



**SCHOOL OF INFORMATION COMMUNICATION AND MEDIA STUDIES
DEPARTMENT OF INFORMATION SCIENCE, HEALTH RECORDS AND SYSTEMS**

COURSE OUTLINE

COURSE CODE: INF 311 **COURSE TITLE:** GREEN COMPUTING **UNITS:** 13

YEAR: 3 **SEMESTER:** 1 **Academic Year:** 2024/2025

Day: Monday **Time:** 8:00am – 11:00am **Venue:** MG3

Lecturer's name: Ms. Tabitha Nyongesa **Phone No.:** 0705549316

E-mail: tabithanyongesa@rongovarsity.ac.ke, tabithanyongesa@gmail.com

Purpose of the Course	This course provides a comprehensive survey of the understanding of sustaining our environment by responsible e-waste disposal.
Expected Learning Outcomes of the Course	Upon successful completion of this course, students should be able to: 1. Identify the various sources of e-waste 2. Identify the hazardous components of e-waste 3. Establish the occupational and environmental impact of e-waste. 4. Understand the importance of effective e-waste management on sustainability. 5. Determine the best e-waste management and disposal options. 6. Establish the economic benefits of e-waste. Demonstrate an understanding of e-waste standards and regulations
Course Description	○ Overview; Introduction to electronic waste management ○ Sources of e-waste; E-waste classification. ○ Comparison of e-wastes and other solid waste. ○ E-waste and environment ○ E-waste management and disposal methods. ○ E-waste legal frameworks. ○ Basel convention and Tran boundary movement of e-waste. ○ Extended producer responsibility, sustainable e-production and use. Case studies

COURSE CONTENT/ TOPICS		
WEEK	Lecture	Topic
1	1	1.0 INTRODUCTION TO GREEN COMPUTING. 1.1 The terminologies used in green computing. 1.2 Understand the terms used in e-waste environment. 1.3 Sources of e-waste
2	2	2.0 CLASSIFICATION OF E-WASTE 2.1. Classification according to the elemental composition. 2.2. Classification according to mode of operation and function. 2.3. Types of e-waste 2.4. Hazardous and non-hazardous e-waste.
3	3	3.0 COMPARISON OF E-WASTES AND OTHER SOLID WASTE. 3.1. State the terminologies used in solid waste. 3.2. Describe the other types of solid waste. 3.3. Describe the similarities between e-waste and solid waste. 3.4. Discuss the differences between solid waste and e-waste.
4	CAT 1	
5	4	4.0 E-WASTE MANAGEMENT AND DISPOSAL METHODS. 4.1. Managing E-waste 4.2. E-waste disposal methods. 4.3. User's role in management and disposal of e-waste. 4.4 Consequences of poor e-waste management.
6	5	5.0 E-WASTE LEGAL FRAMEWORKS. 5.1 Existing policy 5.2 Legislation 5.3 Institutional framework
7	6	6.0 BASEL CONVENTION AND TRAN BOUNDARY MOVEMENT OF E-WASTE. 6.1 Overview of the Basel convention and trans-boundary movement. 6.2 Objectives of the Basel convention and trans-boundary movement.

		6.3 Countries that participated in the convention. 6.3 Aims and provisions of the Basel convention and trans-boundary movement.
8	CAT 2	
9	7	6.0 EXTENDED PRODUCER RESPONSIBILITY, SUSTAINABLE E-PRODUCTION AND USE. 6.1 About the PRO Structure 6.2 Roles of Producer Responsibility Organization
10	8	8.0. EPR, PRODUCTION AND USE 8.1 Treatment technology for e-waste
11	9	9.1 Guidelines for development of e-waste treatment technology 9.2 Levels of treatment; first, second and third.
12	10	10.0. RECYCLING METHODS 10.1. Plastic recycling 10.2. Metal recycling
13	11	EXAMINATION PREPARATION
14		University Regular examination
15		University Regular examination
Mode of Delivery		▪ Lectures, seminar work and visits to e-waste management centers.
Instruction Materials and /or Equipment		Discussions & seminars: Interactive classroom, tutorial, and online discussions led by the students and/or the course instructor Readings: Text, articles, case studies, and current event readings will be assigned. Assignments: Individual and group projects will be assigned in and out of class. Self-directed learning: Students will be required to actively engage in learning through reading widely from books, journals and other relevant literature and learning materials.
Course Assessment		CAT 1, CAT 2 and Assignments 30%

	End of semester exam <u>70%</u> TOTAL <u>100%</u>
Core Reading Materials for the Course	Textbooks, Journals, Internet Sources. 1. Shittu, O. S., Williams, I. D., & Shaw, P. J. (2021). Global E-waste management: Can WEEE make a difference? A review of e-waste trends, legislation, contemporary issues and future challenges. <i>Waste Management</i>, 120, 549-563. 2. Rene, E. R., Sethurajan, M., Ponnusamy, V. K., Kumar, G., Dung, T. N. B., Brindhadevi, K., & Pugazhendhi, A. (2021). Electronic waste generation, recycling and resource recovery: Technological perspectives and trends. <i>Journal of Hazardous Materials</i>, 416, 125664. 3. Shahabuddin, M., Uddin, M. N., Chowdhury, J. I., Ahmed, S. F., Uddin, M. N., Mofijur, M., & Uddin, M. A. (2023). A review of the recent development, challenges, and opportunities of electronic waste (e-waste). <i>International Journal of Environmental Science and Technology</i>, 20(4), 4513-4520. 4. Liu, K., Tan, Q., Yu, J., & Wang, M. (2023). A global perspective on e-waste recycling. <i>Circular Economy</i>, 2(1), 100028.
Recommended Reference Materials	1. Ramesh, M. V., Paramasivan, M., Akshay, P., & Jarin, T. (2023). A review on electric and electronic waste material management in 21st century. <i>Materials Today: Proceedings</i>.

Lecturer's Signature.....Date.....

Head of Dept signature.....Date.....

Name of Head of Department.....

Received by the Class:

Name of Class Representative..... Registration No.

Signature of Class Representative.....Date.....

Kindly note that, as established in the University's Common Rules and Regulations for University Examinations, the scheduling and administration of Continuous Assessment Tests shall normally be spaced as follows:

(a) 1st CAT – 4th to 6th week of a Semester

(b) 2nd CAT – 8th to 10th week of a Semester