

INDIAN INSTITUTE OF INFORMATION TECHNOLOGY  
DESIGN AND MANUFACTURING (IIITDM) KANCHEEPURAM

INTRODUCTION OF NEW COURSE

Course Title	<b>Techniques and Management of E-waste recycling</b>		Course No				
Department/ Specialization	ECE/	Credits	L	T	P	C	
			3	1	0	4	
Offered for	PG/PhD	Status	Core	<input type="checkbox"/>	Elective	<input checked="" type="checkbox"/>	
Faculty proposing the course	Dr Pandiyarasan Veluswamy	Type	New	<input checked="" type="checkbox"/>	Revision	<input type="checkbox"/>	
Recommendation from DAC : Yes		Date of DAC	16 <sup>th</sup> November 2021				
External Expert (s)	Assoc. Prof. Ir. Dr. Mohd Faizul Mohd Sabri (University of Malaya) Professor. Cafer T Yavuz (KAUST, Saudi Arabia)						
Prerequisite	Nil	Submitted for approval	46 <sup>th</sup> Senate				
Learning Objectives	<ul style="list-style-type: none"> <li>This course is significant to the Economic and Environmental perspectives, not only in sustainable development issues.</li> <li>Further, processing the waste should optimize metals/nonmetals' recovery and minimize final waste volume with processing emissions.</li> <li>In turn, this saves and conserves natural resources.</li> </ul>						
Learning Outcomes	After completing the course, students will be able to assess the overall sustainability of e-waste, considering the three pillars: environmental, economic, and energy.						
Course Contents (with approximate breakup of hours for lecture/tutorial/practice)	<ul style="list-style-type: none"> <li>Introduction and general concepts to e-waste and e-waste management; Principle and standards for the disposal; Life cycle and Performance assessment and Understanding (5L, 1T)</li> <li>Health Effects of E-waste Pollution; Global Trends of E-waste Pollution and Its Impact on Environment (5L, 1T)</li> <li>E-waste: Global Scenario, Constituents, and Biological Strategies for Remediation (5L, 1T)</li> <li>Materials Recycling Considerations (3L, 1T)</li> <li>Processing Techniques (4L, 1T)</li> <li>Emerging Technologies Bioremediation Approaches (6L, 1T)</li> <li>e-factor concept in green chemistry (3L, 1T)</li> <li>Case studies: implementation of e-waste recycling (4L, 4T)</li> <li>Recycling Processes and Plastic in e-waste is an emerging problem for India: Implications for Future Prospect (7L, 1T)</li> </ul> Tutorial will include research paper analysis and discussion						
Text Book	1. Hugo Marcelo Veit and Andréa Moura Bernardes, “ Electronic Waste: Recycling Techniques” Springer 2015.						
Reference Books	1. Muammer Kaya, “ Electronic Waste and Printed Circuit Board Recycling Technologies”, Springer 2019. 2. Muhammad Zaffar Hashmi and Ajit Varma, “Electronic Waste Pollution: Environmental Occurrence And Treatment Technologies”, Springer 2019. 3. Lifeng Zhang and Gregory K. Krundick, “Recycling of Electronic Waste II”, Wiley 2011.						