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FOOD PROCESSING HR COUNCIL
CONSEIL DES RH DU SECTEUR DE LA
TRANSFORMATION DES ALIMENTS

EDUCATOR'S GUIDE

HOW TO USE THE FOOD SKILLS LIBRARY

**RAISING THE STANDARDS
COMPETENCIES FOR THE
FOOD PROCESSING INDUSTRY**

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YOUR LEADER IN SKILLS DEVELOPMENT

CONTENTS

FPHRC ONLINE SKILLS LIBRARY

The Food Processing HR Council's Skills Library is the industry's first benchmark for skills and competencies required for working in the following functional areas within the food and beverage processing sector:

- ⊘ Food Safety
- ⊘ Food Production
- ⊘ Supply Chain & Logistics

- ⊘ Equipment & Maintenance
- ⊘ Research & Development Human
- ⊘ Resources

- ⊘ Marketing
- ⊘ Sales
- ⊘ Finance

Competency Units

The online library provides users with 400+ competency units, complete with performance and knowledge, at their fingertips! Job competencies are currently available by e-mail request.

Technical Skills and Job Descriptions

Technical skills and job descriptions have been developed for 18 occupations – and counting! Find out about the skills required for Import/Export Clerk; Material Handler; Shipper/Receiver and 15 other important occupations. The technical skills and job descriptions are just a click away on the Skills Library.

Essential Skills Profiles

Essential Skills are the nine foundational skills, including math, numeracy and oral communication, that are required for work, learning and life. You can download Essential Skills Profiles for 14 occupations from the Skills Library.

Skills Manuals and National Occupational Standards (NOS)

Skills Manuals and validated National Occupational Standards (NOS) are documents that are used consistently to ensure that job tasks in the industry are performed adequately by staff, at the right level of skill and understanding.

Skills Manuals and National Occupational Standards outline the required technical tasks, level of expertise and knowledge requirements as defined by food and beverage processing companies. Companies agreed upon these job requirements, thus becoming National Occupational Standards for the industry.

The competencies in the Skills Library form the foundation of Skills Manuals and National Occupational Standards. Skills Manuals and National Occupational Standards are currently available for the following occupations:

- Sanitation Worker
- Hazard Analysis Critical Control Point (HACCP) Coordinator
- Industrial Meat Cutter
- Food Scientist
- Shipper & Receiver
- Quality Control/Assurance Manager
- Laboratory Technician
- Import/Export Clerk
- Front Line Worker
- Food Process Control &

- Machine Operator
- Internal Auditor
- Baker
- Cheese Maker
- Fish Worker
- Brewmaster
- Product Development Chef
- Material Handler
- Food Technologist
- Production Lead Hand
- Quality Assurance/Control Technician

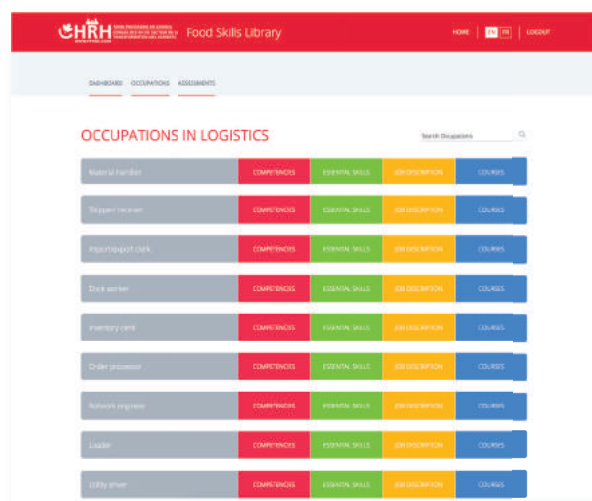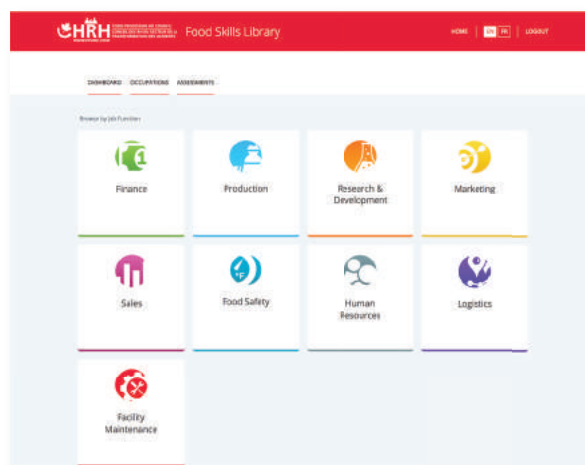FPHRC is always developing new Skills Manuals and National Occupational Standards. To access these documents, go to the Skills Library.

