



Corelan Certified Exploit Developer (CCED)

Examination Grading and Passing Methodology

Corelan Consulting bv

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This document describes the grading methodology and evaluation framework for the Corelan Certified Exploit Developer (CCED) certification. It is made available for informational and accreditation purposes.

This document may be shared with accreditation bodies, partners, and the public for the purpose of understanding the structure, rigor, and evaluation principles of the CCED certification.

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The information contained in this document reflects the official grading methodology of the CCED certification. While the general structure and principles are publicly disclosed, Corelan reserves the right to maintain confidentiality over specific exam content, challenge details, and internal evaluation procedures not explicitly described herein.



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1. Introduction & scope

1.1. Purpose of this document

This document describes the grading methodology, evaluation framework, and validation process of the CCED certification at a conceptual and operational level. It is intended to provide transparency into how candidates are assessed and how competence is determined.

It does not disclose specific exam content, challenge details, or internal materials used during the certification process. Such elements remain confidential in order to preserve the integrity and effectiveness of the exam.

1.2. About Corelan Consulting

Corelan Consulting bv ("Corelan") is a Belgium-based company (enterprise number BE 0721.789.371) specializing in advanced cybersecurity consulting, research, and training, with a strong focus on Windows exploit development.

Over the past two decades, Corelan has established itself as a recognized authority in the field of exploit development training. Its programs are known for their depth, technical rigor, and strong emphasis on practical application. Corelan's training is designed for highly technical professionals, including security researchers, exploit developers, vulnerability analysts, red team operators, and personnel within law enforcement, military, and intelligence organizations.

Corelan's courses are widely regarded within the cybersecurity community as intensive, high-quality professional training. They are specifically aimed at developing a deep, transferable understanding of low-level system behavior and exploitation techniques, rather than focusing on tool usage or surface-level concepts.

Corelan currently offers two flagship training programs in exploit development, covering all aspects of Windows Userland:

- Corelan Stack
- Corelan Heap

More information about Corelan, its training activities, and its courses can be found at:

<https://www.corelan-training.com>

1.3. Overview of the CCED Certification

The CCED certification, described in detail at <https://www.corelan-certified.com>, is designed to validate a candidate's ability to perform real-world exploit development tasks and to demonstrate a deep understanding of the underlying techniques and concepts.

Furthermore, it measures the candidates capacity to learn new topics, to perform research, to write technical documentation and tooling.

The certification covers all of Windows Userland.

The certification is designed not only to validate competence at the time of assessment, but also to encourage continued learning and long-term development in a rapidly evolving technical domain.



1.4. Target audience (Accreditation Bodies & Stakeholders)

This document is intended for accreditation bodies, certification reviewers, and other stakeholders who are responsible for evaluating the quality, rigor, and credibility of professional certification programs.

The primary audience includes organizations and individuals who need to assess whether the Corelan Certified Exploit Developer (CCED) exam meets the standards required for formal recognition, including:

- Accreditation and certification authorities
- Academic or professional review boards
- Corporate training and compliance departments
- Government or institutional evaluators
- Industry experts assessing certification validity

For these audiences, the document provides a transparent and structured explanation of:

- How candidates are evaluated across all phases of the exam
- How scores are calculated and weighted
- How partial credit is assigned in a consistent and fair manner
- How understanding is distinguished from mere completion
- How the validation process ensures authenticity of candidate performance

The document is also relevant for secondary stakeholders, including:

- Employers seeking to understand the value and rigor of the CCED certification
- Training partners and collaborators
- Candidates who want insight into how their work will be assessed

The level of detail provided is intentional. The document is designed not only to describe the grading model, but also to demonstrate that the CCED exam includes sufficient safeguards to ensure that certification reflects genuine, individual competence rather than assisted or outsourced work.

By clearly defining scoring mechanisms, validation procedures, and integrity safeguards, this document enables stakeholders to make an informed assessment of the reliability, consistency, and credibility of the CCED certification process.



