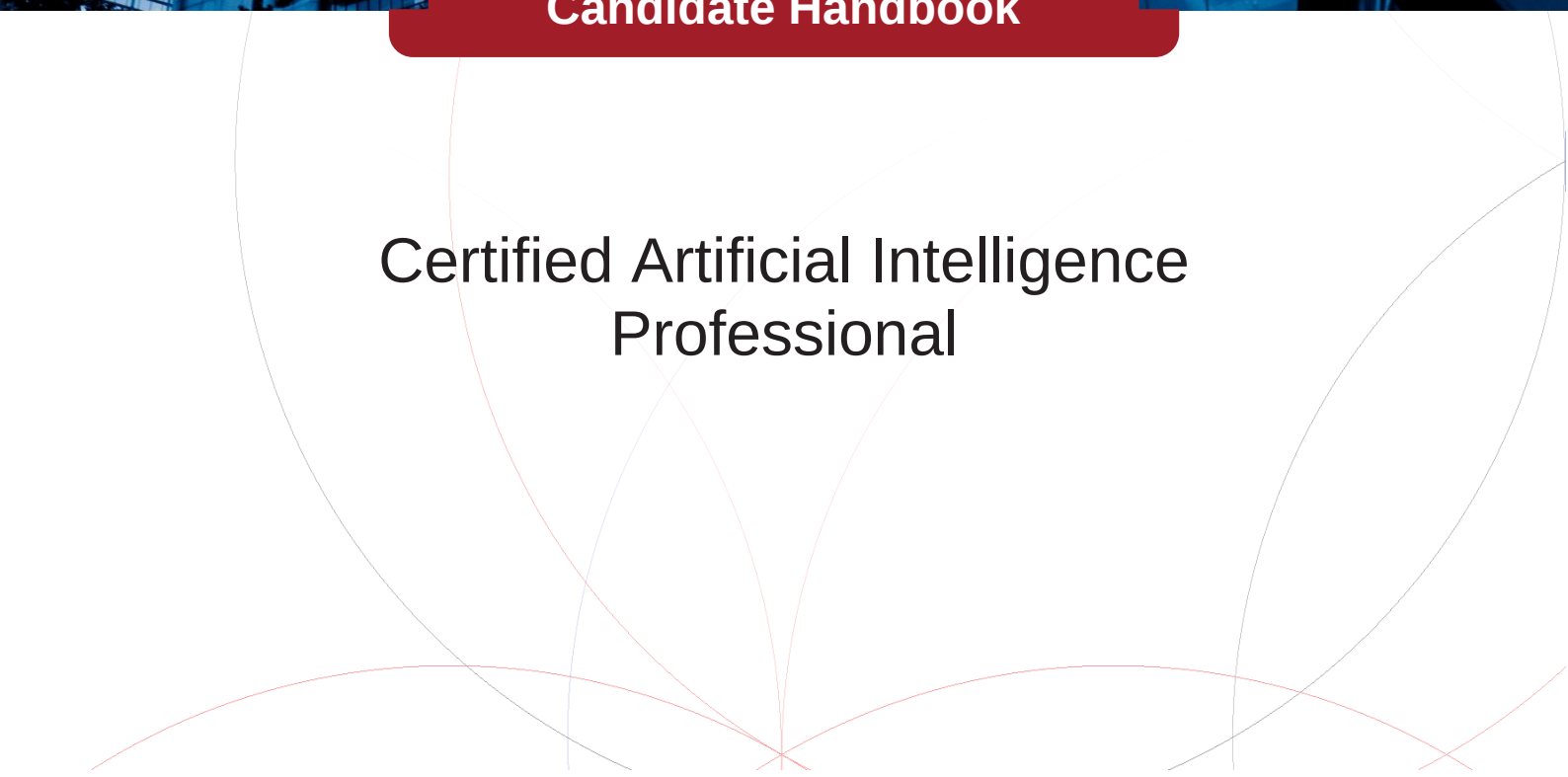




**PECB**

**Candidate Handbook**

**Certified Artificial Intelligence  
Professional**



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## SECTION I: INTRODUCTION

### About PECB<sup>1</sup>

PECB is a leading certification body dedicated to fostering digital trust through comprehensive education, certification, and certificate programs across various disciplines. We empower professionals to develop and demonstrate their competence in digital security and other areas of expertise by providing world-class certification programs that adhere to internationally recognized standards.

