

ISTQB[®] AI Testing course

ISTQB[®]-accredited Certified Tester AI Testing (CT-AI)
Exactpro Training Course

Guided plan

2024



Course at a glance

Exactpro's training course aims to help individuals to understand the complexities involved in:

- using the AI toolkit to automate workflows and everyday project tasks, enhancing their efficiency, and
- testing AI-based systems – including self-learning functionalities – from the functional and performance perspectives, mitigating issues such as biases, ethics, non-determinism, and the challenges related to transparency and explainability.



Autonomous



£99/month

Cancel anytime, no fee.

- ✓ Access to the training materials library
- ✓ Chat support
- ✓ Access to 250+ test questions
- ✓ Mock Exam at the end of the course, to track your progress
- ✓ Certificate upon course completion
- ✓ Tips on how to pass the exam

Guided

£800

- ✓ 6-week course (with additional 2 weeks of access to materials)
- ✓ Access to the training materials library
- ✓ Chat support
- ✓ Access to 250+ test questions
- ✓ Mock Exam at the end of the course, to track your progress
- ✓ Certificate upon course completion
- ✓ Tips on how to pass the exam
- ✓ 20+ Q&A sessions with accredited expert
- ✓ 6 hands-on Python workshops

Enterprise



**Contact us for
customised
training session**

Are you limited on time or have specific requests based on your current project? Let us adjust the course to your needs.

Contact us below.

For more information, please visit our [website](#).



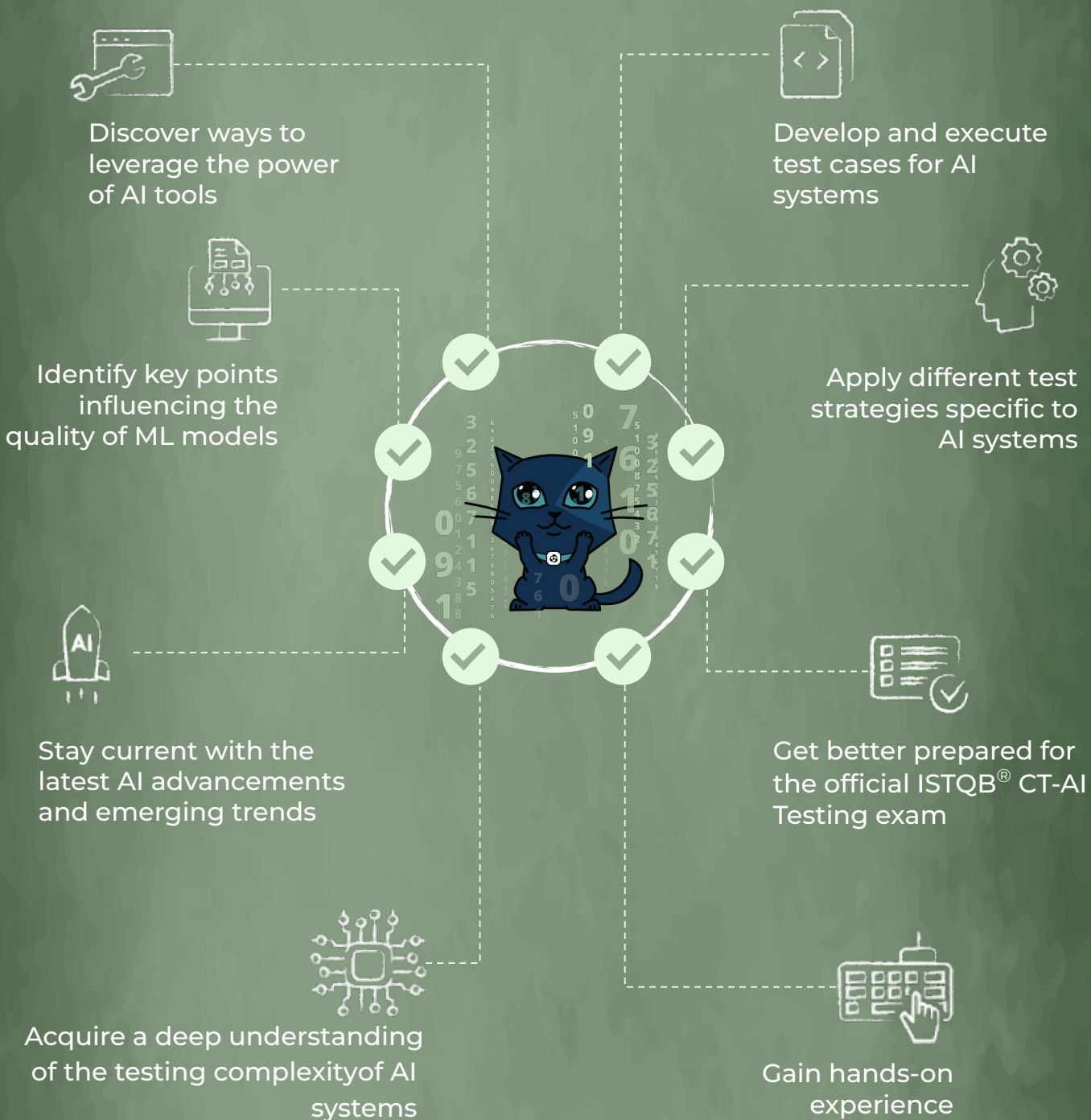
Why is this course for you?

