

APPRENTICESHIP & CERTIFICATION

Study Guide Machinist




Newfoundland
Labrador

Apprenticeship and Certification

Study Guide

Machinist

(Based on 2013 NOA)

Government of Newfoundland and Labrador
Department of Advanced Education, Skills and Labour
Apprenticeship and Trades Certification Division

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Introduction

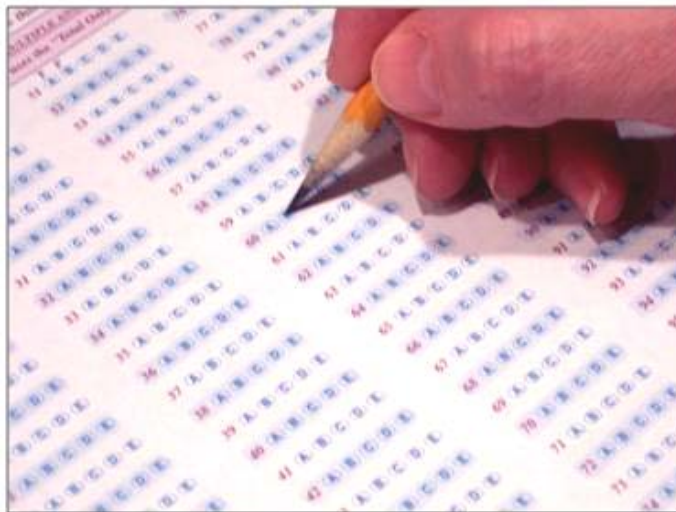
This Study Guide has been developed by the Newfoundland and Labrador Department of Advanced Education, Skills and Labour, Apprenticeship and Trades Certification Division, to assist apprentices and trade qualifiers as they prepare to write the Interprovincial (IP) Red Seal Exam. IP Exams are available for all Red Seal trades. For a list of Interprovincial trades please refer to the Department of Advanced Education, Skills and Labour website:

<https://www.aesl.gov.nl.ca/app/trades.html>

Some of the specific goals of this guide are:

- ⇒ to help you understand the skills and knowledge that might be covered on the exam
- ⇒ to help you identify your strengths and weaknesses
- ⇒ to provide organization and structure for a course of study
- ⇒ to provide a list of resources to help you with your study plan
- ⇒ to support and supplement the teaching and learning process

This study guide outlines the theoretical portion of the program. The intent is not to replace technical training provided under the guidance of instructors. Rather, it is a tool to be used in conjunction with formal training.



Exam Process

Before the Exam

You must contact the nearest Apprenticeship and Trades Certification Divisional office to make request to write the IP Red Seal exam (*See Appendix A for a list of regional offices*). Upon approval, the Apprenticeship Program Officer (APO) will notify you of your eligibility to write the exam, and provide you with scheduling information. If you require special accommodations due to a disability or language barrier, please contact your regional office for information on applying for this service.

During the Exam

You must bring:

- personal identification such as a photo or signature ID or valid Newfoundland and Labrador driver's license
- your notification letter

The following will be provided:

- a calculator (*see Appendix B for calculator information*)
- all other items required such as pencils, scrap paper, etc.

Important Note:

Personal cell phones, calculators, or other electronic equipment are NOT allowed into the exam room. If you do bring them, they will be stored away and returned to you when you have completed the exam.

After the Exam

Results will be mailed to you approximately seven to ten days after completion of the exam. All necessary instructions and information will be provided in the results letter.

The percentage mark you obtained will be provided. You will also be given a section by section breakdown, showing how many questions were in each section, as well as the number of questions in each section you completed successfully.

If you are successful in obtaining a 70% or more on your exam, you will be issued a Newfoundland and Labrador Certificate of Qualification with a Red Seal endorsement.

Exam Format

All IP Red Seal exams are written in multiple-choice format. Each exam has between 100 and 150 questions. A multiple choice question consists of a stem (a complete question) followed by four options (A, B, C, D). The stem contains all the information necessary to answer the question. The options consist of the one correct answer and three “distracters.” Distracters are incorrect. (See Appendix C for a sample answer sheet).