**Vision:** As the global leader in digital trust education and certification, our vision is to empower and inspire professionals by enhancing their skills and fostering their professional success.

**Mission:** Our mission is to empower professionals with the knowledge and skills to protect their digital assets and ensure business continuity. Through our comprehensive programs, we aim to foster a secure digital ecosystem where innovation thrives and risks are managed effectively.

**Values:** Growth, Change, Harmony, Simplicity, Reliability, and Quality

### Accreditations and Affiliations

At PECB, we are driven and culturally powered by a systemic process of continual improvement and professional development. As a testament to our high standards and commitment to providing quality services to our clients, PECB is accredited by a number of bodies and is a member of many professional organizations.

For detailed information on our accreditations and affiliations, click [here](#).

### PECB Code of Ethics

The Code of Ethics is the set of values that PECB is committed to following, and defines the responsibilities of PECB professionals, including employees, trainers, examiners, invigilators, members of different committees, partners, distributors, certified individuals, and certificate holders. To read the PECB's Code of Ethics, click [here](#).

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#### <sup>1</sup> Notes:

- The legal name of PECB is "PECB Group Pte. Ltd."
- PECB is an acronym that stands for "Professional Evaluation and Certification Board."
- Education (used in the first sentence of this page) refers to training courses developed by PECB, and offered globally through its network of partners.
- Certification refers to certification services provided according to ISO/IEC 17024. Certificate Program refers to certificate program services provided according to ANSI/ASTM E2659.
- "Certified" refers to ISO/IEC 17024 certifications' requirements and "Certificate holder" refers to ASTM E2659 certificate programs' requirements. Certificate holders are not certified, licensed, accredited, or registered to engage in a specific occupation or profession.

## **Introduction to Certified Artificial Intelligence Professional Certification**

This document specifies the PECB Certified Artificial Intelligence Professional certification scheme in compliance with ISO/IEC 17024. It also outlines the steps that candidates should take to obtain and maintain their credentials. As such, it is very important to carefully read all the information included in this document before completing and submitting your certification application.

If you have questions or need further information after reading it, please contact [support@pecb.com](mailto:support@pecb.com).

## SECTION II: EXAM PROCESS, RULES AND POLICIES

For detailed and most up-to-date information, you are advised to refer to the online **Exam Rules and Policies** by clicking [here](#).

### Preparing For and Scheduling the Exam

To schedule the exam, candidates have two options:

1. **Online:** Through the [PECB Exams application](#). To schedule a remote exam, please go to the following link: [Exam Events](#).
2. **Paper-based:** By contacting the PECB authorized partner that provided the training course. The partner arranges the date, time, and location where the candidate is going to attend the exam.

For any changes with regard to the exam date, time, location, or other details, please contact [support@pecb.com](mailto:support@pecb.com).

### Special Accommodations

To ensure equal opportunities for all qualified persons, PECB will make reasonable accommodations for candidates, when appropriate. If candidates need special accommodations because of special needs (dyslexia, dyspraxia, ADHD, vision impairment, but not limited to) and temporary conditions (pregnancy, surgery, postoperative recovery, but not limited to), they can apply for such arrangements through the [myPECB](#) dashboard/ Enroll for an Exam. Any information that candidates provide regarding their special needs will be treated with confidentiality.

### Taking the Exam

Candidates are required to arrive/be present at least 30 minutes before the exam starts. Candidates who arrive late will not receive additional time to make up for the delay and may not be allowed to sit for the exam.

Candidates are required to bring a valid identity card (national ID card, driver's license, or passport) and show it to the invigilator.

