EXIN

EXIN
Green IT

FOUNDATION

Certified by

EXIN

Preparation Guide

Edition 201803

Content

1. Overview

EXIN Green IT Foundation (GRITF.EN)

Summary

Green IT is an emerging vertical for 21st century IT professionals. Organisations seeking to reduce costs, increase efficiency and reduce their operational environmental footprint can use the Green IT exam program to enable staff to perform and cooperate better. Green IT principles align with Corporate Social Responsibility (CSR) policies and underpin efficiency initiatives for supply chain and business operations.

Green IT is defined as "The efficient application of intelligent, energy, eco-friendly technology and techniques throughout the organisation".

Context

The EXIN Green IT Foundation certification is part of the EXIN Green IT qualification program.

Target Group

IT professionals and sustainability officers seeking to reduce costs, increase efficiency and/or reduce the organisations environmental footprint through technology.

Specifically developed for managers and professionals in the IT organisation who need to transform IT operations to a more sustainable and cost effective service provision model.

Requirements for Certification

- Successful completion of the EXIN Green IT Foundation exam.

One year practical experience in an IT environment is recommended.

Examination Details

Examination type:	Multiple-choice Questions
Number of questions:	40
Pass mark:	65%
Open book/notes:	No
Electronic equipment/aides permitted:	No
Exam duration:	60 minutes

The Rules and Regulations for EXIN's examinations apply to this exam.

Training

Contact Hours

The recommended number of contact hours for this training course is 15. This includes group assignments, exam preparation and short breaks. This number of hours does not include lunch breaks, homework and the exam.

Indication Study Effort

60 hours, depending on existing knowledge.

Training Organization

You can find a list of our Accredited Training Organizations at www.exin.com.

2. Exam Requirements

The exam requirements are specified in the exam specifications. The following table lists the topics of the module (exam requirements) and the subtopics (exam specifications).

Exam Requirement	Exam Specification	Weight
1. Understanding Green IT		**15%**
	1.1 Definition of Green IT	2.5%
	1.2 The SMART/GREEN ICT Framework	2.5%
	1.3 Drivers and motivators for Green IT	5%
	1.4 Relationship between Corporate Social Responsibility (CSR) and Green IT	5%
2. Lifecycle management		**25%**
	2.1 Acquisition of equipment, services, consumables	5%
	2.2 Operational use	10%
	2.3 End of life	10%
3. Optimizing the Infrastructure		**20%**
	3.1 Demand Infrastructure	10%
	3.2 Supply Infrastructure	10%
4. IT as Enabler		**20%**
	4.1 Virtual collaboration and e-working	5%
	4.2 SMART business systems	7.5%
	4.3 SMART workplace	7.5%
5. Governance and processes for Green IT		**20%**
	5.1 Environmental governance and Green IT policy	10%
	5.2 Green IT in relation to service management	10%
	Total	**100%**

Exam Specifications

1. **Understanding Green IT**
   1.1 Definition of Green IT
   The candidate can:
   - 1.1.1 Define Green IT
   - 1.1.2 Describe the key features of Green IT/sustainable computing

   1.2 The SMART/GREEN ICT Framework
   The candidate can:
   - 1.2.1 Recognize elements of the SMART/GREEN ICT Framework
   - 1.2.2 Describe the benefits of the framework

   1.3 Drivers and motivators for Green IT
   The candidate can:
   - 1.3.1 Identify Internal drivers for Green IT
   - 1.3.2 Identify External drivers for Green IT
   - 1.3.3 Describe Carbon market mechanisms

   1.4 Relationship between Corporate Social Responsibility (CSR) and Green IT
   The candidate can:
   - 1.4.1 Name international Green [IT] organizations and initiatives.
   - 1.4.2 Describe how Sustainable computing practices impact CSR
   - 1.4.3 Describe the seven sins of Green washing (Green sheen)
   - 1.4.4 Describe Triple bottom line (People Planet Profit)

2. **Lifecycle Management**
   1.1 Acquisition of equipment, services, consumables
   The candidate can:
   - 2.1.1 Name methods to evaluate Green credentials of products and suppliers
   - 2.1.2 Describe methods to reduce ecological footprint when procuring IT assets

