HAZARD IDENTIFICATION
RISK ASSESSMENT
AND
CONTROL

Department of Health and Safety Services
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1. INTRODUCTION

Hazard identification, risk assessment, and control are the starting points of all preventive efforts in VIU’s Health and Safety Program. Hazard identification, and the subsequent risk assessment and corrective actions, is completed to minimize the hazards associated with work activities. Risk assessment and hazard controls will provide the basis for the requirements needed to ensure a safe work place. Because hazards can change, and process change can create new hazards, risk assessment will require continuous evaluation.

2. PURPOSE

The purpose of this program manual is to describe the requirements and procedures established by VIU to identify hazards and to assess and control risk in the workplace thereby ensuring that all VIU employees work in the safest manner possible. This program applies to all VIU employees (faculty and staff) and students who perform work and may be exposed to hazards in the workplace.

3. SCOPE

This Health and Safety program deals specifically with the identification, assessment and control of hazards that may be encountered while performing work at or on behalf of VIU.

4. VIU HEALTH AND SAFETY POLICY 41.09

“Vancouver Island University is committed to promoting a safe and healthy working and learning environment. It is the priority of the University to ensure safe working conditions and job safety practices in the planning, budgeting, direction and implementation of the University’s activities.”

5. RESPONSIBILITIES FOR THIS PROGRAM

At VIU, everyone has a responsibility for safety. In BC, the Workers Compensation Act identifies the health and safety responsibilities of the employer, supervisors, and workers.
VIU
The employer, represented by the senior management group at VIU, has the greatest responsibilities with respect to health and safety in the workplace and is responsible for taking every precaution reasonable for the protection of a worker. The employer must ensure that formal hazard identification process is undertaken.

To assist with these responsibilities, VIU has delegated the administrative oversight of the VIU Health and Safety Program to the Department of Health and Safety Services.

Health and Safety Services (H&SS)
H&SS provides the co-ordination, technical expertise and administrative oversight for the VIU Hazard Identification, Risk Assessment and Control Program. H&SS will:
1) Develop, implement, manage and maintain the VIU health and safety program and its related procedures;
2) Educate, train, and create tools and resources for the VIU campus community to support implementation of the program and procedures;
3) Assist departments/faculties with their hazard identification and risk assessment requirements.

Administrative Heads (Deans, Executive Directors, campus administrators)
Administrative heads will:
1) Ensure that supervisors, faculty (instructors and technicians) and staff in their respective areas are aware of the VIU Hazard Identification, Assessment and Control Program.
2) Ensure that appropriate training in hazard assessment is made available to the faculty and staff in their respective areas.
3) Ensure that faculty and staff know their responsibilities for hazard assessment and document and complete them when required.

Supervisors
A supervisor is a person who instructs, directs and controls workers (and/or students) in the performance of their duties. Supervisors are responsible for making workers fully aware of the hazards that may be encountered on the job or in the workplace; ensuring that they work safely and respond to any of the hazards brought to their attention, including taking every precaution reasonable in the circumstances for the protection of a worker. Supervisors will:

1) Ensure that workers in their respective areas are aware of the VIU hazard identification, risk assessment and control program.
2) Ensure that appropriate training in hazard identification and risk assessment is made available to the faculty and staff in their respective areas.
3) Ensure that faculty and staff know their responsibilities for hazard identification and risk assessment and complete them when required.
4) Ensure that controls are implemented and available (e.g. PPE).
5) Retain hazard identification and risk assessment records.
6) Eliminate or minimize exposure to all hazards.
7) Provide and maintain the equipment required to control any hazard and ensure that the workers use the equipment when required.

Faculty and Staff (workers)
Worker responsibilities include:
1) Review the hazard identification, risk assessment and control program.
2) Attend required training and orientation sessions.
3) Discuss concerns with their supervisor and when necessary Health and Safety Services.
4) Report any hazards that could lead to unsafe conditions to their supervisor to ensure that corrective actions are taken without delay.