| Online Exam Rules                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Paper-Based Exam Rules                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Exams are provided electronically via the PECB Exams application.</li><li>• The use of secondary electronic devices, such as tablets and phones, is not allowed during the exam.</li><li>• The exam session is supervised remotely by a PECB Invigilator via the PECB Exams application and an external/integrated camera.</li><li>• If requested on the day of the exam, additional time can be provided to candidates taking the exam in a non-native language, as follows:<ul style="list-style-type: none"><li>– 10 additional minutes for Foundation exams</li><li>– 20 additional minutes for Manager exams</li><li>– 30 additional minutes for Lead exams</li></ul></li></ul> | <ul style="list-style-type: none"><li>• Exams are provided on paper, where candidates are not allowed to use anything but the exam paper and a pen.</li><li>• The use of electronic devices, such as laptops, tablets, or phones, is not allowed.</li><li>• The exam session is supervised by a PECB approved Invigilator at the location where the Partner has organized the training course.</li><li>• If requested on the day of the exam, additional time can be provided to candidates taking the exam in a non-native language, as follows:<ul style="list-style-type: none"><li>– 10 additional minutes for Foundation exams</li><li>– 20 additional minutes for Manager exams</li><li>– 30 additional minutes for Lead exams</li></ul></li></ul> |

For specific information on exam types, languages available, and other details, please check the [List of PECB Exams](#).

## Exam Results

Exam results will be communicated via email.

- The time span for the communication of exam results starts from the exam date and lasts three to eight weeks for essay type exams and two to four weeks for multiple-choice paper-based exams.
- For online multiple-choice exams, candidates receive their results instantly.

Candidates who successfully complete the exam will be able to apply for one of the credentials of the respective certification scheme.

For candidates who fail the exam, a list of the domains where they have performed poorly will be added to the email to help them prepare better for a retake.

If candidates disagree with the evaluation, they may request a re-evaluation of their exam results within 30 days from the date they receive their exam results. If still not satisfied, they can file an appeal through the [PECB Ticketing System](#) within 30 days from the date they receive the re-evaluation decision. Appeals received after 30 days will not be processed. For more detailed information, please refer to [Complaint and Appeal Policy](#).

## Exam Retake Policy

There is no limit to the number of times a candidate can retake an exam. However, there are certain limitations in terms of the time span between exam retakes. For more information, please visit this link: [Exam Rules and Policies - PECB](#).

## Exam Security Policy

A significant component of a professional certification credential is maintaining the security and confidentiality of the exam. PECB relies upon the ethical behavior of certification holders and applicants to maintain the security and confidentiality of PECB exams.

Any disclosure of information about the content of PECB exams is a direct violation of PECB's Code of Ethics. PECB will take action against any individuals who violate such rules and policies, including permanently banning individuals from pursuing PECB credentials and revoking/invalidating any previous ones. PECB will also pursue legal action against individuals or organizations who infringe upon its copyrights, proprietary rights, and intellectual property.

## Exam Competency Domains

The content of the exam is divided as follows:

### Domain 1: Fundamental concepts and principles of artificial intelligence

**Main objective:** Ensure that the candidate is able to interpret the fundamental concepts and principles of Artificial Intelligence (AI).

| Competencies                                                                                       | Knowledge statements                                                            |
|----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| 1. Ability to explain the main concepts of AI                                                      | 1. Knowledge of the main concepts and principles of AI                          |
| 2. Ability to describe the history and evolution of AI                                             | 2. Knowledge of the history and evolution of AI                                 |
| 3. Ability to identify and explain different types of AI: Narrow, General, and Superintelligent AI | 3. Knowledge of the types of AI and their characteristics                       |
| 4. Ability to discuss various AI applications in different industries                              | 4. Knowledge of AI applications in various industries                           |
| 5. Ability to explain the difference between AI, machine learning, and deep learning               | 5. Knowledge of the differences between AI, machine learning, and deep learning |
| 6. Ability to identify the key components of an AI system                                          | 6. Knowledge of the key components of an AI system                              |
| 7. Ability to discuss the ethical considerations in AI development and use                         | 7. Knowledge of ethical considerations in AI development and use                |
| 8. Ability to recognize the impact of AI on society and the economy                                | 8. Knowledge of the societal and economic impacts of AI                         |

## Domain 2: Data analysis and visualization

**Main objective:** Ensure that the candidate is able to interpret the fundamental concepts and principles of Data Analysis and Visualization and apply them effectively in AI and data science contexts.