2. Exam structure

2.1. Overview of the Five Phases

The five phases are:

Phase 1: Theory (Entry Phase)

This phase consists of a theoretical assessment designed to verify that the candidate possesses the foundational knowledge required to proceed with the exam. It acts as an entry requirement and is not included in the final score.

Phase 2: Practical Exploit Development:

In this phase, candidates are required to solve a series of hands-on exploit development challenges. The focus is on applying technical knowledge to real-world scenarios, producing working solutions, and documenting the process.

Phase 3: Guided Study (Documentation and Challenges)

This phase requires candidates to study provided technical material, such as a detailed whitepaper, and apply that knowledge to a set of related challenges. Candidates must also produce documentation that demonstrates their understanding of the material and its application.

Phase 4: Independent Research (Whitepaper and Tooling)

In this phase, candidates perform independent research using public resources and produce a technical whitepaper along with supporting tooling. The objective is to assess the candidate's ability to learn new topics, synthesize information, and implement practical solutions.

Phase 5: Technical Interview (Validation Phase)

The final phase consists of a technical interview during which the candidate's submitted work from Phases 2, 3, and 4 is reviewed and validated. This phase is used to assess whether the candidate genuinely understands their work, can explain their reasoning, and can adapt their knowledge when challenged.

2.2. Role of each phase

Each phase of the CCED exam has a clearly defined role within the overall evaluation model. The phases are not independent; instead, they build on each other to progressively assess knowledge, application, and understanding, with the final validation phase confirming the authenticity and depth of the candidate's competence.

The roles of the phases can be grouped into three categories:

- entry validation,
- technical assessment,
- and understanding validation.



Phase 1: Entry Validation

Phase 1 serves as a prerequisite to ensure that candidates possess the necessary theoretical foundation before attempting the practical components of the exam.

- It verifies baseline knowledge of exploit development concepts
- It ensures that candidates are prepared to engage with the technical challenges in later phases
- It acts as a gatekeeper to maintain a consistent minimum standard

Phase 1 is not included in the final score. Its sole purpose is to determine whether the candidate can proceed.

Phases 2, 3, and 4: Technical Assessment

Phases 2, 3, and 4 form the core of the evaluation and collectively assess the candidate's ability to apply knowledge in different contexts.

- **Phase 2 (Practical Exploit Development)** focuses on hands-on technical execution. It evaluates the candidate's ability to solve exploit development challenges and produce working solutions.
- **Phase 3 (Guided Study)** evaluates the candidate's ability to learn from structured technical material and apply that knowledge to practical challenges, while also producing clear and accurate documentation.
- **Phase 4 (Independent Research)** evaluates the candidate's ability to independently explore a topic, synthesize information from multiple sources, and produce both a technical whitepaper and functional tooling.

Across these phases, candidates are assessed on both completion and understanding. Together, these phases measure not only what the candidate can produce, but also how they approach problem-solving, learning, and implementation.

Phase 5: Understanding Validation

Phase 5 serves as the validation phase and plays a central role in the integrity of the certification.

- It verifies that the work submitted in Phases 2, 3, and 4 reflects the candidate's own knowledge and ability
- It determines the understanding component of each technical phase score
- It assesses reasoning, decision-making, and adaptability

During this phase, candidates must explain their work, justify their technical choices, and demonstrate the ability to apply their knowledge beyond the exact scenarios encountered during the exam.

Integrated Evaluation Model

The combination of these roles ensures a balanced and robust assessment:

- Phase 1 confirms readiness
- Phases 2–4 measure execution and learning
- Phase 5 validates understanding and authenticity

This structure ensures that certification is awarded only to candidates who can both produce results and demonstrate genuine, transferable expertise.

3. Scoring Framework

3.1. Definitions

The CCED scoring model uses the following variables:

- **S1 = Phase 1 score:** The score obtained in the theoretical quiz. This phase is an entry requirement only and is not included in the final weighted score.
- **S2 = Phase 2 score:** The score for the practical exploit development phase. It reflects both completion of challenges and demonstrated understanding.
- **S3 = Phase 3 score:** The score for the guided study phase, including technical challenges and documentation, combining completion and demonstrated understanding.
- **S4 = Phase 4 score:** The score for the independent research phase, including the submitted whitepaper and tooling, combining completion and demonstrated understanding.
- **S_total** = Final weighted score

The overall score calculated from Phases 2, 3, and 4 after successful completion of Phase 1.

