

# **Occupational Health and Safety**

## **Course Author:**

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## **Course Instructor:**

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## **Course Description;**

This course provides a basic knowledge of health and safety and will be useful to all employees, regardless of whether they are directly, or indirectly responsible for health and safety. Emphasis will be placed on legislation, chemical and biological agents, physical agents, psychosocial hazards, hazard recognition and assessment, hazard control, accident investigation, and other topics of interest. By the end of this course students will understand their responsibilities as related to the internal responsibility system, and that health and safety is everybody's responsibility.

## **Required Textbook:**

Kelloway, K., Francis, L. and Gatien, B. 2020, Management of Occupational Health and Safety, 8th Edition, Tophat, Toronto, ISBN 0176893016

## **Course Duration 12 – 14 Weeks:**

It is expected that students will progress through approximately one unit per week and spend about 3 hours per unit accessing the multimedia with interactive questions, working with self-help quizzes and participating in the discussion boards. Additional time will be required for the readings, midterm paper and final examination.

## **Multimedia Course Contents and Readings:**

### **Unit 1 – Introduction to Health & Safety**

Chapter 1 establishes the importance of occupational health and safety (H&S) from an economic, legal and moral obligation. This chapter also establishes the major obligations of all the stakeholders involved in H&S. Finally, the role of human resources management and health and safety professionals is discussed.

## **Learning Objectives:**

- Define Occupational Health & Safety, Occupational Injury, and Occupational Illness;
- Describe the financial and social costs associated with occupational injuries and illnesses;
- Trace the development of modern models of health and safety management;
- List and describe the role of the major stakeholders in Occupational Health & Safety;
- Explain the connection between human resource management and Occupational Health & Safety;
- Describe the links between human resource practices and health and safety.

## **Modules:**

Module 1: Definitions and Costs Associated with Occupational Injuries and Illnesses

Module 2: Historical Development of Modern Occupational Health and Safety

Module 3: Changing Perspectives on Risk and Liability

Module 4: The Importance of Health and Safety

Module 5: The Stakeholders

Module 6: Partnerships

Module 7: Health and Safety Professionals

Module 8: The Role of Human Resources

**Readings:** Chapter 1

## **Unit 2 – Legislative Framework**

Chapter 2 outlines the scope of legislation, focusing on the duties of each of the stakeholders under the legislation and the role of the joint H&S committees. The elements associated with the Workplace Hazardous Materials Information System (WHMIS) are also introduced, in addition to other important pieces of legislation

### **Learning Objectives:**

- Describe the regulatory framework surrounding occupational health and safety;
- Outline the duties of the major players under occupational health and safety legislation;
- Describe the structure and role of joint health and safety committees;
- List and describe the three central elements of a WHMIS program;
- Describe the purpose and basic provisions of the transportation of dangerous goods acts.

### **Modules:**

Module 1: Definitions and the Scope of Occupational Health and Safety Legislation

Module 2: Duties and Responsibilities of the Major Stakeholders

Module 3: Joint Health and Safety Committees

Module 4: Work Refusals

Module 5: Stop-Work Provisions (Ontario)

Module 6: Workplace Hazardous Materials Information System (WHMIS)

Module 7: Environmental Legislation

Module 8: Transportation of Dangerous Goods

Module 9: Corporate Liability

Module 10: Bill C-45 (now section 217.1 of the Criminal Code)

### **Readings: Chapter 2**

## **Unit 3 – Workers' Compensation**

Chapter 3 explains the historical beginnings of Workers' Compensation and the ensuing passage of legislation. Workers compensation has evolved over time to create a more safety-conscious work environment, and to change from an organization that simply just pays for work place accidents, disabilities and diseases to one that encourages H&S programs that aim to reduce workplace accidents, disabilities, and diseases. Employers are ultimately responsible for ensuring that compensation systems are administered efficiently and funded equitably through assessments of employers. Employers are accountable to their employees.

