



When Recognition Matters



EXAM PREPARATION GUIDE

PECB Certified ISO/IEC 20000 Lead Implementer

The objective of the “Certified ISO/IEC 20000 Lead Implementer” examination is to ensure that the candidate has the knowledge and the skills to support an organization in implementing and managing a Service Management System as specified in ISO/IEC 20000-1:2011.

The target population for this examination is:

- Project managers or consultants wanting to prepare and to support an organization in the implementation of a Service Management System (SMS)
- ISO/IEC 20000 auditors who wish to fully understand the Service Management System implementation process
- Persons responsible for the Information Technology Service conformity in an organization
- Members of an Information Technology Service team
- Expert advisors in information technology
Technical experts wanting to prepare for an Information Technology Service function or for a SMS project management function

The exam content covers the following domains:

- Domain 1: Fundamental Principles and Concepts of Information Technology Service
- Domain 2: Service Management Best Practice Based on ISO/IEC 20000-2
- Domain 3: Planning a SMS Based on ISO/IEC 20000
- Domain 4: Implementing a SMS Based on ISO/IEC 20000
- Domain 5: Performance Evaluation, Monitoring and Measurement of a SMS Based on ISO/IEC 20000
- Domain 6: Continual Improvement of a SMS Based on ISO/IEC 20000
- Domain 7: Preparing For an ISO/IEC 20000-1 Certification Audit

The content of the exam is divided as follows:

Domain 1 Fundamental Principles and Concepts in Service Management

Main objective: To ensure that the ISO/IEC 20000 Lead Implementer candidate can understand, interpret and illustrate the main Service Management concepts related to an Service Management System (SMS).

Competencies

1. Understand and explain the operations of the ISO organization and the development of Service Management standards.
2. Ability to identify, analyze and evaluate the Service Management compliance requirements for an organization.
3. Ability to explain and illustrate the main concepts in Service Management.

Knowledge statements

1. Knowledge of the application of the eight ISO management principles to Service Management.
2. Knowledge of the main standards in Service Management.
3. Knowledge of the different sources of Service Management requirement for an organization: laws, regulations, international and industry standards, contracts, market practices, internal policies.
4. Knowledge of the main Service Management concepts and terminology as described in ISO/IEC 20000.
5. Knowledge of the difference and characteristics of service management objectives.
6. Knowledge of the difference between preventive, detective and corrective controls and their characteristics.

Domain 2: Service Management Control Best Practice based on ISO/IEC 20000

Main objective: To ensure that the ISO/IEC 20000 Lead Implementer candidate can understand, interpret and provide guidance on how to implement and manage Service Management requirements based on best practices of ISO/IEC 20000.

Competencies	Knowledge statements
1. Ability to identify, understand, classify and explain the clauses with requirements (4 to 9) from ISO/IEC 20000.	1. Knowledge of the ISO/IEC 20000 requirements presented in the clauses 4 to 9.
2. Ability to detail and illustrate the requirements and best practices by concrete examples.	2. Knowledge of operational planning and control.
3. Ability to compare possible solutions to a Service Management issue of an organization and identify/analyze the strength and weakness of each solution.	3. Knowledge of business impact analysis and risk assessment.
4. Ability to select and demonstrate the best Service Management solution in order to address Service Management objectives stated by the organization.	4. Knowledge of Service Management strategy.
5. Ability to create and justify an action plan to implement a Service Management by listing the activities related.	5. Knowledge of establishing and implementing Service Management procedures.
6. Ability to analyze, evaluate and validate action plans to implement a specific requirement.	6. Knowledge of exercising and testing.
	7. Knowledge of Service Management Incident Management Controls Best Practices.
	8. Knowledge of Service Management Best Practices.
	9. Knowledge of the basic principles behind ISO/IEC 20000 and ITIL V3 and main differences between them.

Domain 3: Planning an SMS based on ISO/IEC 20000

Main objective: To ensure that the ISO/IEC 20000 Lead Implementer candidate can plan the implementation of an SMS in preparation for an ISO/IEC 20000 certification.