Each scored technical phase (S2, S3, S4) is composed of two components:

- **C (Completion):** measures whether the candidate delivered the required work (fully or partially)
- **U (Understanding):** measures whether the candidate can explain, justify, and adapt the submitted work

For each scored technical phase:

$$S_{\text{phase}} = 0.5 \times C + 0.5 \times U$$

Phase 1 is an entry requirement only. Phase 5 is the validation phase used to determine the understanding components U2, U3, and U4. Neither Phase 1 nor Phase 5 is directly included as a separate weighted component in S_total.

Furthermore, we will refer to the following 2 variables throughout the document:

P1_threshold = minimum required score for Phase 1 (entry requirement). **The current value is 70%.**

P_total_threshold = minimum required final score to pass the certification. **The current value is 80%.**

3.2. Entry Requirement

Phase 1 (Theory) serves as an entry requirement for the exam.

- Candidates must achieve **S1 ≥ P1_threshold** to proceed to the remaining phases
- Candidates who do not meet this threshold cannot continue and are considered to have failed the exam

Phase 1 is not included in the final weighted score (S_total). Its purpose is to ensure that all candidates entering the technical phases have a sufficient theoretical foundation.

3.3. Phase Scoring Model

Phases 2, 3, and 4 follow a consistent scoring model based on two equally weighted components:

- Completion (C)
- Understanding (U)

Each component contributes **50%** to the phase score:

$$S_{\text{phase}} = 0.5 \times C + 0.5 \times U \text{ (applies to S2, S3, and S4)}$$

Completion (C) is determined based on submitted work (solutions, documentation, tooling), in accordance with the rules defined in Section 3.4.

Understanding (U) is primarily determined during the validation phase (Phase 5), where the candidate must explain and defend their work.

As a result, completion alone can contribute at most **50%** of a phase score. The remaining **50%** depends entirely on demonstrated understanding.

3.4. Completion (C) Scoring Rules

The completion component (C) for each scored phase (Phase 2, Phase 3, and Phase 4) is determined based on the evaluation of individual tasks or deliverables.

Each item contributes to the completion score according to a predefined weight (w_i), reflecting its relative complexity, scope, or importance.

Let:

- n = number of evaluated items in the phase
- w_i = weight assigned to item i

The sum of all weights within a phase is normalized:

$$\sum w_i = 1$$

This ensures that the completion score (C) is always expressed as a percentage of the total phase.

For each item, completion credit is assigned as follows:

- **Full completion (100% of w_i):** The candidate submits a correct, working, and sufficiently documented solution.
- **Partial completion (up to 50% of w_i):** The candidate demonstrates meaningful progress toward a correct solution and can clearly explain:
 - what has been achieved
 - which parts of the problem are solved
 - which parts remain unresolved
 - what the next steps would be
 - why those steps are technically appropriate
 - why the solution could not be completed
- **No completion (0% of w_i):** No meaningful progress is demonstrated, or the submission is missing, incorrect, or not technically relevant.

Partial credit is awarded only when incomplete work is accompanied by clear technical reasoning and a credible path toward completion.



Completion scores (C2, C3, C4) are calculated as the sum of the individual item scores within each phase.

The weights for all evaluated items are defined in advance and communicated to the candidate as part of the exam/challenge instructions.

3.5. Final Score Calculation

The final score (S_{total}) is calculated as a weighted combination of the three technical phases (Phase 2, 3 and 4):

$$S_{total} = 0.60 \times S2 + 0.25 \times S3 + 0.15 \times S4$$

Where each phase score is defined as

$$S_{phase} = 0.5 \times C + 0.5 \times U$$

Where:

- $S2$ = Phase 2 score (Practical Exploit Development)
- $S3$ = Phase 3 score (Guided Study and Documentation)
- $S4$ = Phase 4 score (Research, Whitepaper, and Tooling)

Understanding (U) is determined during the validation phase (Phase 5). As a result, a candidate who does not demonstrate sufficient understanding will receive low understanding scores ($U2, U3, U4$), which will directly reduce $S2, S3$, and $S4$, and therefore S_{total} .