   1.2 Operational use
   The candidate can:
   - 1.2.1 Identify IT assets energy consumption
   - 1.2.2 Describe methods to reduce IT asset power consumption/waste
   - 1.2.3 Describe methods to reduce the environmental impact of IT assets
   - 1.2.4 Describe methods to reduce the impact of, and wasteful consumption of workplace consumables

   1.3 End of life
   The candidate can:
   - 1.3.1 Define e-waste
   - 1.3.2 Identify the potential negative impact of e-waste
   - 1.3.3 Describe methods for end of life management

3. **Optimizing the Infrastructure**
   1.4 Demand Infrastructure
   The candidate can:
   - 1.4.1 Identify types of Virtualization
   - 1.4.2 Describe the Green benefits of Virtualization
   - 1.4.3 Describe greening enterprise data storage
   - 1.4.4 Describe the advantages of hosted data center services and Cloud computing as a potential more sustainable way of computing

1.5 Supply Infrastructure

The candidate can:

- 1.5.1 Identify elements of data center facility power supply chain
- 1.5.2 Describe the basics of cooling systems and measures which can be taken to increase cooling systems efficiency
- 1.5.3 Describe the benchmarks for the power usage efficiency of the data center and it's cooling systems efficiency: Power Usage Effectiveness (PUE) index and Data Center Infrastructure Efficiency (DCiE) index

4. IT as Enabler

4.1 Virtual collaboration and e-working

The candidate can:

- 4.1.1 Describe the potential socio-environmental benefits of e-working and telecommuting
- 4.1.2 Define the role of ICT in enabling e-working and telecommuting
- 4.1.3 Describe the potential 'Green' benefits of collaboration technology

4.2 SMART business systems

The candidate can:

- 4.2.1 Describe the potential green benefits of Dematerialisation
- 4.2.2 Describe the role of ICT in the low carbon economy
- 4.2.3 Define the concept of SMART solutions in reference to sustainable business practices
- 4.2.4 Define ICT's role in supply chain optimization (BTO; Zero stock)

4.3 SMART workplace

The candidate can:

- 4.3.1 Describe the concept of a SMART workplace
- 4.3.2 Define the role of ICT in building automation
- 4.3.3 Describe the role of ICT in the modernizing practices in the workplace

5. Governance and processes for Green IT

5.1 Environmental governance and Green IT policy

The candidate can:

- 5.1.1 Describe the role of environmental governance
- 5.1.2 Describe the main roles and functions involved in environmental governance
- 5.1.3 Name the main components of a Green IT Policy

5.2 Green IT in relation to service management

The candidate can:

- 5.2.1 Define the role of service management in the alignment of Green IT and sustainable computing practices with organizational sustainability policies and goals
- 5.2.2 Relate the service lifecycle approach to Green IT
- 5.2.3 Describe the concept of an environmentally sustainable service strategy

3. List of Basic Concepts

This A: Chapter contains the terms and abbreviations with which candidates should be familiar.

Please note that knowledge of these terms alone does not suffice for the exam; the candidate must understand the concepts and be able to provide examples.

Agnostic resource

As a Service' Infrastructure (aaS)

Automation

Bioaccumulation

Bio magnification

Build-To-Order (BTO)

Business drivers (internal/external)

Business process optimisation (BPO)

Business/Service Optimisation

Cap and Trade

Carbon dioxide emissions

Carbon emission

Carbon emissions management

Carbon offset

Carbon reduction

Carbon sinking

Carbon trading

Central Processing Unit (CPU)

Chargeback

Climate Savers Computing Impact Initiative (CSCI)

Cloud computing

Consumables

Consumed energy

Corporate Computing

Corporate Social Responsibility (CSR)

Data center

Data Center Infrastructure Efficiency (DCiE) index

Data storage

Dematerialisation

Ecological footprint

e-cycling

Embodied carbon/energy

End of life (EOL)

Energy Star

Environmental footprint

Environmental governance

Environmental Protection Agency (EPA)

EPEAT (Electronic Product Environmental Assessment Tool)

e-waste

e-working

Global Compact

Global Reporting Initiative (GRI)

