

SKILLED**TRADES**^{BC}

Personal Record Book

*Instrumentation and Control
Technician*

This is your Record Book!

DO NOT SUBMIT TO SKILLEDTRADESBC

This is not required to achieve certification

- It is a record of your progress towards achieving certification in the trade
- It provides a record of your experience
- It is your responsibility to keep it up-to-date
- Take it with you if you change employers

Note: Employers and supervisors are not responsible for keeping your Record Book up-to-date. They are responsible for sign-off of hours and sign-off of competencies once you have achieved the required level of skills and knowledge.

APPRENTICE IDENTIFICATION

Trade: INSTRUMENTATION AND CONTROL TECHNICIAN

Legal First Name:		Legal Last Name:	
Suite Number:	Street Number and Name:		
City:		Province:	Postal Code:
Telephone Number:		Email Address:	

Work Safely!

A safe work attitude contributes to an accident free environment. Accident prevention and safe working conditions are the responsibility of both employers and employees.

Wear the required personal protective equipment, follow safe work practices and follow all safety regulations applicable to specific job activities.

Employer's responsibilities:

- Provide and maintain safety equipment and protective devices
- Ensure proper safe work clothing is worn
- Enforce safe work procedures
- Provide safeguards for machinery, equipment and tools
- Observe all accident prevention regulations
- Train employees in safe use and operation of equipment

Employee's responsibilities:

- Work in accordance with the safety regulations pertaining to job environment
- Work in such a way as not to endanger themselves or fellow workers.

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EMPLOYER INFORMATION

Originating Employer

Start Date:	End Date:
Employer:	
Contact Person:	
Address:	Phone:
	Email:
	Fax:
Supervisor/Journeyperson 1:	*TWID #:
	Phone:
	Email:
Supervisor/Journeyperson 2:	TWID #:
	Phone:
	Email:

*TWID # - Trade Worker Identification Number

If you have more than one employer during your apprenticeship, record the information for subsequent employers on the following page(s).

If your job ends or you change employers...

Before leaving your place of employment:

- Please have your sponsor update your Work Based Training hours on their [SkilledTradesBC Portal account](#).
- Update Record of Competencies with your supervisor.
- Confirm with your employer that your workplace hours have been reported to SkilledTradesBC, and if possible get a copy of all Work-Based Training Hours reports submitted.
- Notify SkilledTradesBC of the change in your employment by submitting an [Online Registration Request](#) with your new employer on the SkilledTradesBC Portal.

When re-employed...

You must be registered with your new employer before submitting any work-based training hours to SkilledTradesBC.

Subsequent Employers

Start Date:	End Date:
Employer:	
Contact Person:	
Address:	Phone:
	Email:
	Fax:
Supervisor/Journeyperson 1:	TWID #:
	Phone:
	Email:
Supervisor/Journeyperson 2:	TWID #:
	Phone:
	Email:

Subsequent Employers

Start Date:	End Date:
Employer:	
Contact Person:	
Address:	Phone:
	Email:
	Fax:
Supervisor/Journeyperson 1:	TWID #:
	Phone:
	Email:
Supervisor/Journeyperson 2:	TWID #:
	Phone:
	Email:

WORKPLACE HOURS

Instructions

Make an entry in this section each time your hours are reported to SkilledTradesBC.

1. Get a copy of the *Workplace Hours Report* from your employer.
2. Fill in the dates of the reporting period and the hours reported.
3. Enter your employer name, address and phone number.
4. Keep your Record Book in a safe place.

Workplace Hours

Workplace hours must be submitted to SkilledTradesBC by your employer on a regular basis. Your hours should be reported at least every six months; however, every three months is preferred.

At the beginning of your apprenticeship discuss the frequency of reporting with your employer.

Keeping Workplace hours up-to-date in your Record Book gives you the tools to better manage your apprenticeship. It provides you with the opportunity to:

- Follow up with your employer each reporting period to ensure your hours are reported on a regular basis.
- Discuss your progress with your direct supervisor/journeyperson on a regular basis.

RECORD OF COMPETENCIES

Instructions

The Record of Competencies is filled out and signed-off by the journeyperson supervising your work.

1. Know what skills are expected at each level of the program.
2. Ask the journeyperson to sign off on the competency when you have acquired the skills and are able to perform the task without supervision.
3. If the journeyperson agrees that you have the required skills, he/she will:
 - Record the date that the competency was achieved
 - Sign off on the competency
 - Enter his/her Trades Worker Identification Number (TWID #)

What is a Record of Competencies?