IP Red Seal exams contain three types of questions:

Level 1 Knowledge and Recall

Questions at this level test your ability to recall and understand definitions, facts, and principles.

Level 2 Procedural and Application

Questions at this level test your ability to apply your knowledge of procedures to a new situation.

Level 3 Critical Thinking

Questions at this level test your ability to interpret data, solve problems and arrive at valid conclusions.

On the following pages, examples of each of the three types of questions are provided.

Level 1 Examples:

1. Which type of hole requires a spiral-fluted hand reamer?
 - A. Oval-shaped.
 - B. Oversized.
 - C. Bell-mouthed.
 - D. Keyed or slotted.



2. Why is a grinding allowance left on the workpiece prior to heat treatment process?

- A. Material shrinkage.
- B. Material hardening.
- C. Material distortion.
- D. Material expansion.



3. What product is used to check the final fit of mating tapers?

- A. Layout dye.
- B. Prussian blue.
- C. Penetrating dye.
- D. Lapping compound.



Level 2 Examples:

1. What size is the gauge block build-up used with a 5 in. sine bar to set the work piece at an angle of $4^{\circ}, 30'$?

- A. 0.1961 in.
- B. 0.3923 in.
- C. 0.4537 in.
- D. 0.7846 in.



2. Which offset is required to produce an eccentric with a throw of 0.400 in.?

- A. 0.100 in.
- B. 0.200 in.
- C. 0.300 in.
- D. 0.400 in.



3. Which instruments are used to measure a 1 in. diameter bored hole with a tolerance of ± 0.001 in.?

- A. Centre gauge and gauge blocks.
- B. Dial indicator and gauge blocks.
- C. Spring-joint dividers and micrometer.
- D. Telescopic gauge and micrometer.



Level 3 Examples:

1. What is the time required to turn SAE 4140 steel to 2 in. diameter down to 1.875 in. diameter with a depth of cut at 0.0625 in., 9 in. in length, using a cutting speed of 70 sfpm, with a feed rate of 0.006 in. per revolution?

$$[\text{rpm} = (12 \times \text{CS}) \div (\text{p} \times \text{D})]$$

- A. 11 minutes, 13 seconds.
- B. 12 minutes, 31 seconds.
- C. 14 minutes, 30 seconds.
- D. 15 minutes, 37 seconds.



2. How far is the centerline of the spindle from the edge of the workpiece when using a 0.200 in. diameter edge finder?

- A. 0.100 in.
- B. 0.200 in.
- C. 0.300 in.
- D. 0.400 in.



3. Which type of grinding machine is used to produce 1000 dowel pins that measure 0.250 in. diameter?

- A. Cylindrical.
- B. Centreless.
- C. Surface.
- D. Vertical.



Source of questions:

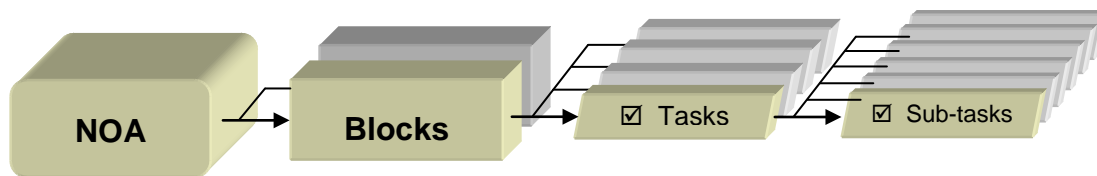
www.red-seal.ca/s.1mpl.2.2x.1mQ.5.2st.3.4ns-eng.html?tid=139

Exam Content

Understanding the *National Occupational Analysis (NOA)*

The NOA is a document used for Red Seal trades that describes the knowledge, skills and abilities required by a fully competent tradesperson working in that trade. The content for the IP Red Seal exam is based on the NOA. The NOA is an excellent tool to use as you study for the Red Seal exam. NOAs can be found at www.red-seal.ca.

