



UNIVERSITI TEKNOLOGI MARA

SCE513: SCIENCE LABORATORY SAFETY

Course Name (English)	SCIENCE LABORATORY SAFETY APPROVED
Course Code	SCE513
MQF Credit	3
Course Description	Laboratory investigations are essential for the effective teaching and learning of science. A school laboratory investigations an experience in the laboratory, classroom, or the field that provides students with opportunities to interact directly with natural phenomena or with data collected by others using tools, materials, data collection techniques, and models Inherent in laboratory-based activities is the potential for injury. As professionals, teachers of science have a duty of care to ensure the safety of students, teachers, and staff. Duty of care is defined as an obligation, recognized by law, requiring conformance to a certain standard of conduct to protect others against unreasonable risk As such, science educators must act as a reasonably prudent person would in providing and maintaining a safe Learning environment for their students. This course will expose science teachers with safety and health knowledge and management to be applied at school laboratories. Safety and the minimisation of risk (not avoidance of risk) is of central importance in science and science education - and this is the reason that laboratories, specialised equipment and appropriate procedures need to be used and skills developed. Topics include fundamental of OSH management for science teachers , safe handling of biological, chemical, fire, electrical and radiation safety.. Focuses on safety regulations and recommendations, and proper materials handling in school laboratories which also covers the laboratory risk assessment, medical surveillance requirements as part of an occupational health program, routine safety surveillance activities, identification of appropriate decontamination methods for biological, radiological, chemical , elctrical and fire accidents, spills, first aid requirement, accidents . injury and insurance in laboratories
Transferable Skills	Lab safety and health management Lab safety hazard risk assessment and risk control
Teaching Methodologies	Lectures, Blended Learning, Case Study, Practical Classes, Workshop, Journal/Article Critique
CLO	CLO1 1. To identify hazard for occupational safety and health in laboratory and science classroom CLO2 2. To conduct risk assessment for occupational safety and health hazard in laboratory and science classroom CLO3 3. To apply risk control for safety and health in laboratory and science classroom
Pre-Requisite Courses	No course recommendations
Topics	
1. Introduction to Safety and Health Management 1.1) Safety Hazards in laboratory	
2. Introduction to Safety and Health Management 2.1) Laboratory Waste Management	
3. Risk Assessment in Laboratory 3.1) Risk matrix for safety and health hazard management in laboratory	
4. Introduction to Safety and Health Management 4.1) Heath Hazard in laboratory	
5. Risk Control 5.1) Introduction to Hierarchy of Risk Control	

6. Risk Control 6.1) Engineering Control
7. Risk Control 7.1) Admin Control
8. Risk Control 8.1) PPE
9. Accidents and Incidents Management in Laboratory 9.1) Emergency Response Team and Fire Drill
10. Accidents and Incidents Management in Laboratory 10.1) First Aid
11. OSH in School 11.1) Hazard Recognition and Control
12. HIRARC report 12.1) N/A

Assessment Breakdown	%
Continuous Assessment	100.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	Hazard Identification	20%	CLO1
	Final Project	HIRARC Report for OSH laboratory management	30%	CLO3
	Group Project	Risk Assessment for hazard management	20%	CLO2
	Quiz	Laboratory safety rules, symbols and hazard	30%	CLO1

Reading List	Recommended Text	<ul style="list-style-type: none"> National Research Council 2011, <i>Prudent Practices in the Laboratory Handling and Management of Chemical Hazards</i>, 2011 Ed., 10, The National Academies Press. Washington, DC [ISBN: 978-0-309-13]
Article/Paper List	Recommended Article/Paper Resources	<ul style="list-style-type: none"> Kris Bosworth PhD Lysbeth Ford MPH Diley Hernandaz MA 2011, School Climate Factors Contributing to Student and Faculty Perceptions of Safety in Select Arizona Schools, <i>Journal of School Health</i>, 81, 194 [ISSN: 1746-2010] https://doi.org/10.1111/j.1746-1561.2010.00579.x
Other References	<ul style="list-style-type: none"> TEXTBOOK Mohd Khairul Domadi et al. 2016, <i>OFPS Occupational Safety and Health</i>, OXFORD FAJAR, MALAYSIA 	