Exactpro's ISTQB® AI Testing course benefits various groups of individuals and organisations, including but not limited to:

- Software Testers
- Test Automation Engineers
- Quality Assurance (QA) Professionals
- Developers
- Test Managers
- AI and Machine Learning Professionals
- Quality Analysts
- Anyone involved in software testing, quality assurance, test automation, or software development
- Anyone pursuing official ISTQB® AI Testing (CT-AI) certification



Learning goals



How will this course help you?



250+ Practice Questions



Chat Support with Expert



20+ Hours Live Sessions



6 Hands-on Python Workshops



Listen, Watch, Read formats



Mock Exam



User-friendly Platform



English Language



100% Online Course



Who will guide you?



Iosif Itkin 

CEO and co-founder, Exactpro



ISTQB® Certified Tester AI Testing

A4Q [20-AIFL-171752-43](#)



ISTQB® Certified Tester Foundation Level

iSQI [19-CTFL-151899-12](#)

Iosif Itkin is a co-founder & CEO of Exactpro, an independent provider of AI-enabled software testing services for financial-sector organisations. Spearheading Exactpro's AI Testing practice, Iosif also manages business development and research in trading systems reliability & Artificial Intelligence (AI). He holds a MSc degree in Theoretical Physics.



Iuliia Emelianova 

AI Tester, Data Scientist, Researcher



ISTQB® Certified Tester AI Testing

GASQ [ID 370555](#)



ISTQB® Certified Tester Foundation Level

GASQ [ID 77734](#)

Iuliia Emelianova is a data scientist, researcher and lecturer with Exactpro. Drawing on her extensive background at the intersection of academia, IT and financial services, Iuliia provides expert support on the firm's internal training courses and the courses organised for the global community of IT professionals. She holds a PhD in Physics and Mathematics.

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The course is facilitated by:



Dmitrii Degtiarenko 

Creative Manager, Exactpro

Dmitrii has lead the development of content and interactive learning materials for Exactpro's ISTQB® CTFL and AI Testing training courses, as well as several other Exactpro courses (available on the official [Youtube](#) channel).



ISTQB® Certified Tester Foundation Level

GASQ [ID 34720](#)



th2 

th2, the Next-gen Test Automation Framework for Financial Markets

th2 is a suite of comprehensive end-to-end technology-agnostic AI-driven test automation solutions. On this course, our th2 mascot helps you grasp the AI and ML terms and use cases.

Course Syllabus

The Training Course program follows the ISTQB® CT-AI v1.0 syllabus structure

Chapter 1: Introduction to AI

Definition of AI and AI effect
Narrow, general and super AI
AI-based and conventional systems
AI technologies
AI development frameworks
Hardware for AI-based systems
AI as a service
Pre-trained models
Standards, regulations and AI

Chapter 2: Quality Characteristics for AI-Based Systems

Flexibility and adaptability
Autonomy
Evolution
Bias
Ethics
Side effects and reward hacking
Transparency, interpretability and explainability
Safety and AI

Chapter 3: Machine Learning (ML) - Overview

Forms of ML
ML workflow
Selecting a form of ML
Factors involved in ML algorithm selection
Overfitting and underfitting

Chapter 4: ML - Data

Data preparation as part of the ML workflow
Training, validation and test datasets in the ML workflow
Dataset quality issues
Data quality and its effect on the ML model
Data labelling for supervised learning

Chapter 5: ML Functional Performance Metrics

Confusion matrix
Additional ML functional performance metrics for classification, regression and clustering
Limitations of ML functional performance metrics
Selecting ML functional performance metrics
Benchmark suites for ML

Chapter 6: ML - Neural Networks and Testing

Neural networks
Coverage measures for neural networks

Chapter 7: Testing AI-Based Systems Overview

Specification of AI-based systems
Test levels for AI-based systems
Test data for testing AI-based systems
Testing for automation bias in AI-based systems
Documenting an AI component
Testing for concept drift
Selecting a test approach for an ML system

Chapter 8: Testing AI-Specific Quality Characteristics

Challenges testing self-learning systems
Testing autonomous AI-based systems
Testing for algorithmic, sample and inappropriate bias
Challenges testing complex AI-based systems
Challenges testing probabilistic and non-deterministic AI-based systems
Testing the transparency, interpretability and explainability of AI-based systems
Test oracles for AI-based systems
Test objectives and acceptance criteria

Chapter 9: Methods and Techniques for the Testing of AI-Based Systems

Adversarial attacks and data poisoning
Pairwise testing
A/B testing
Back-to-back testing
Metamorphic testing
Experience-based testing of AI-based systems
Selecting test techniques for AI-based systems

Chapter 10: Test Environments for AI-Based Systems

Test environments for AI-based systems
Virtual test environments for testing AI-based systems

