

Subject Code: 1ET1100303	Subject Title: Green Computing
Prerequisite	--

Course Objective:

- To learn the fundamentals of Green Computing
- To analyse the Green computing Grid Framework
- To understand the issues related with Green compliance
- To study and develop various case studies

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture	Tutorial	Practical	Credit	Theory		Practical		Total
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
3	1	2	5	70	30	30	20	150

Course Outcome:

- Acquire knowledge to adopt green computing practices to minimize negative impacts on

Subject Contents				
Sr. No	Topic	Total Hours	Weight (%)	
1	FUNDAMENTALS Green IT Fundamentals: Business, IT, and the Environment – Green computing: carbon foot print, scoop on power – Green IT Strategies: Drivers, Dimensions, and Goals – Environmentally Responsible Business: Policies, Practices, and Metrics.	8	20	
2	GREEN ASSETS AND MODELING Green Assets: Buildings, Data Centers, Networks, and Devices – Green Business Process Management: Modeling, Optimization, and Collaboration – Green Enterprise Architecture – Environmental Intelligence – Green Supply Chains – Green Information Systems: Design and Development Models.	6	15	
3	GRID FRAMEWORK Virtualization of IT systems – Role of electric utilities, Telecommuting, teleconferencing and teleporting – Materials recycling – Best ways for Green PC – Green Data center – Green Grid framework.	10	25	
4	GREEN COMPLIANCE Socio-cultural aspects of Green IT – Green Enterprise Transformation Roadmap – Green Compliance: Protocols, Standards, and Audits – Emergent Carbon Issues: Technologies and Future.	10	25	
5	CASE STUDIES The Environmentally Responsible Business Strategies (ERBS) – Case Study Scenarios for Trial Runs – Case Studies – Applying Green IT Strategies and Applications to a Home, Hospital, Packaging Industry and Telecom Sector.	6	15	

environment

- Enhance skill in energy saving practices in their use of hardware
- Evaluate technology tools that can reduce paper waste and carbon footprint by the stakeholders
- Understand the ways to minimize equipment disposal requirements

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Acquire knowledge to adopt green computing practices to minimize negative impacts on environment.	Understanding, Applying
CLO2	Enhance skill in energy saving practices in their use of hardware.	Understanding, Applying
CLO3	Evaluate technology tools that can reduce paper waste and carbon footprint by the stakeholders.	Applying, Evaluating

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes(PSOs)			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CLO1	M	M	M	H	M	M	H	L	M	H	M	M	M	H	L	L
CLO2	M	H	H	M	H	H	H	L	M	M	L	L	H	M	H	M
CLO3	H	H	H	H	H	M	M	L	M	L	M	M	M	M	M	M
CLO4	M	H	M	H	M	H	H	L	M	M	M	L	H	H	M	M
CLO4	Understand the ways to minimize equipment disposal requirements.												Analyzing, Evaluating			

Mapping of CLOs with POs & PSOs List of References:

1. BhuvanUnhelkar " Green IT Strategies and Applications – Using Environmental Intelligence", CRC Press, 2014
2. Woody Leonhard, Katherine Murray, "green Home Computing for Dummies", August 2012
3. Alin Gales, Michael Schaefer, Mike Ebberts, "Green Data Center: steps for the Journey", Shroff/IBM rebook, 2011

List of Experiments:

- (1) Recycling of IT waste in Colleges.
- (2) Damage caused by improper recycling of e-waste in developing countries like India or China.
- (3) A Case study of a traditional company going paperless with the use of Electronic media.
- (4) Survey of best energy-efficient practices in data centers around the world.
- (5) Designing a data centre with use of green technology.
- (6) Design considerations of datacentres for efficient cooling.
- (7) Impact of data centers on the environment.
- (8) Recycling initiatives taken up by XXX Housing Society: A Case Study
- (9) Electricity Smart Grids and smart energy systems.