### **Learning Objectives:**

- Outline the goals and methods of Workers' Compensation Boards (WCBs);
- Discuss the problems associated with compensating for psychological conditions and occupational illnesses;
- Describe the assessment methods of WCBs;
- Understand the methods of calculating injury frequency and severity rates.

### **Modules:**

Module 1: Historical Roots

Module 2: Workers' Compensation in Canada

Module 3: Medical Aid and Incident Prevention

Module 4: Social Goals of Workers' Compensation

Module 5: Occupational Diseases and Workplace Stress

Module 6: Assessments

Module 7: Experience Rating

## Module 8: Reporting Requirements

### Reading: Chapter 3

#### **Unit 4A – Hazard Recognition and Assessment**

Chapter 4 introduces students to the primary goals of hazard recognition and assessment. The primary goals of these programs are to reduce incidents, accidents, injuries, and property damage. The methods introduced to identify hazards include safety experts; plant, task, and job analysis; reports and audits; and use of monitoring instruments. Hazard analysis is used to gather specific information about the hazards in a given system, and then they these hazards are rates according to their degree of risk. The risk is calculated based on the probabilities, consequences and exposures an individual may be exposed to. Knowing the risks and the hazards a person may be exposed to, can lead to a reduction of these undesirable events.

#### **Learning Objectives:**

- Identify the sources of workplace hazards;
- Describe methods to systematically examine these hazards;
- List ways to assess the probability, exposure and consequences of the hazards;
- Describe the concept of risk assessment;
- Recognize and define the terminology associated with hazard recognition;
- Employ the various techniques available to determine risk;
- Outline the effects of and necessity for task analysis;
- Be able to discuss various types of trauma, based on human activity;
- Describe the nature and etiology of repetitive strain injuries;
- Describe the techniques of manual lifting;
- Recognize the ergonomic factors associated with hazard recognition and assessment;
- Describe the components of a hazard identification program.

#### **Modules:**

Module 1: Terminology

Module 2: Hazard Recognition and Identification

Module 3: Hazard Identification Programs

Module 4: Types of Injuries

**Readings:** Chapter 4

#### **Unit 4B – Hazard Control**

Chapter 4 discusses the control of hazards and the payoffs to organizations. There are three control stages discussed: precontact, contact, and postcontact. At the precontact stage, control is achieved through training, safety awareness, administrative controls, engineering controls, purchasing, housekeeping, preventive maintenance, and machine guarding. Strategies at the contact stage include stabilizing the event. Postcontract control is intended to minimize and reduce the damaging effects of hazards.

#### **Learning Objectives:**

- Define the many terms used in hazard control;
- Distinguish between events and actions that constitute pre-contact, contact and post-contact control;
- Describe the requirements for machine guarding;
- Explain the requirements for lockout procedures and confined space entry;
- Discuss the necessity of work permits;
- Explain the concept of source-path-human control;
- Explain the concept of safety awareness and give examples of awareness campaigns.

**Modules:**

Module 5: Hazard Control

Module 6: Engineering Control

Module 7: Administrative Control

Module 8: Personal Protective Equipment

Module 9: Source-Path-Human Controls

Module 10: Monitoring/Auditing

Module 11: Recordkeeping

**Readings:** Chapter 4

**Unit 5 – Physical Agents**

Chapter 5 introduces the four physical agents that are commonly found in industry, including noise, vibration, thermal stress, and radiation. In this chapter, a great deal of information is introduced on noise since all employees are exposed to noise in one form or another. Basic elements of vibration, thermal stress and radiation are included. Particularly, discussion on the differences between ionizing and non-ionizing radiation are introduced. Prevention policies and programs that can help to control worker exposure to physical agents is described.

**Learning Objectives:**

- Define the numerous terms relating to physical agents;
- Explain the human relations to the various agents, particularly noise and radiation;
- Discuss the management of physical agents;
- Outline the actions of these agents on human physiology;
- With the use of the chapter appendix, understand the methods of calculating noise levels and exposures.