| Competencies                                                                                                          | Knowledge statements                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Ability to explain the importance of data analysis and visualization in AI and data science                        | 1. Knowledge of the importance and role of data analysis and visualization in AI and data science                                                     |
| 2. Ability to describe common data analysis techniques and visualization types along with their appropriate use cases | 2. Knowledge of various common data analysis techniques and visualization types (e.g., bar charts, line graphs, scatter plots) and their applications |
| 3. Ability to apply principles of effective data visualization in conjunction with data analysis techniques           | 3. Knowledge of principles of effective data visualization, including clarity, accuracy, and efficiency                                               |
| 4. Ability to understand and apply principles of design, color theory, and visual perception in data visualizations   | 4. Knowledge of design principles, color theory, and visual perception as they relate to data visualization                                           |
| 5. Ability to follow best practices for data cleaning, preparation, and creating clear, informative visualizations    | 5. Knowledge of best practices for data cleaning, preparation, and creating clear, informative, and visually appealing data visualizations            |
| 6. Ability to identify and use popular data visualization tools                                                       | 6. Knowledge of popular data visualization tools (e.g., Matplotlib) and their features                                                                |
| 7. Ability to create interactive dashboards and reports using data analysis and visualization techniques              | 7. Knowledge of techniques for creating interactive dashboards and reports using data analysis and visualization                                      |
| 8. Ability to craft compelling data stories through analysis and visualization                                        | 8. Knowledge of data storytelling techniques and how to apply them using data analysis and visualizations                                             |
| 9. Ability to execute hands-on projects to apply data analysis and visualization techniques                           | 9. Knowledge of hands-on project methods for applying data analysis and visualization techniques                                                      |

### Domain 3: Building machine learning models

**Main objective:** Ensure that the candidate understands the fundamental concepts of machine learning and data science and can apply them effectively.

| Competencies                                                                                 | Knowledge statements                                                       |
|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| 1. Ability to explain the main concepts of machine learning (ML)                             | 1. Knowledge of the main concepts of machine learning                      |
| 2. Ability to describe the types of ML: Supervised, Unsupervised, and Reinforcement Learning | 2. Knowledge of the types of machine learning and their characteristics    |
| 3. Ability to identify key algorithms and techniques in ML                                   | 3. Knowledge of key ML algorithms and techniques                           |
| 4. Ability to discuss the role of machine learning in AI                                     | 4. Knowledge of the role of machine learning in AI                         |
| 5. Ability to perform data preprocessing, cleaning, and visualization                        | 5. Knowledge of data preprocessing, cleaning, and visualization techniques |
| 6. Ability to apply different ML algorithms to solve real-world problems                     | 6. Knowledge of model evaluation and validation methods                    |
| 7. Ability to use various data science tools and frameworks                                  | 7. Knowledge of data science tools and frameworks                          |

#### Domain 4: Deep learning and natural language processing

**Main objective:** Ensure the candidate understands the principles and applications of deep learning and natural language processing and can apply them effectively.

| Competencies                                                                       | Knowledge statements                                                                                                                            |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Ability to explain the basics of deep learning                                  | 1. Understand core concepts such as neural network layers, activation functions, loss functions, and the end-to-end training pipeline           |
| 2. Ability to identify popular deep learning architecture (e.g., CNNs, RNNs, GANs) | 2. Be familiar with the structure, strengths, and typical applications of convolutional, recurrent, and generative adversarial networks         |
| 3. Ability to train and optimize deep learning models                              | 3. Knowledge of training and optimization techniques for deep learning                                                                          |
| 4. Ability to apply deep learning techniques to real-world problems                | 4. Recognize how deep learning models are applied in computer vision, speech recognition, recommendation systems, and anomaly detection         |
| 5. Ability to explain the basics of natural language processing                    | 5. Grasp foundational NLP tasks such as tokenization, part-of-speech tagging, word embeddings, and language modeling                            |
| 6. Ability to describe various NLP techniques and algorithms                       | 6. Understand sequence-to-sequence models, attention mechanisms, transformer architectures, and common approaches to sentiment analysis and NER |
| 7. Ability to apply NLP techniques to real-world problems                          | 7. Knowledge of deep learning and NLP frameworks and tools                                                                                      |
| 8. Ability to use deep learning and NLP frameworks and tools                       |                                                                                                                                                 |

## Domain 5: Knowledge and application of computer vision and robotics

**Main objective:** Ensure the candidate understands the principles and applications of both computer vision and robotics.