Competencies	Knowledge statements
1. Ability to manage an SMS implementation project following project management best practices.	1. Knowledge of the main project management concepts, terminology, process and best practice as described in ISO 10006.
2. Ability to gather, analyze and interpret the necessary information to plan the SMS implementation.	2. Knowledge of the principal approaches and methodology frameworks to implement an SMS.
3. Ability to observe, analyze and interpret the external and internal environment of an organization.	3. Knowledge of the main concepts and terminology related to organizations.
4. Ability to perform a gap analysis and clarify the Service Management objectives of an organization.	4. Knowledge of an organization's external and internal environment.
5. Ability to state and justify an SMS scope adapted to the service management objectives of a specific organization.	5. Knowledge of the main interested parties related to an organization and their characteristics.
6. Ability to select and justify the selected approach and methodology adapted to the needs of the organization.	6. Knowledge of techniques to gather information on an organization and to perform a gap analysis of a management system.
.	7. Knowledge of the characteristics of an SMS scope in terms of organizational, technological and physical boundaries.
	8. Knowledge of the main activities of the risk treatment related to the assets included in the SMS of an organization.

Domain 4: Implementing an SMS based on ISO/IEC 20000

Main objective: To ensure that the ISO/IEC 20000 Lead Implementer candidate can implement the processes an SMS required for an ISO/IEC 20000 certification.

Competencies	Knowledge statements
<ol style="list-style-type: none"> 1. Ability to understand, analyze needs and provide guidance on the attribution of roles and responsibilities in the context of the implementation and management of an SMS. 2. Ability to define the document and record management processes needed to support the implementation and the operations of an SMS. 3. Ability to define and design service management processes and document them. 4. Ability to define and write a SMS policy and Service Management policies & procedures. 5. Ability to implement the required processes and controls of an SMS. 6. Ability to define and implement appropriate Service Management training, awareness and communication plans. 7. Ability to define and implement an incident management process based on Service Management best practices. 8. Ability to transfer an SMS project to operations and manage the change management process 	<ol style="list-style-type: none"> 1. Knowledge of the roles and responsibilities of the key actors during the implementation of an SMS and in its operation after the end of the implementation project. 2. Knowledge of the main organizational structures applicable for an organization to manage Service Management. 3. Knowledge of the best practices on document and record management processes and the document management life cycle. 4. Knowledge of the characteristics and the differences between the different documents related to SMS: policy, procedure, guideline, standard, baseline, worksheet, etc. 5. Knowledge of model-building controls and processes techniques and best practices. 6. Knowledge of controls and processes deployment techniques and best practices. 7. Knowledge of techniques and best practices to write Service Management policies, procedures and others types of documents include in an SMS. 8. Knowledge of the characteristics and the best practices to implement Service Management training, awareness and communication plans. 9. Knowledge of the characteristics and main processes of an information management incident management process based on best practices. 10. Knowledge of change management techniques best practices.

Domain 5: Performance Evaluation, Monitoring and Measurement of an SMS Based On ISO/IEC 20000

Main objective: To ensure that the ISO/IEC 20000 Lead Implementer candidate can evaluate, monitor and measure the performance of an SMS in the context of an ISO/IEC 20000 certification.

Competencies	Knowledge statements
<ol style="list-style-type: none"> 1. Ability to monitor and evaluate the effectiveness of an SMS in operation. 2. Ability to verify the extent to which identified service management requirements have been met. 3. Ability to define and implemented an internal audit program for ISO/IEC 20000. 4. Ability to perform regular and methodical reviews regarding the suitability, adequacy, effectiveness and efficiency of an SMS with policies and objectives of an organization. 5. Ability to define and implement a management review process and counsel management on it 	<ol style="list-style-type: none"> 1. Knowledge of the techniques and best practices to monitor the effectiveness of an SMS. 2. Knowledge of the main concepts and components related to a Service Management Measurement Programme: measures, attributes, indicators, dashboard, etc. 3. Knowledge of the characteristics and the differences between an operational, tactical and strategic Service Management indicators and dashboard. 4. Knowledge of the techniques and methods to define and document adequate and reliable indicators. 5. Knowledge of the main concepts and components related to the implementation and operation of an SMS internal audit program. 6. Knowledge of the differences between the concepts of major nonconformity, minor nonconformity, anomaly and observation. 7. Knowledge of the guidelines and best practices to write nonconformity report. 8. Knowledge of the best practices on how to perform management reviews.

Domain 6: Continual Improvement of an SMS based on ISO/IEC 20000

Main objective: To ensure that the ISO/IEC 20000 Lead Implementer candidate can provide guidance on the Continual improvement of an SMS in the context of ISO/IEC 20000.