**Modules:**

Module 1: Noise

Module 2: Types of Hearing Loss

Module 3: Noise Control

Module 4: Noise Exposure Standards

Module 5: Vibration

Module 6: Thermal Stress

Module 7: Radiation

**Readings: Chapter 5**

**Unit 6 – Chemical and Biological Agents**

Chapter 6 introduces both chemical and biological agents. Chemical agents are described as being the major cause of occupational diseases. These agents can be controlled if guidelines such as those provided in WHMIS and OH&S legislation are rigorously endorsed and followed. All workers should be aware of the potential risks they face if they are exposed to these agents, and be trained in the proper use and handling in order to avoid exposures that could cause occupational diseases in the future.

**Learning Objectives:**

- Define the numerous terms relating to chemical and biological agents;
- Explain the interactions of various chemical and biological groups;
- Discuss the management of chemical and biological agents;
- Describe the monitoring requirements and instrumentation used;

- Outline the actions of chemical and biological agents on human physiology;
- Explain the health and safety risks of airborne respirable contaminants and aerosols;
- Discuss the methods of measuring airborne contaminants.
- Explain the different control of exposures

**Modules:**

Module 1: Chemical Agents

Module 2: Toxicology: An Overview

Module 3: Characteristics and Properties of Solvents

Module 4: Control of Exposures

**Readings:** Chapter 6

**Unit 7 – Psychosocial Hazards**

Chapter 7 discusses the concept of stressors, stress, and strain in great detail. Since stress can have such serious consequences that can lead to strain reactions such as psychological, physical, behavioural or organizational, organizations are encouraged to introduce interventions such as primary and secondary programs to help minimize the damage caused by unavoidable stressors. The most successful stress management initiatives involve both the employee and the organization. Workplace violence and sexual harassment are critical issues and new legislation has been enacted to deal with these in the workplace. Other emerging workplace stressors are identified as injustice and technology are introduced and discussed.

**Learning Objectives:**

- Describe and distinguish among the concepts of stressor, stress and strain;
- Explain the transactional model of stress and its implications;
- Identify major sources of stress in the workplace;
- Discuss the psychological, physical, behavioural and organizational consequences of stress;
- Describe and distinguish among primary, secondary and tertiary stress interventions;
- Discuss violence, sexual harassment, injustice and technology as emerging workplace stressors.

**Modules:**

Module 1: Stressors

Module 2: Stress

Module 3: Strain

Module 4: Managing Psychosocial Hazards

Module 5: Spotlight on a Stressor: Injustice at Work

Module 6: Spotlight on a Stressor: Technology

Module 7: Spotlight on a Stressor: Work-Family Conflict

**Readings:** Chapter 7

**Unit 8 – Workplace Violence**

Chapter 8 brings to our attention the issue of workplace aggression and violence, as well as sexual harassment. The rising incidents of workplace violence which can result in deaths and or serious harm to individuals, has resulted in many jurisdictions enacting health and safety legislation requiring employers to deal with these issues. A better understanding of situational and imminent risk factors in the workplace and ways to reduce this risk is important. There are a number of prevention strategies that can be employed to reduce the incidence of workplace aggression, violence and sexual harassment.

**Learning Objectives:**

- Define and distinguish among violence, aggression, and harassment;
- Identify the risk factors for workplace violence;
- Explain the idea of imminent risk;
- Describe ways to reduce the risk of workplace violence;
- Define sexual harassment;
- Describe what organizations should do to reduce the incidence of workplace sexual harassment.

**Modules:**

Module 1: Defining Workplace Aggression and Violence

Module 2: The Prevalence of Workplace Aggression

Module 3: Risk Factors for Workplace Aggression

Module 4: Prevention

Module 5: Sexual Harassment

**Readings:** Chapter 8

**Unit 9 – Training**

Chapter 9 discusses the importance of training. Even though various pieces of legislation assert the right of employees “the right to know”, many employees claim that they have not been trained. Employers who do not train employees could face charges of criminal negligence. Training can be described under a general training model known as the ISD model, which emphasizes the importance of a complete needs analysis before training is designed and offered. Needs analysis includes a consideration of the organization, the job, and the person. The content of training, who will receive training, and who will act as the trainer is also important. On completion of training, an evaluation must be conducted to determine the trainees’ reactions to the training, and whether training has been transferred to the workplace such that it impacts on organizational outcomes.

