



Course Specification

— (Bachelor)

Course Title: **Waste management**

Course Code: **PHE26458**

Program: **Bachelor of Sciences in Public Health**

Department: **Public Health**

College: **Applied Medical Sciences**

Institution: **University of Bisha**

Version: **1**

Last Revision Date: **2-8-2023**





Table of Contents

A. General information about the course:	3
B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods	4
C. Course Content	5
D. Students Assessment Activities	6
E. Learning Resources and Facilities	6
F. Assessment of Course Quality	6
G. Specification Approval	7





A. General information about the course:

1. Course Identification

1. Credit hours:

2(2+0)

2. Course type

- A. University College Department Track Others
- B. Required Elective

3. Level/year at which this course is offered: 8th/fourth year

4. Course general Description:

The course would cover-general introduction including definition of solid wastes–municipal waste, biomedical waste, hazardous waste, e-waste; legal issues and requirements for solid waste management; sampling and characterization of solid waste; analysis of hazardous waste constituents including QA/QC issues; health and environmental issues related to solid waste management; steps in solid waste management-waste reduction at source, collection techniques, materials and resource recovery/recycling, transport, optimization of solid waste transport, treatment and disposal techniques (composting, vermi-composting, incineration, non-incineration thermal techniques, refuse derived fuels, land-filling); economics of the onsite vs. offsite waste management options (individual vs. common treatment/disposal practices, integrated waste management; and waste minimization and concepts of industrial symbiosis and industrial ecology.

5. Pre-requirements for this course (if any):

NA

6. Pre-requirements for this course (if any):

NA

7. Course Main Objective(s):

1. Understanding of problems of municipal waste, biomedical waste, hazardous waste, waste, industrial waste etc.
2. Knowledge of legal, institutional and financial aspects of management of solid wastes.
3. Become aware of Environment and health impacts solid waste mismanagement
4. Understand engineering, financial and technical options for waste management

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	26	86.6
2	E-learning	4	13.3
3	Interactive learning		
4	Hybrid <ul style="list-style-type: none"> • Traditional classroom • E-learning 		
5	Distance learning		



3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	26
2.	Laboratory/Studio	
3.	Interactive learning	
4.	Field	
5.	Tutorial	
6.	E-learning	4
7.	Others : Self-learning	45
Total		75

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Define waste types (biological, hazardous waste, municipal waste)	K1	Lectures	Written exam Assignment
1.2	Outline management of solid wastes	K2		
1.3	Describe legal, institutional and financial aspects of management of solid wastes	K2	E-learning	Written exam
2.0	Skills			
2.1	Perform sampling and characterization of solid waste; analysis of hazardous waste constituents.	S1	Lectures	Group discussion Seminar Assignment
2.2	Interpret economics of the onsite vs. offsite waste management options (individual vs. common treatment/disposal practices, integrated waste management.)	S1		
2.3	Apply collection techniques, materials and resource recovery/recycling, transport, optimization of solid waste	S2	Lectures	Assignment
3.0	Values, autonomy, and responsibility			



Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
3.1	Display sense of commitment to ethical regulations when dealing with solid waste.	V1	Group discussion and seminar	In Class evaluation
3.2	Communicate effectively, orally and in written forms.	V2	Semiar	In clas evaluation

C. Course Content

No	List of Topics	Contact Hours
1.	General introduction including definitions of solid waste including municipal, hospital and industrial solid waste; legal issues and requirements for solid waste management and health and environmental issues related to solid waste management.	2
2.	Sampling and characterization of solid waste	2
3.	Analysis of hazardous constituents in solid waste including QA/QC issues	2
4.	Healt environmental issues related to solid waste management.	2
5.	Waste reduction at source – municipal and industrial wastes	2
6.	Material and resource recovery	2
7.	Methods of waste collection, collection techniques, waste container compatibility, waste storage requirements, transportation of solid wastes	2
8.	Treatment and disposal techniques for solid wastes–composting, vermin-composting, autoclaving, microwaving, incineration, nonincineration thermal techniques, use of refuse derived fuels, land filling.	2
9.	Economics of on-site vs. off-site waste treatment and disposal (individual vs. common disposal)	2
10.	Waste minimization and concept of industrial ecology and industrial symbiosis	2
11.	Recycling from solid waste.	2
12.	Identification of hazardous wastes	2
13.	Electronic wastes	2
14.	Biological Medical Waste Treatment iological and	2
15.	Review	2
Total		30



D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quiz	3 rd week	5
2.	Group discussion	4 th	5
3.	In class activity	5 th	5
4.	E- Learning activity(quiz)	6 th	15
5.	Midterm exam(theory and practical)	8 th	20
6.	Final (theoretical and practical)	End of semester	50
	Total		100

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	1- Central Public Health and Environmental Engineering Organization (CPHEEO) (2000) Manual on Municipal Solid Waste Management, New Delhi, Controller of Publications 2- Freeman H.M. (1988) Standard Handbook of Hazardous Waste Treatment and Disposal, New York, McGraw-Hill
Supportive References	Prüss A., Giroult E. and Rushbrook P. (1999) Safe Management of Wastes from Health-care Activities, Geneva, World Health Organization
Electronic Materials	Blackboard-Saudi digital library
Other Learning Materials	International Journal of Environment and Waste Management -Waste Management

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Middle size classrooms
Technology equipment (projector, smart board, software)	Projectors in all classrooms Wifi
Other equipment (depending on the nature of the specialty)	

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students, Faculty, Program Leaders, Peer Reviewer	Direct/indirect





Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of Students assessment	Course coordinator, Quality unit Students, Faculty, Program Leaders, Peer Reviewer	Direct/Indirect
The extent to which CLOs have been achieved	Students, Faculty, Program Leaders, Peer Reviewer	Direct/Indirect
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	

