

20EC2701B - E – WASTE MANAGEMENT

Offering Branches	CSE,EEE,ME	Credits	3
Course Category	Open Elective	L-T-P	3-0-0
Course Type	Theory	Continuous Internal Evaluation	30
Prerequisites:	Nil	Semester End Evaluation	70
		Total Marks:	100

Course Outcomes

Upon successful completion of the course, the student will be able to

CO1	Understand the environmental impacts of e-waste.	L2
CO2	Apply concepts of e-waste management hierarchy.	L3
CO3	Distinguish the role of various national and internal act and laws applicable for e-waste management and handling.	L4
CO4	Analyze the e – waste management measures proposed under national and global legislations.	L4

MICRO SYLLABUS

Unit No.	Contents	Mapped CO
I	Introduction: <ul style="list-style-type: none"> E- waste Composition and generation Global context in E- waste E-waste pollutants E waste hazardous properties Effects of pollutant (E- waste) on human health and surrounding environment Domestic e-waste disposal Basic principles of E-waste management Component of E waste management Technologies for recovery of resources from electronic waste Resource recovery potential of e-waste Steps in recycling and recovery of materials-mechanical processing Technologies for recovery of materials Occupational and environmental health perspectives of recycling e-waste in India. 	CO1
II	E-waste hazardous on Global trade: <ul style="list-style-type: none"> Essential factors in global waste trade economy Waste trading as a quint essential part of electronic recycling Free trade agreements as a means of waste trading. Import of hazardous e-waste in India India's stand on liberalizing import rules E-waste economy in the organized and unorganized sector 	CO1, CO2

	<ul style="list-style-type: none"> • Estimation and recycling of e-waste in metro cities of India. 	
III	<p>E-waste control measures:</p> <ul style="list-style-type: none"> • Need for stringent health safeguards and environmental protection laws in India • Extended Producers Responsibility (EPR) • Import of e-waste permissions • Producer-Public-Government cooperation • Administrative Controls & Engineering controls • monitoring of compliance of Rules • Effective regulatory mechanism strengthened by manpower and technical expertise • Reduction of waste at source. 	CO1, CO3
IV	<ul style="list-style-type: none"> • E-waste (Management and Handling) Rules, 2011 • E-Waste (Management) Rules, 2016 - Salient Features and its likely implication. • Government assistance for TSDFs. 	CO1, CO4
V	<ul style="list-style-type: none"> • The international legislation: The Basel Convention • The Bamako Convention. • The Rotterdam Convention. • Waste Electrical and Electronic Equipment (WEEE) Directive in the European Union • Restrictions of Hazardous Substances (RoHS) Directive. 	CO1, CO4

Learning Resources	
Text Books	
1. Johri R., E-waste: implications, regulations, and management in India and current global best practices, TERI Press, New Delhi 2. Hester R.E., and Harrison R.M, Electronic Waste Management. Science, 2009.	
Reference Books	
1. Fowler B, Electronic Waste – 1 st Edition (Toxicology and Public Health Issues), 2017 Elsevier	
e- Resources & other digital material	
1. https://news.mit.edu/2013/ewaste-mit	