| Competencies                                                          | Knowledge statements                                                                                                        |
|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| 1. Ability to explain the basics of computer vision                   | 1. Understand core concepts such as image formation, pixel representation, feature detection, and segmentation              |
| 2. Ability to describe various computer vision techniques             | 2. Insight into methods like edge detection, object detection (YOLO), and image classification                              |
| 3. Ability to apply computer vision techniques to real-world problems | 3. Recognize use cases in surveillance, medical imaging, autonomous vehicles, augmented reality, and quality inspection     |
| 4. Ability to use computer vision tools and frameworks                | 4. Knowledge of computer vision frameworks and tools such as OpenCV, TensorFlow and PyTorch                                 |
| 5. Ability to explain the fundamentals of robotics                    | 5. Grasp foundational robotics concepts including kinematics, sensors, actuators, control loops, and feedback systems       |
| 6. Ability to describe different types of robots and their functions  | 6. Understand architecture components like ROS nodes, middleware communication, hardware integration, and real-time control |
| 7. Ability to use various robotics tools and frameworks               | 7. Knowledge of robotics frameworks and tools                                                                               |

## Domain 6: AI Security

**Main objective:** Ensure the candidate understands the security vulnerabilities, risks, and safeguards associated with AI systems, and can implement robust measures to protect AI models, data, and outputs throughout the AI lifecycle.

| Competencies                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Knowledge statements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>1. Ability to identify and mitigate prompt injection vulnerabilities in LLMs</li> <li>2. Ability to detect and prevent sensitive information disclosure through AI outputs</li> <li>3. Ability to manage supply chain security in AI ecosystems</li> <li>4. Ability to defend against data and model poisoning attacks</li> <li>5. Ability to handle AI outputs responsibly and securely</li> <li>6. Ability to limit excessive AI agency and privilege escalation</li> <li>7. Ability to prevent system prompt leakage and safeguard internal configurations</li> <li>8. Ability to secure vector stores and embedding systems in RAG setups</li> <li>9. Ability to mitigate misinformation, hallucinations, and overreliance on LLM outputs</li> <li>10. Ability to detect and counter deepfakes and synthetic media threats</li> </ol> | <ol style="list-style-type: none"> <li>1. Understanding of how LLMs interpret natural language and how malicious inputs can bypass safety mechanisms</li> <li>2. Knowledge of prompt isolation, access control, and data sanitization techniques to prevent leakage of confidential or training data</li> <li>3. Awareness of software supply chain risks, vendor vetting, and dependency monitoring</li> <li>4. Proficiency in data validation, adversarial training, and designing secure training pipelines to reduce exposure to poisoning attacks</li> <li>5. Understanding of output post-processing, manual review for high-risk content, and enforcement of structured output formats</li> <li>6. Skills in extension permission control, user confirmation protocols, and logging of agent actions to prevent unauthorized system behavior</li> <li>7. Knowledge of separating secrets from AI prompts, using external validation for critical logic, and enforcing privilege separation in AI design</li> <li>8. Understanding of embedding inversion risks, context isolation, access controls, and secure indexing practices in RAG pipelines</li> <li>9. Awareness of hallucination risks, use of retrieval-based grounding (RAG), accuracy refinement methods, and implementation of human-in-the-loop validation</li> <li>10. Familiarity with deepfake generation methods, detection technologies, and organizational countermeasures including awareness programs and forensic analysis tools</li> </ol> |

## Domain 7: AI ethics, governance, and strategy

**Main objective:** Ensure that the candidate understands ethical AI design, governance frameworks, and strategic implementation.

| Competencies                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Knowledge statements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>1. Ability to manage AI risks and uncertainties</li> <li>2. Ability to ensure privacy in AI data handling practices</li> <li>3. Ability to implement robust security measures in AI systems</li> <li>4. Ability to ensure compliance with data protection regulations and standards</li> <li>5. Ability to identify and mitigate risks in AI projects</li> <li>6. Ability to develop contingency plans and resolve problems effectively</li> <li>7. Ability to develop and implement responsible AI policies</li> <li>8. Ability to continuously monitor and improve AI practices</li> <li>9. Ability to integrate ethical considerations throughout the AI lifecycle</li> </ol> | <ol style="list-style-type: none"> <li>1. Understanding of risk identification, assessment, mitigation frameworks and AI-specific threat modeling</li> <li>2. Knowledge of privacy-by-design principles, data minimization, anonymization methods, and secure data lifecycle management</li> <li>3. Knowledge of security measures and practices in AI systems</li> <li>4. Knowledge of data protection regulations and standards</li> <li>5. Proficiency in conducting scenario analysis and using bias detection tools to uncover project vulnerabilities</li> <li>6. Knowledge of contingency planning and problem resolution strategies in AI</li> <li>7. Ability to create governance frameworks that enforce fairness, accountability, transparency, human oversight, and stakeholder roles in AI initiatives</li> <li>8. Knowledge of continuous monitoring and improvement practices for AI</li> <li>9. A deep understanding of how to use ethical guidelines, reduce bias in AI systems, make AI decisions easier to understand, and include human values in every step of building and using AI</li> </ol> |