NAVIGATING THE SKILLS LIBRARY

Step 1:
Select the Functional area (e.g. Logistics)

Step 2:
Explore the job titles within the Functional area (e.g. Material Handler)

Step 3:
Select the Level of Worker (e.g. Level 1) to discover the required competencies for the job.
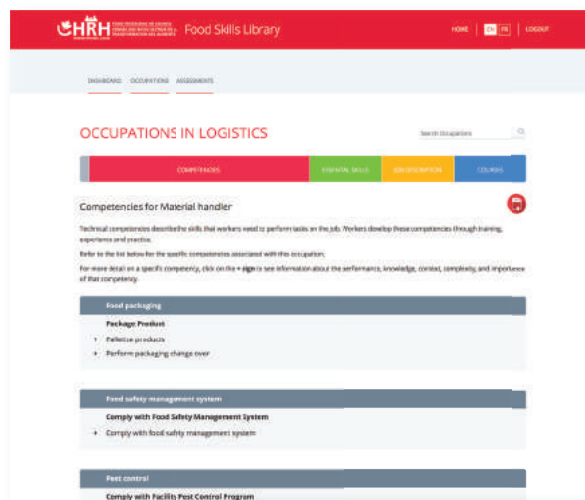
SPEAKING THE SAME LANGUAGE
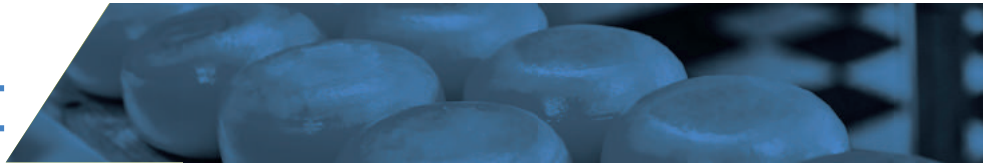
Here is some important terminology when working with the Skills Library.

Skills Manuals/National Occupational Standards

Benchmark/measure of competence, the knowledge and skills required to be competent in an occupation. Comprised of 3 main levels of analysis: Major Categories; Major Skills; Sub-Skills.

For Example:

CATEGORY	CUTTING
MAJOR SKILL	USE MEAT CUTTING TECHNIQUES
SUB-SKILL	PROCESS MEAT FOR MEAT PRODUCTS

Competence

Ability to perform work tasks correctly without supervision, described in a competency unit within the Skills Library.

Performance

The observable behaviours and outcomes that indicate the ability to carry out a task. Denoted by a 'P' in each Competency Unit in the Skills Library.

Knowledge/Supporting Knowledge

Information that provides an understanding for 'why' and 'how' tasks are performed. Denoted by a 'K' in each Competency Unit in the Skills Library.

HOW TO USE THE SKILLS LIBRARY

The competencies within the skills library provide support and guidance to training institutions and instructors for creating or redesigning training programs to meet the needs of the industry and to prepare employees for successful careers.

Competencies serve as the framework around which to build or modify program content by:

- ⊘ Developing a strategic view of future learning requirements
- ⊘ Updating curriculum and evaluation tools
- ⊘ Identifying group or organizational training needs
- ⊘ Identifying learning objectives and outcomes
- ⊘ Integrating standards for on- and off-the-job training
- ⊘ Identifying common and transferable skills in the occupation
- ⊘ Improving the relationship between formal training and industry needs

The Skills Manuals and National Occupational Standards developed from the competencies in the Skills Library also provide a framework for shareable information with students, career counsellors, industry associations and governments.