The Record of Competencies lists all competencies you should be knowledgeable in prior to receiving your certification. Keeping this section up to date will allow you to track your progress towards certification and demonstrate proficiency in the skills within the scope of your trade. Completion of the entire program should result in you becoming a skilled and knowledgeable journeyperson.

- Refer to this section periodically to ensure you are getting the work experience you need.
- Use the competencies as a guide to ensure work tasks are assigned so that you acquire the skills and knowledge required to be successful in the trade.

Review the Record of Competencies on a regular basis with your direct supervisor/journeyperson to ensure they have been completed.

Program Outline

The Program Outline provides detailed information on the scope of knowledge and skills expected at each level of the program, further defining the competencies listed in the Record Book. The Program Outline is a great resource for developing a training plan.

Download from: <https://skilledtradesbc.ca/instrumentation-control-technician>

Apprenticeship Toolkit

For general information on apprenticeship and tips for navigating the apprenticeship system in BC visit SkilledTradesBC's website to learn about the [apprenticeship basics](#).

LEVEL 1

IMPORTANT!

Download the Program Outline!

<https://skilledtradesbc.ca/instrumentation-control-technician>

Read the competency tables

Some competencies are taught in many levels

For detailed information about that competency, go to the Program Outline

THEORY

LINE A: PERFORM SAFETY RELATED FUNCTIONS

- Describe personal protective equipment (PPE) and safety equipment
- Describe lock-out requirements
- Explain standards and safe practices when working with AC and DC electrical circuits and devices
- Identify the types of personal safety systems
- Explain personal safety system applications

LINE B: USE TOOLS AND EQUIPMENT

- Describe the safe use of access equipment
- Describe the use of rigging, hoisting and lifting equipment

LINE C: ORGANIZE WORK

- Explain the purpose and applications of standards, codes and regulations
- Describe drawings and schematics
- Describe symbols

LINE F: INSTALL AND SERVICE PNEUMATIC AND HYDRAULIC EQUIPMENT

- Explain the purpose, operation and servicing of air supply systems

LINE G: INSTALL AND SERVICE ELECTRICAL AND ELECTRONIC EQUIPMENT

- Explain principles, sources, types and measures of electrical power
- Explain the principles of digital electronics in logic applications

LINE H: INSTALL AND SERVICE FINAL CONTROL ELEMENTS

- Explain the operation of relief valves

LINE J: INSTALL AND SERVICE CONTROL SYSTEMS AND PROCESS CONTROL

- Explain basic programmable logic controllers (PLCs) from introductory materials on PLCs

PRACTICAL

LINE A: PERFORM SAFETY RELATED FUNCTIONS

- Assess and manage workplace hazards
- Apply personal safety precautions and procedures
- Perform lock-out and tag-out procedures

LINE B: USE TOOLS AND EQUIPMENT

- Use and maintain hand and power tools
- Use test equipment
- Mount and install devices

LINE C: ORGANIZE WORK

- Configure and program instrumentation devices to manufacturers' specifications
- Access work-related safety regulations and publications
- Use P&ID/P&C drawings

LINE D: USE COMMUNICATION AND MENTORING TECHNIQUES

- Communicate with others

LINE E: INSTALL AND SERVICE PROCESS MEASURING AND INDICATING DEVICES

- Calibrate and service chart recorders and gauges using principles of links and levers
- Configure and calibrate pneumatic, electronic and digital measuring devices to process requirements

LINE F: INSTALL AND SERVICE PNEUMATIC AND HYDRAULIC EQUIPMENT

- Select, assemble and install tubing and assorted fittings (as per drawings provided)
- Calibrate pneumatic instruments to required specifications

LINE G: INSTALL AND SERVICE ELECTRICAL AND ELECTRONIC EQUIPMENT

- Apply related mathematical formulas
- Examine wiring installations in accordance with CEC requirements
- Apply the basic principles of DC electricity
- Use DC electrical equipment and instruments
- Apply the basic principles of AC electricity
- Use AC circuits

LINE H: INSTALL AND SERVICE FINAL CONTROL ELEMENTS

- Service regulators
- Service basic Emergency Shutdown Devices (ESDs)
- Service control valves
- Install and service actuators
- Install and service valve positioners on final control elements

LINE J: INSTALL AND SERVICE CONTROL SYSTEMS AND PROCESS CONTROL

- Create a simple PLC program using instruction list (IL) language

Supervisor Signature

NOTES FROM LEVEL 1

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LEVEL 2

IMPORTANT!

Download the Program Outline!

