

## ANNEXURE IV.

### INDIAN INSTITUTE OF INFORMATION TECHNOLOGY DESIGN AND MANUFACTURING (IIITD&M) KANCHEEPURAM

#### INTRODUCTION OF NEW COURSE

Course Title	Sustainable Manufacturing	Course No (will be assigned)				
Specialization	Interdisciplinary	Structure (LTPC)	3	0	0	3
Offered for	UG & DD	Status	Core <input type="checkbox"/>	Elective <input checked="" type="checkbox"/>		
Faculty	K.Senthilkumaran	Type	New <input checked="" type="checkbox"/>	Modification <input type="checkbox"/>		
Pre-requisite		To take effect from				
Submission date		Date of approval by Senate				
Objectives	<p>This course aims to introduce the concept of sustainable manufacturing to students and enables them to analyse the impact of various decisions and evaluate options in a global context that minimize the impact of manufacturing activities on society, the environment, and resources. Students would be able to identify various alternatives in design, materials and process to make informed trade-off decisions that will minimise energy use, water use and emissions during product life cycle stages.</p>					
Contents of the course	<p>Three pillars of sustainability, sustainable manufacturing practices and reductionist approach followed in manufacturing industries, sustainable product design and development, techniques and tools for sustainability measurement and impact assessment, Life Cycle Analysis (LCA) and other environment management tools (12)</p> <p>Sustainability in production, environmentally benign factory layout and operations, energy and material flow analysis in factory operations, unit process analysis, life cycle inventory for manufacturing processes, exergy analysis of manufacturing processes, practical techniques for energy and emission reduction, green productivity, reducing human environmental exposures in an industrial environment and worker's safety, sustainability assessment of products in-use stage Sustainability in supply chain activities (18)</p> <p>sustainability through recycle, redesign, repair and reuse of components, Role of information systems and data analytics in sustainable manufacturing, linked data and semantic web in sustainability information, Standards and Regulations for sustainability, Reporting: effective communication of sustainability performance to internal and external audience (12)</p>					
References	<p>David Dornfeld, Green Manufacturing, Fundamentals and Applications, Springer, USA, 2012</p> <p>David R. Hillis and J. Barry DuVall, Improving profitability through green manufacturing: Creating a profitable and environmentally compliant manufacturing facility, Wiley, 2012</p> <p>Rob Thompson and Martin Thompson, Sustainable Materials, Processes and Production, Thames and Hudson, 2013</p>					