The Instructor's role has been evolving from delivery of general and broad instruction to becoming a facilitator of learning. Industry benchmarks, the advancement of technology and the growing recognition that a successful individual takes ownership for their own learning has been driving this change. Instructors are adopting performance-based methods and approaches and the competencies within the Skills Library are assisting with this transition.

USE 1: Reviewing and Revising Existing Training Programming and Content
Over time, all training programs will integrate the competencies within the Skills Library during initial development. However, existing programs can still be updated by cross-referencing or 'mapping' course content to the competencies in the skills library, as well as skills manuals and National Occupational Standards that have been developed by FPHRC.

Mapping Process:

1 Review the Skills and Sub-Skills from the competencies that closely relate to the existing training program.

2 Verify if the selected Skills and Sub-Skills are fully or partially covered by the existing training program.

3 If there is no fit, or a poor fit, identify which changes need to be made to ensure the program aligns with the competencies.

There will rarely be an exact fit between existing training programs and the competencies; however, the mapping exercise will help to identify areas of correlation to tasks and sub-tasks. The standards of Performance and Knowledge within each competency unit can then be examined to clarify if the training program meets and/or exceeds the current industry standards.

The mapping process has many strategic benefits, including:

- Ensuring an industry responsive curriculum
- Providing a benchmark for analysis set by industry
- Identifying specific tasks and sub-tasks to achieve in the training program

The mapping process provides an opportunity to review and update existing training programs. Where changes are required, the competencies provide the relevant content and contextual information.

USE 2: Developing New Training Programs and Curriculum
The world of teaching and learning has changed. In today's global environment, programs are described in terms of demonstrated competent performance upon successful completion. When developing a program that incorporates the competencies, the instructor must not only consider what content areas need to be included, but also the scope and depth of skill and knowledge the learner requires to competently perform the job.

Learner-Based Instruction

A learner-centered approach makes the purpose of training clear for the learner. In program design, learner-centered instruction is based on adaptive learning styles that use a variety of resources and provide opportunities for learners to demonstrate their skills and knowledge.

A learner-based instruction program can include any of the following teaching methods:

- Classroom-based training
- Simulation activities
- Practice in real conditions under guidance/ supervision of a competent professional
- Group work with other learners to discuss and learn from experiences
- Observation

- e-Learning
- Coaching and mentoring
- Partnerships
- Job Shadowing
- Self-directed study
- One-on-one instruction

The competencies within the skills library (as well as existing Skills Manuals and National Occupational Standards developed by FPHRC) can be used as the foundation for the development of learning activities and approaches.

Curriculum Design and Development

The competencies in the Skills Library define benchmarks of performance that are required to meet organizational objectives, as well as the skills and knowledge required to reach these benchmarks. The competencies also serve as learning outcomes for specific training interventions and learning materials.

When designing a competency-based training program, an instructor should:

- Identify the competencies in the Skills Library that are relevant to the learner's occupation
- Identify the specific competencies that the learner needs to develop, and communicate these competencies as the learning goals of the program
- Use the Performance and Knowledge sections of the relevant competencies to identify the learning objectives that need to be met by each training event or learning module

Design the learning program and individual sessions using appropriate teaching methods and approaches to ensure that the overall training aim and specific learning objectives are met It should be noted that the FPHRC does not recommend or endorse any specific instructional methodology for competency-based training. The instructor can develop the program with the aim of ensuring that specific learning outcomes are achieved using learning methods and approaches that incorporate various learning styles and preferences.

Integrated Learning Outcomes

Definitions:

> ***Aim*** – the overall purpose of the training
> ***Learning Outcomes*** – the collection of skills and knowledge the learner is expected to know after appropriate training

Education and training activities should have a clearly stated overall aim and learning outcomes to be achieved. In using the competencies:

> The ***Task*** provides an overall aim for the program, while the ***Sub-Tasks*** describe the more specific learning outcomes.