In other words, because understanding accounts for 50% of each phase score and is determined during validation, it is not possible to achieve a passing score based on submitted solutions alone.

The weights in S_{total} reflect the relative importance of each phase:

- Phase 2 (Practical Exploit Development): **60%**
- Phase 3 (Guided Study): **25%**
- Phase 4 (Independent Research): **15%**

To pass the CCED exam, a candidate must achieve:

$$S_{total} \geq P_{total_threshold}$$

4. Application of the Scoring Model

4.1. Interpreting Completion and Understanding

The scoring model defined in Chapter 3 distinguishes between two components: Completion (C) and Understanding (U). These components represent two different but equally important aspects of candidate performance.

Completion reflects the candidate's ability to produce results. This includes working exploits, completed challenges, written documentation, research output, and tooling. It demonstrates that the candidate can apply techniques and reach a functional outcome.

Understanding reflects the candidate's ability to explain and justify those results. It includes the ability to describe how a solution works, why specific approaches were chosen, what alternatives exist, and how the solution can be adapted to different conditions.

Both components are required to demonstrate competence. A candidate who produces correct results without understanding them has demonstrated execution, but not mastery. Conversely, a candidate who understands the concepts but cannot produce results has not demonstrated practical capability.

The scoring model therefore treats Completion and Understanding as equal contributors. This ensures that candidates are evaluated on both their ability to perform technical tasks and their ability to reason about them.

4.2. Treatment of Partial Results

The scoring model explicitly recognizes partial results as part of the evaluation process. This reflects the reality of complex technical problem-solving, where progress toward a solution can demonstrate meaningful competence even when the final result is not fully achieved.

Partial completion is not awarded for incomplete work alone. It is awarded only when the candidate demonstrates meaningful progress toward a correct solution and can provide a clear and technically sound explanation of that progress.

In practical terms, this means that candidates are expected not only to show what they have achieved, but also to articulate what remains to be done and how they would proceed. The ability to describe next steps, justify those steps, and explain why a solution could not be completed within the available constraints is an important indicator of technical understanding.

The detailed rules for assigning partial completion credit are defined in Section 3.4. This section explains how partial results contribute to the completion score (C) within each phase.

4.3. Distribution Across Tasks (n Items)

Each scored phase consists of a number of evaluated items, such as technical challenges, documentation requirements, research components, or tooling deliverables.

While items may be equal in number, they are not required to be equal in weight. Each item may be assigned an individual weight (w_i), reflecting its relative complexity, scope, or importance, as defined in advance in the exam instructions.

The total weight of all items within a phase is normalized to 1. This ensures that the completion component remains consistent and comparable across phases.

In practice, this means:

- Larger or more complex challenges can contribute more to the overall completion score
- Smaller or more focused tasks can contribute less
- The relative importance of each item is explicitly defined in advance

The completion score for a phase is calculated as the sum of the weighted contributions of all evaluated items, in accordance with the rules defined in Section 3.4.

This approach allows the scoring model to better reflect the actual effort and difficulty associated with different tasks, while maintaining transparency and consistency.

4.4. Practical Effect on Final Scores

The combination of Completion and Understanding has a direct and predictable effect on the final score.

A candidate who completes all tasks successfully but is unable to demonstrate understanding will receive a high completion score but a low understanding score. Because both components are equally weighted, this results in a significantly reduced phase score.

Conversely, a candidate who submits partial but well-reasoned solutions may achieve a moderate completion score. If that candidate demonstrates strong understanding during validation, the overall phase score can still be competitive.

This model ensures that neither execution nor understanding alone is sufficient. High scores require both consistent completion and demonstrated understanding.

At the overall level, the weighted combination of phase scores (**S_{total}**) reflects this balance. Since understanding is embedded in each phase score, insufficient performance during validation will directly reduce the final score.