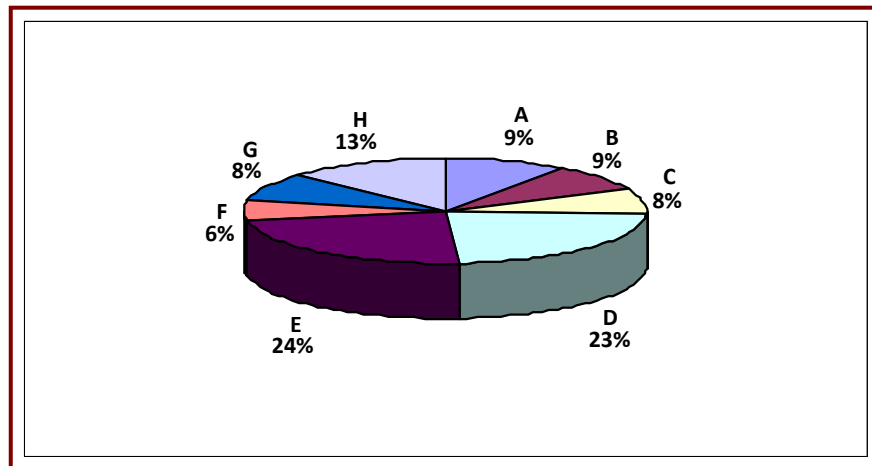
NOA material is organized into major content areas called **BLOCKS**. The blocks are further broken down into **TASKS** and **SUB-TASKS**.



NOA Pie Chart

The NOA Pie Chart presents the block percentages in the form of a pie chart which tells you the approximate number of questions from each block. For example, 9% of the questions on the **Machinist** Exam will be based on **Block A**.

MACHINIST



Block Titles			
Block A	Common Occupational Skills	Block E	Conventional Milling Machines
Block B	Bench Work	Block F	Power Saws
Block C	Drill Presses	Block G	Precision Grinding Machines
Block D	Conventional Lathes	Block H	Computer Numerical Control (CNC) Machine-Tools

Exam Breakdown

The **Machinist** IP Red Seal Exam has 135 questions. The following table shows a breakdown of the approximate number of questions that come from each NOA block. It is important to note that the number of questions can change at any time. When you are ready to write your exam, you may contact your regional office to verify the number of questions (See Appendix A).

		# of Questions
Block A	Common Occupational Skills	13
Task 1	Organizes work	
Task 2	Processes workpiece material	
Task 3	Maintains machines and tooling	
Block B	Bench Work	12
Task 4	Performs hand processes	
Task 5	Refurbishes components	
Block C	Drill Presses	11
Task 6	Sets up drill presses	
Task 7	Operates drill presses	
Block D	Conventional Lathes	31
Task 8	Sets up conventional lathes	
Task 9	Operates conventional lathes	
Block E	Conventional Milling Machines	31
Task 10	Sets up conventional milling machines	
Task 11	Operates conventional milling machines	
Block F	Power Saws	8
Task 12	Sets up power saws	
Task 13	Operates power saws	
Block G	Precision Grinding Machines	12
Task 14	Sets up precision grinding machines	
Task 15	Operates precision grinding machines	
Block H	Computer Numerical Control (CNC) Machine-Tools	17
Task 16	Performs basic CNC programming	
Task 17	Sets up CNC machine-tools	
Task 18	Operates CNC machine-tools	
Total		135

NOA Sub-tasks

The following *NOA Task Profile Checklist* outlines the blocks, tasks and sub-tasks for your trade. The IP Red Seal exam is written to test your knowledge and abilities regarding the sub-tasks in the NOA. This chart can be used to review your current knowledge. You can review by placing a checkmark (✓) next to those you understand fully.

Place your focus on those you do not understand and study them until you are comfortable with the material. Think of possible questions in that particular content area.

The NOA also contains a list of “supporting knowledge and abilities” for each sub-task. They are the skills and knowledge you must have to perform a sub-task. The supporting knowledge and abilities identified under each sub-task will be very helpful as you review. The list can be found in the NOA for your trade.

