

## Objective

To acquire basic understanding in sustainable and healthy computing practices to reduce the impacts on environment, energy saving techniques by the wise use of hardware and to examine various parameters of interest to reduce the energy loss in the world of computing

## Introduction

Introduction to Green Computing , Green Computing: Challenges and Opportunities, Holistic approach to Green IT, Greening IT, Greening by IT

## Green computing in software and hardware

Green Devices and Hardware - Life cycle of a hardware device, Reuse, Recycle, and refurbish, Power measurement in modern computing systems, power management in modern computing systems, Green Software - energy saving software techniques, Sustainable software development -Sustainability metrics, sustainable software methodology.

## Data Metrics in Green Computing

Green Data Center - IT infrastructure and facility management, data center metrics, data center strategies, data center best practices, Green data storage - power characteristics, energy management techniques for hard disks, system level energy management.

## Green Computing and Computer Networks

Green networks and communications - energy efficient networks and energy optimizing protocols, Green cloud computing - virtualization and consolidation, Role of Edge computing/Fog Computing and Internet of things in energy efficiency

## Protocols and Standards in Green Computing

Enterprise Green IT Strategy, Sustainable information systems and Green metrics, Green IT laws, standards, and protocols

## References

1. Harnessing Green IT: Principles and Practices San Murugesan and G.R. Gangadharan (Editors), Wiley IEEE Publishers, 2012.
2. Green Computing: Tools and Techniques for Saving Energy, Money, and Resources by Bud E. Smith, CRC press, 2013
3. Green in Software Engineering by Coral Calero and Mario Piattini (Editors), Springer 2015
4. Energy aware computing: Powerful approaches for green system design by Bob

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