The Creation of an Exam Blueprint

An exam blueprint is not just pulled out of thin air. Hours of time and effort go into determining each of the relevant components that you will find in a blueprint. This all takes place under the guidance of CertNexus Certifications development staff, along with the input of industry Subject Matter Experts (SMEs) that have relevant expertise and experience in the exam's subject areas. The blueprint is the output of a rigorous workshop, called the Job Task Analysis, or JTA.

During the JTA, the group of assembled SMEs helps determine:

- The appropriate target audience for the exam
- The purpose of the exam (or what the exam will certify the candidate can do)
- The high-level content areas the exam will cover (domains) and how critical or important each of those content areas are, which translates to the percentage of the exam that will cover a content area (weighting)
- The specific tasks that a certified person could or would be expected to successfully perform (exam objectives)
- The knowledge, skills, and abilities that might be utilized to perform the corresponding task, including concepts, tools, techniques, etc. (exam objective sub-topics, in bullet list form)
- The prerequisite knowledge, skills, or abilities that a candidate should possess or obtain before taking the exam (exam prerequisites)

Additionally, the workshop group also discusses certification validity terms (how long a certification will be valid for) and recertification options, including specific recertification requirements like Continuing Education activities if applicable. Depending on the exam, the group may also brainstorm a list of relevant acronyms and spelled-out terms.

Using an Exam Blueprint to Prepare for Your Exam

This material that comes out of the JTA is then assembled in a single document that is the exam blueprint. Let's look at each of those components in an actual exam blueprint to learn more and see how they can help you prepare for the exam.

Exam Title and Exam Code

The exam blueprint is labeled with the official title of the exam, which includes the exam code: a six-character naming convention that denotes the specific version of the exam. As the exam is updated, the exam code will change to reflect the new version.

Date Issued: 04/20/2020
Date Modified: 04/23/2020
Version: 1.2
Approved by: Scheme Committee

CertNexus Certified Ethical Emerging Technologist Exam CET-110

Sometimes, two versions of the exam with the same title will be available when you sign in to schedule your exam or go to purchase an exam voucher, particularly during the window before a previous version of the exam retires; the different exam codes will help you differentiate between the two versions.

The exam code is also referenced in preparation materials such as preparatory courses and exam delivery platforms, so **be sure you are selecting the appropriate version**.

Candidate Eligibility

The Candidate Eligibility section is fairly stock verbiage that describes the requirements which need to be met prior to the exam for an eligible candidate. Eligibility refers to the required criteria or conditions that a candidate must meet in order to take the exam, such as proof of identity or membership in an organization. CertNexus exams do not typically have any specific requirements that must be met prior to taking an exam, other than obtaining an exam voucher.

> **Candidate Eligibility**
> The *Certified Ethical Emerging Technologist (CEET)* exam requires no application fee, supporting documentation, or other eligibility verification measures in order to take the exam. An exam voucher may come bundled with your training program, or can be purchased separately here or directly from Pearson VUE. Once purchased, you will receive more information about how to register for and schedule your exam. Once you have obtained your voucher information, you can register for an exam time here. By registering, you agree to our Candidate Agreement included here.

This description always includes links to the following:

- The CertNexus store website, where a candidate can purchase an exam voucher.
- The CertNexus landing page of the Pearson VUE website, where a candidate can register for and schedule their exam.
- The CertNexus Candidate Agreement section of the CertNexus Candidate Handbook, which a candidate must accept and comply with as a condition of their candidacy.

Exam Prerequisites

The Exam Prerequisites section describes the formal or informal prerequisites that a candidate should possess in order to take the exam. Where eligibility speaks mostly to the more tangible conditions that a candidate must meet, prerequisites focus more on the knowledge, skills, or experience that a candidate

should have before taking their exam in order to be successful. These prerequisites could include required or recommended professional experience, relevant education, prior certifications, enrollment in a relevant program, etc.

Exam Prerequisites

While there are no formal prerequisites to register for and schedule an exam, we strongly recommend you first possess the knowledge, skills, and abilities to do the following:

- Demonstrate an understanding of the fundamental/foundational concepts related to ethics in data-driven technologies.
- Identify common ethical principles and frameworks and select the appropriate framework to understand and/or address ethical issues.
- Identify regulations, standards, and best practices utilized in the industry and identify the ethical challenges that may conflict with or compromise their implementation.
- Identify and mitigate the myriad risks that arise within the development, utilization, and/or implementation of data-driven technologies.
- Communicate about ethical risks and ethical practices internally within the organization and externally to relevant third parties.
- Create, implement, and evaluate ethical policies and governance regarding data-driven technology throughout the organization.