Competencies	Knowledge statements
<ol style="list-style-type: none"> 1. Ability to understand the principle and concepts related to continual improvement. 2. Ability to counsel an organization on how to continually improve the effectiveness and the efficiency of an SMS. 3. Ability to implement SMS continual improvement processes in an organization. 4. Ability to determine the appropriate business improvement tools to support continual improvement processes of a specific organization. 5. Ability to identify, analyze the root-causes of nonconformities and proposed action plans to treat them. <p>Ability to identify, analyze the root-cause of potential nonconformities and proposed action plans to treat them.</p>	<ol style="list-style-type: none"> 1. Knowledge of the main concepts related to continual improvement. 2. Knowledge of the characteristics and the difference between the concept of effectiveness and the efficiency. 3. Knowledge of the concept and techniques to perform a benchmarking. 4. Knowledge of the main processes, tools and techniques used by professionals to identify the root-causes of nonconformities. 5. Knowledge of the characteristics and the difference between corrective actions and preventive actions. 6. Knowledge of the main processes, tools and techniques used by professionals to develop and proposed the best corrective and preventive action plans.

Domain 7: Preparation for an SMS Certification Audit

Main objective: To ensure that the ISO/IEC 20000 Lead Implementer candidate can prepare and assist an organization for the certification of an SMS against the ISO/IEC 20000 standard.

Competencies	Knowledge statements
<ol style="list-style-type: none"> 1. Ability to understand the main steps processes and activities related to an ISO/IEC 20000 certification audit. 2. Ability to understand, explain and illustrate the audit evidence approach in the context of an ISO/IEC 20000 audit. 3. Ability to counsel an organization to identify and select a certification body that meets their needs. 4. Ability to review the readiness of an organization for an ISO/IEC 20000 certification audit. 5. Ability to coach and prepare the personnel of an organization for an ISO/IEC 20000 certification audit. 6. Ability to argue and challenge the audit findings and conclusions with external auditors. 	<ol style="list-style-type: none"> 1. Knowledge of the evidence based approach in an audit. 2. Knowledge of the different types of evidences: physical, mathematical, confirmative, technical, analytical, documentary and verbal. 3. Knowledge of the difference of the stage 1 audit and the stage 2 audit. 4. Knowledge of stage 1 audit requirements, steps and activities. 5. Knowledge of the documentation review criteria. 6. Knowledge of stage 2 audit requirements, steps and activities. 7. Knowledge of follow-up audit requirements, steps and activities. 8. Knowledge of surveillance audits and recertification audit requirements, steps and activities. 9. Knowledge of the requirements, guidelines and best practices to develop action plans following an ISO/IEC 20000 certification audit.

Based on these seven domains and their relevance, twelve questions are included in the exam, as summarized in the following table:

		Points per Question	Level of Understanding (Cognitive/Taxonomy) Required		Number of Questions per competency domain	% of test devoted to each competency domain	Number of Points per competency domain	% of Points competency domain
			Questions that measure Comprehension, Application and Analysis	Questions that measure Synthesis and Evaluation				
Competency Domains	Fundamental principles and concepts of Service Management	5	x		3	25.00	15	20.00
		5	x					
		5	x					
	Service Management Best Practices based on ISO 20000	10	x		1	8.33	10	13.33
	Planning a SMS based on ISO 20000	5		x	1	8.33	5	6.67
	Implementing a SMS based on ISO 20000	5		x	3	25.00	20	26.67
		5		x				
		10	x					
	Performance evaluation, monitoring and measurement of a SMS based on ISO 20000	10		x	2	16.67	15	20.00
		5		x				
	Continual improvement of a SMS based on ISO 20000	5		x	1	8.33	5	6.67
	Preparation for an SMS certification audit	5		x	1	8.33	5	6.67
Total points		75						
Number of Questions per level of understanding			5	7				
% of Test Devoted to each level of understanding (cognitive/taxonomy)			41.67	58.33				

The passing score is established at **70%**.

After successfully passing the exam, candidates will be able to apply for the credentials of Certified ISO/IEC 20000 Lead Implementer, depending on their level of experience.

TAKE A CERTIFICATION EXAM

Candidates will be required to arrive at least thirty (30) minutes before the beginning of the certification exam. Candidates arriving late will not be given additional time to compensate for the late arrival and may be denied entry to the exam room (if they arrive more than 5 minutes after the beginning of the exam scheduled time).

All candidates will need to present a valid identity card with a picture such as a driver's license or a government ID to the invigilator.

The exam duration is three (3) hours.