Sanitation
Handle and Prepare Chemicals
+ Store chemicals
+ Manage chemical accidents
Clean Food Processing Equipment and Tools
+ Verify food processing equipment, tools and work surface cleanliness
Implement Environmental Monitoring Process
+ Conduct organoleptic inspection
+ Conduct ATP hygiene monitoring
+ Conduct microbiological sampling

The overall aim of the program is 'To be competent in Sanitation.'
After instruction, learners are able to 'Handle and Prepare Chemicals' safely and efficiently.

Learners showing competent knowledge will understand the:

- ⊘ location of MSDS sheets for each chemical stored
- ⊘ location of the chemical storage area, risks of improper storage of chemicals
- ⊘ WHMIS and specific chemicals hazards and associated controls
- ⊘ PPE required for storing chemicals
- ⊘ safe handling procedures
- ⊘ location of the first aid station.

Learners showing competent performance will be able to:

- refer to SDS or MSDS and supplier recommended instructions for safe chemical storage
- identify appropriate and safe conditions when storing chemicals
- identify chemicals that require strict control or management
- separate incompatible chemicals for storage to prevent adverse reactions
- designate a secure and safe storage away from processing area, high-traffic areas and product storage
- confirm construction, integrity and proper labelling of all storage containers
- monitor safe loading, unloading and transport of chemicals throughout the facility
- develop procedures for accidental spills
- monitor temperature, humidity and ventilation of chemical storage area

After a period of supervised practice, learners will have developed their competence in Handling and Preparing Chemicals to ensure the proper handling, usage and storage. The learner should consistently perform in line with the statements of effective performance in the task.

Program delivery can vary greatly from short courses to long-term training programs; however, the strategy of using Tasks and Sub-Tasks from the competencies in the Skills Library can be applied to many different training situations.

Course Design Template			
Program:			
Course:			
Program Learning Outcomes	**Course Learning Outcomes**	**Topics/ Methods**	**Type of Evaluation**
Which Competencies does your course/ training incorporate?	What Tasks and Sub-Tasks do you want the learner to reliably demonstrate at the end of the program, course or training plan?	What topics, teaching methods, and activities will you use to ensure that the learner has met each outcome?	How will you know that the learner has reliably performed the knowledge and skills?

The following samples have been developed using FPHRC National Occupational Standards as a basis. The National Occupational Standards contain the competencies that are required of a specific occupation and can serve as the starting point for training development. Visit the FPHRC Skills Library to access the National Occupational Standards!

Sample Competency-Based Program Plan

Example using the NOS of Research and Development Professionals

Title	Learning to Conduct Experiments and Tests (derived from task title A2)
Target Group (derived from NOS scope of occupation)	Research and Development Professionals working for Canadian and multi-national companies of different sizes and in various sectors, including: • Meat and Poultry • Dairy • Seafood • Bakery • Fruit and Vegetables • Sugar/Confectionary • Beverages • Grain and Oil Seeds • Other
Type of Learning Module	4 days + self-study
Link to NOS	Task A2 (all elements)
Aim (derived from NOS Task A2)	To develop competence in Conducting Experiments and Tests
Learning Outcomes (derived from NOS Sub-Tasks)	At the end of the course, participants will be able to demonstrate that they can competently: • use various shelf-life testing methods, for example: • microbiological analysis • chemical analysis • accelerated storage trials • physical analysis • sensory analysis • determine the various factors that can affect shelf-life • select suitable products for shelf-life studies • use various types and methods of microbiological challenge tests
Content/syllabus (derived from NOS Performance and Knowledge)	• determine products and attributes to be tested • select and conduct shelf-life study/test method • determine storage temperature for duration of the study
Learning strategy/method	• Facilitator led (visuals, multi-media) • Guided group work • Brainstorming • Data sampling • Laboratory Capabilities • Assigned Reading • Independent Study
Additional support and learning material	(The learning supports and references given here are for demonstration purpose only) Taormina, P. (2012), Microbiological Research and Development for the Food Industry, CRC Press Earle, M and Earle, R (2007), Case Studies in Food Product Development, Woodhead Publishing Fuller, G and Raton, B. (2005) New Food Product Development: From Concept to Marketplace. CRC Press Sun, D-W. (2011) Handbook of Food Safety Engineering. John Wiley & Sons
etc	Feel free to add additional categories to your program that may be required by your organizations procedures and protocols

Sample Competency-Based Training Session Plan

Example using the NOS of Facility Maintenance Professional

NOS: Facility Maintenance Professionals	Task: A1	Subtask: 1.3
Length: 4 hours	Instructor: Mr. Smith	

Training Session Title: Inspecting a HVAC-R System to assess the need for repair

Description: Individuals will learn how to properly inspect a HVAC-R for the possible need for repair

Aim: To know the type of HVAC-R system and its corresponding components, and the appropriate accessories used to replace or repair parts.