Task Profile Checklist Based on 2013 NOA Machinist

Block A: Common Occupational Skills

Task 1: Organizes Work

Sub-Tasks

- Interprets documentation
- Plans sequence of operations
- Maintains safe work environment
- Uses personal protective equipment (PPE) and safety equipment
- Uses hoisting, lifting and rigging equipment

Task 2: Processes Workpiece Material

Sub-Tasks

- Selects workpiece material
- Performs layout
- Marks workpiece for identification
- Performs basic heat treatment
- Tests workpiece materials
- Deburrs workpiece
- Sketches parts

Task 3: Maintains Machines and Tooling

Sub-Tasks

- Cleans machines
- Lubricates machines
- Sharpens tooling
- Applies cutting fluids and coolants
- Trouble-shoots equipment
- Maintains machine alignment
- Maintains inspection equipment

Block B: Bench Work

Task 4: Performs Hand Processes

Sub-Tasks

- Files workpiece
- Saws workpiece
- Performs hole-making operations
- Performs threading operations
- Installs thread inserts
- Broaches workpiece
- Performs pressing operations
- Bends workpiece
- Finishes workpiece

Task 5: Refurbishes Components

Sub-Tasks

- Disassembles components
- Analyzes components
- Assembles components

Block C: Drill Presses

Task 6: Sets Up Drill Presses

Sub-Tasks

- Selects drill press types
- Plans drill press sequence
- Selects drill press speeds and feeds
- Sets up jigs, fixtures and work holding devices for drill presses
- Sets up tooling for drill presses

Task 7: Operates Drill Presses

Sub-Tasks

- Drills holes using a drill press
- Cuts countersinks, counterbores, chamfers and spot faces using a drill press
- Performs tapping using a drill press
- Finishes holes using a drill press

Block D: Conventional Lathes

Task 8: Sets Up Conventional Lathes

Sub-Tasks

- Selects conventional lathe types
- Plans sequence of operations for conventional lathes
- Sets up work holding devices for conventional lathes
- Sets up tooling for conventional lathes
- Sets up conventional lathe accessories
- Sets up workpiece on conventional lathe
- Selects conventional lathe speeds and feeds
- Sets up eccentrics on conventional lathes

Task 9: Operates Conventional Lathes

Sub-Tasks

- Turns external surfaces using a conventional lathe
- Bores holes using a conventional lathe
- Faces surfaces using a conventional lathe
- Turns tapers on a conventional lathe
- Knurls using a conventional lathe
- Parts off workpiece using a conventional lathe
- Drills using a conventional lathe
- Reams holes using a conventional lathe
- Cuts grooves using a conventional lathe
- Cuts threads using a conventional lathe

Block E: Conventional Milling Machines

Task 10: Sets up Conventional Milling Machines

Sub-Tasks

- Selects conventional milling machine types
- Plans milling sequence
- Sets up work holding devices for conventional milling machines
- Sets up tooling for conventional milling machines
- Sets up milling accessories
- Sets up workpiece on a conventional milling machine
- Selects conventional milling machine speeds and feeds

Block E: Conventional Milling Machines (Cont'd)

Task 11: Operates Conventional Milling Machines

Sub-Tasks

- Mills surfaces using a conventional milling machine
- Mills profiles and pockets using a conventional milling machine
- Mills slots, grooves and keyways using a conventional milling machine
- Cuts gears and splines using a conventional milling machine
- Drills holes using a conventional milling machine
- Reams holes using a conventional milling machine
- Cuts countersinks, counterbores, and chamfers and spot faces using a conventional milling machine
- Performs tapping using a conventional milling machine
- Bores holes using a conventional milling machine

Block F: Power Saws

Task 12: Sets Up Power Saws

Sub-Tasks

- Selects power saw types
- Selects saw blades
- Installs saw blades
- Selects power saw speeds and feeds
- Makes power saw adjustments
- Sets up workpiece on power saw

Task 13: Operates Power Saws

Sub-Tasks

- Saws straight and angle cuts
- Cuts irregular shapes

Block G: Precision Grinding Machines

Task 14: Sets up Precision Grinding Machines

Sub-Tasks

- Selects precision grinding machine types
- Plans grinding sequence
- Sets up work holding devices for precision grinding machines
- Mounts grinding wheel
- Sets up grinding accessories
- Sets up workpiece on precision grinding machines
- Selects precision grinding machine speeds and feeds