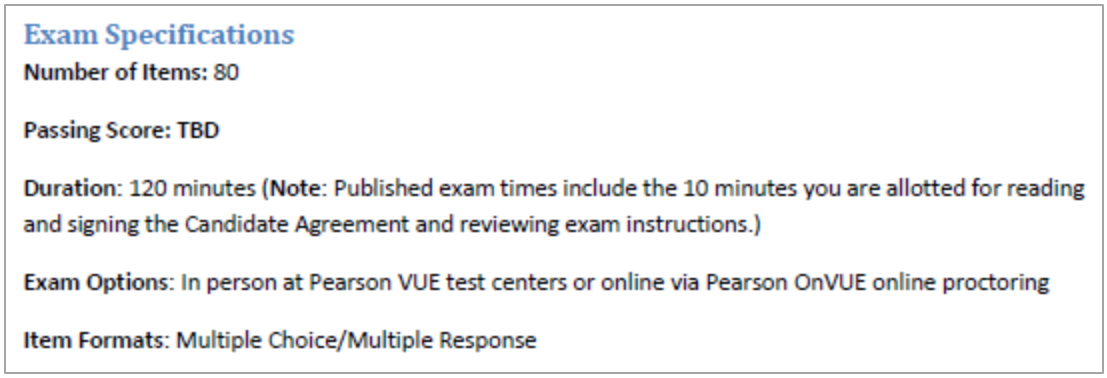
You can obtain this level of skill and knowledge by taking the following online course, which is available through Coursera, or by attending an equivalent third-party training program:

- *Certified Ethical Emerging Technologist*

Currently, CertNexus does not have any formal prerequisites that must be obtained prior to taking an exam—anyone can purchase a voucher and register for an exam. In all cases, while not required, we do recommend that all candidates possess a specific set of prerequisite knowledge, skills, and abilities before taking the exam, which are listed in this section of the blueprint. In most cases, CertNexus will also include a recommendation for preparation materials from which candidates can obtain these prerequisite knowledge, skills, and abilities.

Exam Specifications

The Exam Specifications section outlines the specific mechanisms of the exam itself. This is important to understand what the exam format and length will be to plan accordingly when scheduling your exam.



The exam-specific details listed will include:

- The number of items (questions) that will be presented on the exam
- The passing score that a candidate must meet or exceed to obtain certification*
- The total amount of time that a candidate will have to take the exam, including the time allotted for non-scored but required tasks such as reading and accepting the Candidate Agreement
- The delivery/test-taking options available for the exam, such as in-person or online
- The item format that a candidate can expect to encounter on the exam (such as multiple choice/multiple response, drag-and-drop, performance-based, etc.)

*When a blueprint is first released, the passing score will show as "TBD" as it has not yet been determined. The passing score will be updated once the beta testing phase is complete and a cut score has been established based on beta performance data.

Exam Description

The Exam Description section includes three very important components of the exam's scheme:

Exam Description

Target Candidate:

This certification exam is designed for individuals seeking to demonstrate a vendor neutral, cross-industry, and multidisciplinary understanding of applied technology ethics that will enable them to navigate the processes by which ethical integrity may be upheld within emerging data-driven technology fields (such as artificial intelligence (AI), Internet of Things (IoT), and data science).

Exam Objective Statement:

This exam will certify that the successful candidate has the knowledge, skills, and abilities required to apply foundational ethical principles, follow industry-standard frameworks, identify and mitigate risks, and navigate ethical organizational governance in order to devise and maintain ethical, trusted, and inclusive data-driven technologies.

To ensure exam candidates possess the aforementioned knowledge, skills, and abilities, the *Certified Ethical Emerging Technologist (CEET)* exam will test them on the following domains with the following weightings:

Domain	% of Examination
1.0 Fundamental Concepts for Data-Driven Technology Ethics	17%
2.0 Ethical Frameworks	23%
3.0 Risk Identification and Mitigation	30%
4.0 Communication	12%
5.0 Organizational Policy and Governance	18%
Total	**100%**

The Target Candidate is a formal description of who should potentially take the exam, why they should take the exam, and what they might expect to get out of the exam. It may include a brief description of the target candidate's current experience or expertise, and what knowledge, skills, or abilities they currently possess; as well as a description of what experience, expertise, knowledge, skills, or abilities they need or want and could obtain by earning the certification. A candidate who does not fit the target audience description can still take the exam—again, there are no eligibility requirements to take the exam other than possessing an exam voucher—but they may not be successful in passing the exam if they don't have the recommended prior knowledge or experience that is outlined in the target audience description.