The practical effect of this model is that candidates cannot rely solely on producing results. They must also be able to explain, justify, and adapt their work in order to achieve a passing score.

In phases where individual item weights are used, performance on higher-weight items has a proportionally larger impact on the completion score. However, completion alone is not sufficient. Even for high-weight items, understanding must be demonstrated during validation in order to obtain the corresponding understanding credit.

5. Phase-Specific Evaluation

This chapter describes how the scoring model defined in Chapter 3 is applied to each of the technical phases of the CCED exam. While the scoring framework is consistent across phases, each phase evaluates different aspects of the candidate's capabilities.

5.1. Phase 2 – Practical Exploit Development

5.1.1. Scope and Objectives

Phase 2 evaluates the candidate's ability to perform hands-on exploit development tasks. This includes identifying and exploiting vulnerabilities, developing reliable exploitation techniques, and documenting the process.

The focus of this phase is on practical technical execution in realistic scenarios.

5.1.2. Completion (C2)

Completion in Phase 2 is based on the candidate's ability to produce working or partially working solutions for the assigned exploit development challenges.

Each challenge contributes to the completion score according to its predefined weight (w_i), as defined in the exam instructions.

Completion scoring is applied in accordance with Section 3.4.

A complete solution demonstrates correct functionality and sufficient documentation. A partial solution may still receive credit if it demonstrates meaningful progress and is supported by clear technical reasoning.

5.1.3. Understanding (U2)

Understanding in Phase 2 is assessed during the validation phase (Phase 5).

The candidate must demonstrate that they understand the technical details of each solution, including:

- the nature of the vulnerability
- the exploitation strategy
- memory layout and control flow
- relevant system behavior
- the reasoning behind design decisions

The candidate may also be asked to:

- explain alternative approaches
- discuss limitations or assumptions
- improve or adapt the solution
- demonstrate parts of the exploit in a debugger



In the validation phase, understanding is assessed per challenge, taking into account the relative weight of each item. As a result, strong understanding of higher-weight challenges has a proportionally greater impact on the overall phase score.

5.2. Phase 3 – Guided Study & Documentation

5.2.1. Scope and Objectives

Phase 3 evaluates the candidate's ability to study structured technical material, understand it, and apply it to practical challenges. It also assesses the candidate's ability to produce clear and accurate technical documentation.

5.2.2. Completion (C3)

Completion in Phase 3 is based on:

- successful completion of technical challenges
- submission of required documentation

Each evaluated item contributes according to its predefined weight.

Completion scoring follows the rules defined in Section 3.4.

5.2.3. Understanding (U3)

Understanding in Phase 3 is assessed during the validation phase.

The candidate must demonstrate:

- comprehension of the provided material
- ability to apply concepts to practical challenges
- ability to explain technical mechanisms and relationships

The candidate may be asked to:

- explain key concepts from the study material
- relate theory to implementation
- compare approaches
- apply concepts to variations of the original problem

Understanding is assessed per evaluated item, with impact proportional to its assigned weight.

5.3. Phase 4 – Independent Research, Whitepaper and Tooling

5.3.1. Scope and Objectives

Phase 4 evaluates the candidate's ability to independently research a topic, synthesize information, and produce both a technical whitepaper and supporting tooling.



This phase emphasizes independent learning, critical thinking, and practical implementation.

5.3.2. Completion (C4)

Completion in Phase 4 is based on:

- the submitted whitepaper
- the quality and relevance of the research
- the functionality of the tooling

Each component contributes according to its predefined weight.

Completion scoring follows the rules defined in Section 3.4.

5.3.3. Understanding (U4)

Understanding in Phase 4 is assessed during the validation phase.

The candidate must demonstrate:

- ownership of the research
- understanding of the concepts presented in the whitepaper
- ability to explain and reason about the tooling

The candidate may be asked to:

- explain the research topic without reference material
- justify conclusions
- explain implementation details
- modify or extend the tooling
- identify limitations or improvements

Understanding is assessed per evaluated item, with impact proportional to its assigned weight.