Task 15: Operates Precision Grinding Machines

Sub-Tasks

- Grinds flat surfaces using a surface grinder
- Grinds profiles
- Grinds internal and external cylindrical and tapered surfaces
- Grinds tools and cutters
- Finishes holes using a honing machine

Block H: Computer Numerical Control (CNC) Machine-Tools

Task 16: Performs Basic CNC Programming

Sub-Tasks

- Reviews process documentation
- Calculates coordinates for tool path
- Creates basic program
- Inputs program into control memory
- Optimizes program

Task 17: Sets up CNC Machine-Tools

Sub-Tasks

- Selects tooling and tool holders for CNC machine-tools
- Sets up tooling and tool holders for CNC machine-tools
- Sets up workpiece on CNC machine-tools
- Establishes work datum
- Verifies program

Block H: Computer Numerical Control (CNC) Machine-Tools (Cont'd)

Task 18: Operates CNC Machine-Tools

Sub-Tasks

- Adjusts offsets
- Monitors machining processes
- Interrupts program cycle
- Restarts program cycle

Create a Study Plan

As you prepare for your exam, it is important to plan a schedule. The following two tables will help you stay on track.

The first table is a **“Weekly Study Plan.”** In this table list the areas you will focus your study for each day. You should include items you need to review as well as items you need to study. Remember, more time will be needed for study in areas you find difficult, whereas you may only require review in areas you are more familiar with. As you work through the NOA sub-task list you can start to fill in this table.

The second table is a **“Study Time Table.”** It is important to create a study schedule where you determine the best days of the week and times of day for you to study.

Print several copies of these tables and fill out for each week of study. It is important to stick to your study schedule.

Weekly Study Plan for Week of: _____

	Area of Study 1	Area of Study 2	Area of Study 3	Area of Study 4	Area of Study 5	Area of Study 6
Mon.						
Tues.						
Wed.						
Thu.						
Fri.						
Sat.						
Sun.						

Study Time Table for Week of: _____

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
8:00 AM - 9:00 AM							
9:00 AM - 10:00 AM							
10:00 AM - 11:00 AM							
11:00 AM - 12:00 Noon							
12:00 Noon - 1:00 PM							
1:00 PM - 2:00 PM							
2:00 PM - 3:00 PM							
3:00 PM - 4:00 PM							
4:00 PM - 5:00 PM							
5:00 PM - 6:00 PM							
6:00 PM - 7:00 PM							
7:00 PM - 8:00 PM							

Resources - Websites

Study information can be drawn from a variety of sources. A sample list of study materials (websites and books) is provided below. These and other helpful resources may be found in a local college bookstore, on the internet, or at your place of employment. You may also be able to borrow them from an apprentice or journey person in your trade.

Study Strategies and Exam Preparation Guide

The *Study Strategies & Exam Preparation Guide* is meant to be used in conjunction with this study guide. It provides direction and information on such areas as study habits, test preparation and test taking techniques.

Exam Preparation Guide website: www.aesl.gov.nl.ca/app/publications/exam_prep_guide.pdf

Plan of Training (POT)

A *Provincial Plan of Training* details the full scope of learning for a particular occupation, including both technical training competencies and industry experiences necessary to write an IP Red Seal exam (and complete the requirements for Red Seal Certification), or to write a provincial examination. The Plan of Training is based on the NOA.

POT Website: www.aesl.gov.nl.ca/app/plans.html

Red Seal Website

National Occupational Analysis - The NOA is a document used for Red Seal trades that describes the knowledge and abilities required by a fully competent tradesperson working in that trade. The content for the IP exam is based on the NOA.

Red Seal Website: www.red-seal.ca

Machinist PRACTICE Exam

This is **NOT** an IP exam. This is a practice exam provided by the Inter-provincial Standards Red Seal program. It was developed using similar question types to that of a Red Seal exam. The exam is intended to be used for self-assessment in preparation for writing an IP Exam.