<https://skilledtradesbc.ca/instrumentation-control-technician>

Read the competency tables

Some competencies are taught in many levels

For detailed information about that competency, go to the Program Outline

THEORY

LINE A: PERFORM SAFETY RELATED FUNCTIONS

- Identify the types of personal safety systems
- Explain personal safety system applications

LINE C: ORGANIZE WORK

- Describe drawings and schematics
- Describe symbols

LINE E: INSTALL AND SERVICE PROCESS MEASURING AND INDICATING DEVICES

- Explain the purpose and application of a temperature compensated vortex steam flow meter

LINE F: INSTALL AND SERVICE PNEUMATIC AND HYDRAULIC EQUIPMENT

- Explain the installation and servicing of pneumatic systems
- Explain the types of hydraulic equipment, its specifications and hazards

LINE G: INSTALL AND SERVICE ELECTRICAL AND ELECTRONIC EQUIPMENT

- Explain the principles of digital electronics in logic applications
- Explain electronic equipment and its operation

LINE H: INSTALL AND SERVICE FINAL CONTROL ELEMENTS

- Explain the advanced diagnostics and operational capabilities of smart positioners

PRACTICAL

LINE C: ORGANIZE WORK

- Configure and program instrumentation devices to manufacturers' specifications
- Use P&ID/P&C/loop drawings

LINE E: INSTALL AND SERVICE PROCESS MEASURING AND INDICATING DEVICES

- Install, calibrate and service temperature measuring devices
- Install, calibrate and service level measuring devices
- Install, calibrate and service flow measuring devices to process requirements
- Calibrate and service signal conditioners to process requirements
- Install, calibrate and service mass measuring devices
- Install, calibrate and service density measuring devices
- Configure a multivariable steam or natural gas flow metering system

LINE F: INSTALL AND SERVICE PNEUMATIC AND HYDRAULIC EQUIPMENT

- Diagnose control devices for different types of hydraulic equipment

LINE G: INSTALL AND SERVICE ELECTRICAL AND ELECTRONIC EQUIPMENT

- Install and service electronic equipment to manufacturers' specifications

LINE H: INSTALL AND SERVICE FINAL CONTROL ELEMENTS

- Size and select control valves and actuators
- Install, configure and service smart valve positioners

Supervisor Signature

NOTES FROM LEVEL 2

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LEVEL 3

IMPORTANT!

Download the Program Outline!

<https://skilledtradesbc.ca/instrumentation-control-technician>

Read the competency tables

Some competencies are taught in many levels

For detailed information about that competency, go to the Program Outline

THEORY

LINE C: ORGANIZE WORK

- Describe symbols

LINE E: INSTALL AND SERVICE PROCESS MEASURING AND INDICATING DEVICES

- Explain the servicing requirements of speed measuring devices
- Explain the servicing requirements of position measuring devices
- Explain the servicing requirements of motion measuring devices
- Explain the theory and operating parameters of process solids analyzers

LINE I: INSTALL AND SERVICE COMMUNICATION SYSTEMS AND DEVICES

- Explain the basic structures and components of communication networks
- Explain the features and limitations on specified communication protocols

LINE J: INSTALL AND SERVICE CONTROL SYSTEMS AND PROCESS CONTROL

- Explain the basic operation of common industrial processes
- Explain basic control theory, actions and operational modes

PRACTICAL

LINE C: ORGANIZE WORK

- Estimate labour and material and complete work-related documentation
- Configure and program instrumentation devices to manufacturers' specifications given related hardware, software and firmware
- Develop drawings and schematics
- Use P&ID/P&C/loop drawings

LINE E: INSTALL AND SERVICE PROCESS MEASURING AND INDICATING DEVICES

- Install, calibrate and service consistency and viscosity measuring devices
- Calibrate and service vibration measuring devices using a vibration measuring system
- Calibrate and service process liquid analyzers to process requirements

LINE F: INSTALL AND SERVICE PNEUMATIC AND HYDRAULIC EQUIPMENT

- Align pneumatic controllers

LINE H: INSTALL AND SERVICE FINAL CONTROL ELEMENTS

- Configure and test VSD and VFD

LINE J: INSTALL AND SERVICE CONTROL SYSTEMS AND PROCESS CONTROL

- Calibrate and tune industrial control loops
- Diagnose process control problems on a live process
- Program PLC in ladder logic
- Troubleshoot various PLC, given appropriate instructional materials
- Program HMI software to communicate with a PLC or DCS

- Perform process optimization for an advanced supervisory control system

Supervisor Signature

NOTES FROM LEVEL 3

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LEVEL 4

IMPORTANT!