Based on the above-mentioned domains and their relevance, the exam contains 80 multiple-choice questions, as summarized in the table below:

|                                                                           |                                                                |                                                           |                                                                        | Level of understanding<br>(Cognitive/Taxonomy) required                     |                                         |
|---------------------------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------------------|------------------------------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------|
|                                                                           |                                                                | Number of<br>questions/points<br>per competency<br>domain | % of the exam<br>devoted/points<br>to/for each<br>competency<br>domain | Questions that<br>measure<br>comprehension,<br>application, and<br>analysis | Questions that<br>measure<br>evaluation |
| Competency domains                                                        | Fundamental concepts and principles of artificial intelligence | 7                                                         | 8.75                                                                   |                                                                             | X                                       |
|                                                                           | Data analysis and visualization                                | 17                                                        | 21.25                                                                  | X                                                                           |                                         |
|                                                                           | Building machine learning models                               | 17                                                        | 21.25                                                                  | X                                                                           |                                         |
|                                                                           | Deep learning and natural language processing                  | 19                                                        | 23.75                                                                  | X                                                                           |                                         |
|                                                                           | Knowledge and application of computer vision and robotics      | 5                                                         | 6.25                                                                   |                                                                             | X                                       |
|                                                                           | AI Security                                                    | 4                                                         | 5                                                                      |                                                                             | X                                       |
|                                                                           | AI ethics, governance, and strategy                            | 11                                                        | 13.75                                                                  |                                                                             | X                                       |
| Total                                                                     |                                                                | 80                                                        | 100%                                                                   |                                                                             |                                         |
| Number of questions per level of understanding                            |                                                                |                                                           |                                                                        | 53                                                                          | 27                                      |
| % of the exam devoted to each level of understanding (cognitive/taxonomy) |                                                                |                                                           |                                                                        | 66.25%                                                                      | 33.75%                                  |

The passing score of the exam is **70%**.

**This exam comprises multiple-choice questions:** The multiple-choice exam can be used to evaluate candidates' understanding of both simple and complex concepts. It comprises both stand-alone and scenario-based questions. Stand-alone questions stand independently within the exam and are not context-dependent, whereas scenario-based questions are context-dependent, i.e., they are developed based on a scenario that a candidate is asked to read and is expected to provide answers to five questions related to that scenario. When answering stand-alone and scenario-based questions, candidates will have to apply various concepts and principles explained during the training course, analyze problems, identify and evaluate alternatives, combine several concepts or ideas, etc.

Each multiple-choice question has three options, of which one is the correct response option (keyed response) and two incorrect response options (distractors).

This is an open-book exam. The candidate is allowed to use the following reference materials:

- A copy of the standard (accessed through the PECB Exams app and/or printed)
- Training course materials (accessed through the PECB Exams app and/or printed)
- Any personal notes taken during the training course (accessed through the PECB Exams app and/or printed)

A sample of exam questions will be provided below.

### Sample Exam Questions

1. You have a numeric column “income” in your dataset with some missing entries. You decide that these values are not important and remove them. Which approach is commonly used in this situation?
  - A. One-hot encoding
  - B. Mean or median imputation
  - C. **Drop the null values**
2. In data visualization, what is a line chart primarily used to do?
  - A. **Show trends over time**
  - B. Display relationships between variables
  - C. Represent proportions of a whole
3. Which type of machine learning problem is used to predict categorical labels?
  - A. Clustering
  - B. Regression
  - C. **Classification**
4. How can you filter a DataFrame df to keep only the rows where the salary column is greater than or equal to 50000?
  - A. `df_filtered = df if (df["salary"] >= 50000)`
  - B. **`df_filtered = df[df["salary"] >= 50000]`**
  - C. `df_filtered = df.select(df["salary"] >= 50000)`