5.3.4. AI Usage and Ownership Requirement

Although candidates may use public resources, including AI tools, during the completion of the exam, the CCED certification is intended to reflect the candidate's individual competence, ownership of the submitted work, and understanding of the underlying concepts.

Assistance from other individuals is not permitted.

This approach is intended to address common risks in practical certification exams, including:

- outsourcing of practical work or copy/paste from other resources;
- over-reliance on AI-generated solutions;
- submitting code without understanding it;
- submitting documentation that the candidate cannot explain;
- submitting tools that the candidate cannot modify or reason about;
- passing based on output rather than competence.



The central safeguard of the evaluation model is that understanding, as assessed during validation, is required to obtain **50%** of each phase score.

5.4. Relationship with the Validation Phase (Phase 5)

The understanding components (U2, U3, and U4) described in this chapter are determined during the validation phase (Phase 5).

While Completion (C) is based on submitted work, Understanding (U) is assessed through direct interaction with the candidate during the technical interview. As a result, the evaluation of Phases 2, 3, and 4 is not complete until the validation phase has been performed.

This establishes a direct dependency between the technical phases and the validation phase:

- Completion reflects what was submitted
- Understanding reflects what the candidate can explain, justify, and adapt

The validation phase therefore acts as the mechanism that confirms the authenticity and depth of the candidate's work across all technical phases.

6. Validation Phase (Phase 5)

6.1. Purpose of the Validation Phase

Phase 5 serves as the validation phase of the CCED exam. Its primary purpose is to confirm that the work submitted in Phases 2, 3, and 4 reflects the candidate's own knowledge, reasoning, and technical ability.

While the earlier phases evaluate completion of tasks and submission of deliverables, the validation phase evaluates whether the candidate genuinely understands that work. It ensures that the certification reflects individual competence rather than the ability to reproduce or obtain results through external means.

The validation phase is therefore an essential component of the overall evaluation model.

No phase score (S2, S3, or S4) can be considered final until the corresponding understanding component has been assessed during validation.

6.2. Validation Methodology

The validation phase is conducted as a structured technical interview between the candidate and the examiner.

During this process, the examiner reviews the candidate's submitted work from Phases 2, 3, and 4 and evaluates the candidate's ability to explain, justify, and adapt their solutions.

The validation process may include:

- detailed discussion of submitted solutions
- targeted technical questioning
- requests to explain specific implementation details
- analysis of decision-making and trade-offs
- scenario-based questions that require adaptation of the original solution
- demonstration of parts of the solution in a debugger or development environment

The objective is not to repeat the original tasks, but to verify whether the candidate possesses a clear and transferable understanding of the concepts and techniques involved.

6.3. Assignment of Understanding Scores (U2, U3, U4)

The understanding components (U2, U3, and U4) for Phases 2, 3, and 4 are determined during the validation phase.

Understanding is assessed per evaluated item, corresponding to the items used to calculate the completion scores. Each item contributes to the understanding score according to its assigned weight.

For each evaluated item, understanding is assessed using a three-level scale:

Full understanding (100%)

The candidate demonstrates clear, accurate, and complete understanding. The candidate can explain the solution, justify decisions, discuss alternatives, and adapt the approach when required.

Partial understanding (50%)

The candidate demonstrates some understanding but has gaps, uncertainty, or limited ability to generalize or adapt the solution.

No understanding (0%)

The candidate is unable to explain the solution, provides inconsistent or incorrect explanations, or demonstrates a lack of familiarity with the underlying concepts.

The total understanding score for each phase is calculated as the weighted aggregation of the individual item scores.

Intermediate values are not used in order to maintain consistency and reduce subjectivity in scoring.

6.4. Consistency and Authenticity Checks

The validation phase also functions as a consistency check between the submitted work and the candidate's demonstrated knowledge.

If a candidate submits technically correct or polished work but is unable to explain how it works, why it works, or how it could be adapted, this inconsistency is reflected in a reduced understanding score.

Indicators of insufficient authenticity may include:

- inability to explain key parts of the submitted solution
- reliance on vague or generic explanations
- inconsistencies between the submitted work and the candidate's explanations
- inability to answer follow-up questions about the work
- inability to modify or extend the solution when prompted

These indicators do not require separate penalties. Instead, they directly affect the understanding score (U), which in turn impacts the overall phase scores and final result.