The questions are essay type questions. This type of format was chosen because the intent is to determine whether an examinee can write a clear coherent answer/argument and to assess problem solving techniques. Because of this particularity, the exam is set to be "open book" and does not measure the recall of data or information. The examination evaluates, instead, comprehension, application, analysis, synthesis and evaluation, which mean that even if the answer is in the course material, candidates will have to justify and give explanations, to show they really understood the concepts. At the end of this document, you will find sample exam questions and their possible answers.

As the exams are "open book"; candidates are authorized to use the following reference materials:

- A copy of the ISO/IEC 20000-1:2011 standard,
- Course notes from the Participant Handout,
- Any personal notes made by the student during the course and
- A hard copy dictionary.

The use of electronic devices, such as laptops, cell phones, etc., is not allowed.

All attempt to copy, collude or otherwise cheat during the exam will automatically lead to the exam's failure.

PECB exams are available in English. For availability of the exam in a language other than English, please contact examination@pecb.com.

RECEIVE YOUR EXAM RESULTS

Results will be communicated by email in a period of 6 to 8 weeks, after taking the exam. The results will not include the exact grade of the candidate, only a mention of pass or fail.

Candidates who successfully complete the examination will be able to apply for a certified scheme.

In the case of a failure, the results will be accompanied with the list of domains in which the candidate had a low grade, to provide guidance for exams' retake preparation.

Candidates who disagree with the exam results may file a complaint. For more information, please refer to www.pecb.com

EXAM RETAKE POLICY

There is no limit on the number of times a candidate may retake an exam. However, there are some limitations in terms of allowed time-frame in between exam retakes, such as:

- If a candidate does not pass the exam on the first attempt, he/she must wait 15 days for the next attempt (1st retake). Retake fee applies.
Note: Students, who have completed the full training but failed the written exam, are eligible to retake the exam once for free within a 12 month period from the initial date of the exam.
- If a candidate does not pass the exam on the second attempt, he/she must wait 3 months (from the initial date of the exam) for the next attempt (2nd retake). Retake fee applies.
- If a candidate does not pass the exam on the third attempt, he/she must wait 6 months (from the initial date of the exam) for the next attempt (3rd retake). Retake fee applies.

After the fourth attempt, a waiting period of 12 months from the last session date is required, in order for candidate to sit again for the same exam. Regular fee applies.

For the candidates that fail the exam in the 2nd retake, PECB recommends to attend an official training in order to be better prepared for the exam.

To arrange exam retakes (date, time, place, costs), the candidate needs to contact the PECB partner who has initially organized the session.

CLOSING FILES

Closing a file is equivalent to rejecting a candidate's application. As a result, when candidates request that their file be reopened, PECB will no longer be bound by the conditions, standards, policies, candidate handbook or exam preparation guide that were in effect before their file was closed.

Candidates who want to request that their file be reopened must do so in writing, and pay the required fees.

EXAMINATION SECURITY

A significant component of a successful and respected professional certification credential is maintaining the security and confidentiality of the examination. PECB relies upon the ethical behaviour of certificate holders and applicants to maintain the security and confidentiality of PECB examinations. When someone who holds PECB credentials reveals information about PECB examination content, they violate the PECB Code of Ethics. PECB will take action against individuals who violate PECB Policies and the Code of Ethics. Actions taken may include permanently barring individuals from pursuing PECB credentials and revoking certifications from those who have been awarded the credential. PECB will also pursue legal action against individuals or organizations who infringe upon its copyrights, proprietary rights, and intellectual property.

SAMPLE EXAM QUESTIONS AND POSSIBLE ANSWERS

1. Development of metrics

For each of the following clauses of the ISO/IEC 20000 standard, please provide two examples of metrics that would be acceptable to measure the conformity to the clause.

- 4.5.4.3 Management Review

Possible answers:

- Total of management review meetings completed according to the annual planning
- Average participation rates in management review meetings to date

2. Interpretation of ISO clauses

For each of the following requirements of the ISO/IEC 20000-1, please identify and describe two deliverables that would help achieve compliance with the requirements.

4.5.5 Maintain and improve the SMS (Corrective actions):

Possible answers:

- Documented procedure defining how to identify corrective actions and how to treat them.
- Updated list of corrective actions showing the responsible person, the status and the deadline for each corrective action.

3. Recommendations

The management of the organization would like to receive recommendations from you to improve the processes in place to comply with the requirements of ISO/IEC 20000-1 on control of documents

Possible answers:

1. Document and implement a procedure for control of documents
2. Maintain a log for documents changes with records of the approvals.
3. Communicating the new process and organize training session.