Learning Outcomes: by the end of the training the individual will be able to competently:
Maintain heating, ventilation, air conditioning and refrigeration system (HVAC-R), maintain facility HVAC-R system, and inspect a HVAC-R system

Task A1
Sub-task 1.3

Resources needed:

- O   PowerPoint
- O   Pencils, paper, markers, chart Paper
- O   3D computer simulation

Specific Training Content

Part A: Introduction – 25 minutes (writing, presentation, PowerPoint)
- Diagnostic Assessment – what do they already know
     - Individual written responses
- Review of the main parts of a HVAC-R system

Part B: Reviewing the HVAC-R System – 25 minutes (brainstorm, group work, share findings)
- In groups create a table to write down all the parts of the HVAC-R system and their primary functions
- Share and collaborate with other groups

Part C: What are some common issues with a HVAC-R system? – 40 minutes (PowerPoint, class discussion)
- Identifying the problem: using your senses – smell, listen, touch, see,
- What could have caused it

Part D: Locating the issue – 2 hours (computer simulation)
- Use the 3D computer software to diagnose mechanical and electrical issues in HVAC-R system

Part E: Conclusion – 25 minutes (writing, discussion, assigned reading)
- Individual written follow up – "What did you learn in the session?"
                               "Do you still have unresolved issues/concerns?"
                               "Is there anything you are still unsure of?"
- Oral discussion of what was learned and what can be expected next
- Distribution and assigned reading of supported material

Sample Competency-Based Training Program Outline

Example using the NOS of Food Processor Operator

Session	Learning Outcomes (based on Task D1 and sub-tasks 1.1 - 1.4)	Learning Methods/ Activities	Resources Requires	Duration (approx.)
1	Follow company regulatory standards for quality inspections, sampling and verification of materials and in-process products	• Presentation by facilitator • Small group brainstorm/activity • Review case studies in groups	• Powerpoint • Flip chart and markers • Handouts • Case studies	180 mins
2	Use inspection and sampling equipment to monitor standards	• Hands-on-training in computer lab • Case study	• Computers with relevant software and hardware • Samples • Case study	60 mins
3	Accept or reject raw materials/ products based on comparison to quality specification, Certificate of Acceptance (COA) or Certificate of Conformance (COC)	• Hands-on-training referring to benchmarks, guidelines, and regulations	• Classroom with teaching aids and facilities • Printouts of acceptable raw materials/products • Regulations	60 mins
4	Identify non-conforming products	• Hands-on-training with samples • Simulation	• Simulator to demonstrate temperature based monitoring	60 mins
5	Verify that product and packaging meets company standards, specification and regulatory requirements	• Presentation by facilitator • Case studies	• Powerpoint • Flip cart and markers • Case study and handout	120 mins
etc	*	*	*	*

Learner Assessment

By using the competencies as a benchmark for measuring performance and knowledge, instructors are providing the learner with clear objectives and expectations for workplace practice.

Incorporating Competencies into the Assessment Process
Instructors can incorporate the competencies into the assessment process in a variety of ways:

USE 1: Use the Competencies to assess current levels of performance, knowledge and skill
The competencies can be used to assess current levels of performance, knowledge and skills to identify areas requiring development and improvement through training. This process is often referred to as Assessment for Learning

There are a variety of ways to conduct an Assessment of Learning including:

- Structured written test
- Professional discussion
- Pre-course questionnaire
- Workplace observation

USE 2: Use the Competencies to measure the learner reaction to the training
During the training program or activity, the instructor should encourage the learner to advocate for their own learning and set personal goals. This provides the instructor with the opportunity to assess the quality and effectiveness of their instruction on the learner. This process is often referred to as Assessment as Learning.