6.5. Impact on Phase Scores and Final Result

The validation phase directly determines the understanding components (U2, U3, U4), which represent 50% of each phase score.

As defined in Chapter 3:

$$S_{\text{phase}} = 0.5 \times C + 0.5 \times U$$

Because understanding accounts for half of each phase score, insufficient performance during validation will significantly reduce S2, S3, and S4.

As a result:



- A candidate with strong completion but weak understanding will receive a reduced overall score
- A candidate cannot compensate for lack of understanding through completion alone
- A passing score requires both successful execution and demonstrated understanding

This ensures that the final score (**S_total**) reflects genuine, individual competence.

7. Passing, Failure and Retake Policy

7.1. Passing criteria

To pass the CCED exam, a candidate must meet both of the following conditions:

- Successfully meet the entry requirement for Phase 1
- Achieve a final score (**S_total**) of at least **P_total_threshold**

The entry requirement is defined as:

$$S1 \geq P1_threshold$$

The final score (**S_total**) is calculated as defined in Chapter 3, based on the weighted combination of Phases 2, 3, and 4.

Because each phase score includes both completion and understanding components, a passing result reflects both successful execution and demonstrated understanding.

7.2. Failure conditions

A candidate is considered to have failed the CCED exam if any of the following conditions apply:

- The candidate does not meet the Phase 1 entry requirement (**S1 < P1_threshold**)
- The candidate completes the technical phases but achieves **S_total < P_total_threshold**
- The candidate demonstrates insufficient understanding during validation, resulting in low understanding scores (U2, U3, U4) and a reduced final score
- The candidate violates any terms of the confidentiality agreement signed as part of the exam registration process

Failure is therefore not limited to inability to complete tasks. A candidate who submits strong or complete work but is unable to explain or justify that work may still fail due to insufficient understanding.

Violation of the confidentiality agreement is considered a breach of the integrity of the examination process and may result in immediate failure, regardless of technical performance.

7.3. Retake policy

The CCED exam is designed not only as an assessment, but also as a structured process that supports technical development. Candidates are expected to develop their skills throughout the exam phases and may use feedback from the evaluation to improve their performance.

To support this approach, the following retake policy applies:

- One retake is included at no additional cost
- One additional retake may be purchased at full price

Additional retake attempts beyond this are generally not permitted.

A candidate who violates the confidentiality agreement may not be eligible for a retake.



A retake allows the candidate to address gaps identified during the initial evaluation, including both completion and understanding components.

During a retake, the candidate may be required to:

- revisit previously attempted tasks
- complete updated or alternative challenges
- demonstrate improved understanding during the validation phase

The retake process is intended to ensure that certification reflects sustained and demonstrable competence, rather than a single isolated attempt.

8. Rationale and Interpretation of the Scoring Model

8.1. Balance Between Completion and Understanding

The CCED scoring model is intentionally designed to balance two complementary aspects of technical competence: the ability to produce results and the ability to understand those results.

Completion demonstrates that a candidate can apply techniques to solve practical problems. However, completion alone does not prove that the candidate understands the underlying concepts or can reproduce the results independently.

Understanding demonstrates that the candidate can explain how and why a solution works, justify technical decisions, and adapt the approach when conditions change.

By assigning equal weight to completion and understanding within each phase, the scoring model ensures that neither aspect is sufficient on its own. A candidate must demonstrate both practical capability and conceptual mastery in order to achieve a high score.

8.2. Rationale for Phase Weighting

The relative weights assigned to Phases 2, 3, and 4 reflect the objectives of the CCED certification.

Phase 2 carries the highest weight because it evaluates core exploit development skills in practical scenarios. The ability to identify and exploit vulnerabilities, and to produce reliable solutions, is central to the certification.

Phase 3 carries significant weight because it evaluates the candidate's ability to learn from structured technical material and apply that knowledge. This reflects the importance of continuous learning and the ability to understand complex technical content.