Green by IT

Green Computing Impact Organisation (GCIO)

Green Grid

Green House Gas (GHG) emissions

Green IT

Green IT policy

Green purchasing

Greenwashing (Green sheen)

Hardware

Hydrofluocarbons (HFSc)

IEEE (Institute for Electrical and Electronics Engineers)

Info structure

Infrastructure (Demand/Supply)

Infrastructure services optimisation

Internal business drivers

ISO 14001 standard

ISO 26000 standard

IT as a low carbon enabler

IT asset

IT for Green

Just in time manufacturing (JIT)

Kyoto protocol

Landfill

Lifecycle management

Lifecycle analysis

Low carbon economy/society

Manufacturing/consumption impact

Millennium Goals

Operational management

Outsourced services

Power Usage Effectiveness (PUE) index

PUE

RACI (Responsible, Accountable, Consulted, Informed

Recycling

Remote desktop

Resource conservation

Risk

Service lifecycle

Service Strategy

SMART

SMART office

SMART/GREEN ICT Framework

SMART/GREEN ICT Definition

Socially Responsible Investing (SRI)

Socio-Environmental drivers

Socio-environmental value

Supply chain

Sustainability

Sustainable computing

Sustainable Service strategy

Telecommuting

Teleconferencing

Terminal

Thin client

Toxins

Triple bottom line (3BL; People Planet Profit)

Use profile (PAS 2050)

Virtual desktop

Virtualization

Workload

Workplace consumables

Zero stock (manufacturing on demand)

4. Literature

Exam Literature

The knowledge required for the exam is covered in the following literature:

A   J.W. van den Bent (ed.), N. Bakker, M. Gründeman and R. Visser
Workbook EXIN Green IT Foundation
Utrecht, EXIN, 2012
ISBN: 978 90 8753 789 0 (e-book)
ISBN: 978 94 0180 254 3 (hardcopy)

Additional Literature

B   Ian Salvage and Karen Ferris
Greening Service Management, The relationship between Environmental Sustainability and
IT Service Management
London, The Stationary Office, 2009
ISBN: 978 0 117 068797

C   C. Baroudi (ed.), J. Hill, A. Reinhold, J. Senxian
Green IT for Dummies
Indianapolis, Wiley Publishing Inc., 2007
ISBN: 978-0-470-38688-0

D   Ian Tolond
SMART/GREEN ICT Framework - Green ICT Definition
e2Readiness, 2012

E   **SMART 2020:** Enabling the low carbon economy in the information age
THE CLIMATE GROUP
www.smart2020.org/

F   **The seven sins of Greenwashing**
Terrachoice
sinsofgreenwashing.org/findings/the-seven-sins/

G   **THE BUILD-TO-ORDER TRANSFORMATION**
Georgia Institute of Technology (Kleinau)
www.ti.gatech.edu/docs/Kleinau%20BTO%20Transformation%202005.pdf

H   **ICT for a Low Carbon Economy - Smart buildings**
European Commission – ICT for sustainable growth unit
2009
ec.europa.eu/information_society/events/shanghai2010/pdf/smartbuildings-
ld_for_press_pack.pdf

Comment

Additional literature is for reference and depth of knowledge only.

Literature Matrix

Exam Requirement	Exam Specification	Reference
1	1.1	A: Chapter 1, paragraph 1.3
1	1.2	A: Chapter 1, paragraph 1.4
1	1.3	A: Chapter 1, paragraph 1.2
1	1.4	A: Chapter 1, paragraph 1.1
2	2.1	A: Chapter 2, paragraph 2.1
2	2.2	A: Chapter 2, paragraph 2.2
2	2.3	A: Chapter 2, paragraph 2.3
3	3.1	A: Chapter 3, paragraph 3.1
3	3.2	A: Chapter 3, paragraph 3.2
4	4.1	A: Chapter 4, paragraph 4.1
4	4.2	A: Chapter 4, paragraph 4.2
4	4.3	A: Chapter 4, paragraph 4.3
5	5.1	A: Chapter 5, paragraph 5.1
5	5.2	A: Chapter 5, paragraph 5.2

Contact EXIN

www.exin.com