There are a variety of ways to conduct an Assessment as Learning including:

Using evaluations where the learner can provide the instructor with valuable information such as:

- The most important thing I learned was …
- I need help with …
- I would like to learn more about …

Designing a questionnaire for the learner to:

- Rate the presentation
- Determine if topics were covered in a thorough manner
- Indicate how valuable they found the training
- Explain how they plan to use their new skills
- Make recommendations for improvement

The Assessment as Learning approach is designed to be beneficial for both the learner and the instructor. The learner can tell the instructor what they have learned and what they may need help with. The instructor, in response, is better able to guide or customize the training material and approach.

**USE 3: Use the Competencies to assess the learning that has taken place**
After any learning opportunity, the instructor should assess the learning that has taken place with a formal evaluation. The competencies provide an instructor with benchmarks that clearly layout the desired outcomes of a competent individual. By incorporating the competencies in learning assessments, the instructor will be creating effective assessment tools that measure an individual's performance and knowledge.

Learner assessments can be conducted in a variety of ways, including:

- Test or examination – oral, written, performance, simulation, etc.
- In-depth discussion between the instructor and the learner
- Questionnaire to determine how much information has been retained
- Instructor observation of the learner on-the-job

CONCLUSION
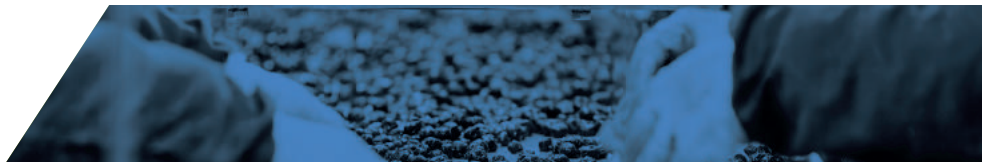
The competencies within the Skills Library – and corresponding Skills Manuals and National Occupational Standards – are effective tools for instructors to support the design and delivery of training programs.

Competency-based approaches to training design, delivery and assessment will:

- Promote better understanding between instructors and learners regarding the learning outcomes and content of education and training provisions (i.e. based on a consistent, nationally-recognized competency framework)
- Link education and training provisions to nationally recognized benchmarks (i.e. competencies)
- Provide added credibility to education and training provisions (i.e. proving national as well as local recognition)
- Provide a structure for the design of education and training programs for the industry
- Provide an objective framework for assessment and evaluation

By using the competencies as benchmarks, instructors can effectively develop tailored, competency-based curriculum to ensure learner success and prepare individuals for rewarding careers in the food and beverage manufacturing industry.

TEMPLATES

COURSE DESIGN TEMPLATE

Program:			
Course:			
Program Learning Outcomes	Course Learning Outcomes	Topics/ Methods	Type of Evaluation

COMPETENCY-BASED PROGRAM PLAN

Title	Learning to _____ (derived from Task _____)
Target Group (derived from NOS scope of occupation)	
Type of Learning Module	
Link to NOS	
Aim (derived from NOS Task ____)	
Learning Outcomes (derived from NOS sub-task titles)	At the end of the course, participants will be able to demonstrate that they can:
Content/syllabus (derived from NOS Performance and Knowledge)	
Learning strategy/method	
Additional support and learning material	

COMPETENCY-BASED TRAINING SESSION PLAN

NOS:	Task:	Subtask:

Length:	Instructor:

Training Session Title:

Description:

Aim:

Learning Outcomes:

Task:
Subtask:

Resources Needed:

Specific Training Content:

COMPETENCY-BASED TRAINING PROGRAM OUTLINE

Session	Learning Outcomes based on Task(s) _____ and sub-tasks _____	Learning Methods/ Activities	Resources Requires	Duration (approx.)
1				
2				
3				
4				
5				
6				

ASSESSMENT FOR LEARNING

Lacking in the following skills and knowledge	Corresponding Task/Sub-Task in the competencies	Current Level of Performance/ Knowledge

ASSESSMENT AS LEARNING

EXIT SLIP	Name: Date:

The most important thing I learned...

I need help with...

I would like to learn...

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