**Joint Occupational Health and Safety Committee**

1) Support and promote implementation of the hazard identification, risk assessment program and related training.
2) Participate in formal inspections to assist in hazard identification and recommend corrective action.

**Local Health and Safety Committee**

1) Participate in formal inspections to assist in hazard identification and recommend corrective action.

6. **REGULATORY AND BEST PRACTICE REQUIREMENTS**

BC Workers Compensation Act, Part 3, Section 115 (General duties of employers), 116 (General duties of workers), 117 (General duties of Supervisors)

WorkSafeBC Regulation, Part 3 –Workplace Inspections (3.5-3.8)

WorkSafeBC Regulation, Part 6, 7, 9, 32

7. **PROGRAM SPECIFICATIONS AND PROCEDURES**

A Hazard Identification, Risk Assessment and Control (HIRAC) Plan must be completed by the person performing the work and their supervisor before any new or modified equipment, machinery or work process is used or started. A HIRAC Plan must be reviewed at least annually and whenever there is a change in operations or procedures or there has been an incident involving work or processes previously assessed in a HIRAC plan.

There are five different steps involved in a HIRAC plan. These steps are tracked on the HIRAC Plan form. Each step is outlined in this section. The HIRAC Plan template can be found in Appendix 1.
Step 1 — Hazard Identification

Accurately identifying potential hazards in the workplace is the first step in developing a HIRAC. Conduct a work site inspection and observe how work tasks are performed, assess equipment workers are using, and analyze the design and layout of the work area. Consider non-routine operations, such as maintenance, cleaning operations, or changes in work cycles.

All the processes and situations that could possibly harm workers, students, or visitors that may be on campus must be considered. Hazards can be identified by reviewing manufacturers’ manuals, safety data sheets, and work site inspections, as well as conducting worker interviews and reviewing incidents in the workplace or similar work areas.

Other common hazards include exposure to chemicals, biological agents (bacteria, viruses, mould), biohazardous materials, motorized equipment, energized equipment, extreme temperatures, noise, vibration, violence work design (poor ergonomics), working alone, cash handling, and theft.

Step 2 — Risk Assessment

Once hazards are identified, the next step is to decide what to do about them—risk assessment. Risk assessment uses a rating system to quantify risk and prioritize mitigation. Risk is assessed by considering the probability of an event occurring in combination with the severity of harm the event would cause to the University community, the public and the environment if it occurred.
Each identified risk is given a rating using the Risk Rating Matrix (see following page), which is recorded on the HIRAC plan.

**Probability factors** are scored based on the likelihood of risk occurrence:
*Improbable - Unlikely – Possible – Likely – Almost Certain*

**Severity factors** are scored based on the impact of the risk:
*Insignificant – Minor – Significant – Major - Catastrophic*
**Risk Rating Matrix**

The *likelihood* of an event and its *consequence* are used to determine a risk rating of low, medium, high, or extreme.

<table>
<thead>
<tr>
<th>LIKELIHOOD</th>
<th>DESCRIPTR</th>
<th>HOW LIKELY (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Improbable – rare</td>
<td>less than 5</td>
</tr>
<tr>
<td>2</td>
<td>Unlikely</td>
<td>5 – 25</td>
</tr>
<tr>
<td>3</td>
<td>Possible</td>
<td>25 – 55</td>
</tr>
<tr>
<td>4</td>
<td>Likely</td>
<td>55 – 90</td>
</tr>
<tr>
<td>5</td>
<td>Almost Certain</td>
<td>90 - 99</td>
</tr>
</tbody>
</table>

**Consequence** = Degree of severity, with respect to goals/values, should the risk event occur.

<table>
<thead>
<tr>
<th>SCORE</th>
<th>IMPACT</th>
<th>DESCRIPTOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Insignificant</td>
<td>Negligible effects</td>
</tr>
</tbody>
</table>

**CONSEQUENCE**

STRAATEGIC VIEW: NORMAL DIFFICULTIES ACCOCIATED WITH PROGRAM PLANNING AND OPERATIONS

<table>
<thead>
<tr>
<th>SCORE</th>
<th>IMPACT</th>
<th>DESCRIPTOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Minor</td>
<td>Normal administrative difficulties</td>
</tr>
</tbody>
</table>