Phase 4 carries a smaller but meaningful weight because it evaluates independent research, synthesis of information, and the ability to produce technical documentation and tooling. These are important indicators of professional maturity, particularly when combined with validation of understanding.

Together, the weighting reflects a balanced evaluation of execution, learning, and independent capability.

8.3. Role of the Validation Phase

The validation phase is a central element of the scoring model. It ensures that the evaluation does not rely solely on submitted work, but also on demonstrated understanding.

By determining the understanding components (U2, U3, U4), the validation phase directly influences all phase scores. This creates a dependency between submission and explanation: results must be supported by understanding.

This design ensures that external assistance, including public resources or automated tools, cannot by itself lead to a passing result, as understanding must be demonstrated during validation.



8.4. Interpretation of a Passing Result

A passing score on the CCED exam represents more than successful task completion. It indicates that the candidate has demonstrated:

- the ability to solve practical exploit development challenges
- the ability to understand and explain technical solutions
- the ability to learn and apply new concepts
- the ability to perform independent research and produce meaningful output

Because the scoring model requires both completion and understanding, a passing result reflects genuine, individual competence that can be applied in real-world scenarios.

8.5. Core Principle

The CCED grading model is based on a simple principle:

A working solution represents only part of the required competence. The candidate must also demonstrate the ability to understand, explain, justify, and adapt that solution.

The certification is awarded only when both aspects are present, ensuring that the CCED designation reflects real, transferable exploit development expertise.



9. Commitment to Mastery and Continued Development

The CCED certification is designed to represent more than a one-time examination result. While the exam validates a candidate's competence at the time of assessment, the broader objective of the certification is to encourage continued technical growth and long-term mastery.

Exploit development is a domain that evolves continuously. Changes in operating systems, memory management, compiler behavior, exploit mitigations, and defensive technologies require practitioners to regularly update and refine their knowledge. As a result, maintaining expertise in this field requires ongoing learning and adaptation.

The CCED certification acknowledges this reality by providing a mechanism through which certified individuals can demonstrate continued engagement with the field.

After a period of three years, CCED title holders have the option to submit evidence of continued learning, research, or professional development. After this initial three-year period, submissions may be made once per year. This process is optional and does not require retaking the exam.

To maintain the value and credibility of the certification, submitted evidence must be substantial and demonstrate meaningful, individual technical development.

Substantial evidence typically includes one or more of the following:

- Original or novel research
Work that demonstrates independent thinking, experimentation, or discovery. This may include new techniques, analysis of previously undocumented behavior, or meaningful extensions of existing knowledge.
- Technical publications or knowledge sharing
High-quality blog posts, whitepapers, conference presentations, or training material that reflect a deep understanding of relevant topics and contribute to the community.
- Development of tooling or technical implementations
Creation or significant enhancement of tools, scripts, or frameworks related to exploit development, debugging, or low-level system analysis, where design decisions and implementation reflect the candidate's own work.
- Formal, structured training
Participation in advanced, instructor-led training programs or comparable structured learning experiences. These carry more weight than passive learning activities such as purchasing or watching recorded material without assessment or interaction.
- Demonstrated practical application
Real-world application of exploit development skills, such as vulnerability research, responsible disclosure, internal research projects, or other professional activities that require applying the knowledge in practice.

The emphasis is on quality, depth, and ownership, rather than quantity. Submissions that consist primarily of passive consumption of material, superficial summaries, or work that cannot be clearly attributed to the candidate's own effort will not be considered sufficient.

Evidence must be attributable to the candidate and may be subject to follow-up questions or verification.



The purpose of this process is not to re-evaluate the candidate, but to provide a transparent and structured way to demonstrate continued engagement with the field and progression beyond the original certification level.

The certification status associated with the CCED title may reflect the most recent date on which such evidence was submitted. This provides transparency and allows external stakeholders to distinguish between the original certification achievement and more recent activity.

This approach reinforces the core objective of the CCED certification: to represent not only demonstrated competence at a point in time, but also a commitment to maintaining and evolving that competence in a rapidly changing technical landscape.