Sample questions can be found at:

www.red-seal.ca/s.1mpl.2.2x.1mQ.5.2st.3.4ns-eng.html?tid=139

Glossary of Terms

The Red Seal website also lists a Glossary of Terms which will be helpful in preparing for your IP exam:

www.red-seal.ca/trades/machinists/2013n.4.1.1ppb_gl.4ss.1ry-eng.html

Resources – Book List

The books listed below are sorted according to NOA blocks as referenced throughout this study guide. You can use this list to help you obtain information on specific topics. It is not necessary to use these books specifically, as you may find others that will be equally beneficial.

Book	Block A	Block B	Block C	Block D	Block E	Block F	Block G	Block H
Technology of Machine Tools, 7 th edition	✓	✓	✓	✓	✓	✓	✓	✓
Interpreting Engineering Drawings, 5 th edition { <i>Part of Block A</i> }	✓							
Machining Fundamentals, 8 th edition	✓	✓	✓	✓	✓	✓	✓	✓

If you wish to obtain any of the resources listed above, here is the reference information:

- Technology of Machine Tools*, 7th edition, McGraw-Hill, Gill, Krar, and Smid, ISBN 978-0078010514
- Interpreting Engineering Drawings*, 5th edition, Nelson Canada, Jenson, ISBN 0176501991
- Machining Fundamentals*, 8th edition, Goodheart-Wilcox, 2004, Walker, J.R., ISBN 10-1590702492, 13-978-1590702499

Disclaimer

Various external resources (websites, textbooks) have been listed in this study guide to assist an individual in preparing to write an IP Red Seal Exam. This does not mean the Department of Advanced Education, Skills and Labour, Newfoundland and Labrador endorses the material or that these are recommended as the best resources. There may be other resources of equal or greater value to an individual preparing for an IP Red Seal exam. The Department of Advanced Education, Skills and Labour has no control over the content of external textbooks and websites listed, and no responsibility is assumed for the accuracy of the material.

Conclusion

We hope this guide has provided you with some useful tools as you prepare for your IP Red Seal exam. If you have any questions regarding your IP Red Seal exam please contact your regional office (*see Appendix A for a list of regional offices*).

We appreciate your comments and feedback regarding the usefulness of this study guide. If you have any comments or suggestions, we welcome your feedback. The feedback form at the end of this guide can be used for this purpose.

Appendix A: Regional Offices

If you have any questions regarding your IP Red Seal exam, please contact one of the following regional offices:

Department of Advanced Education, Skills and Labour
Apprenticeship and Trades Certification Division
Toll Free: 1-877-771-3737
www.aesl.gov.nl.ca/app/contact.html

Corner Brook
1-3 Union Street Aylward Building, 2 nd Floor Corner Brook, NL A2H 5M7
Telephone: (709) 637-2366 Facsimile: (709) 637-2519

Grand Falls-Windsor
42 Hardy Avenue Grand Falls-Windsor, NL A2A 2J9
Telephone: (709) 292-4215 Facsimile: (709) 292-4502

Clarenville
45 Tilley's Road Clarenville, NL A5A 1Z4
Telephone: (709) 466-3982 Facsimile: (709) 466-3987

St. John's
P.O. Box 8700 1170 Topsail Road Mount Pearl, NL A1B 4J6
Telephone: (709) 729-2729 Facsimile: (709) 729-5878

Happy Valley – Goose Bay
163 Hamilton River Road Bursey Building Happy Valley – Goose Bay, NL A0P 1E0
Telephone: (709) 896-6348 Facsimile: (709) 896-3733

Appendix B: Calculator Use

The picture below shows a calculator with the same functions as the one you will be provided with during your exam. It is advisable to borrow or purchase one with similar functions so that you can familiarize yourself with it before you write your exam.



Appendix C: Answer Sheet Example

With your exam you will be given an answer sheet like the one below. When answering multiple choice questions be sure to fill the circle completely and fill the circle that corresponds to the question on the exam.