The Exam Objective Statement is a formal description of what the exam will certify that a qualified candidate—one that successfully completes the exam with a passing score—can do. Typically, this is a brief, high-level summary of the knowledge, skills, and abilities that will be tested and validated via the tasks covered in the exam objectives. The Exam Objective Statement is often used to describe what the certificant (a qualified candidate) is certified to do on the credential that is provided to them upon obtaining certified status (i.e. their digital badge and/or certificate). This can be utilized by employers or potential employers to validate that someone who has been certified is qualified to successfully perform these kinds tasks, which may be aligned to a specific job role for which they have been or will be hired.

The Domain and Weighting table outlines the high-level content areas that will be covered on the exam—the exam domains—and the percentage of the exam that covers that domain—the associated weighting. The weighting is tied to how critical or important the content covered in that domain is to the

target audience and the associated job roles. It should not simply be construed as the number of items that pertain to that domain—though there is some correlation—but rather as an assessment of how much significance the knowledge, skills, abilities, and tasks covered under that domain have within the certification as a whole and the overall performance of a qualified candidate.

Additionally, the percentage is not necessarily evenly split amongst exam objectives in a domain; for instance, using our sample blueprint, the Risk Identification and Mitigation domain has five objectives and a 30% weighting, but that does not necessarily mean that each objective makes up 6% of the exam. Instead, each objective within a domain is given its own sub-weighing, typically based on the quantity or quality of the sub-topics covered under the objective.

Weighting can help guide exam preparation by providing a rough estimate of how much time, effort, or priority a candidate should give to each of the exam domains. For instance, using our sample blueprint, the Risk Identification and Mitigation domain has the highest weighting, at 30%. This means that roughly one-third of the exam will cover risk identification and mitigation in some capacity, so a candidate should have a good handle on the tasks and required knowledge, skills, and abilities included in that domain. In terms of preparation, if they don't already possess the knowledge, skills, and abilities outlined in the exam objectives for that domain, they will want to spend a good amount of time preparing and practicing in those areas before taking the exam. Depending on a candidate's need or comfortability, that could include undertaking focused self-study on a particular topic or participating in training that aligns to that topic area (or, more generally, to the exam as a whole).

Exam Objectives

In the Objectives section of the blueprint, the exam domains, objectives, and objective sub-topics are listed in a hierarchy similar to an outline.

At the top level (1.0, 2.0, etc.) are the exam domains, which are listed in an order that establishes some sort of logical flow within the exam (such as simpler to more complex, understanding to application, relationship within a workflow, etc.).

At the next level in, (1.1, 1.2, etc.) are the exam objectives, which are listed within the appropriate domain under which it falls or to which it applies. Like the domains, objectives will be included in an order that makes some sort of logical sense (such as the order in which tasks would typically be performed, tasks that build upon knowledge, skill, or ability, presented in the previous objective, etc.)

Under each exam objective, in bullet list format, are all of the sub-topics or "for instance" examples that flesh out the types of information (knowledge, skills, or abilities) that support that exam objective.

Domain 3.0	**Risk Identification and Mitigation**
Objective 3.1	**Identify and mitigate privacy risks**

	• Source
	  ○ Data use without informed consent
	  ○ Cross-correlation of combined data sources
	  ○ Third-party data
	  ○ Secondary use of data
	  ○ Use/integration of third-party products
	• Methods of identification
	  ○ Check for presence of PII
	  ○ Check for presence of consent/legitimate interest/appropriate use
	  ○ Validate that legal and regulatory compliance has been met

	○ Persona modeling with external input for human/machine actors ○ Put in place and maintain records of relevant personal data protection policies and processes ○ Track information about customer data, such as when it was collected and the terms governing its collection; accessing and using that data; and auditing access and use • Mitigation strategies ○ Communicate and verify intent ○ Manage consent over time ○ Use of synthetic data ○ Avoid collecting PII or associated metadata ○ Preserve data provenance ○ Minimize amount of data shared ○ Renew informed consent agreements ○ Differential privacy ○ Opt-in/opt-out ○ User inspection • Tools for identification/mitigation ○ Privacy legislation databases ○ World Legal Information Institute Database for International Privacy Law ○ Trusted party/SSO/MFA ○ Blockchain ○ SDKs ▪ HealthKit ▪ ResearchKit ○ Anonymization and pseudonymization ○ Homomorphic encryption ○ Zero-Knowledge Protocols