#### Scenario 1:

*Trackealth* is a startup building a mobile app that helps users monitor fitness and health goals using smart wearables. The data science team collects step counts, heart rate, and sleep patterns daily from over 200,000 users. Using Pandas and NumPy, they clean and organize the data, removing outliers like unusually high step counts or missing sleep logs. A classification model built with logistic regression predicts whether a user is likely to meet their weekly fitness goal, while a clustering model groups users by activity levels to offer tailored advice. Visual insights are created using Seaborn heatmaps and line plots to explore correlations. Performance is measured using accuracy, precision, and recall.

Based on the scenario above, answer the following question.

1. Which machine learning model does *Trackealth* use to predict whether a user will meet the weekly fitness goal?
  - A. **Logistic regression**
  - B. Random forest
  - C. Decision tree

## SECTION III: CERTIFICATION PROCESS, RULES AND POLICIES

### PECB Certified Artificial Intelligence Professional Credentials

All PECB certifications have specific requirements regarding professional experience. To determine which credential is right for you, take into account your professional needs and analyze the criteria for the certifications.

The credentials in the PECB Certified Artificial Intelligence Professional scheme have the following requirements:

| Credential                                                      | Exam                                                                   | Professional experience                                              | AIPMS project experience                 | Other requirements                              |
|-----------------------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------|------------------------------------------|-------------------------------------------------|
| PECB Certified Artificial Intelligence Professional Provisional | PECB Certified Artificial Intelligence Professional exam or equivalent | None                                                                 | None                                     | <a href="#">Signing the PECB Code of Ethics</a> |
| PECB Certified Artificial Intelligence Professional             |                                                                        | Two years:<br>One year of work experience in artificial intelligence | Project activities: a total of 200 hours |                                                 |

To be considered valid, the implementation activities should follow best implementation and management practices and include the following:

1. Conducting exploratory data analysis to identify trends and patterns
2. Designing and developing scalable software solutions
3. Maintaining and optimizing existing software applications to enhance functionality and efficiency
4. Collaborating with cross-functionality teams to align AI related projects with business goals
5. Building interactive dashboards and visualizations to communicate insights
6. Coordinating and overseeing projects focused on data management and analysis

For detailed and most up-to-date information, you are advised to refer to the online **Certification Process** by clicking [here](#).

### Applying for Certification

All participants who successfully pass their certification exam (or an equivalent accepted by PECB) are entitled to apply for the PECB credentials they were examined for. Specific professional requirements will need to be fulfilled to be PECB certified.

The application process is very simple and takes only a few minutes:

- [Create](#) your account
- Check your email for the confirmation link
- [Log in](#) and click on Apply for Certificate

The approval of the application occurs when the Certification Department validates that you fulfil all the certification requirements regarding the credential you have applied for. An email will be sent to the address you provided during your application to update you on your application status. If approved, you will then be able to download your certificate and digital badge from your member account.

### Professional Experience

Candidates must provide complete and correct information regarding their professional experience, including job title(s), start and end date(s), job description(s), and more. Candidates are advised to

summarize their previous or current assignments, providing sufficient details to describe the nature of the responsibilities for each job. More detailed information can be included in the CV.

### **Professional References**

For each application, two professional references are required. Professional references shall be individuals who have worked with you in a professional environment and can validate your expertise in the respective field, current, and previous work history. You cannot use as a reference the persons who fall under your supervision or are a relative of yours.

### **Project Experience**

The candidate's project log will be checked to ensure that the candidate has the required number of implementation hours.

### **Evaluation of Certification Applications**

The Certification Department will evaluate each application to validate the candidates' eligibility for certification or certificate program. A candidate whose application is being reviewed will be notified in writing and, if necessary, given a reasonable time frame to provide any additional documentation. If a candidate does not respond by the deadline or does not provide the required documentation within the given time frame, the Certification Department will validate the application based on the initial information provided, which may lead to the candidates' credential downgrade.

PECB can deny certification/certificate program if candidates:

- Falsify the application
- Violate the exam procedures
- Violate the PECB Code of Ethics
- Fail the exam

If applicants have any concerns regarding the denial of certification/certificate program, they may file an appeal by following the complaint and appeal process [Complaint and Appeal Policy](#).