Download the Program Outline!

<https://skilledtradesbc.ca/instrumentation-control-technician>

Read the competency tables

Some competencies are taught in many levels

For detailed information about that competency, go to the Program Outline

THEORY

LINE D: USE COMMUNICATION AND MENTORING TECHNIQUES

- Explain mentoring techniques

LINE E: INSTALL AND SERVICE PROCESS MEASURING AND INDICATING DEVICES

- Explain the purpose and application of a temperature compensated vortex steam flow meter

LINE I: INSTALL AND SERVICE COMMUNICATION SYSTEMS AND DEVICES

- Explain the basic structures and components of communication networks
- Explain the features and limitations on specified communication protocols

LINE J: INSTALL AND SERVICE CONTROL SYSTEMS AND PROCESS CONTROL

- Explain the operation of common industrial processes using advanced control strategies
- Explain advanced control theory, actions and operational modes
- Explain SCADA protocols, configurations, equipment and servers

LINE K: INSTALL AND SERVICE SAFETY SYSTEMS AND DEVICES

- Explain the operation of process cameras and their applications
- Explain the types of Emergency Shutdown Devices (ESD), their purposes and testing procedures

PRACTICAL

LINE C: ORGANIZE WORK

- Configure and program instrumentation devices to manufacturers' specifications given related hardware, software and firmware
- Create basic schematics and drawings

LINE E: INSTALL AND SERVICE PROCESS MEASURING AND INDICATING DEVICES

- Calibrate and service gas chromatographs
- Calibrate and service flue gas analyzers
- Configure a multivariable steam or natural gas flow metering system

LINE I: INSTALL AND SERVICE COMMUNICATION SYSTEMS AND DEVICES

- Calibrate and service signal conditioners (A/D and D/A) to process requirements
- Configure and test communication protocols

LINE J: INSTALL AND SERVICE CONTROL SYSTEMS AND PROCESS CONTROL

- Calibrate and tune industrial control loops
- Diagnose process control problems on a live process
- Apply advanced control applications using microprocessor-based controllers
- Program PLC in FBD
- Program PLC in SFC
- Troubleshoot PLC
- Configure HMI operator graphics
- Program HMI software to communicate with a PLC or DCS
- Configure DCS equipment
- Program and service SCADA systems

- Perform process optimization for an advanced supervisory control system

LINE K: INSTALL AND SERVICE SAFETY SYSTEMS AND DEVICES

- Troubleshoot flame detection equipment
- Service flame safety systems
- Diagnose Safety Instrumented Systems (SIS)
- Install, configure and calibrate monitoring devices to process safety requirements

Supervisor Signature

NOTES FROM LEVEL 4

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MISSING COMPETENCIES?

To develop the best journeyperson possible employers should attempt to provide training in all competencies for the trade. This is not always possible.

If your employer is unable to provide training in any competency required for your trade, note that competency below. Competencies listed here will remain unsigned until your employer can provide training in that area or until you find an alternate way to gain the experience needed.

Competency:	Date:
Reason:	
Alternate plan:	

Competency:	Date:
Reason:	
Alternate plan:	

TECHNICAL TRAINING

Instructions

Keep a record of each level of technical training completed.

Level 1

Date Completed:	Training Provider:
Mark:	Instructor:

Level 2

Date Completed:	Training Provider:
Mark:	Instructor:

Level 3

Date Completed:	Training Provider:
Mark:	Instructor:

Level 4

Date Completed:	Training Provider:
Mark:	Instructor:

COMPLETION REQUIREMENTS

Instructions

Keep a record of each program completion requirement achieved.

INSTRUMENTATION AND CONTROL TECHNICIAN

- Level 1 - Technical Training
- Level 2 - Technical Training
- Level 3 - Technical Training
- Level 4 - Technical Training

- 6,000 Work-Based Training Hours

- Interprovincial Red Seal examination
- Recommendation for Certification signed by sponsor

Note: After all other completion requirements have been met, SkilledTradesBC sends a Recommendation for Certification form to the sponsor requesting signoff.

CERTIFICATIONS

Instructions

Keep a record of the credentials and endorsements you have earned, including the certification number and date of issue.

CREDENTIAL EARNED	NUMBER	DATE OF ISSUE

*If you have any questions, please contact SkilledTradesBC
Customer Service at customerservice@skilledtradesbc.ca
778-328-8700 or toll free (within BC) at 1-800-660-6011*