**Learning Objectives:**

- Discuss the importance of occupational health and safety training;
- Identify the components of a training program;
- Explain the role of a needs analysis when designing a training program;
- Discuss issues that arise in training design and delivery;
- Describe various options for the delivery of health and safety training programs;
- Evaluate the measurement concerns surrounding organizational measures of occupational safety training effectiveness;
- Describe some common health and safety training initiatives including safety orientation, first-aid training and WHMIS.

**Modules:**

Module 1: The Role of Occupational Health and Safety Training

Module 2: Health and Safety Training Programs

Module 3: Common Safety Training Initiatives

**Readings:** Chapter 9

**Unit 10 – Motivating Safety Behaviour at Work**

Chapter 10 discusses the efforts that can be made to increase employees’ safety motivation, including the use of behaviour modification and goal setting. A positive safety climate and transformational safety leadership is important to setting the stage for safety behaviours. Management commitment to safety appears to be a critical variable in H&S initiatives.

**Learning Objectives:**

- Discuss the importance of safety behaviour in the workplace;
- Identify the categories of safety behaviour;
- Explain the importance of individual motivation in safety behaviour;
- Describe behaviour modification approaches to motivating safety;
- Recognize the importance of goal setting and feedback in safety behaviour in the workplace;
- Evaluate the role of organizational support for safety in contributing to safety behaviour;
- Discuss the role of the safety climate in the performance of safety behaviours;
- Understand the role that safety leadership plays in creating a safe work environment;
- Outline how to implement an effective occupational health and safety program.

**Modules:**

Module 1: Safety Behaviour

Module 2: Motivating Safety Behaviour

Module 3: Increasing Opportunity for Safety Behaviour

Module 4: Organizational Health and Safety Management Systems

**Readings:** Chapter 10

**Unit 11 – Emergency Planning**

Chapter 11 discusses the goals of an emergency plan aimed at reducing injuries and property damage, and to restore the organization to its normal operations. Emergency preparedness includes preparing an emergency response plan, designating and training those responsible for its implementation, and communicating it to employees. Developing an evacuation plan, establishing a fire-prevention and suppression program, and controlling fire hazards are other elements of emergency preparedness.

**Learning Objectives:**

- Define an emergency;
- List the key elements in emergency preparedness;
- Describe the concept of an emergency plan;
- Explain the necessity of having emergency and evacuation plans;
- Describe the principles of fire prevention and suppression.
- Discuss first aid requirements

**Modules:**

Module 1: Introduction

Module 2: Emergency Preparedness

Module 3: Getting Back to Normal

**Readings:** Chapter 11

**Unit 12 – Incident Investigation**

Chapter 12 discussed the intent and steps of an incident investigation. This is a very important part of the OH&S program. The goal of accident investigation is to identify direct and contributing causes and to ensure that the accident does not occur. Timing and severity are the important variables in investigation. Information collected can be grouped under human, situational and environmental factors. Investigation methods utilized include observations or walkthroughs, interviews, and reenactments, using cameras and computers. A review of company H&S records can also aid in determining causes. The reporting and analysis of information collected is the last step in accident investigation.

**Learning Objectives:**

- Describe the intent and steps of an accident investigation;
- Gather information to analyze the human, situational and environmental factors contributing to accidents;
- Outline the legal requirements of accident investigation results;
- Explain the concept of a walkthrough survey;
- List the steps to conducting interviews concerning an accident;
- Conduct a reenactment;
- Complete the various types of incident, accident and injury reports.