The application payment for the certification/certificate program is nonrefundable. This is due to the application verification process, the evidence submitted by the candidates, and the involvement of the relevant departments.

If candidates pass the exam, they can apply for the certificate within 12 months from the course completion date for instructor-led training, or within 12 months from the purchase date for self-study and eLearning formats. Even though the certification period expires, candidates have the right to reopen their case. However, PECB will no longer be responsible for any changes regarding the conditions, standards, policies, and candidate handbook that were applicable before the case was closed. A candidate requesting their case to reopen must do so in writing to [certification.team@pecb.com](mailto:certification.team@pecb.com) and pay the required fee.

## SECTION IV: CERTIFICATION MAINTENANCE POLICY

For detailed and most up-to-date information, you are advised to refer to the online **Certification Maintenance Policy** by clicking [here](#).

### Renewing the Certification

PECB certifications are valid for three years. To maintain them, PECB certified professionals must meet the requirements related to the designated credential, e.g., they must fulfill the required number of continuing professional development (CPD) hours. In addition, they need to pay the annual maintenance fee.

### Upgrade Credentials

PECB Certifications can be upgraded online through your dashboard by logging in [here](#), clicking **View Certificate**, and then clicking the **Upgrade** button. For more information on the upgrade requirements and fees, go to the [Certification Maintenance](#) page on the PECB website.

### Suspension of Certification

Failure to submit the CPD and AMF payment during the certification cycle will result in a 12-month suspension period, during which you can address any outstanding AMFs and CPDs. In addition to these, the certification may be suspended for other reasons listed in the **Certification Maintenance Policy**. Individuals whose certification has been suspended are not authorized to further promote their certification while it is suspended.

Suspended members must remediate their suspension within a maximum period of 12 months.

### Revocation of Certification

PECB can revoke (that is, withdraw) certification if the candidate fails to address the outstanding AMFs and CPDs during the 12-month suspension period. In addition to these, certification may be revoked for other reasons listed in the **Certification Maintenance Policy**. Individuals whose certification has been revoked are not authorized to use any references to a certified status.

If candidates disagree with any certification decision (certification level, suspension, or revocation) they may request a re-evaluation within 30 days from the date they receive their certification decision. If still not satisfied, they can file an appeal through the [PECB Ticketing System](#) within 30 days from the date they receive the re-evaluation decision. Appeals received after 30 days will not be processed. For more detailed information, please refer to [Complaint and Appeal Policy](#).

### Other Statuses

Besides being active, suspended, or revoked, a certification can be voluntarily withdrawn, or designated as Emeritus. For more information, go to the [Certification Maintenance](#) page on the PECB website.

## SECTION V: OTHER POLICIES

### Application Fees for Examination and Certification

Candidates may take the exam without attending the training course. The applicable prices are as follows:

- Lead Exam: \$1000<sup>2</sup>
- Manager Exam: \$700
- Foundation Exam: \$500
- Transition Exam: \$500

The application fee for certification is as follows:

- Master Certification: \$100
- Foundation Certification: \$200
- Transition Certification: \$200
- All other Certifications: \$500

For candidates who complete a training, eLearning, or self-study course delivered by a PECB Partner, the training fee includes the first exam attempt, one free retake, the certification application fee, and the first year of the Annual Maintenance Fee (AMF). This cycle must be completed within 12 months from the course completion date for instructor-led training, or within 12 months from the purchase date for self-study and eLearning formats.

### Complaint and Appeal Policy

A person wishing to file a complaint or an appeal can do so by submitting a [service ticket](#) and selecting the corresponding category in the topic dropdown menu: “file a complaint” or “file a certification/certificate program appeal”. Before filing a complaint or an appeal, make sure to follow the [complaint and appeal policy](#).

### Exams from Other Accredited Certification Bodies

PECB accepts exams from other recognized accredited certification bodies. PECB will evaluate the requests through its equivalence process to decide whether the respective exam(s) can be accepted as equivalent to the respective PECB certification.

### Refund Policy

PECB will refund your payment if the requirements of the Refund Policy are met. To read the Refund Policy, click [here](#).

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<sup>2</sup> All prices listed in this document are in US dollars.



Contact PECB Support at  
[support@pecb.com](mailto:support@pecb.com)



Telephone number  
+1-844-426-7322



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