STRAATEGIC VIEW: DELAYS IN FULFILLING THE MANDATE OF THE INSTITUTION

<table>
<thead>
<tr>
<th>SCORE</th>
<th>IMPACT</th>
<th>DESCRIPTOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Significant</td>
<td>Delay in accomplishing program or project objectives</td>
</tr>
</tbody>
</table>

**Score 4**

Program or project re-design, re-approval and re-do. Fundamental re-work before objective can be met

STRAATEGIC VIEW: STRATEGIC PLAN REQUIRES MAJOR RE-ORIENTATION, APPROVAL; CONSEQUENT PROGRAM RE-WORK

**Score 5**

Severe/Catastrophic

Project or program irrevocably finished; objective will not be met

STRAATEGIC VIEW: MANDATE OF THE ORGANIZATION, OR ORGANIZATION ITSELF AS WE KNOW IT, IS FINISHED

Consequence

is the severity of effect upon goals, objectives, or values. The consequence criteria can be adjusted to be appropriate to lines of business (perhaps quantifiable in terms of budget dollars), and risk appetite. Many organizations develop a “scorecard” with several categories of consequence.

<table>
<thead>
<tr>
<th>LIKELIHOOD</th>
<th>CONSEQUENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>LOW</td>
</tr>
<tr>
<td>4</td>
<td>MEDIUM</td>
</tr>
<tr>
<td>3</td>
<td>HIGH</td>
</tr>
<tr>
<td>2</td>
<td>EXTREME</td>
</tr>
<tr>
<td>1</td>
<td>EXTREME</td>
</tr>
</tbody>
</table>

Score 1-5 = Low
Score 6-10 = Medium
Score 12-16 = High
Score 20-25 = Extreme
Step 3 — Hazard Controls

All hazards must be controlled either by removing the hazard or reducing its risk of harm to an acceptable level, both proactively (to prevent its occurrence) and reactively (to minimize harmful effects in the event it does occur). Often, more than one hazard control method must be implemented. For example, certain chemicals require a combination of proper storage, labeling, safe work practices, the use of Personal Protection Equipment (PPE) and emergency response equipment, procedures, and training in order to effectively control the hazards.

When considering how to reduce the risk, best practice is to follow the hierarchy of hazard controls. The controls should be implemented in order of effectiveness beginning with the most effective. All types of controls should be considered as they often work best in combination.
A. Elimination or substitution

Eliminating the hazard completely is always the first choice (e.g. redesign the work process). Substitution involves replacing the material or process with a less hazardous one.

Consider these questions:

- Can I find safer ways to perform the task? For example, if falling is a hazard, eliminate the risk by storing stock at lower heights so workers don’t have to reach the goods.
- Can I use something less harmful? For example, if stock is stored high, consider substituting a step stool for a rolling staircase with a railing. Make sure the substitution doesn’t create new hazards such as tripping.

B. Engineering controls

If it’s not practical to eliminate the hazards or substitute safer alternatives, engineering controls are the next best options. Engineering controls are physical changes to the workplace that prevent workers from being exposed to a hazard and may include machine guards, noise enclosures, ventilation to dilute the concentration of a hazardous substance. For example, while working at heights cannot be avoided in construction, guardrails can be installed to prevent falls from happening.

C. Administrative controls

Administrative controls involve identifying and implementing safe work procedures. A risk assessment will usually form the basis of these safe work procedures. Examples of administrative controls include implementing working alone procedures, training, and supervision.

D. Personal protective equipment and clothing (PPE)

Personal protective equipment is a common control, and is a last resort to protect workers from hazards that are difficult to eliminate or engineer out. For example, the use of protective eyewear will help to reduce the exposure risk to foreign bodies for work involving cutting and grinding.