**Modules:**

Module 1: Rationale for Incident Investigation

Module 2: Critical Factors in the Investigative Process

Module 3: Types of Information Collected

Module 4: Investigative Methods

Module 5: Investigative Tools

Module 6: Incident/Accident Reports

Module 7: The Psychology of Incident: Cognitive Failures

**Readings:** Chapter 12

**Unit 13: Disability Management and Return to Work**

Chapter 13 explores the costs of workplace injury and the benefits that disability management programs bring to employees, employers, and society at large. This chapter discusses the impact of human rights legislation and the requirements that employers have to accommodate disabled workers. The goal of disability management programs is on prevention and early intervention when injuries or illness occur with improved outcomes, including earlier return to work and sustained return to work. Disability management programs are most effective when fully integrated into a workplace system that is supportive of safety and return to work. These programs are more successful when all stakeholders work together to help employees achieve the psychosocial and financial benefits that come with full and active participation in the workforce.

**Learning Objectives:**

- Articulate the financial and legal motivations for disability management programs;
- Describe the goals and values of disability management programs;
- Discuss the important outcomes used to evaluate disability management efforts;
- Argue in favour of the systems approach to disability management;
- Discuss the best practices in disability management programming;
- Identify the stakeholders in disability management programs;
- Consider potential barriers to successful disability management.

**Modules:**

Module 1: Introduction

Module 2: Disability Management

**Readings:** Chapter 13

**Unit 14 – Workplace Wellness: Work-Family and Health-Promotion Programs**

The final chapter introduces students to a number of programs that organizations can offer to address work-family and worksite health-promotion programming. Unfortunately, research has not yet confirmed whether such programs offer significant benefits to organizational outcomes. However, some evidence exists to show support for work-family programs. As well, health-promotion programs can be successful in changing



individual behaviour to enhance health. What is evident is that there is an increase in employee morale as a result of making health-promotion and family-friendly programs available in the workplace.

**Learning Objectives:**

- Discuss the concept of healthy workplaces;
- Describe the goals of worksite health-promotion and family-friendly programs;
- Discuss the various types of worksite health-promotion and family-friendly programs;
- Comment on the effectiveness of various types of worksite health-promotion and family-friendly programs;
- Identify variables critical to the success of worksite health-promotion and family-friendly programs;
- Discuss the importance of systematic evaluation of worksite health-promotion and family-friendly policies.

**Modules:**

Module 1: Introduction

Module 2: Work-Family Conflict: Family- Friendly Policies in the Workplace

Module 3: Family- Friendly Policies

Module 4: Family- Friendly Policies: An Evaluation

Module 5: Health-Promotion Programs

Module 6: Developing a Successful Worksite Health-Promotion Program

Module 7: Issues with EFAPs and WHP Programs

Module 8: Unintended Consequences of WHP Programs

Module 9: Overall Evaluation

**Readings:** Chapter 14

**Learning Aids:** Self help quiz attached to each unit of the course.

**Participation:** Discussion board moderated and graded by the instructor. Students are required to post 3 substantial submissions (400 words or more) during the course on assigned questions (topical and case study based) that demonstrate knowledge and skills congruent with the Learning Objectives. There will be instructor feedback on all submissions.

There will also be a General Discussion Board moderated by the instructor in which questions can be asked on any course topic.

**Midterm Paper:** A midterm paper of approximately 1500 words dealing with a situation involving occupational health and safety to be submitted online approximately 6 weeks after the start of the course. Concepts and theories to be applied in the paper shall be from Units 1 to 6. The instructor shall grade and comment on each paper, which shall be returned to the student.

**Final Examination:** Proctored, opened book, online examination consisting of essay question(s). Any part of the entire course content may be examined. Government issued photo identification will be required to verify the student's identity.

**Grade Weightings of Course Components:**

Participation in Discussion Board: Weighting 10%

Midterm Paper: Weighting 35%

Final Examination: Weighting 55%: (It is required to pass the final examination with a grade of at least 65% in order to pass the course, regardless of grades earned in other components.)

**Passing Grade for the Course: 65%**