The exam objectives are essentially a list of the crucial tasks that a qualified candidate would and should be able to successfully complete as a condition of their “certified” status. In many cases, these are job

tasks that a candidate would be expected to perform on a regular basis as part of a specific job role; however, with some of the more foundational or fundamental certifications, these could be any tasks that a candidate operating under a variety of job functions should be able to perform as part of a set of expected behaviors or demonstrated understanding. (The Target Candidate and Exam Objective Statement can be extremely useful in helping to narrow down or better understand who a candidate is and what the specific exam is validating they know or can do.)

For example, using our sample blueprint, it would be expected that a qualified candidate would be able to identify and mitigate privacy risks. Accordingly, the exam will include questions that validate that the qualified candidate has the capabilities to identify and/or mitigate a privacy risk.

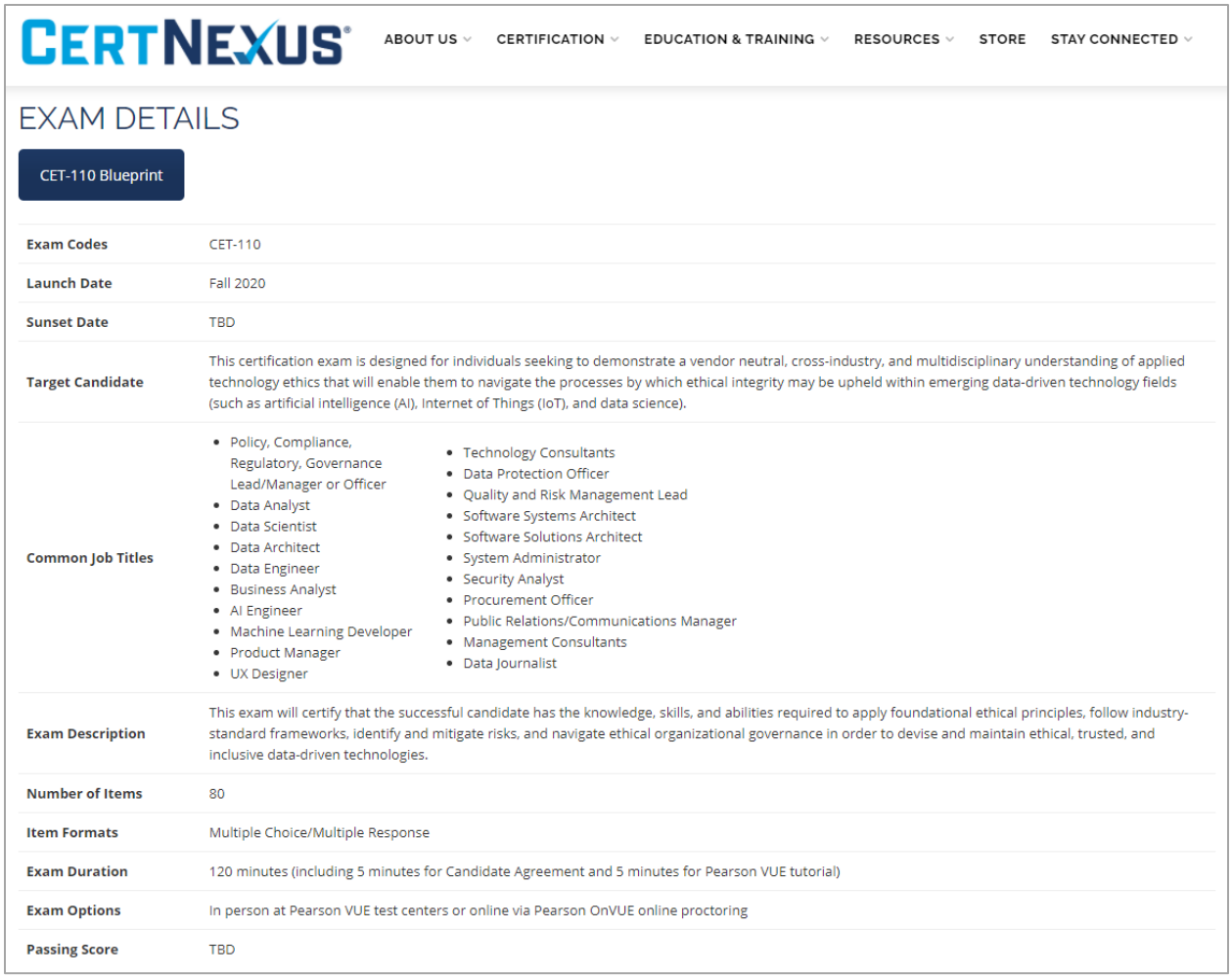
The exam objective sub-topics are an informed, well-rounded—but not exhaustive—list of any sub-topics or "for instance" examples of knowledge, skills, or abilities (in the form of concepts, tools, techniques, etc.) that could be used or referenced in the course of performing the task described in the exam objective. It is important to note that these sub-topics and "for instance" examples may or may not be covered on the exam. This list is meant to provide the candidate with the types of information that could be utilized to perform a task, and therefore that they should possess in the form of knowledge, skill, or ability. But only so many questions can be authored and included on an exam, and it would be impossible to cover each of the "for instance" examples within an exam item. Additionally, there may be some sub-topics or "for instance" examples that were missed or excluded from this list; that does not mean that they are not relevant to the exam objective and will not be covered on the exam. We strongly recommend that all candidates not only review the exam blueprint but also independently study to familiarize themselves with any relevant topic or sub-topic related to the exam domains.

