<ul style="list-style-type: none"> • Revised content in Learning Task 3 • Revised content in Learning Task 5 • Removed achievement criteria (no practical assessment) • Removed workplace criteria
H4	Disassemble and assemble components	<ul style="list-style-type: none"> • Updated achievement criteria • Removed workplace criteria
LINE K	Use Lathes	
K4	Cut threads	<ul style="list-style-type: none"> • Updated achievement criteria • Removed workplace criteria
LINE L	Use Milling Machines	
L3	Use dividing heads and rotary tables	<ul style="list-style-type: none"> • Updated achievement criteria • Removed workplace criteria
L4	Operate and maintain milling machines	<ul style="list-style-type: none"> • Updated achievement criteria • Removed workplace criteria
LINE M	Use Support Machines	

MACHINIST PROGRAM OUTLINE REVIEW DETAILS

MACHINIST– Level 3

LINE	COMPETENCY	REVISION/ADDITION/DELETION
M2	Operate and maintain grinders	<ul style="list-style-type: none"> Updated achievement criteria Removed workplace criteria
LINE N	Use Grinders and Abrasives	
N1	Describe types of grinders	<ul style="list-style-type: none"> Removed achievement criteria (no practical assessment) Removed workplace criteria
N2	Select abrasives	<ul style="list-style-type: none"> Updated achievement criteria Removed workplace criteria
N3	Operate and maintain grinders	<ul style="list-style-type: none"> Updated achievement criteria Removed workplace criteria
LINE O	Use Boring Machines	
O1	Describe boring mills	<ul style="list-style-type: none"> Revised content in Learning Task 3 Removed achievement criteria (no practical assessment) Removed workplace criteria
O2	Operate and maintain vertical boring mills	<ul style="list-style-type: none"> Updated achievement criteria Removed workplace criteria

MACHINIST PROGRAM OUTLINE REVIEW DETAILS

MACHINIST – Level 4

LINE	COMPETENCY	REVISION/ADDITION/DELETION
LINE D	Use Measuring Tools	
D5	Describe optical measuring equipment	<ul style="list-style-type: none"> • Removed achievement criteria (no practical assessment) • Removed workplace criteria
LINE E	Interpret Drawings and Reference Materials	
E3	Use Machinery's Handbook and other reference materials	<ul style="list-style-type: none"> • Add Learning Task and applicable content • Removed achievement criteria (no practical assessment) • Removed workplace criteria
LINE F	Select Materials	
F1	Describe principles of metallurgy	<ul style="list-style-type: none"> • Removed achievement criteria (no practical assessment) • Removed workplace criteria
F2	Describe characteristics of ferrous metals	<ul style="list-style-type: none"> • Removed achievement criteria (no practical assessment) • Removed workplace criteria
F3	Describe characteristics of non-ferrous metals	<ul style="list-style-type: none"> • Removed content from Learning Task 1 (heat treatment) • Revised content in Learning Task 2 • Removed achievement criteria (no practical assessment) • Removed workplace criteria
F4	Describe characteristics of non-metals	<ul style="list-style-type: none"> • Removed content from Learning Task 2 (Physical properties) • Removed content from Learning Task 3 (Physical properties) • Removed achievement criteria (no practical assessment) • Removed workplace criteria
F6	Describe and perform heat treating	<ul style="list-style-type: none"> • Competency name change from: <i>Describe heat treating and surface treatment</i> • Re-phrased Learning Task 2 • Removed achievement criteria (no practical assessment) • Removed workplace criteria
F7	Describe materials testing	<ul style="list-style-type: none"> • Removed content from Learning Task 2 • Removed achievement criteria (no practical assessment) • Removed workplace criteria

MACHINIST PROGRAM OUTLINE REVIEW DETAILS

MACHINIST – Level 4

LINE	COMPETENCY	REVISION/ADDITION/DELETION
LINE G	Plan Sequence of Operation	
G1	Determine project requirements	<ul style="list-style-type: none"> Updated achievement criteria Removed workplace criteria
G3	Perform roughing and finishing	<ul style="list-style-type: none"> Updated achievement criteria Removed workplace criteria
LINE M	Use Support Machines	
M3	Operate and maintain gear cutting and electrical discharge machines	<ul style="list-style-type: none"> Updated achievement criteria Removed workplace criteria
LINE O	Use Boring Machines	
O1	Describe boring mills	<ul style="list-style-type: none"> Removed content from Learning Task 3 Removed achievement criteria (no practical assessment) Removed workplace criteria
O3	Operate and maintain horizontal boring mills	<ul style="list-style-type: none"> Removed achievement criteria (no practical assessment) Removed workplace criteria
LINE P	Use C.N.C. Machines	
P1	Describe C.N.C. machines	<ul style="list-style-type: none"> Removed achievement criteria (no practical assessment) Removed workplace criteria
P2	Describe co-ordinate systems and programming codes	<ul style="list-style-type: none"> Removed achievement criteria (no practical assessment) Removed workplace criteria
P3	Operate and maintain C.N.C. machines	<ul style="list-style-type: none"> Updated achievement criteria Removed workplace criteria



MACHINIST PROGRAM OUTLINE REVIEW DETAILS

Appendices

SECTION	REVISION/ADDITION/DELETION
Assessment Guidelines	<ul style="list-style-type: none">• New
Glossary of Acronyms	<ul style="list-style-type: none">• New
Previous Contributors	<ul style="list-style-type: none">• New