

City University of Hong Kong

Information on a Course offered by Department of Mechanical and Biomedical Engineering with effect from Semester A in 2014 / 2015

Part I

Course Title: **Bio-safety and Security**

Course Code: **MBE4103**

Course Duration: **One Semester**

Credit Units: **3**

Level: **B4**

Medium of Instruction: **English**

Prerequisites: **Nil**

Precursors: **Nil**

Equivalent Courses: **Nil**

Exclusive Courses: **Nil**

Part II

1. Course Aims

Introduction to biosafety and biosecurity: zoonoses and animal hazards; bloodborne pathogens; viral vectors; bioterrorism; food bio-safety; human pathogens and toxins. Overview of the biosafety and biosecurity practices, equipment, and facilities for the safe and secure handling of dangerous pathogens in a laboratory setting.

2. Course Intended Learning Outcomes (CILOs)

Upon successful completion of this course, students should be able to:

No.	CILOs	Weighting* (if applicable)
1.	Describe the basic concepts of biosafety, biosecurity, bioterrorism, and food safety.	4
2.	Select relevant knowledge and technologies to obtain solutions for some common problems in detection and monitoring of bio-related hazards such as pathogens, toxins, and viruses.	3
3.	Integrate the principles stated in CILO-1 to analyse some practical problems.	1
4.	Demonstrate reflective practice in an engineering context.	1

*Weighting ranging from 1,2,3 to indicate the relative level of importance in an ascending order.

3. Teaching and Learning Activities (TLAs)

Activity Type	Timetabled Activity (Hours per week)
Lecture/Tutorial /Laboratory Mix	Lecture (2); Tutorial/Lab (1)

TLAs	Large Class activities (i)	Individual Assignments/Laboratory works (ii)	Group-based Problem Solving Projects (iii)	Total (hrs)
CILO 1	15	3	-	18
CILO 2	7	2	2	11
CILO 3	2	1	2	5
CILO 4	2	1	2	5
Total (hrs)	26	7	6	39

Large class activities mainly include lectures, and small group activities comprise of case studies in group discussions.

4. Assessment Tasks/Activities

ATs	Examinations (4 hours)	Mini-Projects	Exercises	Lab Demo & Reports	Total (%)
CILO 1	22	-	7	-	29
CILO 2	13	8	3	-	24
CILO 3	8	7	-	10	25
CILO 4	7	5	-	10	22
Total (%)	50	20	10	20	100

For a student to pass the course, at least 30% of the maximum mark for the examination should be obtained.

5. Grading of Student Achievement:

The grading is assigned based on students' performance in assessment tasks/activities.

Midterm and Final exams	50%
Mini-projects	20%
Homework/quiz	10%
Lab works	20%

Grade Table

Letter Grade	Grade Point	Grade Definitions
A+	4.3	Excellent
A	4.0	
A-	3.7	
B+	3.3	Good
B	3.0	
B-	2.7	
C+	2.3	Adequate
C	2.0	
C-	1.7	
D	1.0	Marginal
F	0.0	Failure
P	-	Pass

Please refer to the ARRO's website for details.

Part III

Keyword Syllabus

- Biosafety
- Biosecurity
- Bioterrorism
- Food biosafety
- Pathogens and toxins
- Viral vectors