For example, using our sample blueprint, it would be expected that a qualified candidate would have the knowledge, skill, or abilities regarding the source of privacy risks, methods of identification of privacy risks, mitigation strategies for privacy risks, and/or tools for identification or mitigation of privacy risks. Accordingly, the exam may include questions that cover one or more of the sub-topics/"for instance" examples and/or their sub-items.

Where to Find an Exam Blueprint and How to Use It

Once an exam blueprint is assembled upon completion of the JTA, it becomes a publicly available document. The reason for this is two-fold: 1) so that anyone interested in the certification can review the blueprint to determine what will be covered on the exam and utilize it for their own independent preparation; and 2) so that any organization interested in creating preparation materials can align them to the blueprint and ensure that all salient topics are covered in their training materials.

A draft or final version of the exam blueprint will always be available on the certification program's dedicated page on the CertNexus website. Just look for the download button in the Exam Details section, where you can also view a high-level summary of the target audience, exam description, and exam specifications that are included in more detail in the blueprint.



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EXAM DETAILS

CET-110 Blueprint

Exam Codes	CET-110
Launch Date	Fall 2020
Sunset Date	TBD
Target Candidate	This certification exam is designed for individuals seeking to demonstrate a vendor neutral, cross-industry, and multidisciplinary understanding of applied technology ethics that will enable them to navigate the processes by which ethical integrity may be upheld within emerging data-driven technology fields (such as artificial intelligence (AI), Internet of Things (IoT), and data science).
Common Job Titles	• Policy, Compliance, Regulatory, Governance Lead/Manager or Officer • Data Analyst • Data Scientist • Data Architect • Data Engineer • Business Analyst • AI Engineer • Machine Learning Developer • Product Manager • UX Designer • Technology Consultants • Data Protection Officer • Quality and Risk Management Lead • Software Systems Architect • Software Solutions Architect • System Administrator • Security Analyst • Procurement Officer • Public Relations/Communications Manager • Management Consultants • Data Journalist
Exam Description	This exam will certify that the successful candidate has the knowledge, skills, and abilities required to apply foundational ethical principles, follow industry-standard frameworks, identify and mitigate risks, and navigate ethical organizational governance in order to devise and maintain ethical, trusted, and inclusive data-driven technologies.
Number of Items	80
Item Formats	Multiple Choice/Multiple Response
Exam Duration	120 minutes (including 5 minutes for Candidate Agreement and 5 minutes for Pearson VUE tutorial)
Exam Options	In person at Pearson VUE test centers or online via Pearson OnVUE online proctoring
Passing Score	TBD

With the exam blueprint in hand, now you can use the information it contains to help you prepare for your examination. Carefully review the exam objectives and their sub-topics, and consider whether or not you possess the knowledge, skills, and abilities required to successfully complete the tasks outlined in the objectives. If not, you should participate in some sort of preparation to obtain the required information—whether that is independently preparing on your own through self-directed study or engaging with a training organization that has created training materials aligned to the blueprint.

Once you feel ready, it's time to take the next step: register for and schedule your exam!