Chapter 11: Using AI for Testing

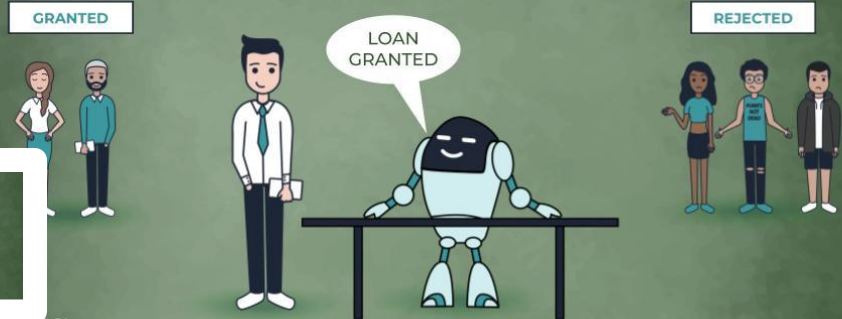
AI technologies for testing
Using AI to analyse reported defects
Using AI for test case generation
Using AI for the optimisation of regression test suites
Using AI for defect prediction
Using AI for testing user interfaces



ISTQB® AI Testing Course Materials examples

7.4 Testing for Automation Bias in AI-Based Systems

IMPRECISE PREDICTIONS ARE POSSIBLE



Reasons:

- Incorrect or insufficient test data
- Existing ML model

Sec. 7.4
39

FORMS OF AUTOMATION BIAS:

1. Accepting recommendations provided by the system without even thinking about other sources



Automation bias (complacency bias): A type of bias caused by a person favoring the recommendations of an automated decision-making system over other sources

Sec. 7.4
40

FORMS OF AUTOMATION BIAS:

2. Overlooking failures due to the lack of adequate system monitoring



Automation bias (complacency bias): A type of bias caused by a person favoring the recommendations of an automated decision-making system over other sources

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DEEPENING OF THE EXISTING
as a result of lack of rigorous testing and



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ISTQB® AI Testing course

Hands-on exercises

The course program features hands-on exercises with illustrative examples in several chapters. Let's zoom in and look at the explanations for the LIME model taken from one of them.

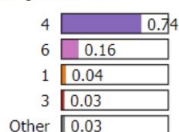
LIME, a model-agnostic machine learning tool, is suitable for our food product classification model. LIME is able to explain any black-box classifier with two or more classes. All we require is that the classifier implements a function that takes in raw text or a numpy array and outputs a probability for each class.

Here is an example for our preprocessed food product dataset.

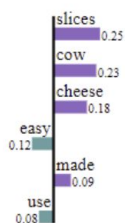
VISUALISATION OF THE LIME EXPLANATIONS FOR A SINGLE CLASS

```
exp.show_in_notebook(text=X_test[X_test.index[idx]], labels=(4,))
```

Prediction probabilities



NOT 4



Text with highlighted words

processed **cheese slices** made from **cow** milk **easy** to use



4
Bakery,
Cakes & Dairy



Sec. 8.6.1

66

Hands-on exercises topics

3.1.3 Demonstrating Overfitting and Underfitting

4.1.2 Data Preparation for ML

4.2.1 Identify Training and Test Data and Create an ML Model

5.4.1 Evaluating the Created ML Model

6.1.1 Implement a Simple Perceptron

8.6.1 Model Explainability

9.2.1 Pairwise Testing

9.5.1 Metamorphic Testing

9.6.1 Exploratory Testing and Exploratory Data Analysis (EDA)

What you should know before signing up

Mock Exam information

At the end of the course, you will have an opportunity to pass the Mock Exam to check your knowledge and obtain the Course certificate.

Please mind that the official ISTQB® Certified Tester AI Testing (CT-AI) Exam is not included in the price.

Certificates

You can get the Course certificate after successfully completing the Mock Exam (65% and more of correct answers) which you can showcase on LinkedIn. **This is not an official ISTQB® Certified Tester AI Testing (CT-AI) certificate.**

Course accreditation

Exactpro is an ISTQB®-accredited Training Provider for the Specialist Certified Tester AI Testing certification. You can find us among the Accredited Training Providers on the [ISTQB® website](#).

Prerequisites

(if you want to pursue the CT-AI exam with ISTQB®)

Please note that, to gain the official certification from ISTQB®, candidates must hold a [Certified Tester Foundation Level](#) (CTFL) certificate. Feel free to check out our [training course](#) page for the CTFL certification, if this is where you need to start.



Still not sure?

Access the first chapter of the course via a **one-week trial** – check videos, slides, test questions and more at no charge.

The Trial includes:

- Pre-recorded videos
- Slides with expert comments
- Reading materials
- Quiz (test questions based on the ISTQB exam requirements)
- Glossary
- Chat with expert



Access our ISTQB® AI Testing Trial version at no charge. You will be enrolled to the course platform once you are registered.

Find out more




To find out more about the training course or register your interest, please visit careers.exactpro.com.




Access our ISTQB® Certified Tester AI Testing explainer series available freely on [YouTube](#). The video series provides a comprehensive introduction to the ISTQB® syllabus.



Still have questions? Please ask us here:

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 exactpro.com