Dual readhead scanner required to score this sheet

KEY ID
A B C D

SCORING & PRINTING OPTIONS:
 RESCORE MULTIPLE ANSWER SCORING
 This sheet always uses the "Total Only" scoring option.

1 T F A B C D E 26 T F A B C D E 51 T F A B C D E 76 T F A B C D E
 2 A B C D E 27 A B C D E 52 A B C D E 77 A B C D E
 3 A B C D E 28 A B C D E 53 A B C D E 78 A B C D E
 4 A B C D E 29 A B C D E 54 A B C D E 79 A B C D E
 5 A B C D E 30 A B C D E 55 A B C D E 80 A B C D E
 6 A B C D E 31 A B C D E 56 A B C D E 81 A B C D E
 7 A B C D E 32 A B C D E 57 A B C D E 82 A B C D E
 8 A B C D E 33 A B C D E 58 A B C D E 83 A B C D E
 9 A B C D E 34 A B C D E 59 A B C D E 84 A B C D E
 10 A B C D E 35 A B C D E 60 A B C D E 85 A B C D E
 11 A B C D E 36 A B C D E 61 A B C D E 86 A B C D E
 12 A B C D E 37 A B C D E 62 A B C D E 87 A B C D E
 13 A B C D E 38 A B C D E 63 A B C D E 88 A B C D E
 14 A B C D E 39 A B C D E 64 A B C D E 89 A B C D E
 15 A B C D E 40 A B C D E 65 A B C D E 90 A B C D E
 16 A B C D E 41 A B C D E 66 A B C D E 91 A B C D E
 17 A B C D E 42 A B C D E 67 A B C D E 92 A B C D E
 18 A B C D E 43 A B C D E 68 A B C D E 93 A B C D E
 19 A B C D E 44 A B C D E 69 A B C D E 94 A B C D E
 20 A B C D E 45 A B C D E 70 A B C D E 95 A B C D E
 21 A B C D E 46 A B C D E 71 A B C D E 96 A B C D E
 22 A B C D E 47 A B C D E 72 A B C D E 97 A B C D E
 23 A B C D E 48 A B C D E 73 A B C D E 98 A B C D E
 24 A B C D E 49 A B C D E 74 A B C D E 99 A B C D E
 25 A B C D E 50 A B C D E 75 A B C D E 100 A B C D E

ANSWER KEY INFO.
OF KEYS
ITEM COUNT

0	0	0	2
1	1	1	3
2	2	2	4
3	3		
4	4		
5	5		
6	6		
7	7		
8	8		
9	9		

PERFORMANCE ASSESSMENT
% OF TOTAL SCORE (00 = 100%) POINTS EARNED

0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

Bar Code

NUMBER CORRECT	
PERCENT CORRECT	
ROSTER NUMBER	
SCORE	
RESCORE	

COMBINED POINTS EARNED	
COMBINED PERCENT CORRECT	
LETTER GRADE	
SCORE	
RESCORE	

200 ITEM

MARKING INSTRUCTIONS
Use a No. 2 Pencil
Fill oval completely
Erase cleanly

STUDENT ID NUMBER

0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9

NAME _____
SUBJECT _____
PERIOD _____ DATE _____

Feedback Form Study Guide – Machinist

Please answer the following:

- (1) This Study Guide is a useful tool for exam preparation.
 strongly agree agree disagree strongly disagree
- (2) The topics contained in the guide are arranged in a logical order.
 strongly agree agree disagree strongly disagree
- (3) The design and format of the guide caught my attention.
 strongly agree agree disagree strongly disagree
- (4) The instructions throughout the guide are clear and to the point.
 strongly agree agree disagree strongly disagree
- (5) The resources listed in this guide are suitable and valuable.
 strongly agree agree disagree strongly disagree
- (6) The guide should contain more information.
 strongly agree agree disagree strongly disagree

Suggested information/resources to include:

Additional Comments:

Please complete this form and return via fax or mail to the following:

Department of Advanced Education, Skills and Labour
Apprenticeship and Trades Certification Division
Standards and Curriculum Unit
45 Tilley's Road, Clarenville, NL A5A 1Z4
Fax: (709) 466-3987