Monitoring Control Measures

Controlling hazards requires ongoing effort. Monitor the effectiveness of the hazard controls in place and improve those that don’t measure up. Best practice includes

- Regular inspections.
- Testing (e.g. air quality, if applicable).
- Reviewing Injury/illness statistics.
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Date of Issue: September 2017
VIU.HSS.SAFETY.PROGRAM.13

- Identifying new hazards.
- Addressing safety concerns as soon as possible.

Step 4 — Implement selected hazard controls

The worker and the worker’s supervisor are responsible to ensure that the hazard control measures are maintained and implemented.

Hazard control measures include:

- The development of written safe work procedures.
- Training and orientation on safe work procedures.
- Follow up to ensure proper procedures are followed.

Step 5 — Assess effectiveness of selected controls

The worker and the worker’s supervisor are responsible for the evaluation of the effectiveness of the hazard control selected and to make improvements where deficiencies are identified. This can be done through regular inspections, testing and monitoring, evaluations of complaints or concerns received and investigations into near misses or other incidents.

Other situations that may prompt evaluation include:

- Repeated non-compliance, which could be of lack of training, supervision, or other problems in the control that cause persons to be reluctant to implement them. For example, implementing a control that creates another hazard.
- Failure to reduce risk. For example, testing may demonstrate that there has been no change in the measured risk after the control has been implemented. In other cases students/staff or others may have a continued complaint.
• Near Miss/Injury. A near miss or incident causing harm might demonstrate that the control measures are ineffective in some way.

8. TRAINING AND EDUCATION REQUIREMENTS

All VIU administration, faculty, and staff members are required to be oriented and instructed on the Hazard Identification, Risk Assessment and Control program, on how to use the Risk Rating Matrix, on how to complete the HIRAC plan and on the completion of the subsequent safe work procedures.

Supervisors should conduct orientations with all staff on the Hazard Identification, Risk Assessment and Control Program and on how to complete a HIRAC plan. In-person training is available on request by contacting VIU Health and Safety Services at (250) 740-6283.

Industry-specific training tools may be available through online resources. Please contact VIU Health and Safety Services at (250) 740-6283 for more information.

9. TOOLS AND RESOURCES AVAILABLE TO THE VIU COMMUNITY

VIU Safe Work Procedure Template – see Appendix 2

Chemical Safety Procedures Manual – see viu.ca/healthandsafety

Biosafety Procedures Manual (Biosafety Program) – see viu.healthandsafety
# Table 1: HIRAC Plan

<table>
<thead>
<tr>
<th>Dept./Faculty: __________________________</th>
<th>Job/Task: ______________________________</th>
<th>Date: ________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard(s)</td>
<td>Risk(s)</td>
<td>Risk Rating</td>
</tr>
<tr>
<td></td>
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</tbody>
</table>
Appendix 2 – Safe Work Procedure Template

SAFE WORK PROCEDURE: ____________________________

<table>
<thead>
<tr>
<th>Process/Equipment:</th>
<th>Location :</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedure Developed by :</td>
<td>Approved by :</td>
</tr>
</tbody>
</table>

Referenced VIU polices, programs, Provincial and Federal legislation, codes of practice, etc:

Required Personal Protective Equipment (check all that apply)

- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐

GENERAL INFORMATION

Add an overview the task or process

POTENTIAL HAZARDS

List any hazards identified in the completed HIRAC plan.

REQUIRED TRAINING

List any and all training required for this task/process.

PRE-OPERATIONAL SAFETY CHECKS

e.g. Ensure work area is dry and free from any slip/trip hazards.
e.g. Cordon off work area in high traffic areas

SAFE WORK PROCEDURES (step by step description of tasks)

<table>
<thead>
<tr>
<th>Step</th>
<th>Activity (description of tasks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Inspect required personal protective equipment and replace if required</td>
</tr>
<tr>
<td>2</td>
<td>If an emergency situation occurs while conducting this task or there is an equipment malfunction, shut the equipment off immediately and unplug it. REPORT ANY HAZARDOUS SITUATION TO YOUR SUPERVISOR IMMEDIATELY</td>
</tr>
</tbody>
</table>

SWP plan template available: www.viu.ca/healthandsafety