

<b>Semester</b>	5		
<b>Course Code:</b>	ENCM 31732		
<b>Course Name:</b>	Occupational Health and Safety		
<b>Credit Value:</b>	2		
<b>Status</b>	Compulsory for BSc in ENCM degree Optional for BSc Honours in ENCM degree		
<b>Pre-requisites</b>	ENCM 21722		
<b>Co-requisites</b>	None		
<b>Hourly Breakdown</b>	Theory	Practical	Independent Learning
	26	12	62

**Intended Learning Outcomes:**

After completion of this course unit, the student will be able to;

1. identify types of hazards that pose a threat to occupational safety and health,
2. analyze potential safety and health hazards citing the occupational health and safety regulations,
3. propose measures to control and eliminate occupational health hazards,
4. discuss the roles and responsibilities of employers and employees on health and safety in the workplace, and
5. suggest integrated protective strategies to maintain the personal health and safety, workplace and the surrounding environment.

**Course Content:**

Concept of safety, Philosophy and Psychology of safety: safety terminology; Accident causative factors, Accident problem, Reasons for prevention, Accident prevention; Classification of occupational health hazards; Ergonomics, constituents of ergonomics, Application of ergonomics for safety and health; Dangerous properties of industrial chemicals and occupational health effects, routes of entry of toxic material into human body, Permissible exposure limits, Threshold limit values; Difference between occupational exposure limits and ambient exposure limits along with the reasons; Toxic chemicals storage and control of hazards; Globally Harmonized System for classification and labelling of chemicals; Airborne Emissions: Aerosols, mists and fog, fumes, dusts, smoke, fibres and moulds effects and control; The Aural Environment: Noise and Hearing, Principles of Noise and Vibration Control, Noise Measurements, Ear Protection; Electricity and Hazards, Sri Lankan standards, effects of electrical parameters on human body; Safety measures for electric works; Classification of fire and extinguishers, fire prevention and protection system; Assessment of thermal environment, Physical hazards – Ionizing (alpha, beta, gamma, x-rays) and Non-ionizing (Microwaves, Lasers) Radiation; Biological Hazards – Infectious Diseases at work;

Major international/national organizations for setting guidelines for occupational health and safety – ILO (International Labor Organization), NIOSH (National Institute for Occupational Safety and Health), OSHA (Occupational Safety and Health Administration); Need of PPE, Sri Lankan standards, factors of selection of PPE, non-respiratory equipment, respiratory equipment; Hazards, Risks and detection techniques, risk analysis and control, Failure mode effect analysis (FMEA), Hazard ranking; Fault tree analysis, Event tree analysis (ETA); Major accident hazard management, onsite and off-site emergency plans; Major accident hazard management, onsite and off-site emergency plans.

**Teaching /Learning Methods:**

A combination of lectures, industrial visits, computer based learning, self-studies and group presentations.

**Assessment Strategy:**

Continuous assessment and end of semester examination. Percentage given for each sub component indicates the percent contribution to the final marks.

Continuous Assessment 40 %		Final Assessment 60 %		
Details:		Theory 60	Practical -	Other -
Quizzes	10			
Assignments	10			
Industrial visit/Report	10			
Presentation	10			

**Recommended Readings:**

1. Mansdorf S. Z. (2019). Handbook of Occupational Safety and Health, Third Edition, John Wiley & Sons, Inc.
2. Alli, B. O. (2008). Fundamental principles of occupational health and safety, International Labour Office – Geneva: ILO.
3. Erickson, P. (1996). Practical Guide to Occupational Health and Safety, Academic Press.
4. Reese, C. D. (2017). Occupational Health and Safety Management, A Practical Approach, Third Edition. CRC Press.
5. Galloway, D. A. (2019). Safety WALK Safety TALK: How small changes in what you THINK, SAY, and DO shape your safety culture. CreateSpace Independent Publishing Platform.