

Proposal for Introducing a Microcredit Course on Biosafety

Name of the Departments proposing the subject: SMST

Name of the Subject: Microcredit Course on Biosafety

L-T-P Credit: 1

Session: Autumn, and Spring

Level of the Subject: PG

Compulsory for all students in SMST

Prerequisites: None

Objectives:

This 12 hour microcredit course is designed to introduce students to Biosafety in the research laboratory. The course consists of 11 Modules:

Module 1: Definition of Biosafety and Biohazards

Module 2: Blood Borne Pathogens

Module 3: Exposure Control Plans

Module 4: Medical Surveillance

Module 5: Biosafety Cabinets

Module 6: Disposal of Bio-waste

Module 7: Spills and Decontamination

Module 8: Chemical Hazards in the Biological Laboratory

Module 9: Animal Biosafety

Module 10: Case Review

Module 11: Development of your Exposure Control Plan

Following this course students will have an understanding of how to develop their own exposure control plan and how to work safely with biological material.

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Do the contents of the subject have an overlap with any other subject? No

Recommended Reference Materials:

Biosafety in Microbiological and Biomedical Laboratories (BMBL) 5th Edition, CDC Laboratories. 2009. <https://www.cdc.gov/labs/BMBL.html>

Guidelines for Biosafety Laboratory Competency. CDC and the Association of Public Health Laboratories. MMWR Supplement/ Vol 60. April 15, 2011. <https://absa.org/wp-content/uploads/2017/01/MMWRguidelinesBSLcomp.pdf>

Laboratory Biosafety Manual Third Edition. WHO. Geneva 2004.

<https://www.who.int/csr/resources/publications/biosafety/en/Biosafety7.pdf?ua=1>

Template for Microcredit Course on Biosafety

				Time
	Pre-test on Biosafety			30 minutes
	Module 1	Biosafety: What is it?		1 hour
			Case	
			Elements and Expectations for Conducting Safe Research	
			Biohazards and Biosafety	
			Biosafety Levels	
	Module 2	Blood Borne Pathogens (BBP)		1 hour
			Legislation: Blood Borne Pathogen Standard and the Indian Government Bio-Medical Waste Management and Handling Rules 2016	
			Sources of Blood Borne Pathogens	
			Human Cell Lines classified as sources of other potentially infectious material	
			The Blood Borne Pathogens and the Big 3- HIV, Hep B, Hep C	
			How they are spread	
	Module 3	Exposure Control Plans		2 hour
			Six Parts of the Exposure Control Plan	
			Engineering Controls: Autoclaves, Biosafety Cabinets, Laminar Flow Hoods, Centrifuge Safety, Cryostat Safety	
			Work Practice Controls: Universal Precautions, Biohazard Signs, Hand wash procedures, Routine Cleaning and Disinfecting	
			Personal Protective Equipment: Laboratory Clothing, Respiratory Protection, Eye and Face	

			Protection, Gloves, Use of Shoe covers, Proper Removal and disposal of PPE	
	Module 4	Medical Surveillance		1 hour
			Hepatitis B Immunization Requirements	
			Post Exposure Prophylaxis Evaluation and Treatment	
	Module 5	Biosafety Cabinets		1 hour
			Fume Hoods , Laminar air flow hoods, Biosafety Cabinets	
			Types of Biosafety Cabinets	
			Proper Use of Biosafety Cabinets	
			Disinfection of Biosafety Cabinets	
	Module 6	Disposal of Bio-waste		1 hour
			Legislation	
			Segregation	
			Autoclave Practice	
			Sharps Disposal	
			Chemical Disposal in the Biological Lab	
			5-Steps for Disposal	
	Module 7	Spills and Decontamination		1 hour
			Spill Response	
			Spill Response Inside Biosafety Cabinet	
			Spill Response inside a centrifuge	
			Bleach Dilutions for disinfecting spills for BBP	
	Module 8	Chemical Hazards in the Biological Laboratory		1 hour
			1. Segregation of chemicals based upon	

			their Toxicity, Corrosiveness, Ignitability and Reactivity 2. Hazards Identification: Inhalation, Ingestion, Absorption through the skin or eyes, Injection 3. First aid measures 4. Proper disposal of chemical waste	
	Module 9	Animal Biosafety		1 hour
			Animal Biosafety Levels	
			Animal Housing	
			Work Practices	
			Zoonosis	
			Handling and Disposal of Animal Tissues and Carcass	
	Module 10	Cases		1 hour
	Module 11	Developing your Exposure Control Plan		1 hour
			Interactive Session	
	Post-test on Biosafety			2 hour

